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Documents of the World Radiocommunication Conference (WRC-2000) (Istanbul, 2000)

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- This PDF includes Document DT No. 1-132
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WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

Note by the Secretary-General

COORDINATED PROPOSALS FOR THE WORK OF THE CONFERENCE

I hereby submit to the Conference, the coordinated proposals, in a recapitulatory table form, received from Member States and published in Documents 1 to 139.

Proposals are listed by i) agenda item, ii) Radio Regulations provision number and iii) in French alphabetical country order.

Yoshio UTSUMI
Secretary-General

<p>NOTE - This version includes contributions received up to Document WRC2000/139 (excluding 126, 137, 138). Any proposed modifications/suggestions are welcome and can be forwarded to Philippe Capitaine, Office 1/05, Tel. 2212, e-mail: philippe.capitaine@itu.int.</p>

COORDINATED PROPOSALS FOR THE WORK OF THE CONFERENCE

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Agenda item 1.1

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if No. longer required, in accordance with Resolution **26 (Rev.WRC-97)**;

Provision No.	Proposal	Proposal No.
S5.55	MOD	KAZ/43/1 UKR/139/1
S5.58	MOD	BUL/103/1 UKR/139/2
S5.65	MOD	PAK/9/1
S5.67	MOD	UKR/139/3
S5.69A	ADD	UZB/30/5
S5.75	MOD	BUL/103/2 KAZ/43/2
S5.77	MOD	ASP/20/1 AUS/52/1
S5.93	MOD	BUL/103/3
S5.94A	ADD	UZB/30/6
S5.96	NOC	AUT/90/1 G/27/1
S5.98	MOD	AUT/89/2 BUL/103/4
S5.98	NOC	TUR/124/1
S5.99	MOD	AUT/89/1
S5 (1 610-1 660 MHz)	MOD	UZB/30/21
S5 (10-11.7 GHz)	MOD	B/35/1
S5 (2 194-3 230 kHz)	MOD	I/38/4
S5.112	MOD	F/120/1 I/38/1 NOR/63/1 TUR/124/2

S5.114	MOD	F/120/2 I/38/2 NOR/63/2 TUR/124/3
S5.117	MOD	F/120/3 I/38/3 NOR/63/3 TUR/124/4
S5.124	SUP	CAN/24/1
S5.127A	ADD	UZB/30/7
S5.133A	ADD	UZB/30/8
S5.146A	ADD	UZB/30/9
S5.152	MOD	UZB/30/1
S5.154	MOD	UZB/30/2
S5.155A	MOD	HNG/11/1
S5.158A	ADD	UZB/30/10
S5.160	MOD	NMB/44/1
S5.162A	NOC	G/27/2 TUR/124/5
S5.164	NOC	G/27/3 TUR/124/6
S5.177	MOD	LTU/19/1
S5.181	MOD	EUR/13/255
S5.195.A	ADD	UZB/30/11
S5.197	MOD	EUR/13/256
S5.202	MOD	KAZ/43/3 TUR/124/7
S5.206	MOD	AUT/91/1 HNG/11/2
S5.210	NOC	AUT/91/2 G/27/4
S5.211	NOC	G/27/5 TUR/124/8
S5.221	NOC	G/27/6 TUR/124/9
S5.235	NOC	G/27/7
S5.253A	ADD	UZB/30/12

S5.259	MOD	EUR/13/257 KOR/85/1
S5.262	MOD	ASP/20/2 EST/7/1 UZB/30/18
S5.269	NOC	G/27/8
S5.271	MOD	UKR/139/4
S5.276	NOC	TUR/124/10
S5.277	MOD	PAK/9/2
S5.277A	ADD	UZB/30/13
S5.290	MOD	ARM/106/1 CZE/8/1 KAZ/43/4
S5.293	MOD	CAN/24/2
S5.296	NOC	G/27/9
S5.302	NOC	G/27/10
S5.314	NOC	G/27/11
S5.316	MOD	ARS/6/1
S5.316A	ADD	AGL/10/1
S5.322	MOD	NMB/26/1
S5.322	SUP	NMB/26/2
S5.331	MOD	PAK/9/3
S5.331	NOC	TUR/124/11
S5.338	MOD	POL/102/1 UKR/139/5
S5.349	MOD	UAE/23/1 UKR/139/6
S5.350	MOD	UKR/139/7
S5.355	MOD	ASP/20/ UAE/23/2
S5.359	MOD	UZB/30/19
S5.375A	ADD	UZB/30/14
S5.387	MOD	ARM/106/2 CZE/8/2 RUS/33/1 UZB/30/3 UKR/139/8
S5.387A	ADD	UZB/30/15

S5.408	SUP	G/27/12
S5.412	MOD	UKR/139/9
S5.413	MOD	UZB/30/22
S5.416A	ADD	ARM/106/4 UZB/30/16
S5.418	MOD	RUS/33/2 UKR/139/10
S5.422	MOD	KAZ/43/5
S5.428	MOD	KAZ/43/6 POL/102/2 UKR/139/11
S5.430	MOD	POL/102/3 UKR/139/12
S5.431	NOC	G/27/13
S5.432	MOD	ASP/20/4
S5.437	SUP	D/NOR/88/1
S5.439	MOD	CHN/70/1
S5.447	NOC	G/27/14
S5.448	MOD	UKR/139/13
S5.450A	ADD	UZB/30/17
S5.451	NOC	G/27/15
S5.454	MOD	ARM/106/3 BUL/103/5 KAZ/43/7
S5.467	NOC	G/27/16
S5.469	MOD	KAZ/43/8
S5.473	MOD	KAZ/43/9
S5.477	MOD	KOR/85/2
S5.478	MOD	KAZ/43/10
S5.480	SUP	B/35/2
S5.480	MOD	URG/62/1
S5.481	MOD	UZB/30/4
S5.483	MOD	PAK/9/4
S5.495	MOD	NOR/63/4
S5.496	MOD	UKR/139/14
S5.500	MOD	KOR/85/3

S5.501	NOC	BUL/103/5 <i>bis</i> G/27/17 UKR/139/15
S5.505	MOD	ASP/20/5
S5.508	NOC	AUT/91/3 G/27/18
S5.508	MOD	TUR/124/12
S5.509	MOD	PAK/9/5
S5.514	MOD	S/18/1
S5.521	MOD	CZE/8/3
S5.524	MOD	KOR/85/4
S5.536B	NOC	G/27/19 TUR/124/13
S5.542	MOD	KOR/85/5
S5.545	MOD	BUL/103/6 KAZ/43/11
S5.546	NOC	BUL/103/7 G/27/20 TUR/124/14
S5.546	MOD	KAZ/43/12
S5.550	MOD	KAZ/43/13 BUL/103/8
S5.563	NOC	G/27/21
S5.565	MOD	UZB/30/20
		CAN/24/35 IAP/14/74

Agenda item 1.2

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.2 to finalize remaining issues in the review of Appendix **S3** to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation **66 (Rev.WRC-97)** and the decisions of WRC-97 on adoption of new values, due to take effect at a future time, of spurious emissions for space services;

Provision No.	Proposal	Proposal No.
App. S3 (Section I, 6)	MOD	ASP/20/6 B/35/3 CUB/31/1 EUR/13/258
App. S3 (Section I, 6)	ADD	CAN/24/3 IAP/14/1
App. S3 (Section II, 11 <i>bis</i>)	ADD	ASP/20/7 AUS/52/1 CAN/24/3 CUB/31/3 EUR/13/260 IAP/14/3
App. S3 (Section II, 11 <i>ter</i>)	ADD	ASP/20/8 CAN/24/3 CUB/31/4 EUR/13/261 IAP/14/4
App. S3 (Section II, 8)	MOD	B/35/4 CAN/24/3 CUB/31/2 EUR/13/259 IAP/14/2
App. S3 (Note AAA)	ADD	CHN/71/2
App. S3 (Table II)	MOD	ASP/20/9 B/35/5 CAN/24/3 CHN/71/1 CUB/31/5 EUR/13/262 IAP/14/5

App. S3 (Table II, 14)	SUP	B/35/6 CUB/31/6 EUR/13/263
App. S3 (Table II, 14)	MOD	CAN/24/3 IAP/14/6
App. S3 (Table II, 15)	MOD	EUR/13/264
App. S3 (Table II, 15)	ADD	EUR/13/265
App. S3 (Table II, 16)	ADD	CUB/31/7 EUR/13/266
App. S3 (Table II, 16)	ADD	CAN/24/3 IAP/14/7
App. S3 (Table II, 17)	ADD	CAN/24/3 CUB/31/8 EUR/13/267 IAP/14/8
Rec. 66 (Rev.WRC-97)	MOD	CAN/24/36, 83, 84, 85, 88, 89, 91 IAP/14/75, 76, 77, 78, 79, 80, 81, 82, 83, 84 USA/12/1, 3, 4, 5, 8, 10
Rec. 66 (Rev.WRC-97)	SUP	CAN/24/82, 86, 87, 90 USA/12/2, 6, 7, 9,
App. S3		RCC/45/1
		KEN/123/1

Agenda item 1.3

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.3 to consider the results of ITU-R studies in respect of Appendix **S7/28** on the method for the determination of the coordination area around an earth station in frequency bands shared among space services and terrestrial radiocommunication services, and take the appropriate decisions to revise this Appendix;

Provision No.	Proposal	Proposal No.
App. S1.171	MOD	CAN/24/96 EUR/13/270
App. S1.173	MOD	CAN/24/97 EUR/13/271
App. S4 (A7 b))	SUP	EUR/13/276
App. S4 (A7 b))	ADD	EUR/13/275
App. S4 (A7 c))	SUP	EUR/13/277
App. S4 (A7 c))	ADD	EUR/13/278
App. S4 (A7 d))	ADD	EUR/13/279
App. S4 (A7 e))	MOD	EUR/13/280
App. S5 (Annex 1, section 2)	SUP	EUR/13/290
App. S5 (Annex 1, section 3)	SUP	CAN/24/95 EUR/13/291
App. S5 (Annex 1, Table S5-2)	MOD	EUR/13/289
App. S5 (Table S5.1, No. S9.15)	MOD	ASP/20/21 EUR/13/281
App. S5 (Table S5.1, No. S9.16)	MOD	ASP/20/22 EUR/13/282
App. S5 (Table S5.1, No. S9.17)	MOD	ASP/20/23, 24 EUR/13/283, 284
App. S5 (Table S5.1, No. S9.17A)	MOD	EUR/13/285 ASP/20/25
App. S5 (Table S5.1, No. S9.18)	MOD	ASP/20/26
App. S5 (Table S5.1, No. S9.21)	NOC	EUR/13/286
App. S5 (Table S5-1A)	MOD	EUR/13/287, 288
App. S5 Annex 1, section 3	SUP	ASP/20/27

App. S7	MOD	EUR/13/268, 269 INS/61/1, 2, 3, 4, 5, 6 KEN/123/2
App. S4 Annex 2A A7 <i>b)</i>	ADD	ASP/20/15
App. S4 Annex 2A A7 <i>b)</i>	SUP	ASP/20/16
App. S4 Annex 2A A7 <i>c)</i>	SUP	ASP/20/17
App. S4 Annex 2A A7 <i>c)</i>	ADD	ASP/20/18
App. S4 Annex 2A A7 <i>cbis)</i>	ADD	ASP/20/19
App. S4 Annex 2A A7 <i>d)</i>	MOD	ASP/20/20
App. S5 (Table 2)	MOD	USA/12/14
App. S5 (Table 3)	MOD	USA/12/15
App. S5 (Table 4)	MOD	USA/12/16
App. S5 (Table S5-1)	MOD	USA/12/13
App. S7	ADD	USA/12/12
App. S7	SUP	USA/12/11
App. S7	MOD	ASP/20/10 CAN/24/92, 93
Rec. 105	SUP	ASP/20/35 EUR/13/294
Rec. 711	SUP	ASP/20/36 EUR/13/295
Res ZZZ[ASP]	ADD	ASP/20/38
Res. [EUR/13/9]	ADD	EUR/13/297
Res. 27 (Annex 4)	MOD	EUR/13/293
Res. 27 Annex 4 ITU-R IS.847-1	SUP	ASP/20/30
Res. 27 Annex 4 ITU-R IS.848-1	SUP	ASP/20/31
Res. 27 Annex 4 ITU-R IS.849-1	SUP	ASP/20/32
Res. 27 Annex 4 ITU-R M.1185-1	SUP	ASP/20/33
Res. 27 Annex 4 ITU-R SF.356-4	SUP	ASP/20/28
Res. 27 Annex 4 ITU-R SF.357-4	SUP	ASP/20/29
Res. 60	SUP	CAN/24/98 USA/12/17 ASP/20/34 EUR/13/292 IAP/14/85
Res. 712	MOD	ASP/20/37 EUR/13/296

S1.171	MOD	ASP/20/11
S1.172	NOC	ASP/20/12
S1.173	MOD	ASP/20/13
S1.173A	ADD	ASP/20/14
S7		CUB/31/9
S9.17	MOD	ASP/20/39
S9.17 <i>f</i>) ¹³	MOD	EUR/13/272
S9.19	MOD	ASP/20/40
S9.31	MOD	ASP/20/41
S9.53	MOD	EUR/13/273
S9.53.1	ADD	EUR/13/274
		RCC/45/2
Res. (CAN)	ADD	CAN/24/94

Agenda item 1.4

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.4 to consider issues concerning allocations and regulatory aspects related to Resolutions **126 (WRC-97)**, **128 (WRC-97)**, **129 (WRC-97)**, **133 (WRC-97)**, **134 (WRC-97)** and **726 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (29.9-34.2 GHz)	MOD	B/35/9 CUB/31/10 CME/122/4 EUR/13/234 ASP/20/43,62 IAP/14/9 (<i>supported by USA/12 and CAN/24</i>)
S5 (55.78-66 GHz)	NOC	CAN/24/38
S5.547	MOD	B/35/9, 14 CUB/31/12 ASP/20/44 EUR/13/231 IAP/14/11, 87
S5.547	NOC	CAN/24/5 (<i>regarding 51.4-52.6, 55.78-59 and 64-66 GHz</i>)
S5.547A	SUP	CME/122/1 CUB/31/11 EUR/13/236
S5.547A	MOD	B/35/11 IAP/14/13 ASP/20/45
S5.547B	MOD	CME/122/2
S5.547C	MOD	CME/122/3
S5 (34.2-40.5 GHz)	MOD	B/35/13 CAN/24/37 ASP/20/48 EUR/13/230 IAP/14/86
S5.547F	ADD	B/35/15 CUB/31/14

S5 (40.5-55.78 GHz)	MOD	CAN/24/37 RUS/33/3 ASP/20/49, 55 EUR/13/238 IAP/14/86 <i>bis</i>
S5 (55.78-66 GHz)	MOD	CHN/72/1 ASP/20/50, 51 EUR/13/239, 241
S5 (55.78-56.9 GHz)	MOD	USA/12/18, 19
S5.XXX (55.78-56.26 GHz)	ADD	EUR/13/240
S5.ZZZ (55.78-56.26 GHz)	ADD	ASP/20/52
S5.AAA (55.78-56.26 GHz)	ADD	CHN/72/2
S5.EESS (55.78-56.26 GHz)	ADD	USA/12/20
S5.547	MOD	J/133/2
S5.551B	MOD	IAP/14/90
S5.551B	SUP	EUR/13/244
S5.551D	MOD	ASP/20/56
S5.551D	SUP	CAN/24/37 IAP/14/91
S5.551E	SUP	ASP/20/57 IAP/14/92 CAN/24/37
S5.551F	SUP	IAP/14/93 CAN/24/37
S5.551X	ADD	CAN/24/37 IAP/14/94
S5.551XX	ADD	EUR/13/245
S5.HDFS	ADD	CAN/24/37 IAP/14/88
S5.SAT	ADD	CAN/24/37 IAP/14/89
S5.XXX (42.5-43.5 GHz)	ADD	RUS/33/4
S11.26	MOD	ASP/20/65
S21 (Table S21-4)	MOD	B/35/12, 16 CAN/24/37 CUB/31/16 J/133/1, 5 ASP/20/42, 47, 54 EUR/13/232 IAP/14/14, 95

S21.16.4	MOD	CAN/24/37 IAP/14/96
S21.16.10	ADD	CAN/24/37 IAP/14/97
S21.16.11	ADD	CAN/24/37 IAP/14/98
Res. 123	SUP	B/35/17 EUR/13/254
Res. 126	SUP	B/35/10 CUB/31/15 ASP/20/46 EUR/13/237 IAP/14/12
Res. 126		KEN/123/4
Res. 128	MOD	CAN/24/37 RUS/33/5 ASP/20/53 IAP/14/102
Res. 128		KEN/123/5
Res. 129	SUP	CAN/24/37 ASP/20/58 IAP/14/100
Res. 129		KEN/123/6
Res. 133	SUP	CAN/24/37 CUB/31/17 J/133/4 EUR/13/233 IAP/14/99
Res. 133	MOD	INS/59/1
Res. 133		KEN/123/7
Res. 134	SUP	CAN/24/37 ASP/20/59 IAP/14/101
Res. 134	MOD	INS/59/2
Res. 134		KEN/123/8
Res. 726	MOD	CAN/24/37 USA/12/21, 22 IAP/14/104, 105, 106

Res. 726	SUP	B/35/8 CUB/31/13 J/133/3 EUR/13/242 IAP/14/10
Res. 726		KEN/123/9
Res. JJJ	ADD	CAN/24/37 IAP/14/103

Agenda item 1.5

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.5 to consider regulatory provisions and possible additional frequency allocations for services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution **122 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (24.75-29.9 GHz)	MOD	ASP/20/61
S5 (29.9-34.2 GHz)	MOD	ASP/20/62
S5.552A	MOD	CME/122/5
S11.26	MOD	ASP/20/65
S5.5SSS	ADD	ASP/20/63
S5.5RRR	ADD	ASP/20/64
Res. XXX	ADD	ASP/20/67 (<i>HAPS above 3 GHz</i>)
Res. LLL	ADD	ASP/20/66 (<i>HAPS in the 31.0-31.3 and below 47 GHz</i>)
Res. 122	MOD	CAN/24/39 EUR/13/248 CHN/73/1 CME/122/6 ASP/20/60 CUB/31/18, 19 IAP/14/107
		KEN/123/10

Agenda item 1.6.1

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.6 issues related to IMT-2000;

1.6.1 review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;

Provision No.	Proposal	Proposal No.
S5.388	NOC	EUR/13/1, 2
S5 (470-890 MHz)	MOD	CAN/24/6 CUB/31/20 USA/12/186 EUR/13/5
S5 (890-1 350 MHz)	MOD	CAN/24/7 CUB/31/21 USA/12/187
S5 (1 525-1 610 MHz)	MOD	USA/12/188 ASP/20/78
S5 (1 610-1 660 MHz)	MOD	CAN/24/8 USA/12/189 ASP/20/79
S5 (1 660-1 710 MHz)	MOD	ASP/20/80
S5 (1.710-2.170 MHz)	MOD	CAN/24/9, 40, 99 CUB/31/24 USA/12/160, 190 ASP/20/84 EUR/13/9 IAP/14/108
S5 (2.170-2.520 MHz)	MOD	CAN/24/10 CHN/74/2 CUB/31/25 KEN/123/11, 12 USA/12/192 ASP/20/81 EUR/13/3
S5 (2 520-2 700 MHz)	MOD	KEN/123/12 USA/12/193 ASP/20/82

S5 (2 700-4 800 MHz)	MOD	CUB/31/27 CHN/74/4 IAP/14/111
S5 (10-11.7 GHz)	MOD	CUB/31/28
S11.8A	ADD	ASP/20/86
S27A	ADD	ASP/20/87
S27A.1	ADD	ASP/20/89
S27A.2	ADD	ASP/20/90
S5.321A	ADD	CUB/31/22
S5.326	SUP	CUB/31/23
S5.388	MOD	CAN/24/11, 40 CUB/31/26 USA/12/191 IAP/14/109
S5.388	NOC	CHN/74/1
S5.415A	MOD	IND/138/2
S5.420A	MOD	IND/138/3
S5.480	SUP	CUB/31/29
S5.AAA	ADD	EUR/13/4
S5.DDD	ADD	EUR/13/6
S5.BBB	ADD	EUR/13/10
S5.BBB (USA)	ADD	USA/12/161
S5.BBB (CAN)	ADD	CAN/24/100
S5.SSS	ADD	ASP/20/83
S5.AAA	ADD	CHN/74/3
S5.HHH	ADD	ASP/20/85
S5.XXX	ADD	CAN/24/12
Res. 212	MOD	CAN/24/13, 40 CUB/31/30 IAP/14/110
Res. 212	SUP	USA/12/194
Res. ZZZ/AUS	ADD	AUS/52/2
Res. XXX	ADD	ASP/20/91
Res. TTT	ADD	EUR/13/8
Res. HAPS	ADD	CAN/24/101 USA/12/162 EUR/13/11

Res. ZZZ	ADD	EUR/13/7
Res. IMT (USA)	ADD	USA/12/195
Res. YYY (USA)	ADD	USA/12/196
HAPS	ADD	ASP/20/88
		RUS/33/6, 7
		AFR/37/1
		SEN/42/1, 2, 3, 4, 5, 6
		NZL/66/1, 2
		KEN/UGA/TZA/115/1, 2
		NZL/96/1, 2
		RCC/45/5

Agenda item 1.6.2

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.6 issues related to IMT-2000;

1.6.2 identification of a global radio control channel to facilitate multimode terminal operation and worldwide roaming of IMT-2000;

Provision No.	Proposal	Proposal No.
	NOC	CAN/24/14 IAP/14/15
	NOC	ASP/20/92
		CUB/31/31
		RUS/33/8
		RCC/45/6
		KEN/123/13

Agenda item 1.7

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.7 review of the use of the HF bands by the aeronautical mobile (R) and maritime mobile services with a view to protecting operational, distress and safety communications, taking into account Resolution **346 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S15.28	MOD	CUB/31/33
S15.28 (§ 20)	MOD	CAN/24/15 IAP/14/17
S15.35 (§ 27)	MOD	CAN/24/15 IAP/14/18
S15.37	MOD	ASP/20/94
S15.8	MOD	CUB/31/32
S15.8 (§ 4)	MOD	CAN/24/15 IAP/14/16
Res. 207	MOD	CAN/24/15 ASP/20/93 IAP/14/40
S52	MOD	CME/122/7
S52.216	NOC	CAN/24/15 IAP/14/19
S52.219	MOD	EUR/13/12
S52.219	MOD	CAN/24/15 IAP/14/20
S52.220	NOC	CAN/24/15 IAP/14/21
S52.220A	ADD	CAN/24/15 EUR/13/13 IAP/14/22
S52.220B	ADD	CAN/24/15 EUR/13/14 IAP/14/23
S52.220C	ADD	CAN/24/15 EUR/13/15 IAP/14/24

S52.220D	ADD	CAN/24/15 EUR/13/16 IAP/14/25
S52.221	MOD	EUR/13/17
S52.221A	ADD	EUR/13/17 <i>bis</i>
S52.221 (§ 97 1))	NOC	CAN/24/15 IAP/14/26
S52.221.1	SUP	EUR/13/18
S52.221.1	MOD	EUR/13/22
S52.221.1	NOC	IAP/14/27 CAN/24/15
S52.221.2	SUP	EUR/13/19
S52.221.2	NOC	CAN/24/15 IAP/14/28
S52.221.3	SUP	EUR/13/20
S52.221.3	NOC	CAN/24/15 IAP/14/29
S52.222	SUP	EUR/13/21
S52.222	NOC	CAN/24/15 IAP/14/30
S52.222.1	SUP	CAN/24/15 IAP/14/31
S52.222.2	SUP	EUR/13/23
S52.222.2	MOD	CAN/24/15 IAP/14/32
S52.224	MOD	EUR/13/24
S52.224	NOC	CUB/31/34
S52.224 § 99 1)	NOC	CAN/24/15 IAP/14/33
S52.225	NOC	EUR/13/24
S52.227 2)	MOD	CAN/24/15 IAP/14/34
		AFR/37/2
		SEN/42/7, 8, 9, 10, 11
App. S13 (E-4.125 kHz)	MOD	EUR/13/25
App. S13 (G-6.215 kHz)	MOD	EUR/13/26
App. S17 (Part A)	MOD	EUR/13/27
App. S17 (Part A, i)	MOD	EUR/13/28

App. S17 (Part A, p)	ADD	EUR/13/29
App. S17 (Part B, Section I, 5)	MOD	EUR/13/30
App. S17 (Part B, Section I, 5A)	MOD	EUR/13/31
App. S17 (Part B, Subsection A)	MOD	EUR/13/32
App. S17 Part A	NOC	CAN/24/15 IAP/14/35
App. S17 Part B, Section I (5.)	NOC	CAN/24/15 IAP/14/36
App. S17 Part B, Section I (5A)	NOC	CAN/24/15 IAP/14/37
App. S17 Part B, Section I, Subsection A	NOC	CAN/24/15 IAP/14/38
App. S27	NOC	CAN/24/15 IAP/14/39
Draft Res. HF (WRC-2000)	ADD	CAN/24/15 IAP/14/41
		KEN/UGA/TZA/115/3, 4
		RCC/45/7

Agenda item 1.8

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.8 to consider regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, including their coordination with other services allocated in these bands;

Provision No.	Proposal	Proposal No.
S5 (2 700-4 800 MHz)	MOD	B/35/18 CAN/24/16 CUB/31/35 USA/12/23 ASP/20/95 IAP/14/42
S5 (5 830-7 550 MHz)	MOD	B/35/19 CAN/24/16 CUB/31/36 USA/12/24 ASP/20/96 IAP/14/43
S5 (S5.ESV)	ADD	B/35/20 CAN/24/16 USA/12/25 IAP/14/44
Res. B/ZZZ	ADD	B/35/21
Res. CUB/AAA	ADD	CUB/31/37
Res. USA/ZZZ	ADD	USA/12/26
Res. ZZZ	ADD	ASP/20/97
Res. ZZZ (WRC-2000)	ADD	CAN/24/16 IAP/14/45
Res. 346		RCC/45/8
		MLA/49/1
		AFR/37/3
		SEN/42/27
		CHN/75/1
		KEN/UGA/TZA/115/5

Agenda item 1.9

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.9 to take into account the results of ITU-R studies in evaluating the feasibility of an allocation in the space-to-Earth direction to the mobile-satellite service (MSS) in a portion of the 1 559-1 567 MHz frequency range, in response to Resolutions **213 (Rev.WRC-95)** and **220 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (1 350-1 525 MHz)	MOD	UAE/22/1 MOD/13/327
S5 (1 350-1 525 MHz)	NOC	RUS/33/11
S5 (1.525-1.610 MHz)	NOC	B/35/22 RUS/33/10 EUR/13/37
	NOC	CAN/24/17 IAP/14/46
S5 (1 525-1 610 MHz)	MOD	CUB/31/38 ASP/20/98
S5 (1 660-1 710 MHz)	MOD	J/133/6 UAE/22/3 EUR/13/323
S5 (1 660-1 710 MHz)	NOC	CHN/76/1
S5.XXX, S5.YYY	ADD	UAE/22/2
S5.ZZZ	ADD	UAE/22/4
Res. 220	SUP	B/35/23 CUB/31/39 RUS/33/9 EUR/13/331
		AFR/37/4
		SEN/42/14, 15, 16
S5.XXX	ADD	EUR/13/324
S5.YYY	ADD	EUR/13/325
S5.377	SUP	EUR/13/326
S5.ZZZ	ADD	EUR/13/328
S5.348	SUP	EUR/13/329

S5.348A	MOD	EUR/13/330
App. S5 (S9.11A)	MOD	EUR/13/333
App. S5 (Annex 1, 1.2.3.1)	MOD	EUR/13/334
Res. 220	SUP	CAN/24/17 IAP/14/47
Res. 220	SUP	ASP/20/99
Res. 213	SUP	CHN/76/2 EUR/13/332
		INS/109/1
		KEN/UGA/TZA/115/6, 7, 8
Res. 220		RCC/45/9

Agenda item 1.10

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.10 to consider results of ITU-R studies carried out in accordance with Resolution **218 (WRC-97)** and take appropriate action on this subject;

Provision No.	Proposal	Proposal No.
S5 (1.525-1.610 MHz)	MOD	B/35/24 CAN/24/41 CUB/31/40 EUR/13/38 IAP/14/112
S5 (1.610-1.660 MHz)	MOD	B/35/25 CAN/24/41 EUR/13/39 IAP/14/113
S5 (1.660-1.710 MHz)	MOD	EUR/13/40
S5.353A	MOD	CAN/24/41 EUR/13/41 UAE/21/1 ASP/20/102 IAP/14/114
S5.357	MOD	UAE/21/2
S5.357A	MOD	B/35/26 CAN/24/41 ASP/20/103 EUR/13/42 IAP/14/115
Res. 218	SUP	CAN/24/41 UAE/21/4 ASP/20/100 EUR/13/43 IAP/14/116
Res. EUR/13/4	ADD	EUR/13/44
Res. XXX	ADD	ASP/20/101
Res. XXX	ADD	UAE/21/3
Res. XXX	ADD	CAN/24/41 IAP/14/117
		RCC/45/10

Agenda item 1.11

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.11 to consider constraints on existing allocations and to consider additional allocations on a worldwide basis for the non-geostationary (non-GSO) MSS below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolutions **214 (Rev.WRC-97)** and **219 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (75.2-137.175 MHz)	NOC	EUR/13/45
S5 (137.175-148 MHz)	NOC	EUR/13/46
S5 (148-223 MHz)	NOC	EUR/13/50
S5 (220-335.4 MHz)	NOC	EUR/13/56
S5 (335.4-410 MHz)	NOC	CUB/31/49 EUR/13/57, 60
S5 (335.4-410 MHz)	MOD	ASP/20/104
S5 (410-470 MHz)	NOC	CHN/77/2
S5 (835.4-410 MHz)	NOC	CHN/77/1
S5 (Annex 1, 1.1.1)	NOC	CUB/31/46
S5 (Annex 1, 1.1.2)	NOC	CUB/31/47
S5 (Annex 1, 1.1.31)	NOC	CUB/31/48
S5.208	NOC	EUR/13/47
S5.208A	NOC	EUR/13/48
S5.209	NOC	EUR/13/49
S5.219	NOC	CUB/31/41 EUR/13/51
S5.220	NOC	EUR/13/52
S5.221	NOC	CUB/31/42 EUR/13/53
S5.224A	NOC	EUR/13/54
S5.224B	NOC	EUR/13/55
S5.254	NOC	CUB/31/43
S5.255	NOC	EUR/13/58
S5.286B	NOC	CUB/31/44

S5.286C	NOC	CUB/31/45
S9	NOC	USA/12/27
S9.11A	NOC	CAN/24/18 IAP/14/237
Res. 219	SUP	CHN/77/3
App. S5 (Annex 1-1.11)	NOC	USA/12/28
App. S5 (Annex 1-1.12)	NOC	USA/12/29
App. S5 (Annex 1-1.13)	NOC	USA/12/30
App. S5 (3.2 Table 1)	NOC	USA/12/31
App. S5 (Annex 1)	NOC	EUR/13/59
App. S5 Annex 1 (1.1.1)	NOC	CAN/24/19 IAP/14/238
App. S5 Annex 1 (1.1.2)	NOC	CAN/24/20 IAP/14/239
App. S5 Annex 1 (1.1.3)	NOC	CAN/24/21 IAP/14/240
App. S5 (Table 1)	NOC	CAN/24/18-20 IAP/14/241
Res. 214	MOD	USA/12/257, 258, 259, 260, 261, 262, 264, 266, 267, 269, 271, 273, 274
Res. 214	ADD	USA/12/263,
Res. 214	SUP	USA/12/265, 268, 270, 272
Res. 219	SUP	CUB/31/50 J/133/7 USA/12/277 EUR/13/61
Res. 219	MOD	USA/12/275, 276, 279, 281, 283, 284, 285, 286 ASP/20/105
Res. 219	ADD	USA/12/278, 280, 282
MSS below 1 GHz		ASP/20/106
		AFR/37/4bis
		INS/60/1
		KEN/UGA/TZA/115/9, 10
		RCC/45/11

Agenda item 1.12

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.12 to consider the progress of studies on sharing between feeder links of non-GSO MSS networks and GSO FSS networks in the bands 19.3-19.7 GHz and 29.1-29.5 GHz, taking into account Resolution **121 (Rev.WRC-97)**;

Provision No.	Proposal	Proposal No.
S5.541A	MOD	CAN/24/22 IAP/14/48
		RUS/33/12
S11.32A	MOD	EUR/13/372
S11.33	MOD	EUR/13/373
S11.3A.1	MOD	EUR/13/374
S11.35	MOD	EUR/13/375
Res. 121	SUP	CME/122/9 CAN/24/22 ASP/20/107 EUR/13/371 IAP/14/49
Rec. XXX (CME)	ADD	CME/122/8
		UZB/30/

Agenda item 1.13.1

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.13 on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**:

1.13.1 to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;

Provision No.	Proposal	Proposal No.
S5.516	MOD	J/133/11
S5.520	MOD	J/133/12 KOR/87/4 USA/12/197
S5.441	MOD	USA/12/198
S5.484A	MOD	USA/12/199
S5.487A	MOD	USA/12/200
S5.502	MOD	USA/98/1 S/93/2
S5.502A	ADD	USA/98/2
S5.503	MOD	USA/98/3
S5.516	MOD	KOR/87/2 USA/12/201
S5 (Table S5)	ADD	IAP/14/276
S5 (Table S5-1A)	MOD	CUB/31/73
S9 (A.S9.5)	MOD	EUR/13/142
S9.5B	MOD	IAP/14/271
S9.5B.2	ADD	IAP/14/272
S9.7A	ADD	AUS/KOR/55/1 ASP/20/126 J/133/31 EUR/13/125 IAP/14/277

S9.7A.1 and 9.7B1	ADD	AUS/KOR/55/3 ASP/20/128 J/133/33 <i>bis</i> EUR/13/127 IAP/14/280
S9.7 A2 and S9.7B2	ADD	AUS/KOR/55/4 J/133/34 ASP/20/129 EUR/13/128
S9.7B	ADD	J/133/32 ASP/20/127 EUR/13/126 IAP/14/278 AUS/KOR/55/2, 6
S9.8.1 and S9.9.1	MOD	AUS/KOR/55/5 ASP/20/130 IAP/14/281
S9.10	MOD	IAP/14/273
S9.12	MOD	EUR/13/143
S9.12.1	ADD	EUR/13/143 <i>bis</i>
S9.40B	ADD	J/133/29
S11.31	MOD	IAP/14/274
S11.31.2 <i>bis</i>	ADD	IAP/14/275
S11.32A	MOD	AUS/KOR/55/7 J/133/36 ASP/20/131 EUR/13/129, 335 IAP/14/282
S11.32A.1	MOD	AUS/KOR/55/8 J/133/37 ASP/20/132 EUR/13/130, 337 IAP/14/283
S11.33	MOD	EUR/13/336
S11.35	MOD	EUR/13/338
S11 (A.S11.3)	MOD	EUR/13/144
S13.2	MOD	EUR/13/363
S13.2A	ADD	EUR/13/364
S13.2B	ADD	EUR/13/365
S13.2C	ADD	EUR/13/366
S13.2D	ADD	EUR/13/367

S13.2E	ADD	EUR/13/368
S13.2F	ADD	EUR/13/369
S15 (Section VII)	ADD	EUR/13/339
S15.47	ADD	EUR/13/340 IAP/14/288
S15.48	ADD	EUR/13/341
S15.49	ADD	EUR/13/342
S15.50	ADD	EUR/13/343
S15.51	ADD	EUR/13/344
S15.52	ADD	EUR/13/345
S15.53	ADD	EUR/13/346
S15.54	ADD	EUR/13/347
S15.55	ADD	EUR/13/348
S15.56	ADD	EUR/13/349
S15.57	ADD	EUR/13/350
S15.58	ADD	EUR/13/351
S15.59	ADD	EUR/13/352
S15.60	ADD	EUR/13/353
S15.61	ADD	EUR/13/354
S15.62	ADD	EUR/13/355
S15.63	ADD	EUR/13/356
S15.64	ADD	EUR/13/357
S15.65	ADD	EUR/13/358
S15.66	ADD	EUR/13/359
S15.67	ADD	EUR/13/360
S15.68	ADD	EUR/13/361
S15.69	ADD	EUR/13/362
S15A	ADD	ASP/20/153, 154
S15A Section I	ADD	ASP/20/155
S15A Section II	ADD	ASP/20/167
S15A.1	ADD	ASP/20/156
S15A.10	ADD	ASP/20/165
S15A.11	ADD	ASP/20/166
S15A.12	ADD	ASP/20/168

S15A.13	ADD	ASP/20/169
S15A.14	ADD	ASP/20/170
S15A.15	ADD	ASP/20/171
S15A.16	ADD	ASP/20/172
S15A.17	ADD	ASP/20/173
S15A.18	ADD	ASP/20/174
S15A.19	ADD	ASP/20/175
S15A.2	ADD	ASP/20/157
S15A.20	ADD	ASP/20/176
S15A.21	ADD	ASP/20/177
S15A.22	ADD	ASP/20/178
S15A.23	ADD	ASP/20/179
S15A.24	ADD	ASP/20/180
S15A.3	ADD	ASP/20/158
S15A.4	ADD	ASP/20/159
S15A.5	ADD	ASP/20/160
S15A.6	ADD	ASP/20/161
S15A.7	ADD	ASP/20/162
S15A.8	ADD	ASP/20/163
S15A.9	ADD	ASP/20/164
S21-4	MOD	EUR/13/79 CUB/31/52, 53, 54, 55, 56, 57, 58
S21 (Table S21-4)	MOD	B/35/27 CAN/24/23 ASP/20/136 EUR/13/378 IAP/14/118
S21.16.6	MOD	B/35/28 CAN/24/24 CUB/31/59 ASP/20/137 EUR/13/80 IAP/14/120
S21.16.6bis	ADD	B/35/29 CAN/24/25 CUB/31/60 ASP/20/138 EUR/13/81 IAP/14/119

S21.16.7	NOC	CUB/31/61 ASP/20/139 EUR/13/82
S21.16.8	SUP	B/35/30 CAN/24/26 CUB/31/62 ASP/20/140 EUR/13/83 IAP/14/121
S21.16.9	SUP	B/35/31 CAN/24/27 CUB/31/63 ASP/20/141 EUR/13/84 IAP/14/122
S22 (Section II)	MOD	J/133/15
S22 (Section VI)	MOD	B/35/57 J/133/13 USA/12/183 EUR/13/108
S22 (Section VI)	SUP	KOR/87/3
S22.5G	ADD	J/133/25
S22.26 § 9	MOD	USA/12/184
S22.26 § 10	ADD	J/133/14 ^{bis}
S22.26 to S22.29	SUP	J/133/14
S22.27 to S22.29	SUP	USA/12/185
S22 (Table S22-1)	SUP	B/35/35 ASP/20/110 ^{ter} EUR/13/88 IAP/14/246
S22 (Table S22-1A)	ADD	B/35/36 ASP/20/111 EUR/13/89 IAP/14/247
S22 (Table S22-1A')	ADD	ASP/20/111 ^{bis}
S22 (Table S22-1B)	ADD	B/35/37 ASP/20/112 EUR/13/90 IAP/14/348

S22 (Table S22-1C)	ADD	B/35/38 J/133/22 ASP/20/113 EUR/13/91 IAP/14/249
S22 (Table S22-1D)	ADD	B/35/39 J/133/18, 19 ASP/20/114 EUR/13/92 IAP/14/250
S22 (Table S22-1E)	ADD	J/133/20
S22 (Tables 1B AND 1C, footnote)	ADD	J/133/21
S22 (Table S22-2)	MOD	CUB/31/69 EUR/13/94, 150
S22 (Table S22-2)	SUP	B/35/42 IAP/14/252
S22 (Table S22-2)	ADD	B/35/43 J/133/23 IAP/14/254
S22 (Table S22-2)	MOD	ASP/20/116 <i>bis</i>
S22 (Table S22-3)	MOD	ASP/20/116 <i>quat</i> EUR/13/97
S22 (Table S22-3)	ADD	B/35/49 J/133/24 IAP/14/258
S22 (Table S22-3 Part A)	SUP	B/35/46 IAP/14/256
S22 (Table S22-3 Part B)	SUP	B/35/46 <i>bis</i> IAP/14/256 <i>bis</i>
S22 (Table S22-4)	SUP	EUR/13/101
S22 (Table S22-4 Part A)	SUP	B/35/50 RUS/33/20 ASP/20/117 <i>bis</i> IAP/14/259
S22 (Table S22-4 Part B)	SUP	B/35/50 <i>bis</i> ASP/20/117 <i>ter</i> IAP/14/260
S22 (Table S22-4A)	MOD	J/133/26

S22 (Table S22-4A)	ADD	B/35/5 J/133/27, 28 ASP/20/120 EUR/13/102 IAP/14/265
S22 (Table S22-4A1)	ADD	B/35/54 <i>bis</i> ASP/20/121 EUR/13/103
S22 (Table S22-4A2)	ADD	ASP/20/122 EUR/13/104
S22 (Table S22-4B)	ADD	B/35/55 ASP/20/123 EUR/13/105 IAP/14/266
S22 (Table S22-4C)	ADD	EUR/13/106
S22.2 to S22.5A	NOC	ASP/20/108 EUR/13/85 IAP/14/242
S22.5B	SUP	B/35/32 ASP/20/109 EUR/13/86 IAP/14/243
S22.5C (§ 5)	MOD	J/133/16
S22.5C, 5C1	MOD	B/35/33, 34 ASP/20/110, 110 <i>bis</i> EUR/13/87, 87 <i>bis</i> IAP/14/244, 245
S22.5CA	MOD	ASP/20/115
S22.5D	MOD	B/35/40 ASP/20/116 EUR/13/93 IAP/14/251
S22.5.D1	SUP	B/35/41 EUR/13/93 IAP/14/253
S22.5E, 5E1	SUP	B/35/44, 45 ASP/20/116 <i>ter</i> EUR/13/95, 96 IAP/14/255
S22.5F	MOD	B/35/47 ASP/20/117 EUR/13/96 IAP/14/257

S22.5F	ADD	IAP/14/263
S22.5F.1	SUP	B/35/48
S22.5G	MOD	B/35/51 EUR/13/98 IAP/14/261
S22.5G	ADD	IAP/14/264
S22.5G	SUP	ASP/20/115 <i>bis</i> IAP/14/262
S22.5H	ADD	B/35/52 ASP/20/118 EUR/13/99 IAP/14/267
S22.5I	ADD	B/35/53 ASP/20/119 EUR/13/100 IAP/14/268
S22.5J	ADD	B/35/56 ASP/20/124 EUR/13/107
S22 (Section VI)	MOD	B/35/57 EUR/13/108
S22.26	MOD	B/35/58 EUR/13/109
S22.27	MOD	B/35/59 EUR/13/110
S22.28	MOD	B/35/60 EUR/13/111
S22.29	NOC	EUR/13/112
S22.30	ADD	B/35/61 EUR/13/113
S22.30.1	ADD	B/35/62 EUR/13/114
S22.31	ADD	B/35/63 EUR/13/115
S22.32	ADD	B/35/64 EUR/13/116
S22.32.1	ADD	B/35/64 <i>bis</i>
S22.33	ADD	B/35/65 EUR/13/117
S22.34	ADD	B/35/66 EUR/13/118

S22.35	ADD	B/35/67 EUR/13/119
S22.36	ADD	B/35/68 EUR/13/120
S22.37	ADD	B/35/69 EUR/13/121
S22.38	ADD	B/35/70 EUR/13/122
S22.39	ADD	B/35/71 EUR/13/123
S5.441	MOD	B/35/72 MRC/25/1 ASP/20/143 EUR/13/134
S5.484A	MOD	B/35/73 MRC/25/2 ASP/20/144 EUR/13/135
S5.487A	MOD	B/35/74 MRC/25/3 ASP/20/145 EUR/13/136
S5.488	MOD	CUB/31/65, 66 ASP/20/146 EUR/13/138, 377
S5.491	MOD	CUB/31/67, 68 ASP/20/147 EUR/13/139
S5.502	MOD	AUS/56/1 MLA/46/1 ASP/20/152 EUR/13/140
S5.503	MOD	EUR/13/141
S5.515	MOD	CUB/31/70
App. S4 (Annex 2A, A.4)	ADD	ASP/20/148, 149
App. S4 (Annex 2A, A.4b)	ADD	EUR/13/145, 146
App. S4 (Annex 2A, A.14)	ADD	ASP/20/150 EUR/13/147 IAP/14/269
App. S4 (Annex 2A, Section C.9)	ADD	ASP/20/151 EUR/13/148

App. S4 (Annex 2B - A)	MOD	EUR/13/132 IAP/14/270
App. S4 (Annex 2B - C)	MOD	AUS/KOR/55/9 J/133/38 ASP/20/133 EUR/13/131 IAP/14/284
App. S4 (Annex 2B - D)	MOD	AUS/KOR/55/10 J/133/39 ASP/20/134 EUR/13/132 IAP/14/285
App. S.5 (Table S5-1)	ADD	AUS/KOR/55/11 J/133/40 ASP/20/135 EUR/13/133 IAP/14/286
App. S10	MOD	EUR/13/370
Res. 130	MOD	EUR/13/152 USA/12/202, 203, 204, 206, 207, 209, 210, 211, 212, 214, 221, 222, 223, 224, 225, 226, 228, 229, 234, 235
Res. 130	SUP	J/133/8 USA/12/205, 208, 216, 217, 218, 219, 220, 227, 230, 231
Res. 130	ADD	RUS/33/19 USA/12/215, 232, 233, 236, 237
Res. 130 (Annex 1)	SUP	USA/12/238, 240, 243, 245, 247, 249, 250 IAP/14/289
Res. 130 (Annex 1)	MOD	USA/12/239, 241, 242, 244, 246, 248, 251
Res. 130 (Annex 1)	ADD	USA/12/252
Res. 130 (<i>resolves</i> 6)	SUP	ASP/20/142
Res. 131	SUP	CAN/24/28 CUB/31/64 J/133/9 EUR/13/151 IAP/14/123
Res. 538 (Annex)	NOC	USA/12/165
Res. 538 (Annex)	SUP	USA/12/167, 169, , 170, 172, 175, 176, 177, 181 IAP/14/290
Res. 538	SUP	J/133/10

Res. 538	MOD	USA/12/163, 164, 165, 166, 168, 171, 173, 174, 178, 179, 180 KOR/87/1 EUR/13/153
Res. QQQ/AUS	ADD	AUS/54/1
Res. WWW	ADD	CAN/24/29 ASP/20/125 IAP/14/124, 287
Res.[EUR/13/6]	ADD	AUS/53/1
		AFR/37/5
		EUR/13/124
		SEN/42/21, 22
		UZB/30/1
Res. CEA (USA)	ADD	USA/12/182
Res. RRR (RUS)	ADD	RUS/33/18
Res. FSS (J)	ADD	J/133/30
Res. XXX (S)	ADD	S/93/1

Agenda item 1.13.2

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.13 on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**:

1.13.2 to consider the inclusion in other frequency bands of similar limits in Articles **S21** and **S22**, or other regulatory approaches to be applied in relation to sharing situations;

Provision No.	Proposal	Proposal No.
S5.516	MOD	B/35/75 CUB/31/71 MRC/25/4 EUR/13/137, 149
S5.516A	ADD	CUB/31/72
Res. EEE (CAN)	ADD	CAN/24/115

Agenda item 1.14

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.14 to review the results of the studies on the feasibility of implementing non-GSO MSS feeder links in the 15.43-15.63 GHz in accordance with Resolution **123 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (14.25-15.63 GHz)	MOD	CAN/24/30 IAP/14/50
S5.511A	MOD	CAN/24/30 IAP/14/52
Res. 123	SUP	CAN/24/30 ASP/20/181 IAP/14/51
		UZB/30/

Agenda item 1.15.1

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.15 issues related to the radionavigation-satellite service:

1.15.1 to consider new allocations to the radionavigation-satellite service in the range from 1 GHz to 6 GHz required to support developments;

Provision No.	Proposal	Proposal No.
S5 (890-1 350 MHz)	MOD	CAN/24/23-28, 58, 59, 61 CHN/79/1, 3, 6 J/133/41 RUS/33/13 USA/12/32 EUR/13/62, 65, 71 ASP/20/182 ASP/20/185 IAP/14/125, 127, 132
S5 (890-1 350 MHz)	NOC	J/133/43, 46 EUR/13/64
S5 (1 525-1 610 MHz)	MOD	ASP/20/187
S5 (1 610-1 660 MHz)	MOD	CHN/78/1
S5 (2 170-2 520 MHz)	MOD	CHN/78/2
S5 (4 800-5 830 MHz)	NOC	USA/12/33
S5 (4 800-5 830 MHz)	MOD	CAN/24/60 EUR/13/68 ASP/20/184 IAP/14/129
S5 (4 800-5 830 MHz)	MOD	J/133/44
S5.328	MOD	CAN/24/23-28, 58 CHN/79/2 J/133/42 ASP/20/183 IAP/14/126
S5.328A	ADD	EUR/13/63
S5.329	MOD	EUR/13/66
S5.329A	ADD	CAN/24/23-28, 59 RUS/33/14 IAP/14/128

S5.336	ADD	CHN/79/4
S5.336A	ADD	CHN/79/5
S5.337A	ADD	CAN/24/61 CHN/79/7 EUR/13/72 IAP/14/133
S5.3XX	ADD	ASP/20/186
S5.444	MOD	CAN/24/60 EUR/13/69 IAP/14/130
S5.444B	ADD	CAN/24/60 J/133/45 EUR/13/70 IAP/14/131
Res. RUS/YYY	ADD	RUS/33/15
Res. EUR/13/5	ADD	EUR/13/67
Res. ZZZ (HOL, SUI)	ADD	HOL/SUI/128/1
		AFR/37/6
		SEN/42/17, 18
		KAZ/43/14
		KEN/UGA/TZA/115/13,14

Agenda item 1.15.2

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.15 issues related to the radionavigation-satellite service:

1.15.2 to consider the addition of the space-to-space direction to the radionavigation-satellite service allocations in the bands 1 215-1 260 MHz and 1 559-1 610 MHz;

Provision No.	Proposal	Proposal No.
S5 (890-1 350 MHz)	MOD	CAN/24/62 USA/12/34, 35 EUR/13/73 IAP/14/134
S5 (1 525-1 610 MHz)	MOD	CAN/24/62, 63 USA/12/36 EUR/13/74 IAP/14/135
S5.329A	ADD	EUR/13/75
		AFR/37/7
		SEN/42/19
S5.XYZ	ADD	CAN/24/64
		KEN/UGA/TZA/115/15
		RCC/45/15

Agenda item 1.15.3

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.15 issues related to the radionavigation-satellite service:

1.15.3 to consider the status of allocations to services other than the radionavigation-satellite service (Nos. **S5.355** and **S5.359**) in the band 1 559-1 610 MHz;

Provision No.	Proposal	Proposal No.
S5 (1 525-1 610 MHz)	MOD	EUR/13/76
S5.359	MOD	EUR/13/77
S5.359A	ADD	EUR/13/78
		AFR/37/8
		SEN/42/20
		RCC/45/16

Agenda item 1.16

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.16 to consider allocation of frequency bands above 71 GHz to the earth exploration-satellite (passive) and radio astronomy services, taking into account Resolution **723 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S5 (66-86 GHz)	MOD	USA/12/37, 38, 39, 40, 41, 42, 43, 44 EUR/13/154, 155 ASP/20/188, 189, 190, 191, 192, 193, 194, 195 IAP/14/136, 137, 138, 139, 140, 141, 142, 143
S5 (86-119.98 GHz)	MOD	USA/12/45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56 ASP/20/196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207 EUR/13/156, 157 IAP/14/144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157
S5 (119.98-158 GHz)	MOD	USA/12/57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74 ASP/20/208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225 EUR/13/158, 159 IAP/14/158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 173
S5 (158-202 GHz)	MOD	USA/12/75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88 EUR/13/160, 161 ASP/20/226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239 IAP/14/174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187
S5 (202-1 000 GHz)	MOD	USA/12/89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102 EUR/13/162 ASP/20/240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255 IAP/14/188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201

S5.138	MOD	ASP/20/256
S5.149	MOD	USA/12/103 ASP/20/257 IAP/14/202
S5.149	SUP	EUR/13/163
S5.149A	ADD	EUR/13/164
S5.149B	ADD	EUR/13/165
S5.149C	ADD	EUR/13/166
S5.149D	ADD	EUR/13/167
S5.340	MOD	USA/12/104 EUR/13/168 ASP/20/258 IAP/14/203
S5.341	NOC	USA/12/105 ASP/20/259 IAP/14/204
S5.385	MOD	USA/12/106 EUR/13/169 ASP/20/260 IAP/14/205
S5.553	MOD	USA/12/107 EUR/13/170 ASP/20/261 IAP/14/206
S5.554	MOD	USA/12/108 EUR/13/171 ASP/20/262 IAP/14/207
S5.555	MOD	USA/12/109 EUR/13/172 ASP/20/263 IAP/14/208
S5.556	MOD	USA/12/110 EUR/13/173 ASP/20/264 IAP/14/209
S5.558	MOD	USA/12/111 EUR/13/174 ASP/20/265 IAP/14/210
S5.559	MOD	USA/12/112 ASP/20/266 IAP/14/211

S5.560	NOC	USA/12/113 ASP/20/267 IAP/14/212
S5.561	MOD	USA/12/114 EUR/13/175 ASP/20/268 IAP/14/213
S5.562	NOC	USA/12/115 ASP/20/269 IAP/14/214
S5.564	SUP	USA/12/116 EUR/13/176 ASP/20/270 IAP/14/215
S5.565	MOD	USA/12/117 EUR/13/177 ASP/20/271 IAP/14/216
S5.AAA	ADD	USA/12/118 EUR/13/178 ASP/20/272 IAP/14/217
S5.BBB	ADD	USA/12/119 EUR/13/179 ASP/20/273 IAP/14/218
S5.CCC	ADD	USA/12/120 EUR/13/180 ASP/20/274 IAP/14/219
S5.DDD	ADD	USA/12/121 EUR/13/181 ASP/20/275 IAP/14/220
S5.EEE	ADD	USA/12/122 EUR/13/182 ASP/20/276 IAP/14/221
S5.FFF	ADD	EUR/13/183
S5.JJJ	ADD	EUR/13/184
S5.KKK	ADD	EUR/13/185
S5.LLL	ADD	EUR/13/186
S5.NNN	ADD	EUR/13/187

S5.PPP	ADD	ASP/20/279
S5.QQQ	ADD	ASP/20/280
S5.QQQ (KOR)	ADD	KOR/86/1
S5.RRR	ADD	ASP/20/281
S5.XXX	ADD	USA/12/124 IAP/14/223 ASP/20/278
S5.YYY	ADD	USA/12/123 IAP/14/222 ASP/20/277
Res. XXX [EUR/13/7]	ADD	EUR/13/188 (<i>Sharing, above 71 GHz</i>) ASP/20/282
Res. XXX	ADD	USA/12/127 (<i>Sharing passive and active services, above 71 GHz</i>) IAP/14/226
Res. YYY	ADD	USA/12/128 (<i>Sharing active services, above 71 GHz</i>) IAP/14/227
		MLA/51/1 (<i>Protection of FSS, above 71 GHz</i>)
Res. RAS	ADD	USA/12/125 IAP/14/224
Res. RAS (Annex 1)	ADD	USA/12/126 IAP/14/225

Agenda item 1.17

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.17 to consider possible worldwide allocation for the earth exploration-satellite (passive) and space research (passive) services in the band 18.6-18.8 GHz, taking into account the results of the ITU-R studies;

Provision No.	Proposal	Proposal No.
S5 (18.6-22.21 GHz)	MOD	CAN/24/31 CME/122/10 J/133/47 USA/12/129 EUR/13/189 IAP/14/53 ASP/20/283
S5.522	MOD	CAN/24/31 J/133/48 USA/12/130 IAP/14/54
S5.522	SUP	EUR/13/191
S5.522A	ADD	EUR/13/190
S5.523	SUP	EUR/13/192 ASP/20/284 (<i>replaced by S5.XXX</i>)
S5.523	MOD	CAN/24/31 J/133/49 USA/12/131 IAP/14/55
S5.XXX	ADD	ASP/20/285
S5.YYY	ADD	ASP/20/286
S5 (Table S 21-2)	MOD	EUR/13/193
S21.5A	ADD	EUR/13/194
S21.16.2	MOD	EUR/13/195
Res. ZZZ	ADD	CAN/24/31 USA/12/132 IAP/14/56 (<i>pf_d limits, non-GSO</i>)

Agenda item 1.18

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.18 to consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix **18/S18**, taking into account Resolution **342 (WRC-97)**;

Provision No.	Proposal	Proposal No.
S9.1	NOC	IAP/14/291
S9.1.1	NOC	IAP/14/292
S9.6.1	NOC	IAP/14/293
S11.15.1	NOC	IAP/14/294
App. S18	MOD	CAN/24/32 EUR/13/34 IAP/14/57
App. S18	NOC	NZL/97/1
App. S18 (Note <i>m</i>))	MOD	CAN/24/32 CUB/31/75 IAP/14/58
App. S18 (Specific notes)	ADD	EUR/13/36
App. S18 (Table)	MOD	CUB/31/74 EUR/13/35
App. S18 <i>z</i>)	ADD	CAN/24/32 IAP/14/59
Res. 342	MOD	CAN/24/32 EUR/13/33 IAP/14/60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73
		AFR/37/9
		SEN/42/12, 13
		INS/108/1
		KEN/UGA/TZA/115/16, 17
		RCC/45/19

Agenda item 1.19

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.19 to consider the report of the inter-conference representative group (IRG) submitted by the Director of the Radiocommunication Bureau and determine the basis for replanning by the next conference so as to afford each country an amount of spectrum that permits the economical development of a broadcasting-satellite service system;

Provision No.	Proposal	Proposal No.
S5.487 (Super primary status)		ASP/20/291
App. S30 Art. 1 (1.3A)	ADD	ARB/25/7
App. S30 Art. 1 (1.4)	NOC	ARB/25/8
App. S30 Art. 1 (1.5)	NOC	ARB/25/9
App. S30 Art. 1 (1.6)	NOC	ARB/25/10
App. S30 Art. 1 (1.7)	ADD	ARB/25/11
App. S30 Art. 1 (1.8)	ADD	ARB/25/12
App. S30 Art. 1 (1.9)	ADD	ARB/25/13
App. S30 Art. 4, 4.3	SUP	ARB/25/21
App. S30 Art. 4 Art. 4, 4.3.1.3	SUP	ARB/25/27
App. S30 Art. 4 Art. 4, 4.3.1.6	SUP	ARB/25/30
App. S30 Art. 4, Section I	ADD	ARB/25/15
App. S30 Art. 4, Section I (N4.1)	ADD	ARB/25/16
App. S30 Art. 4, Section I (N4.1, 2bis))	ADD	ARB/25/17
App. S30 Art. 4, Section I (N4.2)	ADD	ARB/25/18
App. S30 Art. 4, Section I (N4.3)	ADD	ARB/25/19
App. S30 Art. 4 Section I N4.4 (ex-Art. 4, 4.1.1)	MOD	ARB/25/20
App. S30 Art. 4, Section I N4.5 (ex-Art. 4, 4.3.1)	MOD	ARB/25/23
App. S30 Art. 4, Section I N4.5.1 (ex-Art. 4, 4.3.1.1)	MOD	ARB/25/24
App. S30 Art. 4, Section I N4.5.2	ADD	ARB/25/25
App. S30 Art. 4, Section I N4.5.3 (ex-Art. 4, 4.3.1.2)	MOD	ARB/25/26

App. S30 Art. 4, Section I N4.5.4 (ex-Art. 4, 4.3.1.4)	MOD	ARB/25/28
App. S30 Art. 4, Section I N4.5.5 (ex-Art. 4, 4.3.1.5)	MOD	ARB/25/29
App. S30 Art. 4, Section I N4.6 (ex-Art. 4, 4.3.2)	MOD	ARB/25/31
App. S30 Art. 4, Section II	ADD	ARB/25/32
App. S30 Art. 4, Section II N4.10 (ex-4.3.4)	MOD	ARB/25/44
App. S30 Art. 4, Section II N4.7 (ex-4.1)	MOD	ARB/25/34
App. S30 Art. 4, Section II N4.8 (ex-4.1.1)	MOD	ARB/25/35
App. S30 Art. 4, Section II N4.9 (ex-4.3.3)	MOD	ARB/25/36
App. S30 Art. 4, Section II N4.9.1 (ex-4.3.3.1)	MOD	ARB/25/37
App. S30 Art. 4, Section II N4.9.2 (ex-4.3.3.2)	MOD	ARB/25/38
App. S30 Art. 4, Section II N4.9.3	ADD	ARB/25/39
App. S30 Art. 4, Section II N4.9.4 (ex-4.3.3.4)	MOD	ARB/25/40
App. S30 Art. 4, Section II N4.9.5 (ex-4.3.3.5)	MOD	ARB/25/41
App. S30 Art. 4, Section II N4.9.6 (ex-4.3.3.6)	MOD	ARB/25/42
App. S30 Art. 4, Section III	ADD	ARB/25/45
App. S30 Art. 4, Section III N4.11 (ex-4.3.5)	MOD	ARB/25/46
App. S30 Art. 4, Section III N4.12 (ex-4.3.5.1)	MOD	ARB/25/47
App. S30 Art. 4, Section III N4.13 (ex-4.3.5.2)	MOD	ARB/25/48
App. S30 Art. 4, Section III N4.14 (ex-4.3.6)	MOD	ARB/25/49
App. S30 Art. 4, Section III N4.15	ADD	ARB/25/50
App. S30 Art. 4, Section III N4.16	ADD	ARB/25/51
App. S30 Art. 4, Section III N4.17 (ex-4.3.7)	MOD	ARB/25/52

App. S30 Art. 4, Section III N4.18	ADD	ARB/25/53
App. S30 Art. 4, Section III N4.19 (ex-4.3.8)	MOD	ARB/25/54
App. S30 Art. 4, Section III N4.20	ADD	ARB/25/55
App. S30 Art. 4, Section III N4.21 (ex-4.3.10)	MOD	ARB/25/57
App. S30 Art. 4, Section III N4.22 (ex-4.3.11)	MOD	ARB/25/58
App. S30 Art. 4, Section III N4.23 (ex-4.3.12)	MOD	ARB/25/59
App. S30 Art. 4, Section III N4.24 (ex-4.3.13)	MOD	ARB/25/60
App. S30 Art. 4, Section III N4.25 (ex-4.3.14)	MOD	ARB/25/61
App. S30 Art. 4, Section III N4.26	ADD	ARB/25/62
App. S30 Art. 4, Section III N4.27 (ex-4.3.15)	MOD	ARB/25/63
App. S30 Art. 4, Section III N4.28 (ex-4.3.16)	MOD	ARB/25/64
App. S30 Art. 4, Section III N4.29 (ex-4.3.17)	MOD	ARB/25/65
App. S30 Art. 4, Section III N4.29.1	ADD	ARB/25/66
App. S30 Art. 4, Section III N4.29.2	ADD	ARB/25/67
App. S30 Art. 4, Section III N4.29.3	ADD	ARB/25/68
App. S30 Art. 4, Section III N4.30	ADD	ARB/25/69
App. S30 Art. 4, Section III N4.31 (ex-4.3.18)	MOD	ARB/25/70
App. S30 Art. 4, Section III N4.32 (ex-4.3.19)	MOD	ARB/25/71
App. S30 Art. 4, Section III N4.33 (ex-4.3.20)	MOD	ARB/25/72
App. S30 Art. 4, Section III N4.34 (ex-4.3.21)	MOD	ARB/25/73
App. S30 Art. 4, Section IV (ex-4.4)	MOD	ARB/25/74, 75
App. S30 Art. 4, Section IV N4.36	ADD	ARB/25/76

App. S30 Art. 4, Section V N4.38	ADD	ARB/25/80
App. S30 Art. 4, Section V (ex-4.5)	MOD	ARB/25/77
App. S30 Art. 4, Section V 4.37 (ex-4.5.1)	MOD	ARB/25/78
App. S30 Art. 4, 4.3.9	SUP	ARB/25/56
App. S30 Art. 4, 4.3	SUP	ARB/25/33
App. S30 Art. 4, 4.3.3.7	SUP	ARB/25/43
App. S30 Art. 4, 4.5.2	SUP	ARB/25/79
App. S30 Art. 5.2.1 a)	NOC	ARB/25/81
App. S30 Art. 5.2.1 b)	NOC	ARB/25/82
App. S30 Art. 5.2.1 c)	MOD	ARB/25/83
App. S30 Art. 5.2.1 d)	NOC	ARB/25/84
App. S30 Art. 5.2.1 e)	ADD	ARB/25/85
App. S30 Art. 5.2.1 f)	ADD	ARB/25/86
App. S30 Art. 5.2.2	MOD	ARB/25/87
App. S30 Art. 5.2.2.1	MOD	ARB/25/88
App. S30 Art. 5.2.2.2	MOD	ARB/25/89
App. S30 Art. 5.2.2.3	ADD	ARB/25/90
App. S30 Art. 5.2.4	MOD	ARB/25/91
App. S30 Art. 5.2.5	MOD	ARB/25/92
App. S30 Art. 5.2.6	MOD	ARB/25/93
App. S30 Art. 3 (3.1 I))	MOD	ARB/25/14
		ARB/25/22
BSS replanning		RUS/33/16
BSS replanning		B/35/76
		AFR/37/10
BSS replanning		SEN/42/23
BSS replanning		CHN/80/1, 2
BSS replanning		KOR/83/1
App. S30 (Annex 1, sections 4, 5 and 8))	MOD	F/37/1
App. S30 (Annex 1 and 4)	MOD	F/37/2, 3
App. S30 (Annex 1, section 6)	MOD	F/37/4
App. S30 (Annex 1, section 7)	MOD	F/37/5

App. S30 (Annex 7)	NOC	CAN/24/67 IAP/14/295, 296, 298
App. S30 (Annex 7)	MOD	CAN/24/67 F/37/6 IAP/14/297
BSS replanning		ASP/20/287
Res. ASP/xxx	ADD	ASP/20/288
<ul style="list-style-type: none"> Capacity for future requirements Maintenance App. S30, Annex 7, Section A2) c) Sub-regional systems 		ASP/20/289
Compatibility between Region 1 BSS and Region 3 FSS		ASP/20/290
Region 1 and 3 BSS-BSS compatibility. Region 3 BSS ARC concept		ASP/20/292
Concept of Region 3 ARC for BSS plan		ASP/20/293
		CAN/24/66 IAP/14/229
		KEN/UGA/TZA/115/18, 19, 20
		RCC/45/20
		D/AUT/LIE/SUI/117/1
		J/133/50

Agenda item 1.19*bis*

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.19*bis* in accordance with Article S14, to consider objections expressed by administrations with respect to the Radio Regulations Board's Rules of Procedure relating to the application of RR **2674/S23.13** in order for the Bureau to modify its findings in accordance with the conclusions of the Conference;

Provision No.	Proposal	Proposal No.
S23.13	NOC	B/35/77 CAN/24/68 USA/12/133 EUR/13/196 IAP/14/230
RR 2674/S23.13	MOD	CHN/81/1

Agenda item 1.20

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.20 to consider the issues related to the application of Nos. **S9.8**, **S9.9** and **S9.17** and the corresponding parts of Appendix **S5** with respect to Appendices **S30** and **S30A**, with a view to possible deletion of Articles 6 and 7 of Appendices **S30** and **S30A**, also taking into consideration Recommendation **35 (WRC-95)**;

Provision No.	Proposal	Proposal No.
S5.487	NOC	B/35/78 CAN/24/70 IAP/14/300
S5.490	NOC	B/35/78 CAN/24/70 IAP/14/301
S9	MOD	EUR/13/197
S9 (⁶ A.S9.6)	ADD	EUR/13/198
S9 (⁷ A.S9.7)	ADD	EUR/13/199
S9.8	MOD	EUR/13/200
S9.8	SUP	B/35/80 CAN/24/71 IAP/14/302
S9.9	MOD	EUR/13/201
S9.9	SUP	B/35/81 CAN/24/71 IAP/14/303
S9.17 f)	MOD	B/35/82 CAN/24/71 EUR/13/202 ASP/20/294 IAP/14/304
S9.18 h)	MOD	B/35/84 CAN/24/71 ASP/20/296 IAP/14/306

S9.17A	MOD	CAN/24/71 B/35/83 EUR/13/203 IAP/14/305
S9.19	MOD	B/35/85 CAN/24/71 EUR/13/204 IAP/14/307
S9.32	MOD	B/35/86 CAN/24/71 IAP/14/308
S9.41	MOD	B/35/87 CAN/24/71 IAP/14/309
S9.51	MOD	B/35/88 CAN/24/71 IAP/14/310
S9.60	MOD	B/35/89 CAN/24/71 IAP/14/311
App. S30 (Annex 1, 5)	MOD	B/35/79 CAN/24/69 IAP/14/231
App. S30 (Annex 1, 8 b))	MOD	CAN/24/72 IAP/14/299
App. 30, Annex 3	NOC	EUR/13/216
App. 30, Annex 4	SUP	EUR/13/218
App. 30, Article 6	SUP	EUR/13/215
App. 30, Article 7	SUP	EUR/13/217
App. 30A (Annex 1, 1)	SUP	EUR/13/224
App. 30A (Annex 1, 2)	SUP	EUR/13/225
App. 30A (Annex 1, 6)	ADD	CAN/24/71 EUR/13/226 IAP/14/359
App. 30A (Annex 4)	SUP	EUR/13/229
App. 30A (Article 4, 4.2.1.2)	SUP	EUR/13/219
App. 30A (Article 4, 4.2.1.2A)	ADD	EUR/13/220
App. 30A (Article 4, 4.2.1.3)	SUP	EUR/13/221
App. 30A (Article 4, 4.2.3.2)	SUP	EUR/13/222
App. 30A (Article 4, 4.2.3.3)	SUP	EUR/13/223

App. 30A (Article 6)	SUP	EUR/13/227
App. 30A (Article 7)	SUP	EUR/13/228
App. S5 (1 <i>f</i>)	MOD	EUR/13/205
App. S5 (1 <i>f</i>) <i>bis</i>)	ADD	EUR/13/206
App. S5 (1 <i>f</i>) <i>ter</i>)	ADD	EUR/13/207
App. S5 (Table S5-1)	MOD	B/35/90 CAN/24/71 KAZ/43/15 RUS/33/17 SEN/42/25, 26 IAP/14/312
App. S5 (Table S5-1, No. S9.17)	MOD	ASP/20/295 EUR/13/210, 211
App. S5 (Table S5-1, No. S9.17A)	MOD	EUR/13/212
App. S5 (Table S5-1, No. S9.18)	NOC	EUR/13/213
App. S5 (Table S5-1, No. S9.19)	MOD	EUR/13/214
App. S5 (Table S5-1, No. S9.8)	MOD	EUR/13/208
App. S5 (Table S5-1, No. S9.9)	MOD	EUR/13/209
App. S30 Art. 6 (2.2)	ADD	CAN/24/71 IAP/14/313
App. S30 (Annex 1, 5 <i>b</i>)	MOD	USA/12/134
App. S30 (Annex 1, 5 <i>c</i>)	SUP	USA/12/135
App. S30 (Annex 1, 5 <i>d</i>)	NOC	USA/12/136
App. S30 (Annex 4)	MOD	CAN/24/71 IAP/14/344, 345
App. S30 Art. 6	MOD	CAN/24/71 IAP/14/314
App. S30 Art. 6 (6.1.1)	MOD	CAN/24/71 ASP/20/297 IAP/14/315
App. S30 Art. 6 (6.1.2)	MOD	CAN/24/71 IAP/14/316
App. S30 Art. 6 (6.1.3)	MOD	CAN/24/71 IAP/14/317
App. S30 Art. 6 (6.1.10)	MOD	CAN/24/71 IAP/14/318
App. S30 Art. 6 (6.2.1)	MOD	CAN/24/71 IAP/14/319

App. S30 Art. 6 (6.2.2)	MOD	CAN/24/71 IAP/14/320
App. S30 Art. 6 (6.3.1)	MOD	CAN/24/71 IAP/14/321
App. S30 Art. 6 (6.3.10)	MOD	CAN/24/71 IAP/14/322
App. S30 Art. 6 (6.3.34)	MOD	CAN/24/71 IAP/14/323
App. S30 Art. 7	MOD	CAN/24/71 IAP/14/324
App. S30 Art. 7 (Section I)	MOD	CAN/24/71 IAP/14/325
App. S30 Art. 7 (7.1.1)	MOD	CAN/24/71 IAP/14/326
App. S30 Art. 7 (7.1.4)	MOD	CAN/24/71 ASP/20/298 IAP/14/327
App. S30 Art. 7 (7.1.8)	MOD	CAN/24/71 IAP/14/328
App. S30 Art. 7 (7.2.1)	MOD	CAN/24/71 ASP/20/299 IAP/14/329
App. S30 Art. 7 (7.2.3)	MOD	CAN/24/71 ASP/20/300 IAP/14/330
App. S30 Art. 7 (7.3.1)	MOD	CAN/24/71 ASP/20/301 IAP/14/331
App. S30 Art. 7 (7.4.5.2)	MOD	CAN/24/71 ASP/20/302 IAP/14/332
App. S30 Art. 7 (7.4.5.3)	MOD	CAN/24/71 IAP/14/333
App. S30 Art. 7 (7.4.9.1)	MOD	CAN/24/71 ASP/20/303 IAP/14/334
App. S30 Art. 7 (7.4.9.4)	MOD	CAN/24/71 ASP/20/304 IAP/14/335
App. S30 Art. 7 (7.4. 12.1)	MOD	CAN/24/71 IAP/14/336

App. S30 Art. 7 (7.4. 12.1)	MOD	CAN/24/71 IAP/14/337
App. S30 Art. 7 (7.4.13)	MOD	CAN/24/71 IAP/14/338
App. S30 Art. 7 (7.6.2)	MOD	CAN/24/71 IAP/14/339
App. S30 Art. 7 (7.6.3)	MOD	CAN/24/71 IAP/14/340
App. S30 Art. 7 (7.8.1)	MOD	CAN/24/71 IAP/14/341
App. S30 Art. 7 (7.8.2)	MOD	CAN/24/71 IAP/14/342
App. S30 Art. 7 (7.8.3)	MOD	CAN/24/71 IAP/14/343
App. S30A Art. 2 (2.2)	ADD	CAN/24/71 IAP/14/346
App. S30A Art. 4 (4.2.1 <i>bis</i>)	ADD	CAN/24/71 IAP/14/347
App. S30A Art. 4 (4.2.1 <i>ter</i>)	ADD	CAN/24/71 IAP/14/348
App. S30A Art. 4 (4.2.3 <i>bis</i>)	ADD	CAN/24/71 IAP/14/349
App. S30A Art. 5 (5.1.3)	MOD	CAN/24/71 IAP/14/350
App. S30A Art. 7	MOD	CAN/24/71 IAP/14/351
App. S30A Art. 7 (7.1)	MOD	CAN/24/71 IAP/14/352
App. S30A Art. 7 (7.2)	MOD	CAN/24/71 IAP/14/353
App. S30A Art. 7 (7.3)	MOD	CAN/24/71 IAP/14/354
App. S30A Art. 7 (7.4)	MOD	CAN/24/71 IAP/14/355

App. S30A Art. 7 (7.5)	MOD	CAN/24/71 IAP/14/356
App. S30A Art. 7 (7.6)	MOD	CAN/24/71 IAP/14/357
App. 30A (Annex 1, 1)	MOD	CAN/24/71 IAP/14/358
App. S30A (Annex 4, 2)	ADD	CAN/24/71 IAP/14/360
App. S30A (Annex 4,3)	SUP	CAN/24/71 IAP/14/361

Agenda item 1.21

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.21 to consider the report from the Radiocommunication Bureau on results of the analysis in accordance with Resolution **53 (WRC-97)** and take appropriate actions;

Provision No.	Proposal	Proposal No.
App. S30 (Art. 11)	MOD	AUS/57/1
		ASP/20/305
		KAZ/43/16

Agenda item 2

2 to examine the revised ITU-R recommendations incorporated by reference in the Radio Regulations in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97)**;

Provision No.	Proposal	Proposal No.
Res. 27	MOD	CAN/24/33 USA/12/137, 138, 139, 141 IAP/14/232
Res. 27	ADD	USA/12/140
Res. 28	MOD	CAN/24/34 USA/12/142 IAP/14/233
Res. 28	ADD	USA/12/143, 144
		KEN/123/3

Agenda item 3

3 to consider such consequential changes and amendments to the Radio Regulations as
may be necessitated by the decisions of the Conference;

[illegible]

Agenda item 4		
4	in accordance with Resolution 95 (WRC-97) , to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;	

Provision No.	Proposal	Proposal No.
Res. 5	SUP	ASP/20/306
Res. 8	SUP	ASP/20/307
Res. 10	MOD	SW/28/1 SUI/28/1
Res. 14	SUP	ASP/20/308
Res. 20	SUP	J/133/51
Res. 23	SUP	ASP/20/309
Res. 24	SUP	ASP/20/310
Res. 44	SUP	J/133/52
Res. 46	SUP	ASP/20/311
Res. 50	SUP	ASP/20/312
Res. 51	MOD	CAN/24/102
Res. 52	SUP	ASP/20/313
Res. 54	SUP	ASP/20/314
Res. 63	SUP	CAN/24/73 USA/12/145 ASP/20/315 IAP/14/234
Res. 70	SUP	ASP/20/316
Res. 124	SUP	J/133/53
Res. 127	MOD	USA/12/287, 288, 289, 291, 292, 293, 298, 299, 300, 301, 302
Res. 127	ADD	USA/12/294, 295, 296
Res. 127	SUP	USA/12/290, 297
Res. 132	NOC	ASP/20/317
Res. 318	SUP	ASP/20/318
Res. 406	SUP	J/133/54
Res. 412	SUP	J/133/55
Res. 507	SUP	J/133/56
Res. 518	SUP	ASP/20/319

Res. 524	SUP	ASP/20/320
Res. 534	SUP	ASP/20/321
Res. 644	MOD	CAN/24/103
Res. 703	SUP	J/133/57
Res. 716	MOD	IND/138/4
Res. 728	MOD	USA/12/253, 254, 255, 256
Rec. 32	SUP	ASP/20/322
Rec. 61	SUP	ASP/20/323
Rec. 316	SUP	ASP/20/324
Rec. 405	SUP	J/133/58
Rec. 503	SUP	ASP/20/325
Rec. 518	SUP	ASP/20/326
Rec. 521	SUP	ASP/20/327
Rec. 606	SUP	ASP/20/328
Rec. 720	SUP	ASP/20/329

Agenda item 5

5 to review, and take appropriate action on, the report from the Radiocommunication
Assembly submitted in accordance with Nos. 135 and 136 of the Convention (Geneva, 1992);

[illegible]

Agenda item 6

6 to identify those items requiring urgent action by the radiocommunication study groups
in preparation for the next world radiocommunication conference;

[illegible]

Agenda item 7.1		
7	in accordance with Article 7 of the Convention (Geneva, 1992):	
7.1	to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-97;	

Provision No.	Proposal	Proposal No.
S5.43	MOD	CAN/24/104
S5.43A	ADD	CAN/24/105
S5.488	MOD	EUR/13/377 IAP/14/235
S11.44 to S11.44I	NOC	EUR/13/376
S11.44	MOD	EUR/13/381
S11.44.1	ADD	EUR/13/382
S13.2	MOD	EUR/13/363
S13.2A	ADD	EUR/13/364
S13.2B	ADD	EUR/13/365
S13.2C	ADD	EUR/13/366
S13.2D	ADD	EUR/13/367
S13.2E	ADD	EUR/13/368
S13.2F	ADD	EUR/13/369
S13.13	MOD	EUR/13/298
S13.14	MOD	EUR/13/299
S13.14A	ADD	EUR/13/300
S13.15	MOD	EUR/13/301
S13.16	MOD	EUR/13/302
S13.17	MOD	EUR/13/303
S13.18	MOD	EUR/13/304
S13.19	MOD	EUR/13/305
S21 (Table S21-4)	MOD	EUR/13/378 IAP/14/236
App. S5 (Table S5-1)	MOD	CAN/24/75
App. S5 (Table S5-1A)	MOD	CAN/24/76, 77
App. S5 (Annex 1, 1 to 1.3)	NOC	CAN/24/78
App. S5 (Annex 1, 2 to 2.5)	SUP	CAN/24/79
App. S5 (Annex 1, 2 to 2.5)	SUP	CAN/24/80

App. S4 (Annex 2A)	SUP	CAN/24/81
App. S10	MOD	EUR/13/370
Res. UUU (J)	ADD	J/133/61, 62
Res. ZZZ (J)	ADD	J/133/66, 67
		MLA/48/1
		CAN/24/74
		J/133/59, 60, 63, 64, 65,

Agenda item 7.2		
7	in accordance with Article 7 of the Convention (Geneva, 1992):	
7.2	to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent Conference and on possible agenda items for future conferences,	

Provision No.	Proposal	Proposal No.
Res. 127	MOD	INS/60/3
Res. 214	MOD	INS/60/2
Res. 219	MOD	INS/60/6
Res. 528	SUP	CAN/24/111, 112, 113, 114
Res. 721	SUP	ASP/20/330
Res. 722	NOC	CAN/24/108 CVA/G/HOL/135/1
Res. 722	SUP	CAN/24/106, 107 ASP/20/331 EUR/13/383
Res. 722	MOD	AUS/58/1, 2, 3 INS/60/4, 5 CVA/G/HOL/135/2
Res. 722	ADD	CAN/24/109, 110 CVA/G/HOL/135/3
Res. AAA	ADD	ASP/20/334
Res. BBB	ADD	ASP/20/335
Res. CCC	ADD	ASP/20/336
Res. DDD	ADD	ASP/20/337
Res. EEE	ADD	ASP/20/338
Res. EUR 13/11	ADD	EUR/13/385
Res. EUR 13/12	ADD	EUR/13/386
Res. EUR 13/13	ADD	EUR/13/387
Res. NNN-EUR 13/10	ADD	EUR/13/384
Res. XXX	ADD	ASP/20/332
Res. XXX (IND)	ADD	IND/138/1
Res. YYY	ADD	ASP/20/333
		NZL/66/2, NZL/121/1
		INS/60/1
		S/127/1
		CVA/G/HOL/135/4

1998 Plenipotentiary Resolution 85		
Provision No.	Proposal	Proposal No.
A.S9.5bis (Footnote)	ADD	DNK/LIE/LUX/NOR/HOL/SUI/67/1
A.S113bis (Footnote)	ADD	DNK/LIE/LUX/NOR/HOL/SUI/67/2
App. S30, Art. 4 (Footnote)	ADD	DNK/LIE/LUX/NOR/HOL/SUI/67/3
App. S30A, Art. 4 (Footnote)	ADD	DNK/LIE/LUX/NOR/HOL/SUI/67/4
Res. XXX (DNK/LIE/LUX/NOR/HOL/SUI)	ADD	DNK/LIE/LUX/NOR/HOL/SUI/67/5

1998 Plenipotentiary Resolution 86		
Provision No.	Proposal	Proposal No.
S1.185	MOD	AUS/KOR/J/NZL/107/1
Res. EEE	ADD	ASP/20/341
S11.44	MOD	EUR/13/381
S11.44.1	ADD	EUR/13/382
S4 (Annex 2A, A2)	MOD	EUR/13/306, 307
S4 (section D)	SUP	EUR/13/308
S5 (2 520-2 700 MHz)	MOD	ASP/20/344
S5.43		EUR/13/379, 380
S5.393	MOD	USA/12/158
S5.502	MOD	MLA/46/1
S5.556A	MOD	MLA/47/2
S5.XXX	ADD	ASP/20/345
S8.1.1	MOD	AUS/KOR/J/NZL/107/2
S9	MOD	USA/12/153
S9	NOC	AUS/KOR/J/NZL/107/3
S9 (Section I)	MOD	AUS/KOR/J/NZL/107/4 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/3
S9 (Section III)	ADD	USA/12/146
S9.1	MOD	AUS/KOR/J/NZL/107/5 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/4
S9.1A	ADD	AUS/KOR/J/NZL/107/6 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/6
S9.2	MOD	AUS/KOR/J/NZL/107/7 BEL/DNK/LIE/LUX/NOR/HOL/ SUI/68/1, 7

S9.2B	ADD	AUS/KOR/J/NZL/107/8 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/8
S9.2C	ADD	AUS/KOR/J/NZL/107/9
9.2C.1	ADD	AUS/KOR/J/NZL/107/10
S9 (Sub-section IA)	SUP	AUS/KOR/J/NZL/107/11 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/9
S9.3	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/2 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/10
S9.4	MOD	AUS/KOR/J/NZL/107/12
S9.5	MOD	AUS/KOR/J/NZL/107/13
S9.5A	SUP	AUS/KOR/J/NZL/107/14 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/11
A.S9.5bis (Footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/5
S9 (Sub-section IB)	SUP	AUS/KOR/J/NZL/107/15 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/12
S9.5B	SUP	AUS/KOR/J/NZL/107/16 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/13
S9.5B.1	SUP	AUS/KOR/J/NZL/107/17 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/16
S9.5C	SUP	AUS/KOR/J/NZL/107/18 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/14
S9.5D	SUP	AUS/KOR/J/NZL/107/19 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/15
S9 (Section II)	NOC	AUS/KOR/J/NZL/107/20
S9 (Section IIA)	NOC	AUS/KOR/J/NZL/107/21
S9.12 i)	MOD	ASP/20/346
S9.13 ii)	MOD	ASP/20/347
S9.12.1	ADD	ASP/20/348
S9.13.1	ADD	ASP/20/349
S9.30	MOD	AUS/KOR/J/NZL/107/22 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/17
S9.30A	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/18
S9.30.1	ADD	AUS/KOR/J/NZL/107/23
S9.30bis	ADD	AUS/KOR/J/NZL/107/24
S9.36 b)	MOD	AUS/KOR/J/NZL/107/25 EUR/13/309
S9.36.2	ADD	EUR/13/310 AUS/KOR/J/NZL/107/26

S9.37	MOD	AUS/KOR/J/NZL/107/27
S9.38	MOD	AUS/KOR/J/NZL/107/28 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/19
S9.39	MOD	AUS/KOR/J/NZL/107/29
S9.40 e)	MOD	AUS/KOR/J/NZL/107/30 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/20
S9.40bis	ADD	AUS/KOR/J/NZL/107/31
S9.40bis.1	ADD	AUS/KOR/J/NZL/107/32
S9.41	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/21 EUR/13/311
S9.43A	ADD	AUS/KOR/J/NZL/107/33
S9.43B	ADD	AUS/KOR/J/NZL/107/34
S9.51	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/22
S9.52	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/23
S9.52A	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/24
S9.55	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/25
S9.64	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/26
S9.70	ADD	USA/12/147
S9.71	ADD	USA/12/148
S9.72	ADD	USA/12/149
S9.73	ADD	USA/12/150
S9.74	ADD	USA/12/151
A.S9.1bis	ADD	USA/12/154
S11	MOD	USA/12/155 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/27
S11	NOC	AUS/KOR/J/NZL/107/35
A.S11.3bis (Footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/28
S11 (Section I)	NOC	AUS/KOR/J/NZL/107/36
S11.14	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/29
S11.44	MOD	AUS/KOR/J/NZL/107/37
S11.44A	MOD	AUS/KOR/J/NZL/107/38 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/30
S11.44B	MOD	AUS/KOR/J/NZL/107/39 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/31
S11.44G	MOD	AUS/KOR/J/NZL/107/40

S11.48	MOD	AUS/KOR/J/NZL/107/41 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/32
App. S4	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/33
App. S4 (Annex 2A, A2)	MOD	AUS/KOR/J/NZL/107/42
App. S4 (Annex 2A, D)	SUP	AUS/KOR/J/NZL/107/43, 44, 45
App. S4 (Annex 2B, A)	SUP	AUS/KOR/J/NZL/107/46
App. S4 (Annex 2B, B)	SUP	AUS/KOR/J/NZL/107/47
App. S4 (Annex 2B, C)	SUP	AUS/KOR/J/NZL/107/48
App. S4 (Annex 2B, D)	SUP	AUS/KOR/J/NZL/107/49
App. S5 1e)	MOD	AUS/KOR/J/NZL/107/50
App. S5 (Note 3)	MOD	AUS/KOR/J/NZL/107/51
App. S5 (Note 3bis)	ADD	AUS/KOR/J/NZL/107/52
App. S5 (Note 4)	MOD	AUS/KOR/J/NZL/107/53
App. S5 (Table S5-1)	MOD	AUS/KOR/J/NZL/107/54, 55 USA/12/159
App. S5 Table S5-1 No. S9.11 and S9.19	MOD	ASP/20/342
App. S5 Table S5-1 No. S9.12 and S9.13	MOD	ASP/20/343
App. S8 (1)	MOD	AUS/KOR/J/NZL/107/56 INS/105/1
App. S8 (2)	MOD	INS/105/2
App. S8 (2.1)	MOD	INS/105/3
App. S8 (2.2)	MOD	AUS/KOR/J/NZL/107/57
App. S8 (2.2.1.1)	SUP	AUS/KOR/J/NZL/107/58
App. S8 (2.2.1.1)	MOD	INS/105/4
App. S8 (2.2.1.2)	MOD	AUS/KOR/J/NZL/107/59 INS/105/5
App. S8 (2.2.2)	MOD	AUS/KOR/J/NZL/107/60
App. S8 (2.2.2.1)	SUP	AUS/KOR/J/NZL/107/61
App. S8 (2.2.2.1)	MOD	INS/105/6
App. S8 (2.2.2.2)	MOD	AUS/KOR/J/NZL/107/62 INS/105/7
App. S8 (2.2.3)	MOD	AUS/KOR/J/NZL/107/63 INS/105/8
App. S8 (2.3)	SUP	AUS/KOR/J/NZL/107/64
App. S8 (2.3)	MOD	INS/105/9

App. S8 (2.4)	MOD	AUS/KOR/J/NZL/107/65 INS/105/10
App. S8 (3.1)	SUP	AUS/KOR/J/NZL/107/66
App. S8 (3.1)	MOD	INS/105/11
App. S8 (3.2)	MOD	AUS/KOR/J/NZL/107/67 INS/105/12
App. S8 (Annex IV, 2)	MOD	AUS/KOR/J/NZL/107/68
App. S8 (Annex IV, 3)	MOD	AUS/KOR/J/NZL/107/69
App. S8 (Annex IV, 4)	MOD	AUS/KOR/J/NZL/107/70
A.S11.1 <i>bis</i>	ADD	USA/12/156
App. S30 Art. 10 Table 4	ADD	ASP/20/340
App. S30 Art. 110, Section 11.3	ADD	ASP/20/339
App. S30A (Table 2)	MOD	INS/101/1
App. S30A (Table 2A)	MOD	INS/101/2
App. S30A (Table 2B)	MOD	INS/101/3
Res. 49	MOD	AUS/KOR/J/NZL/107/72
Res. XXX	ADD	LUX/NOR/HOL/69/1
Res. (CR-1)	ADD	USA/12/152
Res. (RP)	ADD	USA/12/157
Res. TTT (AUS/KOR/J/NZL)	ADD	AUS/KOR/J/NZL/107/71
Res. XXX (BEL/DNK/LIE/LUX/ NOR/HOL/SUI/)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/34
Res. XXX (E/LUX/NOR/HOL)	ADD	E/LUX/NOR/HOL/69/1
		MLA/48/1
		F/134/1

1998 Plenipotentiary Resolution 87		
Provision No.	Proposal	Proposal No.
S7.9	ADD	EUR/13/312

1998 Plenipotentiary Resolution 88		
Provision No.	Proposal	Proposal No.
S9.2B	MOD	EUR/13/313
S9.2B1	ADD	EUR/13/314
S9.38	MOD	EUR/13/315
S9.38.1	ADD	EUR/13/316
App. S30 (4.3.6)	MOD	EUR/13/317
App. S30 (4.3.6)	ADD	EUR/13/318
App. S30A (4.2.7)	MOD	EUR/13/319
App. S30A (4.2.7)	ADD	EUR/13/320
App. S30B	MOD	EUR/13/321, 322
		KOR/84/1

**Note by the Secretary-General****DRAFT CONFERENCE STRUCTURE****WORLD RADIOCOMMUNICATION CONFERENCE (WRC-2000)****Istanbul, 2000**

The agenda of the Conference appears in Council Resolution 1130. Bearing in mind Nos. 18 to 29 inclusive of the Rules of Procedure of Conferences and other Meetings of the International Telecommunication Union, Minneapolis, 1998 (hereafter, Rules of Procedure), the following committees with their terms of reference are suggested. These terms of reference have been drawn up within the framework of the basic texts of the Union, the Conference agenda and in the light of experience at previous conferences.

Committee 1 - Steering Committee*Terms of reference:*

To coordinate all matters connected with the smooth execution of work and to plan the order and number of meetings, avoiding overlapping wherever possible in view of the limited number of members of some delegations (No. 22 of the Rules of Procedure, Minneapolis, 1998).

Committee 2 - Credentials Committee*Terms of reference:*

To verify the credentials of delegations and to report on its conclusions to the Plenary Meeting within the time specified by the latter (No. 23 of the Rules of Procedure, Minneapolis, 1998).

Committee 3 - Budget Control Committee*Terms of reference:*

To determine the organization and the facilities available to the delegates, to examine and approve the accounts for expenditure incurred throughout the duration of the Conference, and to report to the Plenary Meeting the estimated total expenditure of the Conference, as well as an estimate of the costs that may be entailed by the execution of the decisions taken by such a Conference (Nos. 26 to 28 of the Rules of Procedure, Minneapolis, 1998).

Committee 4 - Regulatory and Associated Issues

Terms of reference:

On the basis of proposals by administrations and the Report from the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

- 1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-97)** (***item 1.1**);
- 2 to finalize remaining issues in the review of Appendix **S3** to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation **66 (Rev.WRC-97)** and the decisions of WRC-97 on adoption of new values, due to take effect at a future time, of spurious emissions for space services (***item 1.2**);
- 3 to consider the results of ITU-R studies in respect of Appendix **S7/28** on the method for the determination of the coordination area around an earth station in frequency bands shared among space services and terrestrial radiocommunication services, and take the appropriate decisions to revise this Appendix (***item 1.3**);
- 4 to consider regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, including their coordination with other services allocated in these bands (***item 1.8**);
- 5 in accordance with Article **S14**, to consider objections expressed by administrations with respect to the Radio Regulations Board's Rules of Procedure relating to the application of RR2674/S23.13 in order for the Bureau to modify its findings in accordance with the conclusions of the Conference (***item 1.19bis**);
- 6 to consider the issues related to the application of Nos. **S9.8**, **S9.9** and **S9.17** and the corresponding parts of Appendix **S5** with respect to Appendices **S30** and **S30A**, with a view to possible deletion of Articles 6 and 7 of Appendices **S30** and **S30A**, also taking into consideration Recommendation **35 (WRC-95)** (***item 1.20**);
- 7 to examine the revised ITU-R recommendations incorporated by reference in the Radio Regulations in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97)** (***item 2**);
- 8 in accordance with Resolution **95 (WRC-97)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation (***item 4**);
- 9 Resolutions 80, 85, 86, 87 and 88 of the Plenipotentiary Conference (Minneapolis, 1998);
- 10 to consider any other item submitted to the Committee by the Plenary.

* References in parentheses relate to WRC draft agenda item numbers, according to Council Resolution 1130.

Committee 5 - Allocations and Associated Issues

Terms of reference:

On the basis of proposals by administrations and the Report from the Conference Preparatory Meeting, taking account of the results of the 1997 World Radiocommunication Conference (WRC-97), and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

- 1 to consider issues concerning allocations and regulatory aspects related to Resolutions **126 (WRC-97)**, **128 (WRC-97)**, **129 (WRC-97)**, **133 (WRC-97)**, **134 (WRC-97)** and **726 (WRC-97)** (*item 1.4);
- 2 to consider regulatory provisions and possible additional frequency allocations for services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution **122 (WRC-97)** (*item 1.5);
- 3 issues related to IMT-2000:
 - 3.1 review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary (*item 1.6.1);
 - 3.2 identification of a global radio control channel to facilitate multimode terminal operation and worldwide roaming of IMT-2000 (*item 1.6.2);
- 4 review of the use of the HF bands by the aeronautical mobile (R) and maritime-mobile services with a view to protecting operational, distress and safety communications, taking into account Resolution **346 (WRC-97)** (*item 1.7);
- 5 to take into account the results of ITU-R studies in evaluating the feasibility of an allocation in the space-to-Earth direction to the mobile-satellite service (MSS) in a portion of the 1 559-1 567 MHz frequency range, in response to Resolutions **213 (Rev.WRC-95)** and **220 (WRC-97)** (*item 1.9);
- 6 to consider results of ITU-R studies carried out in accordance with Resolution **218 (WRC-97)** and take appropriate action on this subject (*item 1.10);
- 7 to consider constraints on existing allocations and to consider additional allocations on a worldwide basis for the non-geostationary (non-GSO) MSS below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolutions **214 (Rev.WRC-97)** and **219 (WRC-97)** (*item 1.11);
- 8 to consider the progress of studies on sharing between feeder links of non-GSO MSS networks and GSO FSS networks in the bands 19.3-19.7 GHz and 29.1-29.5 GHz, taking into account Resolution **121 (Rev.WRC-97)** (*item 1.12);
- 9 on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**;

* References in parentheses relate to WRC draft agenda item numbers, according to Council Resolution 1130.

9.1 to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services (***item 1.13.1**);

9.2 to consider the inclusion in other frequency bands of similar limits in Articles **S21** and **S22**, or other regulatory approaches to be applied in relation to sharing situations (***item 1.13.2**);

10 to review the results of the studies on the feasibility of implementing non-GSO MSS feeder links in the 15.43-15.63 GHz in accordance with Resolution **123 (WRC-97)** (***item 1.14**);

11 issues related to the radionavigation-satellite service:

11.1 to consider new allocations to the radionavigation-satellite service in the range from 1 GHz to 6 GHz required to support developments (***item 1.15.1**);

11.2 to consider the addition of the space-to-space direction to the radionavigation-satellite service allocations in the bands 1 215 -1 260 MHz and 1 559-1 610 MHz (***item 1.15.2**);

11.3 to consider the status of allocations to services other than the radionavigation-satellite service (Nos. **S5.355** and **S5.359**) in the band 1 559-1 610 MHz (***item 1.15.3**);

12 to consider allocation of frequency bands above 71 GHz to the earth exploration-satellite (passive) and radio astronomy services, taking into account Resolution **723 (WRC-97)** (***item 1.16**);

13 to consider possible worldwide allocation for the earth exploration-satellite (passive) and space research (passive) services in the band 18.6-18.8 GHz, taking into account the results of the ITU-R studies (***item 1.17**);

14 to consider the use of new digital technology for the maritime-mobile service in the band 156-174 MHz and consequential revision of Appendix **18/S18**, taking into account Resolution **342 (WRC-97)** (***item 1.18**);

15 to consider any other item submitted to the Committee by the Plenary.

Committee 6 - Editorial Committee

Terms of reference:

To perfect the form of the texts to be included in the Final Acts of the Conference without altering the sense, for submission to the Plenary Meeting (Nos. 24 and 25 of the Rules of Procedure, Minneapolis, 1998).

* References in parentheses relate to WRC draft agenda item numbers, according to Council Resolution 1130.

Working Group 1 of the Plenary

Terms of reference:

- 1 to consider the report of the Inter-conference Representative Group (IRG) submitted by the Director of the Radiocommunication Bureau and determine the basis for replanning by the next conference so as to afford each country an amount of spectrum that permits the economical development of a broadcasting-satellite service system (***item 1.19**);
- 2 in accordance with Article **S14**, to consider objections expressed by administrations with respect to the Radio Regulations Board's Rules of Procedure relating to the application of RR2674/S23.13 in order for the Bureau to modify its findings in accordance with the conclusions of the Conference (***item 1.19bis**);
- 3 to consider the issues related to the application of Nos. **S9.8**, **S9.9** and **S9.17** and the corresponding parts of Appendix **S5** with respect to Appendices **S30** and **S30A**, with a view to possible deletion of Articles 6 and 7 of Appendices **S30** and **S30A**, also taking into consideration Recommendation **35 (WRC-95)** (***item 1.20**);
- 4 to consider the report from the Radiocommunication Bureau on results of the analysis in accordance with Resolution **53 (WRC-97)** and take appropriate actions (***item 1.21**);
- 5 to consider any other item submitted to the Working Group by the Plenary.

Working Group 2 of the Plenary

Terms of reference:

- 1 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention (Geneva, 1992) (***item 5**);
- 2 to identify those items requiring urgent action by the radiocommunication study groups in preparation for the next world radiocommunication conference (***item 6**);
- 3 in accordance with Article 7 of the Convention (Geneva, 1992);
 - 3.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-97 (***item 7.1**);
 - 3.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent Conference and on possible agenda items for future conferences (***item 7.2**);
- 4 to consider any other item submitted to the Working Group by the Plenary.

* References in parentheses relate to WRC draft agenda item numbers, according to Council Resolution 1130.



ISTANBUL, 8 MAY – 2 JUNE 2000

HEADS OF DELEGATION

DRAFT AGENDA
OF THE
FIRST PLENARY MEETING

Monday, 8 May 2000, at 1145 hours
(Rumeli A and B)

		Documents
1	Approval of the agenda	OJ/1
2	Election of the Chairperson	-
3	Address by the Chairperson of the Conference	-
4	Address by the Director of the Radiocommunication Bureau	-
5	Conference structure	DT/2
6	Election of the Vice-Chairpersons of the Conference	-
7	Election of the Chairpersons and Vice-Chairpersons of the Committees	-
8	Composition of the Conference Secretariat	-
9	Financial responsibilities of conferences	-
10	Allocation of documents to Committees	DT/4
11	Requests for participation received from international organizations	114
12	Invitations to the Conference	113
13	Date by which the Credentials Committee must submit its conclusions	-
14	Working hours of the meetings of the Conference	-
15	Other business	-

Yoshio UTSUMI
Secretary-General



Note by the Secretary-General

DRAFT ALLOCATION OF DOCUMENTS

The proposal for allocation of documents given in Annex 2, with reference to Documents 1 to 151 submitted to the Conference, is made according to the allocation of agenda items (see Annex 1) and based on the structure of the Conference as set out in Document 149.

Yoshio UTSUMI
Secretary-General

NOTE - Indicated page numbers, contained in Annex 2, are based on WRC documents (English versions).

Annexes: 2

ANNEX 1

Distribution of agenda items according to the structure of the Conference

				COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
					1.1	1.4	1.19	5, 6, 7
					1.2	1.5	1.19bis	
					1.3	1.6	1.20	
					1.8	1.7	1.21	
					2	1.9		
					4	1.10		
					PP-98,	1.11		
					Resolutions 80,	1.12		
					85, 86, 87, 88	1.13		
						1.14		
						1.15		
						1.16		
						1.17		
						1.18		

ANNEX 2

Allocation of documents

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
1	SG	Entire doc.						
2	SG	Entire doc.						
3	SG				Chapter 5 (5.2, 5.4), Chapter 6 (6.3), Chapter 7	Chapters 1, 2, 3, 4, Chapter 6 (6.1, 6.2, 6.4, 6.5)	Chapter 5 (5.1, 5.3)	Chapter 8
4	SG (ICAO)	3.28, 3.31			3.1, 3.2, 3.5, 3.9, 3.24, 3.25, 3.27, 3.28, 3.29	3.3, 3.6, 3.7, 3.8, 3.10 to 3.22, Corr.1, Add.1, Add.2, Add.3	3.23, 3.26	3.30, 3.31, 3.32, 3.33
5	SG					Entire doc.		
6	Saudi Arabia				Entire doc.			
7	Estonia				Entire doc.			
8	Czech Republic				Entire doc.			
9	Pakistan				Entire doc.			
10	Angola				Entire doc.			
11	Hungary				Entire doc.			
12	United States				Pages 3 to 15, pages 20 to 70, pages 73 to 80 Add.1, Add.2, Add.4, Add.5, Add.12, Add.15	Pages 16 to 19, pages 24 to 70, Add.3, Add.6, Add.7, Add.8, Add.9, Add.10, Add.11, Add.13, Add.14, Add.16	Pages 71 to 72	

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
13	European Proposals				Add.6 (Part 6C) Add.7	Add.1 (Parts 1A, 1B, 1C), Add.2 (Parts 2A, 2B, 2C, 2D), Add.3, Add.4, Add.6 (Parts 6A, 6B, 6D)	Add.5	Add.8
14	CITEL				Pages 5 to 12, pages 29 to 33, Corr.1, Add.1 (pages 10 to 15), Add.1 (pages 118 to 127)	Pages 13 to 28, pages 34 to 46, Add.1 (page 16), Add.1 (pages 128 to 198)	Add.1 (pages 115 to 117), Add.1 (pages 111 to 117), Add.1 (page 199), Add.2	
15	SG				Entire doc.			
16	SG				Entire doc.			
17	SG						Entire doc.	
18	Sweden				Entire doc.			
19	Lithuania				Entire doc.			
20	Asia-Pacific Telecommunity (APT)				Pages 3 to 23, pages 75 to 81, pages 193 to 198, pages 213 to 219	Pages 24 to 74, pages 82 to 177	Pages 178 to 191, page 192	Pages 199 to 212
21	United Arab Emirates					Entire doc.		
22	United Arab Emirates					Entire doc.		
23	United Arab Emirates				Entire doc.			

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
24	Canada				Pages 6 to 8, pages 23 to 24, pages 40 to 45, Add.1 (page 6), Add.2	Pages 8 to 22, pages 24 to 39, Add.1 (pages 7 to 24), Add.2, Add.3, Corr.1	Add.1 (pages 25 to 30)	Add.1 (pages 31 to 44), Add.2
25	Morocco (Arab countries)					Pages 4 to 5	Pages 6 to 31	
26	Namibia				Entire doc.			
27	United Kingdom				Entire doc.			
28	Switzerland				Entire doc.			
29	SG				Entire doc.			
30	Uzbekistan				Pages 2 to 6, page 7, page 8	Pages 7 to 8, pages 9 to 11	Pages 11 and 12	
31	Cuba				Pages 3 to 6, pages 20 and 21	Pages 6 to 19, pages 22 to 36	Pages 37 to 38	
32	SG				Entire doc.			
33	Russia				Page 1	Pages 2 to 11, Add.1	Pages 11 to 13	Page 13
34	SG						Entire doc.	
35	Brazil				Add.1, Add.2, Add.5, Add.14	Add.3, Add.4, Add.6, Add.7, Add.8	Add.9, Add.10, Add.11, Add.12, Add.13	Add.15
36	SG				Entire doc., Add.1			
37	France						Entire doc.	
38	Italy				Entire doc.			
39	SG						Entire doc.	
40	SG	Entire doc.						

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
41	SG (Dir. Report)				Entire doc.	Entire doc.	Entire doc.	Entire doc.
42	Senegal				Page 6, page 5	Pages 1 to 4	Page 5	
43	Kazakstan				Pages 2 and 3	Page 4 (1.15.1)	Page 4 (1.20 and 1.21)	
44	Namibia				Entire doc.			
45	Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Ukraine				Page 1, page 3, pages 5 to 6	Pages 2 to 3, pages 3 to 5		
46	Malaysia					Entire doc.		
47	Malaysia				Entire doc.			
48	Malaysia				Entire doc.			
49	Malaysia				Entire doc.			
50	SG (list)							
51	Malaysia					Entire doc.		
52	Australia					Entire doc.		
53	Australia					Entire doc.		
54	Australia					Entire doc.		
55	Australia, Korea (Rep. of)					Entire doc.		
56	Australia					Entire doc.		
57	Australia						Entire doc.	
58	Australia							Entire doc.

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
59	Indonesia					Entire doc.		
60	Indonesia					Pages 2 to 4		Page 4
61	Indonesia				Entire doc.			
62	Uruguay				Entire doc.			
63	Norway				Entire doc.			
64	SG (IATA)				Page 4	Pages 4 to 9		
65	Spain						Entire doc.	
66	New Zealand					Entire doc.		
67	Denmark, Liechtenstein, Luxembourg, Norway, Netherlands, Switzerland				Entire doc.			
68	Denmark, Liechtenstein Luxembourg, Norway, Netherlands, Switzerland				Entire doc.			
69	Spain, Luxembourg, Norway, Netherlands				Entire doc.			
70	China				Entire doc.			
71	China				Entire doc.			
72	China					Entire doc.		
73	China					Entire doc.		
74	China					Entire doc.		

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
75	China				Entire doc.			
76	China					Entire doc.		
77	China					Entire doc.		
78	China					Entire doc.		
79	China					Entire doc.		
80	China						Entire doc.	
81	China						Entire doc.	
82	SG	Entire doc.						
83	Korea (Rep. of)						Entire doc.	
84	Korea (Rep. of)				Entire doc.			
85	Korea (Rep. of)				Entire doc.			
86	Korea (Rep. of)					Entire doc., Corr.1		
87	Korea (Rep. of)					Entire doc.		
88	Germany, Norway				Entire doc.			
89	Austria				Entire doc.			
90	Austria				Entire doc.			
91	Austria				Entire doc.			
92	SG (IMO)				Page 5, page 13	Pages 2 to 4, pages 6 to 12		Page 14
93	Spain					Entire doc.		
94	SG				Entire doc.			
95	New Zealand					Entire doc.		
96	New Zealand					Entire doc.		
97	New Zealand					Entire doc.		

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
98	United States					Entire doc.		
99	SG (WBU)					Pages 3 to 5	Pages 5 to 6	
100	SG (list)							
101	Indonesia				Entire doc.			
102	Poland				Entire doc.			
103	Bulgaria				Entire doc.			
104	SG (ABU)				Page 8	Pages 2 to 5	Pages 5 to 8	
105	Indonesia				Entire doc.			
106	Armenia				Entire doc.			
107	Australia, Korea (Rep. of), Japan, New Zealand				Entire doc.			
108	Indonesia					Entire doc.		
109	Indonesia					Entire doc.		
110	SG			Entire doc.				
111	SG			Entire doc.				
112	SG			Entire doc.				
113	SG		Entire doc.					
114	SG		Entire doc.					
115	Kenya, Uganda, Tanzania				Page 2	Pages 1 to 2, pages 2 to 4	Page 5	
116	SG				Entire doc.			
117	Austria, Germany, Liechtenstein, Switzerland						Entire doc.	
118	SG			Entire doc.				
119	France					Entire doc.		

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
120	France				Entire doc.			
121	New Zealand							Entire doc.
122	Cameroon				Points 2, 3, 4, 9, 21, 23, 25	Points 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 24	Points 20 to 22	Points 27, 28
123	Kenya				Point 1	Point 2		
124	Turkey				Entire doc.			
125	France					Entire doc.		
126	Iran (Islamic Republic of)				Pages 2, 6	Pages 3 to 6, pages 7 to 13	Entire doc.	
127	Spain							Entire doc.
128	Netherlands, Switzerland					Entire doc.		
129	SG (Eurocontrol)					Entire doc.		
130	SG (INTELSAT)							
131	SG (GSM Association)							
132	SG		Entire doc.					
133	Japan				Pages 38 to 39	Pages 4 to 36	Page 37	Pages 40 to 49
134	France				Entire doc.			
135	Vatican, Netherlands, United Kingdom							Entire doc.
136	United States					Entire doc.		
137	Mali (Common proposal, Africa)				Page 4	Pages 2 and 3, pages 5 to 11	Page 12	
138	India				Entire doc.	Entire doc.		Entire doc.

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT PLEN-1	GT PLEN-2
139	Ukraine				Entire doc.	Entire doc.		
140	SG	Entire doc.						
141	SG	Entire doc.						
142	United Arab Emirates							Entire doc.
143	United Arab Emirates					Entire doc.		
144	Philippines				Page 1, Page 2 (1.8), Page 4 (2)	Pages 1 and 2	Pages 3 and 4	
145	Indonesia					Entire doc.		
146	Pakistan				Page 1, Page 4 (1.8)	Pages 2 and 3, pages 4 to 8	Page 8 (1.19 and 1.19bis)	
147	United Kingdom							Entire doc.
148	Gabon				Entire doc.			
149	SG	Entire doc.						
150	SG (list)							
151	Croatia, Hungary, Slovakia, Czech Rep.						Entire doc.	



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/4-E
5 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

PLENARY MEETING

Note by the Secretary-General

DRAFT ALLOCATION OF DOCUMENTS

The proposal for allocation of documents given in Annex 2, with reference to Documents 1 to 139 submitted to the Conference, is made according to the allocation of agenda items (see Annex 1) and based on the possible structure of the Conference as set out in Document DT/2.

Yoshio UTSUMI
Secretary-General

NOTE - Indicated page numbers, contained in Annex 2, are based on WRC Documents (English version).

Annex: 2

ANNEX 1

Distribution of agenda items according to the structure of the Conference

				COM 3	COM 4	COM 5	GT-PLEN 1	GT-PLEN 2
					1.1	1.4	1.19	5, 7
					1.2	1.5	1.19bis	
					1.3	1.6	1.20	
					1.8	1.7	1.21	
					2	1.9		
					4	1.10		
						1.11		
						1.12		
						1.13		
						1.14		
						1.15		
						1.16		
						1.17		
						1.18		

ANNEX 2

Allocation of documents

Document number	Submitted by	Allocation						
		PLEN	COM 2	COM 3	COM 4	COM 5	GT-PLEN 1	GT PLEN 2
1	SG	Entire doc.						
2	SG	Entire doc.						
3	SG				Chapter 5 (5.2, 5.4), Chapter 6 (6.3), Chapter 7	Chapters 1, 2, 3, 4, Chapter 6 (6.1, 6.2, 6.4, 6.5)	Chapter 5 (5.1, 5.3)	Chapter 8
4	SG (ICAO)	3.28, 3.31			3.1, 3.2, 3.5, 3.9, 3.24, 3.25, 3.27, 3.28, 3.29	3.3, 3.6, 3.7, 3.8, 3.10 to 3.22, Corr.1, Add.1, Add.2, Add.3	3.23, 3.26	3.30, 3.31, 3.32, 3.33
5	SG					Entire doc.		
6	Saudi Arabia				Entire doc.			
7	Estonia				Entire doc.			
8	Czech Republic				Entire doc.			
9	Pakistan				Entire doc.			
10	Angola				Entire doc.			
11	Hungary				Entire doc.			
12	United States				Pages 3 to 15, pages 20 to 70, pages 73 to 80 Add.1, Add.2, Add.4, Add.5, Add.12, Add.15	Pages 16 to 19, pages 24 to 70, Add.3, Add.6, Add.7, Add.8, Add.9, Add.10, Add.11, Add.13, Add.14	Pages 71 to 72	

13	European Proposals				Add.6 (Part 6C), Add.7 (Parts 7A, 7B, 7C, 7E)	Add.1 (Parts 1A, 1B, 1C), Add.2 (Parts 2A, 2B, 2C, 2D), Add.3, Add.4, Add.6 (Parts 6A, 6B, 6D)	Add.5	Add.7 (Part 7D)
14	CITEL				Pages 5 to 12, pages 29 to 33, Corr.1, Add.1 (pages 10 to 15), Add.1 (pages 118 to 127)	Pages 13 to 28, pages 34 to 46, Add.1 (page 16), Add.1 (pages 128 to 198)	Add.1 (pages 115 to 117), Add.1 (pages 111 to 117), Add.1 (page 199), Add.2	
15	SG				Entire doc.			
16	SG				Entire doc.			
17	SG						Entire doc.	
18	Sweden				Entire doc.			
19	Lithuania				Entire doc.			
20	Asia-Pacific Telecommunity (APT)				Pages 3 to 23, pages 75 to 81, pages 193 to 198, pages 213 to 219	Pages 24 to 74, pages 82 to 177	Pages 178 to 191, page 192, pages 199 to 212	
21	United Arab Emirates					Entire doc.		
22	United Arab Emirates					Entire doc.		
23	United Arab Emirates				Entire doc.			
24	Canada				Pages 6 to 8, pages 23 to 24, pages 40 to 45, Add.1 (page 6), Add.2	Pages 8 to 22, pages 24 to 39, Add.1 (pages 7 to 24), Add.2, Add.3	Add.1 (pages 25 to 30)	Add.1 (pages 31 to 44), Add.2

25	Morocco (Arab countries)					Pages 4 to 5	Pages 6 to 31	
26	Namibia				Entire doc.			
27	United Kingdom				Entire doc.			
28	Switzerland				Entire doc.			
29	SG				Entire doc.			
30	Uzbekistan				Pages 2 to 6, pages 7, page 8, page 12	Pages 7 to 8, pages 9 to 11	Page 11	
31	Cuba				Pages 3 to 6, pages 20 and 21	Pages 6 to 19, pages 22 to 36	Pages 37 to 38	
32	SG				Entire doc.			
33	Russia				Page 1, page 13	Pages 2 to 11, Add.1	Pages 11 to 13	Page 13
34	SG							Entire doc.
35	Brazil				Add.1, Add.2, Add.5,	Add.3, Add.4, Add.6, Add.7, Add.8	Add.9, Add.10, Add.11, Add.12, Add.13	
36	SG				Entire doc., Add.1			
37	France						Entire doc.	
38	Italy				Entire doc.			
39	SG						Entire doc.	
40	SG	Entire doc.						
41	SG							Entire doc.
42	Senegal				Page 6, page 5	Pages 1 to 4	Page 5	
43	Kazakstan				Entire doc.		Page 4 (1.20)	
44	Namibia				Entire doc.			

45	Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Ukraine				Page 1, page 3, pages 5 to 6	Pages 2 to 3, pages 3 to 5		
46	Malaysia				Entire doc.			
47	Malaysia				Entire doc.			
48	Malaysia				Entire doc.			
49	Malaysia				Entire doc.			
50	SG (list)							
51	Malaysia					Entire doc.		
52	Australia					Entire doc.		
53	Australia					Entire doc.		
54	Australia					Entire doc.		
55	Australia, Korea (Rep. of)					Entire doc.		
56	Australia					Entire doc.		
57	Australia						Entire doc.	
58	Australia							Entire doc.
59	Indonesia					Entire doc.		
60	Indonesia					Pages 2 to 4		Page 4
61	Indonesia				Entire doc.			
62	Uruguay				Entire doc.			
63	Norway				Entire doc.			
64	SG (IATA)				Page 4	Pages 4 to 9		
65	Spain						Entire doc.	

66	New Zealand					Entire doc.		
67	Denmark, Liechtenstein, Luxembourg, Norway, Netherlands, Switzerland				Entire doc.			
68	Denmark, Liechtenstein Luxembourg, Norway, Netherlands, Switzerland				Entire doc.			
69	Spain, Luxembourg, Norway, Netherlands				Entire doc.			
70	China				Entire doc.			
71	China				Entire doc.			
72	China					Entire doc.		
73	China					Entire doc.		
74	China					Entire doc.		
75	China				Entire doc.			
76	China					Entire doc.		
77	China					Entire doc.		
78	China					Entire doc.		
79	China					Entire doc.		
80	China						Entire doc.	
81	China						Entire doc.	
82	SG	Entire doc.						
83	Korea (Rep. of)						Entire doc.	

84	Korea (Rep. of)				Entire doc.			
85	Korea (Rep. of)				Entire doc.			
86	Korea (Rep. of)					Entire doc., Corr.1		
87	Korea (Rep. of)					Entire doc.		
88	Germany, Norway				Entire doc.			
89	Austria				Entire doc.			
90	Austria				Entire doc.			
91	Austria				Entire doc.			
92	SG (IMO)				Page 5, page 13	Pages 2 to 4, pages 6 to 12		Page 14
93	Spain					Entire doc.		
94	SG				Entire doc.			
95	New Zealand					Entire doc.		
96	New Zealand					Entire doc.		
97	New Zealand					Entire doc.		
98	United States					Entire doc.		
99	SG (WBU)					Pages 3 to 5	Pages 5 to 6	
100	SG (list)							
101	Indonesia				Entire doc.			
102	Poland				Entire doc.			
103	Bulgaria				Entire doc.			
104	SG (ABU)				Page 8	Pages 2 to 5	Pages 5 to 8	
105	Indonesia							
106	Armenia				Entire doc.			
107	Australia, Korea (Rep. of), Japan, New Zealand				Entire doc.			

108	Indonesia					Entire doc.		
109	Indonesia					Entire doc.		
110	SG			Entire doc.				
111	SG			Entire doc.				
112	SG			Entire doc.				
113	SG		Entire doc.					
114	SG		Entire doc.					
115	Kenya, Uganda, Tanzania				Page 2	Pages 1 to 2, pages 2 to 4	Page 5	
116	SG				Entire doc.			
117	Austria, Denmark, Liechtenstein, Switzerland						Entire doc.	
118	SG							
119	France					Entire doc.		
120	France				Entire doc.			
121	New Zealand							Entire doc.
122	Cameroon				Points 2, 3, 4, 9, 21, 23, 25	Points 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 24	Points 20 to 22	Points 27, 28
123	Kenya				Point 1	Point 2		
124	Turkey				Entire doc.			
125	France					Entire doc.		
126	Iran (Islamic Republic of)				Pages 2, 6	Pages 3 to 6, pages 7 to 13		
127	Spain							Entire doc.
128	Netherlands, Switzerland					Entire doc.		
129	SG (Eurocontrol)							

130	SG (INTELSAT)							
131	SG (GSM Association)							
132	SG		Entire doc.					
133	Japan				Pages 38 to 39	Pages 4 to 36	Page 37	Pages 40 to 49
134	France				Entire doc.			
135	Vatican, Netherlands, United Kingdom							Entire doc.
136	United States					Entire doc.		
137	Mali				Page 4	Pages 2 and 3, pages 5 to 11	Page 12	
138	India							Entire doc.
139	Ukraine				Entire doc.			



DRAFT ORGANIZATION OF THE WORK OF COMMITTEE 5

To cover the Conference agenda items assigned to Committee 5, the following Working Groups are proposed:

Working Group 5A (WG 5A)

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.6 - issues related to IMT-2000:
 - 1.6.1 - review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;
 - 1.6.2 - identification of a global radio control channel to facilitate multimode terminal operation and worldwide roaming of IMT-2000.
- Agenda item 1.10 - to consider results of ITU-R studies carried out in accordance with Resolution **218 (WRC-97)**.
- Agenda item 1.11 - to consider constraints on existing allocations and to consider additional allocations on a worldwide basis for the non-geostationary (non-GSO) MSS below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolutions **214 (Rev.WRC-97)** and **219 (WRC-97)**.

Documents: See DT/1, DT/4

Chairperson:

Box:

Secretary: Mr F. Leite

Box: 2904

Working Group 5B (WG 5B)

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.7 - review of the use of the HF bands by the aeronautical mobile (R) and maritime mobile services with a view to protecting operational, distress and safety communications, taking into account Resolution **346 (WRC-97)**.
- Agenda item 1.9 - to take into account the results of ITU-R studies in evaluating the feasibility of an allocation in the space-to-Earth direction to the mobile-satellite service (MSS) in a portion of the 1 559-1 567 MHz frequency range, in response to Resolutions **213 (Rev.WRC-95)** and **220 (WRC-97)**.
- Agenda item 1.15 - issues related to the radionavigation-satellite service:
 - 1.15.1 - to consider new allocations to the radionavigation-satellite service in the range from 1 GHz to 6 GHz required to support developments;
 - 1.15.2 - to consider the addition of the space-to-space direction to the radionavigation-satellite service allocations in the bands 1 215-1 260 MHz and 1 559-1 610 MHz;
 - 1.15.3 - to consider the status of allocations to services other than the radionavigation-satellite service (Nos. **S5.355** and **S5.359**) in the band 1 559-1 610 MHz.
- Agenda item 1.18 - to consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix **18/S18**, taking into account Resolution **342 (WRC-97)**.

Documents: See DT/1, DT/4

Chairperson:

Box:

Secretary: Mr A. Sion

Box: 2962

Working Group 5C (WG 5C)

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.4 - to consider issues concerning allocations and regulatory aspects related to Resolutions **126 (WRC-97)**, **128 (WRC-97)**, **129 (WRC-97)**, **133 (WRC-97)**, **134 (WRC-97)** and **726 (WRC-97)**.
- Agenda item 1.5 - to consider regulatory provisions and possible additional frequency allocations for services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution **122 (WRC-97)**.
- Agenda item 1.16 - to consider allocation of frequency bands above 71 GHz to the earth exploration-satellite (passive) and radio astronomy services, taking into account Resolution **723 (WRC-97)**.
- Agenda item 1.17 - to consider possible worldwide allocation for the earth exploration-satellite (passive) and space research (passive) services in the band 18.6-18.8 GHz, taking into account the results of the ITU-R studies.

Documents: See DT/1, DT/4

Chairperson:

Box:

Secretary: Mr L. Casado

Box: 2901

Working Group 5D (WG 5D)

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.12 - to consider the progress of studies on sharing between feeder links of non-GSO MSS networks and GSO FSS networks in the bands 19.3-19.7 GHz and 29.1-29.5 GHz, taking into account Resolution **121 (Rev.WRC-97)**.
- Agenda item 1.13 - on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**:
 - 1.13.1 - to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;
 - 1.13.2 - to consider the inclusion in other frequency bands of similar limits in Articles **S21** and **S22**, or other regulatory approaches to be applied in relation to sharing situations.
- Agenda item 1.14 - to review the results of the studies on the feasibility of implementing non-GSO MSS feeder links in the 15.43-15.63 GHz in accordance with Resolution **123 (WRC-97)**.

Documents: See DT/1, DT/4

Chairperson:

Box:

Secretary: Mr J. Li

Box: 2905

All Committee 5 Working Groups

Agenda item 4 - Working Groups shall also review, in accordance with Resolution **95 (WRC-97)**, the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation.

Chris van Diepenbeek
Chairperson, Committee 5, Box: 120
Secretary C5, J.A. Lewis, Box: 2968



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/6-E
8 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

COMMITTEE 4

PRELIMINARY ALLOCATION OF DOCUMENTS FOR COMMITTEE 4

WORKING GROUP 4A AND WORKING GROUP 4B

- WG 4A: Documents and parts of documents listed in DT/1 under agenda items,
PP-98 Resolutions 85, 86, 87 and 88
Documents: 29, 32, 40, 41, 94
- WG 4B: Documents and parts of documents listed in DT/1 under agenda items 1.1
(Resolution 26), 1.2, 1.8, 2 (Resolutions 27 and 28) and 4 (Resolution 95)
Documents: 5, 15, 16, 36, 116

H. RAILTON
Chairperson of Committee 4

P. LUNDBORG
Secretary, Committee 4, Box 2906



COMMITTEE 4

DRAFT ORGANIZATION OF THE WORK OF COMMITTEE 4

To cover the Conference agenda items assigned to Committee 4, the following Working Groups are proposed:

Working Group 4A (WG 4A)

Terms of reference

1 to consider the results of ITU-R studies in respect of Appendix **S7/28** on the method for the determination of the coordination area around an earth station in frequency bands shared among space services and terrestrial radiocommunication services, and take the appropriate decisions to revise this Appendix (**item 1.3**);

2 Resolutions 80, 85, 86, 87 and 88 of the Plenipotentiary Conference (Minneapolis, 1998)

Chairperson: Mr N. Kisrawi Box 50

Secretary: Mr M. Sakamoto Box 2976

Working Group 4B (WG 4B)

Terms of reference

1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-97)** (**item 1.1**);

2 to finalize remaining issues in the review of Appendix **S3** to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation **66 (Rev.WRC-97)** and the decisions of WRC-97 on adoption of new values, due to take effect at a future time, of spurious emissions for space services (**item 1.2**);

3 to consider regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, including their coordination with other services allocated in these bands (**item 1.8**);

4 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97) (item 2)**;

5 in accordance with Resolution **95 (WRC-97)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation **(item 4)**;

Chairperson:	Mrs A. Allison	Box	68
Secretary:	Mr W. Frank	Box	2926



COMMITTEE 4

DRAFT ORGANIZATION OF THE WORK OF COMMITTEE 4

To cover the Conference agenda items assigned to Committee 4, the following Working Groups are proposed:

Working Group 4A (WG 4A)

Terms of reference

- 1 to consider the results of ITU-R studies in respect of Appendix **S7/28** on the method for the determination of the coordination area around an earth station in frequency bands shared among space services and terrestrial radiocommunication services, and take the appropriate decisions to revise this Appendix (**item 1.3**);
- 2 Recommendation 35 (WRC-95);
- 3 Resolutions 80, 85, 86, 87 and 88 of the Plenipotentiary Conference (Minneapolis, 1998)

Chairperson:		Box
Secretary:	Mr M. Sakamoto	Box 2976

Working Group 4B (WG 4B)

Terms of reference

- 1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-97)** (**item 1.1**);
- 2 to finalize remaining issues in the review of Appendix **S3** to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation **66 (Rev.WRC-97)** and the decisions of WRC-97 on adoption of new values, due to take effect at a future time, of spurious emissions for space services (**item 1.2**);
- 3 to consider regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, including their coordination with other services allocated in these bands (**item 1.8**);

4 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97) (item 2)**;

5 in accordance with Resolution **95 (WRC-97)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation **(item 4)**;

Chairperson:		Box	
Secretary:	Mr W. Frank	Box	2926



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/8(Rev.3)-E
12 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 1
OF THE PLENARY

NOTE BY CHAIRPERSON, WORKING GROUP 1 OF THE PLENARY

DRAFT ALLOCATION OF DOCUMENTS

Attached for your convenience is a draft allocation of documents by agenda item.

R. ZEITOUN
Chairperson, GT PLEN-1

Draft allocation of documents for GT PLEN-1

Doc.No.	Version	Submitted by	Agenda item 1.19	Agenda item 1.19bis	Agenda item 1.20	Agenda item 1.21
3	-	SG	-	-	-	-
4*	-	ICAO	3.23	3.24	3.25	3.26
12	-	USA	-	USA/12/133	USA/12/134-136	-
13	-	EUR	-	Page 16	Page 16	-
13	Add.5	EUR	-	EUR/13/196	EUR/13/197-229	-
14	Add.1, Add.2	IAP	IAP/14/229, 295-298	IAP/14/230	IAP/14/231, 299-361	-
16	-	SG	-	-	-	-
17	-	SG	-	-	-	-
20	+Add.1	APT	ASP/20/287-293	-	ASP/20/294-304	ASP/20/305
24	Add.1	CAN	CAN/24/66-67	CAN/24/68	CAN/24/69-72	-
25	+Corr.1	ARB	ARB/25/5-93	-	-	-
30	-	UZB	page 11	-	-	-
31	-	CUB	-	CUB/31/76-78	-	-
33	-	RUS	RUS/33/16	RUS/33/17	-	-
34	+Add. +Corr.	SG	Entire document	-	-	-
35	Add.11	B	-	-	B/35/78	-
35	Add.12	B	-	-	B/35/79	-
35	Add.9	B	B/35/76	-	-	-
35	Add.13	B	-	-	B/35/80-90	-
35	Add.10	B	-	B/35/77	-	-
37	-	F	F/37/1-6	-	-	-
39	-	SG	Entire document	-	-	-
41	-	SG	-	-	-	-
42	-	SEN	SEN/42/23	-	SEN/42/25	-
43	-	KAZ	-	-	KAZ/43/15	KAZ/43/16
45	-	RCC	RCC/45/20	-	-	-
57	-	AUS	-	-	-	AUS/57/1
65	-	E				
80	-	CHN	CHN/80/1-2	-	-	-
81	-	CHN	-	CHN/81/1	-	-
83	-	KOR	KOR/83/1	-	-	-
99*	-	WBU-TC	Page 5	-	-	-
104*	-	ABU	Page 4	-	Page 7	-
115	-	KEN/UGA/TZA	KEN/UGA/TZA/115/18-20	-	-	-

117	-	D/AUT/LIE/SUI	D/AUT/LIE/SUI/117/1	-	-	-
122	-	CME	page 8	page 8	page 9	page 9
126	-	IRN	IRN/126/27-39	IRN/126/40-44	IRN/126/45-51	-
130*		INTELSAT	Page 8	-	-	-
133	-	J	J/133/50	-	-	-
137	+Corr.1, +Corr.2	AFR	AFR/137/10	-	AFR/137/10	-
151	-	HRV	CZE/HRV/HNG/SVK/151/1			
154	+Corr.1		Pages 1, 2, 3			
158	-	LVA/LTU	LVA/LTU/158/1			
159	-	BEL/HOL	BEL/HOL/159/1	-	-	-
192	-	TUN	-	-	-	-

* For information



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11 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 1
OF THE PLENARY

NOTE BY CHAIRPERSON, WORKING GROUP 1 OF THE PLENARY

DRAFT ALLOCATION OF DOCUMENTS

Attached for your convenience is a draft allocation of documents by agenda item.

R. ZEITOUN
Chairperson, GT PLEN-1

Draft allocation of documents for GT PLEN-1

Doc.No.	Version	Submitted by	Agenda item 1.19	Agenda item 1.19bis	Agenda item 1.20	Agenda item 1.21
3	-	SG	-	-	-	-
4*	-	ICAO	3.23	3.24	3.25	3.26
12	-	USA	-	USA/12/133	USA/12/134-136	-
13	-	EUR	-	Page 16	Page 16	-
13	Add.5	EUR	-	EUR/13/196	EUR/13/197-229	-
14	Add.1	IAP	IAP/14/229, 295-298	IAP/14/230	IAP/14/231-361	-
16	-	SG	-	-	-	-
17	-	SG	-	-	-	-
20	+Add.1	APT	ASP/20/287-293	-	ASP/20/294-304	ASP/20/305
24	Add.1	CAN	CAN/24/66-67	CAN/24/68	CAN/24/69-72	-
25	+Corr.1	ARB	ARB/25/5-93	-	-	-
30	-	UZB	page 11	-	-	-
31	-	CUB	-	CUB/31/76-78	-	-
33	-	RUS	RUS/33/16	RUS/33/17	-	-
34	+Add +Corr.	SG	Entire document	-	-	-
35	Add.11	B	-	-	B/35/78	-
35	Add.12	B	-	-	B/35/79	-
35	Add.9	B	B/35/76	-	-	-
35	Add.13	B	-	-	B/35/80-90	-
35	Add.10	B	-	B/35/77	-	-
37	-	F	F/37/1-6	-	-	-
39	-	SG	Entire document	-	-	-
41	-	SG	-	-	-	-
42	-	SEN	SEN/42/23	-	SEN/42/25	-
43	-	KAZ	-	-	KAZ/43/15	KAZ/43/16
45	-	RCC	RCC/45/20	-	-	-
57	-	AUS	-	-	-	AUS/57/1
65	-	E	-	-	-	-
80	-	CHN	CHN/80/1-2	-	-	-
81	-	CHN	-	CHN/81/1	-	-
83	-	KOR	KOR/83/1	-	-	-
99*	-	WBU-TC	Page 5	-	-	-
104*	-	ABU	Page 4	-	Page 7	-
115	-	KEN/UGA/TZA	KEN/UGA/TZA/115/18-20	-	-	-

117	-	D/AUT/LIE/SUI	D/AUT/LIE/SUI/117/1	-	-	-
122	-	CME	page 8	page 8	page 9	page 9
126	-	IRN	IRN/126/27-39	IRN/126/40-44	IRN/126/45-51	-
130*		INTELSAT	Page 8	-	-	-
133	-	J	J/133/50	-	-	-
137	+Corr.1	AFR	AFR/137/10	-	AFR/137/10	-
151	-	HRV	CZE/HRV/HNG/SVK/151/1			
154			Pages 1, 2, 3			
158	-	LVA/LTU	LVA/LTU/158/1			
159	-	BEL/HOL	BEL/HOL/159/1	-	-	-

* For information



**WORKING GROUP 1
OF THE PLENARY**

NOTE BY CHAIRPERSON, WORKING GROUP 1 OF THE PLENARY

DRAFT ALLOCATION OF DOCUMENTS

Attached for your convenience is a draft allocation of documents by agenda item.

R. ZEITOUN
Chairperson, GT PLEN-1

Draft allocation of documents for GT PLEN-1

Doc. No.	Version	Submitted by	Agenda item 1.19	Agenda item 1.19bis	Agenda item 1.20	Agenda item 1.21
3	-	SG	-	-	-	-
4*	-	ICAO	3.23	3.24	3.25	3.26
12	-	USA	-	USA/12/133	USA/12/134-136	-
13	-	EUR	-	Page 16	Page 16	-
13	Add.5	EUR	-	EUR/13/196	EUR/13/197-229	-
14	Add.1	IAP	IAP/14/229, 295-298	IAP/14/230	IAP/14/231-361	-
16	-	SG	-	-	-	-
17	-	SG	-	-	-	-
20	+Add.1	APT	ASP/20/287-293	-	ASP/20/294-304	ASP/20/305
24	Add.1	CAN	CAN/24/66-67	CAN/24/68	CAN/24/69-72	-
25	+Corr.1	ARB	ARB/25/5-93	-	-	-
30	-	UZB	-	-	-	-
31	-	CUB	-	CUB/31/76-78	-	-
33	-	RUS	RUS/33/16	RUS/33/17	-	-
34	+Add. +Corr.	SG	Entire document	-	-	-
35	Add.11	B	-	-	B/35/78	-
35	Add.12	B	-	-	B/35/79	-
35	Add.9	B	B/35/76	-	-	-
35	Add.13	B	-	-	B/35/80-90	-
35	Add.10	B	-	B/35/77	-	-
37	-	F	F/37/1-6	-	-	-
39	-	SG	Entire document	-	-	-
41	-	SG	-	-	-	-
42	-	SEN	SEN/42/23	-	SEN/42/25	-
43	-	KAZ	-	-	KAZ/43/15	KAZ/43/16
45	-	RCC	RCC/45/20	-	-	-
57	-	AUS	-	-	-	AUS/57/1
65	-	E	-	-	-	-
80	-	CHN	CHN/80/1-2	-	-	-
81	-	CHN	-	CHN/81/1	-	-
83	-	KOR	KOR/83/1	-	-	-
99*	-	WBU-TC	Page 5	-	-	-
104*	-	ABU	Page 4	-	Page 7	-
115	-	KEN/UGA/TZA	KEN/UGA/TZA/115/18-20	-	-	-

117	-	D/AUT/LIE/SUI	D/AUT/LIE/SUI/117/1	-	-	-
122	-	CME	-	-	-	-
126	-	IRN	IRN/126/27-39	IRN/126/40-44	IRN/126/45-51	-
130*		INTELSAT	Page 8	-	-	-
133	-	J	J/133/50	-	-	-
137	+Corr.1	AFR	AFR/137/10	-	AFR/137/10	-
151	-	HRV	CZE/HRV/HNG/SVK/151/1			
159	-	BEL/HOL	-	-	-	-

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Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Chairperson, Working Group 1 of the Plenary

Attached for your convenience is a draft allocation of documents by agenda item.

R. ZEITOUN
Chairperson, GT PLEN-1

Draft allocation of documents for GT PLEN-1

Doc. No.	Version	Submitted by	Agenda item 1.19	Agenda item 1.19bis	Agenda item 1.20	Agenda item 1.21
3	-	SG	-	-	-	-
4	-	ICAO	3.23	3.24	3.25	3.26
12	-	USA	-	USA/12/133	USA/12/134 - 136	-
13	-	EUR	-	Page 16	Page 16	-
13	Add.5	EUR	-	EUR/13/196	EUR/13/197-229	-
14	Add.1	IAP	IAP/14/229, 295-298	IAP/14/230	IAP/14/231-361	-
20	-	APT	ASP/20/287-293	-	ASP/20/294-304	ASP/20/305
24	Add.1	CAN	CAN/24/66-67	CAN/24/68	CAN/24/69-72	-
25	-	ARB	ARB/25/5-93	-	-	-
30	-	UZB	-	-	-	-
31	-	CUB	-	CUB/31/76-78	-	-
33	-	RUS	RUS/33/16	RUS/33/17	-	-
34	+Add. +Corr.	SG	Entire document	-	-	-
35	Add.11	B	-	-	B/35/78	-
35	Add.12	B	-	-	B/35/79	-
35	Add.9	B	B/35/76	-	-	-
35	Add.13	B	-	-	B/35/80-90	-
35	Add.10	B	-	B/35/77	-	-
37	-	F	F/37/1-6	-	-	-
39	-	SG	Entire document	-	-	-
42	-	SEN	SEN/42/23	-	SEN/42/25	-
43	-	KAZ	-	-	KAZ/43/15	KAZ/43/16
45	-	RCC	RCC/45/20	-	-	-
57	-	AUS	-	-	-	AUS/57/1
65	-	E	-	-	-	-
80	-	CHN	CHN/80/1-2	-	-	-
81	-	CHN	-	CHN/81/1	-	-
83	-	KOR	KOR/83/1	-	-	-
99	-	WBU-TC	Replanning	-	-	-
104	-	ABU	Replanning	-	Regulatory matters	-
115	-	KEN/UGA/TZA	KEN/UGA/TZA/115/18-20	-	-	-
117	-	D/AUT/LIE/SUI	D/AUT/LIE/SUI/117/1	-	-	-
122	-	CME	-	-	-	-
126	-	IRN	-	-	-	-
133	-	J	J/133/50	-	-	-
137	-	MLI	-	-	-	-



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Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Note by the Chairperson of Working Group 4B

PRELIMINARY ALLOCATION OF DOCUMENTS FOR WORKING GROUP 4B

The proposals for allocation of documents contained in this document are based on agenda items assigned to Working Group 4B. Proposals are identified by their numbers as they appear in the relevant document, whereas references to reports and information papers are made in terms of Chapter numbers or page numbers of the English version.

A. ALLISON
Chairperson of Working Group 4B, Box 68

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
CPM	3			Chapter 7.1	Chapter 6.3	Chapter 7.3, Annexes 2-5	Chapter 7.4	
ICAO	4	*	Pages 3-4	Pages 4-5	Page 7	Page 12	Page 12	
SG	5							Pages 1-21
ARS	6		1					
EST	7		1					
CZE	8		1-3					
PAK	9		1-5					
AGL	10		1					
HNG	11		1-2					
USA	12a12						253-256	
USA	12a15						287-302	
EUR	13		Page 1	Pages 1-2	Page 6			
EUR	13a6				249-251			
EUR	13a7		255-257	258-267				
IAP	14			1-8	42-45			
IAP	14a1		74	75-84		232-233	234-236	
IAP	14c1				44-45			
SG	15						Pages 1-14	
SG	16							Pages 1-25
S	18		1					
LTU	19		1					
ASP	20		1-5	6-9	95-97		306-329	
UAE	23		1-2					
CAN	24		1-2	3	16			
CAN	24a1		35	36			73	
CAN	24a2			82-91			102-103	
CAN	24c1				16			
ARB	25				Page 3			
NMB	26		1-2					
G	27		1-21					
SUI	28						1	
UZB	30		1-22	Page 7	Page 8			
CUB	31			1-8	35-37			
RUS	33		1-2					
B	35a1		1-2					
B	35a2			3-6				
B	35a14						91-94	
SG	36							Pages 1-19
SG	36a1							Pages 1-5
I	38		1-3					
SG	41							Pages 22-25
SEN	42				27			

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
KAZ	43		1-13					
NMB	44		1					
RCC	45			1	8			
MLA	49				1			
URG	62		1					
NOR	63		1-4					
IATA	64	*	Page 4					
CHN	70		1					
CHN	71			1-2				
CHN	75				Page 1			
KOR	85		1-5					
D/NOR	88		1					
AUT	89		1-2					
AUT	90		1					
AUT	91		1-3					
IMO	92	*			Page 5	Page 13		
POL	102		1-3					
BUL	103		1-9					
ARM	106		1-4					
KEN/UGA/TZA	115				5			
SG	116							Page 1
F	120		1-3					
CME	122		Page 1	Page 2				
KEN	123					3		
TUR	124		1-14					
IRN	126		1-3		11	52-53		
INTELSAT	130	*		Pages 11-12	Page 9			
J	133						51-58	
AFR	137				3			
IND	138	**	X				X	
UKR	139		1-15					
PHL	144		1		7	15		
PAK	146	**		X	X			
GAB	148		1					
HNG	152		1-9					
ZMB	155		1-5					
MNG	156		1-2					
EQA	157		1					
SG	160							Pages 47-48
SVN	164		1-2					

Note: * This information document is relevant for the agenda item.

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9 May 2000
Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Note by the Chairperson of Working Group 4B

PRELIMINARY ALLOCATION OF DOCUMENTS FOR WORKING GROUP 4B

The proposals for allocation of documents contained in this document (with reference to Documents WRC2000/1 to WRC2000/139 submitted to the Conference) are based on agenda items assigned to Working Group 4B. Proposals are identified by their numbers as they appear in the relevant document, whereas references to reports and information papers are made in terms of Chapter numbers or page numbers of the English version.

A. ALLISON
Chairperson of Working Group 4B, Box 68

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
CPM	3			Chapter 7.1	Chapter 6.3	Chapter 7.3, Annexes 2-5	Chapter 7.4	
ICAO	4	*	Pages 3-4	Pages 4-5	Page 7	Page 12	Page 12	
SG	5							Pages 1-21
ARS	6		1					
EST	7		1					
CZE	8		1-3					
PAK	9		1-5					
AGL	10		1					
HNG	11		1-2					
USA	12					137-144bis	145	
USA	12a12						253-256	
USA	12a15						287-302	
EUR	13		Page 1	Pages 1-2	Page 6			
EUR	13a6				249-251			
EUR	13a7		255-257	258-267				
IAP	14			1-8	42-45			
IAP	14a1		74	75-84		232-233	234-236	
IAP	14c1				44-45			
SG	15							Pages 1-14
SG	16							Pages 1-25
S	18		1					
LTU	19		1					
ASP	20		1-5	6-9	95-97		306-329	
UAE	23		1-2					
CAN	24		1-2	3	16	33-34		
CAN	24a1		35	36			73	
CAN	24c1				16	33-34		
MRC	25				Page 3			
NMB	26		1-2					
G	27		1-21					
SUI	28						1	
UZB	30		1-22	Page 7	Page 8			
CUB	31			1-8	35-37			
RUS	33		1-2					
B	35a1		1-2					
B	35a2			3-6				
SG	36							Pages 1-19
SG	36a1							Pages 1-5
I	38		1-3					
SEN	42				27			
KAZ	43		1-13					

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
NMB	44		1					
RCC	45			1	8			
MLA	49				1			
URG	62		1					
NOR	63		1-4					
IATA	64	*	Page 4					
CHN	70		1					
CHN	71			1-2				
CHN	75				Page 1			
KOR	85		1-5					
D/NOR	88		1					
AUT	89		1-2					
AUT	90		1					
AUT	91		1-3					
IMO	92	*			Page 5	Page 13		
POL	102		1-3					
BUL	103		1-9					
ARM	106		1-4					
KEN/UGA/TZA	115				5			
SG	116							Page 1
F	120		1-3					
CME	122		Page 1	Page 2				
KEN	123					3		
TUR	124		1-14					
IRN	126	**	X		X	X		
INTELSAT	130	* **		X	X			
J	133	**					51-58	
AFR	137				3			
IND	138	**						
UKR	139		1-15					
PHL	144	**	X		X	X		
PAK	146	**		X	X			

* Note: This information document is relevant for the agenda item.

** This document is still under production



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9 May 2000
Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Note by the Chairperson of Working Group 4B

PRELIMINARY ALLOCATION OF DOCUMENTS FOR WORKING GROUP 4B

The proposals for allocation of documents contained in this document (with reference to Documents WRC2000/1 to WRC2000/139 submitted to the Conference) are based on agenda items assigned to Working Group 4B. Proposals are identified by their numbers as they appear in the relevant document, whereas references to reports and information papers are made in terms of Chapter numbers or page numbers of the English version.

A. ALLISON
Chairperson of Working Group 4B, Box 68

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
CPM	3			Chapter 7.1	Chapter 7.2	Chapter 7.3, Annexes 2-5	Chapter 7.4	
ICAO	4	*	Pages 3-4	Pages 4-5	Page 7	Page 12	Page 12	
SG	5							Pages 1-21
ARS	6		1					
EST	7		1					
CZE	8		1-3					
PAK	9		1-5					
AGL	10		1					
HNG	11		1-2					
USA	12			1-10	23-26	137-144bis	145	
USA	12a12						253-256	
USA	12a15						287-302	
EUR	13		Page 1	Pages 1-2	Page 6			
EUR	13a6				249-251			
EUR	13a7		255-257	258-267				
IAP	14			1-8	42-45			
IAP	14a1		74	75-84		232-233	234-236	
IAP	14c1				44-45			
SG	15							Pages 1-14
SG	16							Pages 1-25
S	18		1					
LTU	19		1					
ASP	20		1-5	6-9	95-97		306-329	
UAE	23		1-2					
CAN	24		1-2	3	16	33-34		
CAN	24a1		35	36			73	
CAN	24c1				16	33-34		
MRC	25				Page 3			
NMB	26		1-2					
G	27		1-21					
SUI	28						1	
UZB	30		1-22	Page 7	Page 8			
CUB	31			1-8	35-37			
RUS	33		1-2					
B	35a1		1-2					

B	35a2			3-6				
B	35a5				18-21			
SG	36							Pages 1-19
SG	36a1							Pages 1-5
I	38		1-3					
SEN	42				27			
KAZ	43		1-13					
NMB	44		1					
RCC	45			1	8			
MLA	49				1			
AUS	52		1	1				
URG	62		1					
NOR	63		1-4					
IATA	64	*	Page 4					
CHN	70		1					
CHN	71			1-2				
CHN	75				Page 1			
KOR	85		1-5					
D/NOR	88		1					
AUT	89		1-2					
AUT	90		1					
AUT	91		1-3					
IMO	92	*			Page 5	Page 13		
POL	102		1-3					
BUL	103		1-9					
ARM	106		1-4					
KEN/UGA/TZA	115				5			
SG	116							Page 1
F	120		1-3					
CME	122		Page 1	Page 2				
KEN	123			1		3		
TUR	124		1-14					
AFR	137				3			
UKR	139		1-15					

* Note: This information document is relevant for the agenda item.



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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B

PRELIMINARY ALLOCATION OF DOCUMENTS FOR WORKING GROUP 4B

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A. ALLISON
Chairperson of Working Group 4B, Box 68

Source	Doc.	Note	Item 1.1	Item 1.2	Item 1.8	Item 2	Item 4	Other Doc.
CPM	3			Chapter 7.1	Chapter 7.2	Chapter 7.3, Annexes 2-5	Chapter 7.4	
ICAO	4	*	Pages 3-4	Pages 4-5	Page 7	Page 12	Page 12	
SG	5							Pages 1-21
ARS	6							
EST	7							
CZE	8		1-3					
PAK	9		1-5					
AGL	10							
HNG	11		1-2					
USA	12			1-10	23-26	137-144bis		
USA	12a12						253-256	
USA	12a15						287-302	
EUR	13		Page 1	Pages 1-2	Page 6			
EUR	13a6				249-251			
EUR	13a7		255-257	258-267				
IAP	14			1-8	42-45			
IAP	14a1		74	75-84		232-233	234-236	
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CUB	31			1-8	35-37			
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F	120		1-3					
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* Note: This information document is relevant for the agenda item.



ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY****ALLOCATION OF DOCUMENTS FOR GT PLEN-2**

The proposals for allocation of documents are based on the terms of reference of GT PLEN-2 (see Document 149) and the decisions taken by the Plenary (see Document DT/4).

Terms of reference	Document
1 to review, and take appropriate action on those items of the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention (Geneva, 1992) (*item 5)	
2 to identify those items requiring urgent action by the Radiocommunication Study Groups in preparation for the next world radiocommunication conference (*item 6)	
3 in accordance with Article 7 of the ITU Convention	
3.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-97 (*item 7.1)	41
3.2 to recommend to Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences (*item 7.2)	3 (Chapter 8), 5, 12 (Add.17), 13(Add.8), 20, 24 (Add.2), 33, 35(Add.15), 41 (section 7.1.2), 58, 60, 121, 122, 127, 133, 135, 138, 142 For information: 4, 92
4 to consider any other item submitted to the Working Group by the Plenary	

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

* References in parentheses relate to WRC agenda item numbers, according to Council Resolution 1130.



ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY****PRELIMINARY ALLOCATION OF DOCUMENTS FOR GT PLEN-2**

The proposals for allocation of documents are based on the terms of reference of GT PLEN-2 (see Document 149) and the decisions taken by the Plenary (see Document DT/4).

Terms of reference	Document
1 to review, and take appropriate action on those items of the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention (Geneva, 1992) (*item 5)	
2 to identify those items requiring urgent action by the Radiocommunication Study Groups in preparation for the next world radiocommunication conference (*item 6)	
3 in accordance with Article 7 of the ITU Convention	
3.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-97 (*item 7.1)	41, 24(Add.1)
3.2 to recommend to Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent Conference and on possible agenda items for future conferences (*item 7.2)	3 (Chapter 8), 12(Add.17), 13(Add.8), 20, 24(Add.2), 33, 35(Add.15), 58, 60, 121, 122, 127, 133, 135, 138 for information: 4, 92
4 to consider any other item submitted to the Working Group by the Plenary	

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

* References in parentheses relate to WRC agenda item numbers, according to Council Resolution 1130.



NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B

**STATUS OF ITU-R RECOMMENDATIONS INCORPORATED BY REFERENCE
IN THE RADIO REGULATIONS**

Attached is the status report concerning the action taken by the Radiocommunication Assembly (Istanbul, 2000) with respect to the ITU-R Recommendations incorporated by reference in the Radio Regulations.

The attached list contains information on those ITU-R Recommendations that are included in Volume 4 of the Radio Regulations, as well as on those ITU-R Recommendations that are actually incorporated by reference, but were not included in Volume 4 of the RR as they were not referred in Annex 4 to Resolution 27 (Rev.WRC-97).

A. ALLISON
Chairperson, Working Group 4B, Box 68

**Status of the ITU-R Recommendations incorporated by reference to
the Radio Regulations¹ (as of 5 May 2000)**

Recommendation	Title	Status²	Document
ITU-R M.257-3	Sequential single frequency selective-calling system for use in the maritime mobile service	NOC	1997 M Series, Part 3
ITU-R TF.460-5	Standard-frequency and time-signal emissions	NOC	1997 TF Series
ITU-R M.476-5	Direct-printing telegraph equipment in the maritime mobile service	NOC	1997 M Series, Part 3
ITU-R M.489-2	Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz	NOC	1997 M Series, Part 3
ITU-R M.492-6	Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service	NOC	1997 M Series, Part 3
ITU-R M.541-8	Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service	MOD	1997 M Series, Part 3
ITU-R M.625-3	Direct-printing telegraph equipment employing automatic identification in the maritime mobile service	NOC	1997 M Series, Part 3,
ITU-R M.627-1	Technical characteristics for HF maritime radio equipment using narrow-band phase-shift keying (NBPSK) telegraphy	NOC	1997 M Series, Part 3
ITU-R M.690-1	Technical characteristics of emergency position-indicating radio beacons (EPIRBs) operating on the carrier frequencies of 121.5 MHz and 243 MHz	NOC	1997 M Series, Part 4
ITU-R RA.769-1	Protection criteria used for radioastronomical measurements	NOC	1997 RA Series
ITU-R IS.847-1	Determination of the coordination area of an earth station operating with a geostationary space station and using the same frequency band as a system in a terrestrial service	SUP	1997 IS Series
ITU-R IS.848-1	Determination of the coordination area of a transmitting earth station using the same frequency band as receiving earth stations in bidirectionally allocated frequency bands	SUP	1997 IS Series
ITU-R IS.849-1	Determination of the coordination area for earth stations operating with non-geostationary spacecraft in bands shared with terrestrial services	SUP	1997 IS Series
ITU-R SM.1138	Determination of necessary bandwidths including examples for their calculation and associated examples for the designation of emissions	NOC	1997 SM Series
ITU-R SA.1154	Provisions to protect the space research (SR), space operations (SO), and Earth-exploration satellite services (EES) and to facilitate sharing with the mobile service in the 2 025-2 110 MHz and 2 200-2 290 MHz bands	NOC	1997 SA Series
ITU-R M.1169	Hours of service of ship stations	NOC	1997 M Series, Part 3
ITU-R M.1170	Morse telegraphy procedures in the maritime mobile service	NOC	1997 M Series, Part 3
ITU-R M.1171	Radiotelephony procedures in the maritime mobile service	NOC	1997 M Series, Part 3

ITU-R M.1172	Miscellaneous abbreviations and signals to be used for radiocommunications in the maritime mobile service	NOC	1997 M Series, Part 3
ITU-R M.1173	Technical characteristics of single-sideband transmitters used in the maritime mobile service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz Region 2) and 4 000 kHz and between 4 000 kHz and 27 500 kHz	NOC	1997 M Series, Part 3
ITU-R M.1174	Characteristics of equipment used for on-board communications in the bands between 450 and 470 MHz	NOC	1997 M Series, Part 3
ITU-R M.1175	Automatic receiving equipment for radiotelegraph and radiotelephone alarm signals	NOC	1997 M Series, Part 3
ITU-R M.1185-1	Method for determining coordination distance between ground based mobile earth stations and terrestrial stations operating in the 148.0-149.9 MHz band	MOD	1997 M Series, Part 5
ITU-R M.1187	A method for the calculation of the potentially affected region for a mobile-satellite service (MSS) network in the 1-3 GHz range using circular orbits	NOC	1997 M Series, Part 5
ITU-R BO.1213	Reference receiving earth station antenna patterns for replanning purposes to be used in the revision of the WARC BS-77 broadcasting-satellite service plans for Regions 1 and 3	NOC	1997 BO Series
ITU-R S.1256	Methodology for determining the maximum aggregate power flux-density at the geostationary-satellite orbit in the band 6 700-7 075 MHz from feeder links of non-geostationary satellite systems in the mobile-satellite service in the space-to-Earth direction	NOC	1997 S Series
ITU-R BO.1293	Protection masks and associated calculation methods for interference into broadcast satellite systems involving digital emissions	MOD	Doc. 11/BL/39
ITU-R BO.1295	Reference transmit earth station antenna off-axis e.i.r.p. patterns for planning purposes to be used in the revision of the Appendix 30A (Orb-88) Plans of the Radio Regulations at 14 GHz and 17 GHz in Regions 1 and 3	NOC	1997 BO Series
ITU-R BO.1296	Reference receive space station antenna patterns for planning purposes to be used for elliptical beams in the revision of the Appendix 30A (Orb-88) Plans of the Radio Regulations at 14 GHz and 17 GHz in Regions 1 and 3	NOC	1997 BO Series
ITU-R BO.1297	Protection ratios to be used for planning purposes in the revision of the Appendices 30 (Orb-85) and 30A (Orb-88) Plans of the Radio Regulations in Regions 1 and 3	NOC	1997 BO Series
ITU-R S.1340	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the Earth-to-space direction in the band 15.4-15.7 GHz	NOC	1997 S Series
ITU-R S.1341	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the space-to-Earth direction in the band 15.4-15.7 GHz and the protection of the radio astronomy service in the band 15.35-15.4 GHz	NOC	1997 S Series

¹ This list does not include ITU-R Recommendations referred to in Resolutions and Recommendations of world administrative radio conferences or world radiocommunication conferences.

² Status as of date of the end of the 2000 Radiocommunication Assembly.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/12(Rev.1)-E
10 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5C

Chairperson, Working Group 5C

Attached for your convenience is a draft allocation of documents by agenda item.

D. JANSKY
Chairperson, Working Group 5C, Box 5

Allocation of documents for WG 5C

Doc. No.	Version	Submitted by	Agenda item 1.4	Agenda item 1.5	Agenda item 1.16	Agenda item 1.17
3	-	SG	Chapter 6.1	Chapter 6.2	Chapter 4.1	Chapter 4.2
	-	SG		Annex 1		
12	-	USA	18-21		37-128	129-133
13	-	EUR	Pages 3-4	Page 4	Pages 14-15	Page 15
13	Corr.1	EUR	Page 4	Page 4	Page 3	Page 3
13	Add.4	EUR			154-188	189-195
13	Add.6	EUR	230-247	248		
14	-	IAP	9-14			53-56
14	Add.1	IAP	86-106	107	136-228	
20	-	ASP	42-59	60-67	188-282, 334, 336 and 337	283-286
20	Add.1	ASP	Page 1	Pages 1-2	Page 4	Page 4
24	-	CAN	Page 8			Page 38
24	Add.1	CAN	38 Pages 7-8	Page 9	Page 24	
30	-	UZB	Page 7	Page 8	Page 11	Page 11
31	-	CUB	10-17	18-19		
33	-	RUS	3-5			
35	Add.3	B	7-12	-		-
35	Add.4 + Corr.1	B	13-17	-		-
45	-	RCC	3	4	17	18
51	-	MLA			1	
59	+ Corr.1	INS	1-2			
72	-	CHN	1-2			
73	-	CHN		1	-	-
86	-	KOR			Entire document	
122	+ Corr.1	CME		5		10
123	-	KEN	4-9	10		
126	-	IRN	Page 4	6		
130	-	INT	17	18-19		
133	-	J	1-5	Page 2	Page 3	47-49
144	-	PHL	3	4		14



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/12-E
9 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5C

Chairperson, Working Group 5C

Attached for your convenience is a draft allocation of documents by agenda item.

D. JANSKY
Chairperson, Working Group 5C, Box 5

Draft allocation of documents for WG 5C

Doc. No.	Version	Submitted by	Agenda item 1.4	Agenda item 1.5	Agenda item 1.16	Agenda item 1.17
3	-	SG	Chapter 6.1	Chapter 6.2	Chapter 4.1	Chapter 4.2
	-	SG		Annex 1		
12	-	USA	18-21		37-128	129-133
13	-	EUR	Pages 3-4	Page 4	Pages 14-15	Page 15
13	Corr.1	EUR	Page 4	Page 4	Page 3	Page 3
13	Add.4	EUR			154-188	189-195
13	Add.6	EUR	230-246	248		
14	-	IAP	9-14			53-56
14	Add.1	IAP	86-106	107	136-228	
20	-	ASP	42-59	60-67	188-282	283-285
20	Add.1	ASP	Page 1	Pages 1-2	Page 4	Page 4
24	-	CAN	Page 8			
24	Add.1	CAN	38 Pages 7-8	Page 9	Page 24	
30	-	UZB	Page 7	Page 8	Page 11	Page 11
31	-	CUB	10-17	18-19		
33	-	RUS	3-5			
35	Add.3	B	7-10	-		-
35	Add.4	B	13-17	-		-
51	-	MLA				1
59	-	INS	1-2	Page 1		
72	-	CHN	1-2			
73	-	CHN		1	-	-
86	-	KOR			Entire document	
122	-	CME	1-4	5-6	Page 7	10
123	-	KEN	4-9	10		
130	-	INT	17	18-19		
133	-	J	1-5	Page 3	Page 3	47-49



NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B

SUMMARY OF PROPOSALS - AGENDA ITEM 1.1

Attached for your convenience is a summary list of proposals submitted under agenda item 1.1.

A. ALLISON
Chairperson of Working Group 4B, Box 68

Provision No.	Proposal	Proposal No.
S5.55	MOD	KAZ/43/1 UKR/139/1
S5.58	MOD	BUL/103/1 UKR/139/2
S5.59	MOD	IRN/126/1
S5.65	MOD	PAK/9/1 IRN/126/2
S5.67	MOD	UKR/139/3
S5.69A	ADD	UZB/30/5
S5.75	MOD	BUL/103/2 KAZ/43/2
S5.77	MOD	ASP/20/1
S5.93	MOD	BUL/103/3
S5.94A	ADD	UZB/30/6
S5.96	NOC	AUT/90/1 G/27/1
S5.98	MOD	AUT/89/2 BUL/103/4
S5.98	NOC	TUR/124/1
S5.99	MOD	AUT/89/1
S5 (1 610-1 660 MHz)	MOD	UZB/30/21
S5 (10-11.7 GHz)	MOD	B/35/1
S5.112	MOD	F/120/1 I/38/1 NOR/63/1 TUR/124/2
S5.114	MOD	F/120/2 I/38/2 NOR/63/2 TUR/124/3
S5.117	MOD	F/120/3 I/38/3 NOR/63/3 TUR/124/4
S5.124	SUP	CAN/24/1
S5.127A	ADD	UZB/30/7
S5.133A	ADD	UZB/30/8
S5.146A	ADD	UZB/30/9
S5.152	MOD	UZB/30/1
S5.154	MOD	UZB/30/2
S5.155A	MOD	HNG/11/1

S5.158A	ADD	UZB/30/10
S5.160	MOD	NMB/44/1
S5.162A	NOC	G/27/2 TUR/124/5
S5.164	NOC	G/27/3 TUR/124/6
S5.177	MOD	LTU/19/1
S5.181	MOD	EUR/13/255
S5.195.A	ADD	UZB/30/11
S5.197	MOD	EUR/13/256
S5.202	MOD	KAZ/43/3 TUR/124/7
S5.206	MOD	AUT/91/1 HNG/11/2
S5.210	NOC	AUT/91/2 G/27/4
S5.211	NOC	G/27/5 TUR/124/8
S5.221	NOC	G/27/6 TUR/124/9
S5.235	NOC	G/27/7
S5.253A	ADD	UZB/30/12
S5.259	MOD	EUR/13/257 KOR/85/1
S5.262	MOD	ASP/20/2 EST/7/1 UZB/30/18
S5.269	NOC	G/27/8
S5.271	MOD	UKR/139/4
S5.276	NOC	TUR/124/10
S5.277	MOD	PAK/9/2
S5.277A	ADD	UZB/30/13
S5.290	MOD	ARM/106/1 CZE/8/1 KAZ/43/4
S5.293	MOD	CAN/24/2
S5.296	NOC	G/27/9
S5.302	NOC	G/27/10
S5.314	NOC	G/27/11
S5.316	MOD	ARS/6/1
S5.316A	ADD	AGL/10/1
S5.322	MOD	NMB/26/1

S5.322	SUP	NMB/26/2
S5.331	MOD	PAK/9/3
S5.331	NOC	TUR/124/11
S5.338	MOD	POL/102/1 UKR/139/5
S5.349	MOD	UAE/23/1 UKR/139/6
S5.350	MOD	UKR/139/7
S5.355	MOD	ASP/20/3 UAE/23/2 IRN/126/3
S5.359	MOD	UZB/30/19
S5.375A	ADD	UZB/30/14
S5.387	MOD	ARM/106/2 CZE/8/2 RUS/33/1 UZB/30/3 UKR/139/8
S5.387A	ADD	UZB/30/15
S5.408	SUP	G/27/12
S5.412	MOD	UKR/139/9
S5.413	MOD	UZB/30/22
S5.416A	ADD	ARM/106/4 UZB/30/16
S5.418	MOD	RUS/33/2 UKR/139/10
S5.422	MOD	KAZ/43/5
S5.428	MOD	KAZ/43/6 POL/102/2 UKR/139/11
S5.430	MOD	POL/102/3 UKR/139/12
S5.431	NOC	G/27/13
S5.432	MOD	ASP/20/4
S5.437	SUP	D/NOR/88/1
S5.439	MOD	CHN/70/1
S5.447	NOC	G/27/14
S5.448	MOD	UKR/139/13
S5.450A	ADD	UZB/30/17
S5.451	NOC	G/27/15

S5.454	MOD	ARM/106/3 BUL/103/5 KAZ/43/7
S5.467	NOC	G/27/16
S5.469	MOD	KAZ/43/8
S5.473	MOD	KAZ/43/9
S5.477	MOD	KOR/85/2
S5.478	MOD	KAZ/43/10
S5.480	SUP	B/35/2
S5.480	MOD	URG/62/1
S5.481	MOD	UZB/30/4
S5.483	MOD	PAK/9/4
S5.495	MOD	NOR/63/4
S5.496	MOD	UKR/139/14
S5.500	MOD	KOR/85/3
S5.501	NOC	BUL/103/6 G/27/17 UKR/139/15
S5.505	MOD	ASP/20/5
S5.508	NOC	G/27/18
S5.508	MOD	AUT/91/3 TUR/124/12
S5.509	MOD	PAK/9/5
S5.514	MOD	S/18/1
S5.521	MOD	CZE/8/3
S5.524	MOD	KOR/85/4
S5.536B	NOC	G/27/19 TUR/124/13
S5.542	MOD	KOR/85/5
S5.545	MOD	BUL/103/7 KAZ/43/11



Working Group 4A

Chairman, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUPS 4A1 AND 4A2

1 Sub-Working Group 4A1 (SWG 4A1) – Agenda item 1.3

Terms of reference

- a) Prepare texts to replace Appendix S7 based on the agreed Recommendation. Document 13(Add.7(Part 7C), Add 1 to Add.7) could be used as base documents.
- b) Identify the method to modify the parameters required for the determination of coordination distance.
- c) Study document 61.
- d) Other relevant issues.

Documents: Recommendation 1/1004+Add1, 13 (Add.7(Part 7C), Add 1 to Add.7), 61 and other documents placed under agenda item 1.3

Chairman: Mr. J. C. Prevotat Box 1306

Secretary: Mr. M. Sakamoto Box 2976

2 Sub-Working Group 4A2 (SWG 4A2) – Plenipotentiary Resolution 84

Terms of reference

Prepare texts for revision of S13 by clarifying the sequence and making minutes of the RRB meeting available before the subsequent meeting.

Documents: 13 (Add.7(Part D))

Chairman: Mr. G. Brooks Box 166

Secretary: Mr. M. Sakamoto Box 2976

N. KISRAWI
Chairman of Working Group 4A



Chairperson, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUPS 4A1 AND 4A2

1 Sub-Working Group 4A1 (SWG 4A1) - Agenda item 1.3

Terms of reference

- a) Prepare texts to replace Appendix S7 based on the agreed Recommendation. Documents 13(Add.7(Part 7C)), Add.1 to Add.7) could be used as base documents.
- b) Identify the method to modify the parameters required for the determination of coordination distance.
- c) Study Document 61.
- d) Other relevant issues.

Documents: Recommendation 1/1004 + Add.1, 13 (Add.7(Part 7C)), Add.1 to Add.7), 61 and other documents placed under agenda item 1.3

Chairperson: Box

Secretary: Mr M. Sakamoto Box 2976

2 Sub-Working Group 4A2 (SWG 4A2) - Plenipotentiary Resolution 84

Terms of reference

Prepare texts for revision of S13 by clarifying the sequence and making minutes of the RRB meeting available before the subsequent meeting.

Documents: 13(Add.7(Part D))

Chairperson: Mr Brooks Box 166

Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
Chairperson of Working Group 4A



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/15-E
10 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5B

Chairperson, Working Group 5B

ALLOCATION OF DOCUMENTS TO WORKING GROUP 5B

A draft list of documents relevant to WRC-2000 agenda items covered by WG 5B is presented in the attachment. Revisions of the list will be made as necessary.

T. MIZUIKE
Chairperson, Working Group 5B, Box 132

ATTACHMENT

Agenda item	Administration	Document number	Proposal number
1.7		3	(CPM Report, Chapter 1, Section 1.2)
	EUR	13+C1+A1	12, 13, 14, 15, 16, 17, 17bis, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32
	IAP	14+C1+C1 to C1	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
	ASP	20+A1	93, 94
	CAN	24	15
	UZB	30	
	CUB	31	32, 33, 34
	SEN	42	7, 8, 9, 10, 11
	RCC	45	7
	KEN/UGA/TZA	115	3, 4
	CME	122+C1	7
	IRN	126	9, 10
	J	133	
	USA	136	
	AFR	137+C1	2
1.9		3	(CPM Report, Chapter 2, Section 2.2)
	USA	12	
	EUR	13+C1+A2+A1 to A2	37, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334
	IAP	14+C1+C1 to C1	46, 47
	ASP	20+A1	98, 99
	UAE	22	1, 2, 3, 4
	CAN	24	17
	UZB	30	
	CUB	31	38, 39
	RUS	33	9, 10, 11
	B	35+A6	22, 23
	SEN	42	14, 15, 16
	RCC	45	9
	CHN	76	1, 2
	INS	109	1
	KEN/UGA/TZA	115	6, 7, 8
	CME	122	
	IRN	126	12, 13, 14
	J	133	
	AFR	137+C1	4
	PHL	144	8

Agenda item	Administration	Document number	Proposal number
1.15.1		3	(CPM Report, Chapter 2, Section 2.4.1)
	USA	12	32, 33
	EUR	13+C1+A2+C1 to A2	62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72
	IAP	14+A1	125, 126, 127, 128, 129, 130, 131, 132, 133
	ASP	20+A1	182, 183, 184, 184bis
	CAN	24+A1	58, 59, 60, 61
	RUS	33	13, 14, 15
	SEN	42	17, 18
	KAZ	43	14
	CHN	78	1, 2
	CHN	79	1, 2, 3, 4, 5, 6, 7
	KEN/UGA/TZA	115	13, 14
	F	119	
	CME	122	
	F	125	
	IRN	126	25
	F/HOL/G/SUI	128	1
	J	133	
	AFR	137+C1	6
	PHL	144	11
	(GROUP)	154	Part C
1.15.2		3	(CPM Report, Chapter 2, Section 2.4.2)
	USA	12	34, 35, 36
	EUR	13+C1+A2	73, 74, 75
	IAP	14+A1	134, 135
	ASP	20+A1	185, 186, 187
	CAN	24+A1	62, 63, 64
	UZB	30	
	SEN	42	19
	RCC	45	15
	KEN/UGA/TZA	115	15
	CME	122	
	IRN	126	26
	AFR	137+C1	7
	PHL	144	12
	(GROUP)	154	Part C

Agenda item	Administration	Document number	Proposal number
1.15.3		3	(CPM Report, Chapter 2, Section 2.4.3)
	EUR	13+C1+A2	76, 77, 78
	UZB	30	
	SEN	42	20
	RCC	45	16
	CME	122	
	AFR	137+C1	8
	PHL	144	13
1.18		3	(CPM Report, Chapter 1, Section 1.3)
	USA	12	
	EUR	13+C1+A1	33, 34, 35, 36
	IAP	14+C1+C1 to C1	57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73
	CAN	24	32
	UZB	30	
	CUB	31	74, 75
	SEN	42	12, 13
	RCC	45	19
	NZL	97	1
	INS	108	1
	KEN/UGA/TZA	115	16, 17
	CME	122	
	AFR	137+C1	9

Information documents relevant to the WG 5B agenda items

Agenda item	Organization	Document number
1.7	ICAO	4
	IATA	64
	IMO	92
	EUROCONTROL	129
1.9	ICAO	4
	IATA	64
	IMO	92
	EUROCONTROL	129
1.15.1	ICAO	4
	IATA	64
	IMO	92
	EUROCONTROL	129
1.15.2	ICAO	4
	IMO	92
1.15.3	ICAO	4
	IATA	64
	IMO	92
	EUROCONTROL	129
1.18	IMO	92

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5B**Chairperson, WG 5B****STRUCTURE OF WORKING GROUP 5B**

At its First meeting, Working Group 5B established two Sub-Working Groups, as follows:

Sub-Working Group	Task:	Chaired by	Box No.
	To cover agenda item (s)		
5B1	1.7 + 1.18	Mr. P. LANSMAN (FIN)	872
5B2	1.15	Mr. T. MIZUIKE (J)	132

T. MIZUIKE

Chairperson, Working Group 5B, Box # 132



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5A**Chairperson, Working Group 5A**IDENTIFICATIONS OF ADDITIONAL SPECTRUM FOR IMT-2000
TERRESTRIAL COMPONENT BASED ON PROPOSALS
SUBMITTED BY ADMINISTRATIONS

Frequency band	Remarks	Proposals
470-806 MHz	–	CME/122 (§ 7)
698-960 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/186, 187, 191
806-960 MHz	In portion of the band.	ASP/20/70, 71, 72, AUS/52/1
	Long-term evolution to IMT-2000. Upgrade of MS allocation in 902-928 MHz in R2.	CUB/31/20, 21, 22
	–	CME/122 (§ 7)
	National identification.	GAB/148/2
824-849 MHz, 869-894 MHz	Added to the initial bands (S5.388).	CAN/24/6, 7, 9
862-960 MHz	In sub-bands used for second-generation mobile systems in the longer term.	EUR/13/5, 6
1 710-1 885 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/190, 191
	In sub-bands used for second-generation mobile systems in the longer term.	EUR/13/5, 6
	Added to the initial bands (S5.388).	IAP/14/108, 109, CAN/24/9, 11
	Whole or portions of the band.	ASP/20/73, 74, AUS/52/1
	Long-term evolution to IMT-2000.	CUB/31/22, 24
2 290-2 300 MHz	–	KEN/123/11, IRN/126/7, ETH/193/3
2 300-2 400 MHz	National identification of use.	CHN/74/2, 3
	–	PAK/146/5, ETH/193/3

Frequency band	Remarks	Proposals
2 483.5-2 690 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/191-193
2 500-2 690 MHz	Includes terrestrial component in the MSS allocations.	EUR/13/3, 4, NZL/96/1, 2
2 520-2 670 MHz	Whole or portions of the band.	ASP/20/75, 76
	60 MHz within this band can be considered.	IRN/126/7
	National identification.	GAB/148/2
	—	ETH/193/3
2 700- 2 900 MHz	—	PAK/146/5, ETH/193/3



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5A**Chairperson, Working Group 5A****IDENTIFICATIONS OF ADDITIONAL SPECTRUM FOR IMT-2000**
TERRESTRIAL COMPONENT BASED ON
PROPOSALS SUBMITTED BY ADMINISTRATIONS

Frequency band	Remarks	Proposals
470-806 MHz	=	<u>CME/122(\$7)</u>
698-960 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/186, 187, 191
806-960 MHz	In portion of the band.	ASP/20/70, 71, 72 <u>AUS/52/1</u>
	Long-term evolution to IMT-2000. Upgrade of MS allocation in 902-928 MHz in R2.	CUB/31/20, 21, 22
	=	<u>CME/122(\$7)</u>
824-849 MHz, 869-894 MHz	Added to the initial bands (S5.388).	CAN/24/6, 7, 9
862-960 MHz	In sub-bands used for second generation mobile systems in the longer term.	EUR/13/5, 6
1 710-1 885 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/190, 191
	In sub-bands used for second generation mobile systems in the longer term.	EUR/13/5, 6
	Added to the initial bands (S5.388).	IAP/14/108, 109 CAN/24/9, 11
	In <u>Whole or</u> portions of the band.	ASP/20/73, 74 <u>AUS/52/1</u>
	Long-term evolution to IMT-2000.	CUB/31/22, 24
2 290-2 300 MHz	-	KEN/123/11 <u>IRN/126/7</u>
2 300-2 400 MHz	National identification of use.	CHN/74/2, 3
2 483.5-2 690 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/191-193
2 500-2 690 MHz	Includes terrestrial component in the MSS allocations.	EUR/13/3, 4 NZL/96/1, 2
2 520-2 670 MHz	In <u>Whole or</u> portions of the band.	ASP/20/75, 76
	<u>60 MHz within this band can be considered.</u>	<u>IRN/126/7</u>



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5A**ADDITIONAL SPECTRUM FOR IMT-2000 TERRESTRIAL COMPONENT
BASED ON PROPOSALS SUBMITTED BY ADMINISTRATIONS**

Frequency band	Remarks	Proposals
698-960 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/186, 187, 191
862-960 MHz	In sub-bands used for second generation mobile systems in the longer term.	EUR/13/5, 6
806-960 MHz	In portion of the band.	ASP/20/70, 71, 72
824-849 MHz, 869-894 MHz	Added to the initial bands (S5.388).	CAN/24/6, 7, 9
806-960 MHz	Long-term evolution to IMT-2000. Upgrade of MS allocation in 902-928 MHz in R2.	CUB/31/20, 21, 22
1 710-1 885 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/190, 191
	In sub-bands used for second generation mobile systems in the longer term.	EUR/13/5, 6
	Added to the initial bands (S5.388).	IAP/14/108, 109 CAN/24/9, 11
	In portions of the band.	ASP/20/73, 74
	Long-term evolution to IMT-2000.	CUB/31/24
2 290-2 300 MHz	-	KEN/123/11
2 300-2 400 MHz	National identification of use.	CHN/74/2, 3
2 483.5-2 690 MHz	Identified for IMT-2000 and other advanced communication applications in portions allocated to MS and MSS.	USA/12/191-193
2 500-2 690 MHz	Includes terrestrial component in the MSS allocations.	EUR/13/3, 4 NZL/96/1, 2
2 520-2 670 MHz	In portions of the band.	ASP/20/75, 76



WORKING GROUP 4B

NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B

**ORGANIZATION OF THE WORK OF SUB-WORKING
GROUPS 4B1, 4B2, 4B3 AND 4B4**

1 Sub-Working Group 4B1 (SWG 4B1) - Agenda item 1.2

Remaining issues in the review of Appendix S3 to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation 66 (Rev.WRC-97) and the decisions of WRC-97 on adoption of new values, due to take effect at a future time, of spurious emissions for space services.

Chairperson: Mr A. Jabbar **Box:** 33

2 Sub-Working Group 4B2 (SWG 4B2) - Agenda item 1.8

Regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the bands 3 700 - 4 200 MHz and 5 925-6 425 MHz, including their coordination with other services allocated in these bands.

Chairperson: Mr L. Petzer **Box:** 521

3 Sub-Working Group 4B3 (SWG 4B3) - Agenda item 2

Examination of the revised ITU-R Recommendations incorporated by reference in the Radio Regulations in accordance with Resolution 28 (WRC-95); and decision whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in the Annex to Resolution 27 (Rev.WRC-97).

Chairperson: Mr J. Shaw **Box:** 889

4 Sub-Working Group 4B4 (SWG 4B4) - Agenda item 4

Review, in accordance with Resolution 95 (WRC-97), of the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation.

Chairperson: Mr M. Murotani **Box:** 32

A. ALLISON
Chairperson, Working Group 4B, Box 68



**Chairperson, ad hoc Group 1 of
Working Group 1 of the Plenary**

FIRST REPORT TO GT PLEN-1

**1 Basic BSS-to-BSS methodology, assumptions and criteria for
replanning according to IRG conclusions**

Methodology, technical assumptions and criteria as described in Document WRC2000/34 and its Corrigenda 1 and 2 and its Addendum 1 should be applied in the replanning study of WRC-2000.

NOTE - Subject to the further study in reviewing the sharing criteria listed in Document 37, a reduction of the orbital separation limits, beyond which interference is not taken into account, may possibly be recommended in order to facilitate the replanning process. To start with, the current limits of 15° and 9°, respectively, for co-polar and cross-polar situations, should also be applied to the feeder-link replanning process, provided it is possible to implement such changes in the MSPACE software in the time-frame given.

KOR requested not to recalculate the ellipse characteristics of its downlink and feeder-link national beams as a consequence of the change to its orbital position from 110.0° E to 116.0° E.

VTN requested to use at its preferred orbital position 107° E the same elliptical beam for both its downlink and feeder link. The ellipse characteristics of this beam are those used in the basic study for the feeder-link beam of VTN. In addition, VTN requested to use normal roll-off antenna patterns for its transmitting space station (i.e. R13TSS) instead of the fast-roll patterns used in the IRG study and the Appendix S30 Plan.

**2 Additional BSS-to-BSS studies requested by some administrations at
the last IRG meeting (Geneva, 29 November - 3 December 1999), or
after that meeting**

The additional studies listed below had been requested by some administrations and were performed by the Radiocommunication Bureau in accordance with IRG instructions. All cases were found to be technically feasible. They should be included in the initial plan evaluation.

A proposal was made to define a date after which no new national preferences would be accepted [12 May 2000, 0900 hours].

Administrations concerned by the studies described below shall provide before [12 May 2000, 2400 hours] their choice(s) between the basic technical assumptions, as presented in Document WRC2000/34 and its Corrigendum 2, and those presented in the relevant documents referred to below. In the absence of the requested choice(s), the basic technical assumptions will be used in the replanning process.

- 2.1 Extended national beams for CZE, HNG, HRV and SVK (see Addendum 5 to Document WRC2000/34)**
- 2.2 Extended national beams for JOR, LBN and SYR (see Addendum 6 to Document WRC2000/34)**
- 2.3 Use elliptical feeder-link beams of the Appendix S30A Plan and preferred channels for CHN at its orbital positions 62° E, 92° E and 134° E (see Addendum 7 to Document WRC2000/34 and its Addendum 1)**

CHN agreed to the option contained in Addendum 1 to Addendum 7 to Document WRC2000/34, which proposes to use the orbital positions 62° E, 92.2° E and 134° E together with grouping of the adjacent channels assigned to this country at these positions.

- 2.4 Use Appendix S30 Plan elliptical downlink beam for feeder link of BUL at the orbital position 1° W (see Addendum 8 to Document WRC2000/34)**
- 2.5 Use separate beams for USA at the orbital positions 170° E and 122° E (see Addendum 9 to Document WRC2000/34)**
 - 2.5.1 Separate beams for USA/PLM and USA/SMA at the orbital position 170° E**
 - 2.5.2 Separate beams for USA/MRA and USA/GUM at the orbital position 122° E**
- 2.6 Use 12 channels for J at the orbital positions 109.85° E, in addition to and grouped with its assignments at 109.85° E and 110° E (see Addendum 10 to Document WRC2000/34)**
- 2.7 Use a channel bandwidth value of 33 MHz for LAO instead of the standard value of 27 MHz (see Addendum 11 to Document WRC2000/34)**
- 2.8 Use orbital position 20° E instead of 17° E for QAT (see Addendum 12 to Document WRC2000/34)**
- 2.9 Use preferred feeder-link beams and channels for AUS at its orbital positions 152° E and 164° E (see Addendum 13 to Document WRC2000/34)**

2.10 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for IND, IRN, MRC, SEY and ISR (see Addendum 14 to Document WRC2000/34)

IRN requested to use both 14 GHz and 17 GHz frequency bands and to assign 12 channels to its beams in each band.

CHN requested to assign 12 channels in the 14 GHz frequency band to its feeder-link beam CHN19000 at the orbital position 122.0° E.

2.11 Use alternative orbital position within the arc 25° W to 10° E for TUN instead of 30° W (see Addendum 15 to Document WRC2000/34)

2.12 Extended national beams for LTU and LVA at the orbital position 23° E (see Addendum 16 to Document WRC2000/34)

3 Additional BSS-to-BSS studies between the “Part B”¹ networks identified at the last IRG meeting and the results of the feasibility studies (according to the IRG decision, the results were sent to the concerned administrations)

The completion of these studies was noted.

4 Additional BSS-to-BSS studies between the “Part A”² networks identified at the last IRG meeting and the results of the feasibility studies (according to the IRG decision, the results were sent to the concerned administrations)

The completion of these studies was noted. None of these Part A networks are proposed to be included in the replanning process.

5 Issues for which further WRC decisions are required for replanning

5.1 Establish an updated list of “existing” systems³ as of [date to be proposed by GT PLEN-1 between 8 and 12 May 2000], based on information received and processed by the Radiocommunication Bureau

¹ Whenever the term “Part B” is used in this document, it refers to satellite networks which have successfully completed the coordination procedure of Article 4 of Appendices S30/S30A, yet to be brought into use.

² Whenever the term “Part A” is used in this document, it refers to satellite networks which are still at the stage of the coordination procedure of Article 4 of Appendices S30/S30A and have not yet completed this coordination procedure.

³ Whenever the term “existing” is used in this document, it refers to notified assignments that are in conformity with Appendices S30 and S30A, which have been brought into use and for which the date of bringing into use has been confirmed to the Bureau.

5.2 Consideration of the networks subject to Part B publication, for which the due diligence information, according to Annex 2 of Resolution 49, was received by the Radiocommunication Bureau as of [12 May 2000, 1700 hours]

5.2.1 “Part B” networks included in the Appendices S30 and S30A Plans at WRC-97

To be included in the replanning process.

5.2.2 “Part B” networks included in the Appendices S30 and S30A Plans after WRC-97

To be included in the replanning process.

5.2.3 “Part B” networks examined, but yet to be published

To be included in the replanning process.

5.2.4 “Part B” networks received, but yet to be examined

To be included in the replanning process provisionally on the basis of a successful BSS-to-BSS compatibility analysis. Their retention in the replanning process is subject to their conformity with the Appendices S30 and S30A of the Radio Regulations.

5.3 Methodology, technical parameters and sharing criteria associated to “Part B” networks

5.3.1 Channel bandwidth

As specified by the responsible administration.

5.3.2 Protection ratios/modulation

Apply, for all “Part B” networks, digital modulation associated with the protection ratios specified by IRG (i.e. downlink co-channel: 21 dB, downlink upper and lower adjacent channels: 16 dB, feeder-link co-channel: 27 dB, feeder-link upper and lower adjacent channels: 22 dB).

5.3.3 Test points

When test points with very low EPM (less than about –10 dB) receive excess interference, such test points can be ignored for the purpose of the replanning exercises, if necessary, on a case-by-case basis, as in the case of “existing” systems. In such cases, the issue will be reported to WRC-2000.

5.3.4 Grouping of “Part B” network(s) with national assignments of the responsible administration

Should be applied as in the case of “existing” systems, unless:

- 1) the responsible administration had expressed, in response to CR/117, a preferred orbital position for its national assignments different from that of the Part B network, and this preferred orbital position was taken into account by IRG; or
- 2) [the “Part B” network and the national assignments have geographically separate coverage areas.]

5.3.5 Receiving earth station antenna

Antenna diameter of 60 cm associated with antenna patterns described in Recommendation ITU-R BO.1213. However, for “Part B” network(s) of e.i.r.p. below [54.5 dBW], adjust the antenna diameter accordingly to compensate the difference in e.i.r.p.

5.3.6 Orbital position shift

In consultation with the responsible administration, the orbital position of the “Part B” network(s) can be shifted by $\pm 0.2^\circ$ in order to resolve incompatibilities.

5.3.7 Negative equivalent protection margin for “Part B” systems in the WRC-97 Plan

Negative Equivalent Protection Margins of WRC-97 Plans for “Part B” systems were kept because it is considered that those negative EPM were accepted together with the protection margins at that time when those assignments were successfully included in the Plans.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/20(Rev.1)-E
12 May 2000
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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 2
OF THE PLENARY

NOTE BY THE CHAIRPERSON

Please find attached a list of the topics identified by administrations for items to be included in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for WRC-03**

USA/12/1 EUR/13/384 ASP/20/332 UAE/142/1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
USA/12/1 EUR/13/384	2	to consider the upgrade [the status] of allocations to the radiolocation service in the bands around 3 GHz and around 5.5 GHz, [the date of a conference is under discussion];
USA/12/1	3	to consider spectrum requirements for wideband aeronautical telemetry in the band between 3 GHz and 30 GHz;
USA/12/1	4	to consider moving the existing additional allocation of the 7 145-7 235 MHz band on a primary basis pursuant to No. S5.460 to within the frame of the Table of Frequency Allocations;
USA/12/1	5	to consider inclusion in the Radio Regulations of power flux-density limits, in accordance with Recommendation ITU-R S.[Doc. 4/54], to protect the feeder uplinks of non-geostationary mobile-satellite service systems operating in the fixed-satellite service at 5 GHz pursuant to No. S5.447A ;
USA/12/1 ASP/20/332 UAE/142/1	6	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97, and to consider bringing forward the date of availability of the HF bands allocated by WARC-92 to the broadcasting service in response to Resolution 29 (WRC-97) and Resolution 537 (WRC-97) ;
CVA/HOL/G/135/2	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
CVA/HOL/G/135/3	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (HFBC-87) , 518 (HFBC-87) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the need to achieve the optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
USA/12/1 EUR/13/384 ASP/20/332 CAN/24/108 CVA/HOL/G/135/1	9	[to consider realignment of] [consideration of the need to realign] the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;

USA/12/1 ASP/20/332 and 334 J/133/60	10	[to consider] possible allocations in the frequency bands above 275 GHz, [taking into account Resolution [AAA] (WRC-2000)];
CAN/24/112	11	SUP
USA/12/1	12	to consider an extension to the upper end of the current allocations to the EESS (active) and space research (active) from 5 460 MHz up to 5 570 MHz for the purpose of providing additional spectrum for spaceborne radio-altimetry and synthetic aperture radar imaging;
USA/12/1 ASP/20/332 UAE/142/1	13	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
USA/12/1 ASP/20/332	14	review [of] allocations to the space-research service (deep space) (space-to-Earth) and the inter-satellite service in the frequency range 32-32.3 GHz with a view to improving the sharing conditions between these services;
USA/12/1	15	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in MOD Resolution 216 (WRC-97) ;
USA/12/1	16	to examine the spectrum requirements for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
EUR/13/384	17	to consider the revision of Articles S25 and S19 and the rephrasing of Article S1 of the ITU Radio Regulations concerning the amateur and amateur-satellite services;
ASP/20/332 UAE/142/1	18	consideration of Article S25 concerning the amateur and amateur-satellite services;
	19	issues related to Appendix S3 :
EUR/13/384 ASP/20/332 UAE/142/1	20	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
CAN/24/107	21	SUP
EUR/13/384	22	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 7 and 8 of Recommendation 66 (Rev.WRC-97) ;

EUR/13/384 ASP/20/332 UAE/142/1	23	to consider the inclusion of general limits for out-of-band emissions in the Radio Regulations, in particular with regard to whether it is appropriate to do so, taking into account the results of ITU-R studies;
CAN/24/107	24	SUP
EUR/13/384 ASP/20/332 UAE/142/1	25	review of the frequency and channel arrangements in the MF and HF bands allocated on a primary basis to the maritime mobile service, taking into account the use of new digital technology, in accordance with Resolution 347 (WRC-97) ;
UAE/142/1	26	sharing between the fixed-satellite service (FSS) and fixed service in the 19 GHz band, when used bidirectionally by the FSS to provide feeder links for non-geostationary-satellite orbit (non-GSO) mobile-satellite service (MSS) systems;
EUR/13/384 ASP/20/332	27	to consider Appendix S13 and Resolution 331 (Rev.WRC-97) with a view to their deletion and, if appropriate, consider related changes to Chapter XVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to the global maritime distress and safety system (GMDSS)...;
J/133/59	28	... and the review of the operational procedures after the introduction of the GMDSS;
EUR/13/384 ASP/20/332 UAE/142/1	29	to consider the results of studies, and take necessary actions relating to:
EUR/13/384 ASP/20/332 UAE/142/1	30	the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97));
EUR/13/384 ASP/20/332 UAE/142/1	31	shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
EUR/13/384	32	consider the allocation of frequencies to the mobile service in the frequency ranges 5 150-5 350 MHz and 5 470-5 725 MHz;
EUR/13/384	33	review of spectrum and regulatory requirements to facilitate emerging terrestrial wireless interactive multimedia applications in accordance with Resolution [EUR/13/12] (WRC-2000) ;
EUR/13/384	34	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
EUR/13/384	35	to consider regulatory provisions and possible identification of spectrum above about 19.7 GHz for high-density systems in the fixed-satellite service;

B/35/95	36	to consider regulatory provisions and possibly identify additional spectrum allocation in bands above 17.8 GHz for high-density systems in the fixed-satellite service (HDFS), taking full account of its future requirements;
E/127	37	to consider regulatory provisions and possible identification of spectrum above about 18 GHz for high-density systems in the fixed-satellite service;
EUR/13/384	38	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [EUR/13/13] (WRC-2000), with a view to improve sharing conditions for FSS;
EUR/13/384	39	to consider the results of studies related to Resolution 114 (WRC-95) , dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;
EUR/13/384	40	revise APS30 and APS30A in accordance with the decisions of WRC-2000;
EUR/13/384	41	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
EUR/13/384	42	to consider outstanding items from WRC-2000:
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
EUR/13/384	44	to consider any additional changes to Appendix S18 to enable the use of digital communications by the maritime-mobile service, taking into account Resolution 342 (Rev.WRC-2000) ;
EUR/13/384	45	on the basis of the results of the technical, operational and regulatory studies conducted in accordance with Resolution [EUR/13/5] (WRC-2000):
EUR/13/384	46	to review and, if appropriate, revise the provisional pfd limits concerning the operation of RNSS (space-to-Earth) systems in the frequency band 1 151-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the aeronautical radionavigation, the radionavigation and the radiolocation services;
EUR/13/384	47	to consider compatibility between RNSS and ARNS in the band 960-1 215 MHz;

EUR/13/384	48	to consider, on the basis of the results of the studies in accordance with Resolution 130 (Rev.WRC-2000) , the inclusion of power limits or other frequency sharing mechanisms among GSO, non-GSO and terrestrial systems;
EUR/13/384	49	to consider regulatory provisions for high altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and possible additional frequency allocations for such high altitude platform stations in the fixed service in the range 18-32 GHz taking into account the results of ITU-R studies conducted in accordance with Resolution 122 (Rev.WRC-2000) ;
EUR/13/384	50	to consider whether earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz taking into account the results of the regulatory, technical and operational studies conducted in accordance with Resolution [EUR/13/8] (WRC-2000) ;
ASP/20/332	51	to consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz, taking into account Resolution 723 (WRC-97) ;
ASP/20/332	52	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (WRC-97) ;
ASP/20/332 UAE/142/1 J/133/61 and 62	53	to consider the preferred frequency bands and allocation for future mobile communication systems beyond IMT-2000, [e.g. the fourth generation system] [taking into account Resolution [UUU] (WRC-2000)];
ASP/20/332 UAE/142/1 INS/60/4	54	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
CAN/24/114	55	SUP
ASP/20/332 INS/60/5	56	to consider the additional allocations on a worldwide basis for downlinks in the 401-406 MHz to the non-GSO MSS, taking into account the results of ITU-R studies conducted in response to Resolution 219 (WRC-97) ;
ASP/20/332 J/133/63	57	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [XXX] (WRC-2000) relating to frequency bands above 3 GHz allocated exclusively for terrestrial radiocommunications;
ASP/20/332	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services, taking into account Resolution [BBB] (WRC-2000) ;

ASP/20/332 J/133/65	59	to review all EESS and SRS allocations between 35-38 GHz in accordance with Resolutions [CCC] (WRC-2000) , [DDD] (WRC-2000) and [EEE] (WRC-2000) ;
ASP/20/332 J/133/66 and 67	60	to consider results of ITU-R studies in accordance with Resolution [ZZZ] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject, [keeping generic allocation for the mobile-satellite service];
ASP/20/332	61	to consider the additional allocations to MSS in the 1-3 GHz band;
CAN/24/109	62	to consider the need for interregional regulatory provisions, including power flux-density limits, to protect the fixed service in the bands 17.7-17.8 GHz (in Regions 1 and 3) and 21.4-22 GHz (in Region 2) from BSS systems in Region 2 and Regions 1 and 3, respectively;
CAN/24/110	63	to consider allocation of additional spectrum for the Earth exploration-satellite service (EESS) around 5 GHz;
UAE/142/1	64	Resolution 528 (WARC-92) ;
CAN/24/111	65	SUP
	66	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 728 (WRC-97) ;
CAN/24/113	67	SUP
AUS/58/1	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
AUS/58/2	69	to consider results of the ITU-R studies conducted in accordance with Resolution 207 (Rev.WRC-2000) [to mitigate HF interference in the bands allocated to the maritime mobile and aeronautical mobile (R) service];
AUS/58/3	70	to consider an additional allocation on a worldwide basis for EESS active radio altimeters in the band 5 460-5 570 MHz;
INS/60/1	71	Further studies on sharing between the mobile-satellite services below 1 GHz for narrow-band data applications and the terrestrial services, in particular digital trunked systems, are required to ascertain that it will not cause harmful interference to these terrestrial services, before additional allocations for the uplink of the mobile-satellite service in part of the 450-460 MHz band or other suitable bands could be proposed to WRC-02/03 for its consideration.
J/133/64	72	to review footnote S5.332 in the frequency band of 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services, taking into account Resolution [BBB] (WRC-2000) ;

IND/138	73	Based on ITU-R studies, review the spectrum, regulatory and sharing considerations of designating globally harmonized frequency bands for administrations intending to implement future public safety systems in the range of 150 MHz to 5 GHz and make adjustments to the Table of Frequency Allocations and Radio Regulations as necessary.
UAE/142/1	74	sharing between the fixed-satellite service (FSS) and fixed service in the 19 GHz band, when used bidirectionally by the FSS to provide feeder links for non-geostationary-satellite orbit (non-GSO) mobile-satellite service (MSS) systems;
UAE/142/1	75	to consider results of ITU-R studies in accordance with Resolution [ZZZ] (WRC-2000) and take appropriate action on this subject;
UAE/142/1	76	to consider additional allocation to MSS in the 1-3 GHz band, taking into account Resolution 213 (Rev.WRC-97) ;
UAE/142/1	77	to review the technical and regulatory provisions for enabling the earth station on board vessels (ESV) to operate in the fixed-satellite service (FSS) bands 3 700-4 200 MHz and 5 925-6 425 MHz;
UAE/142/1	78	to review the sharing conditions between different services in the band 13.75-14 GHz in accordance with Resolution [DDD] (WRC-2000) ;
UAE/142/1	79	use of frequency adaptive systems in the MF/HF bands in accordance with Resolution 729 (WRC-97) ;
UAE/142/1	80	allocation of the frequency band 14.5-14.8 GHz to the FSS (Earth-to-space) in Region 3 (expansion of FSS to include other than feeder links of the broadcasting-satellite service);
G/147/1	81	to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
Resolution 722	82	2.5 to review in Appendix S2 the Table of transmitter frequency tolerances, taking into account the frequency tolerance limits specified in Recommendation ITU-R SM.1045;
Resolution 721	83	8.3 to review the use of the frequency band 415-526.5 kHz by the aeronautical radionavigation and maritime mobile services;
Resolution 721	84	8.4 to review the use of the HF bands by the aeronautical mobile (R) and maritime mobile services with a view to meeting the changing needs of these services;
Resolution 721	85	8.8 consideration of changes to the allocations in Region 3 for the band 1 350-1 400 MHz to permit co-primary use by the fixed service,
CPM Report	86	potential for sharing around 4 300 MHz between radio altimeters and space-based passive earth sensors;



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 2
OF THE PLENARY

NOTE BY THE CHAIRPERSON

Please find attached a list of the topics identified by administrations for items to be included in the agendas of WRC-03.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for WRC-03**

USA/12/1 EUR/13/384 ASP/20/332 UAE/142/1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
USA/12/1 EUR/13/384	2	to consider the upgrade [the status] of allocations to the radiolocation service in the bands around 3 GHz and around 5.5 GHz, [the date of a conference is under discussion];
USA/12/1	3	to consider spectrum requirements for wideband aeronautical telemetry in the band between 3 GHz and 30 GHz;
USA/12/1	4	to consider moving the existing additional allocation of the 7 145-7 235 MHz band on a primary basis pursuant to No. S5.460 to within the frame of the Table of Frequency Allocations;
USA/12/1	5	to consider inclusion in the Radio Regulations of power flux-density limits, in accordance with Recommendation ITU-R S.[Doc. 4/54], to protect the feeder uplinks of non-geostationary mobile-satellite service systems operating in the fixed-satellite service at 5 GHz pursuant to No. S5.447A ;
USA/12/1 ASP/20/332 UAE/142/1	6	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97, and to consider bringing forward the date of availability of the HF bands allocated by WARC-92 to the broadcasting service in response to Resolution 29 (WRC-97) and Resolution 537 (WRC-97) ;
CVA/HOL/G/135/2	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
CVA/HOL/G/135/3	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (HFBC-87) , 518 (HFBC-87) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the need to achieve the optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
	9	
USA/12/1 EUR/13/384 ASP/20/332 CAN/24/108 CVA/HOL/G/135/1	10	[to consider realignment of] [consideration of the need to realign] the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
USA/12/1 ASP/20/332 and 334 J/133/60	11	[to consider] possible allocations in the frequency bands above 275 GHz, [taking into account Resolution [AAA] (WRC-2000)];

CAN/24/113	12	SUP
USA/12/1	13	to consider an extension to the upper end of the current allocations to the EESS (active) and space research (active) from 5 460 MHz up to 5 570 MHz for the purpose of providing additional spectrum for spaceborne radio-altimetry and synthetic aperture radar imaging;
USA/12/1 ASP/20/332 UAE/142/1	14	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
USA/12/1 ASP/20/332	15	review [of] allocations to the space-research service (deep space) (space-to-Earth) and the inter-satellite service in the frequency range 32-32.3 GHz with a view to improving the sharing conditions between these services;
USA/12/1	16	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in MOD Resolution 216 (WRC-97) ;
USA/12/1	17	to examine the spectrum requirements for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
EUR/13/384	18	to consider the revision of Articles S25 and S19 and the rephrasing of Article S1 of the ITU Radio Regulations concerning the amateur and amateur-satellite services;
ASP/20/332 UAE/142/1	19	consideration of Article S25 concerning the amateur and amateur-satellite services;
	20	issues related to Appendix S3 :
EUR/13/384 ASP/20/332 UAE/142/1	21	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
CAN/24/107	22	SUP
EUR/13/384	23	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 7 and 8 of Recommendation 66 (Rev.WRC-97) ;
EUR/13/384 ASP/20/332 UAE/142/1	24	to consider the inclusion of general limits for out-of-band emissions in the Radio Regulations, in particular with regard to whether it is appropriate to do so, taking into account the results of ITU-R studies;
CAN/24/107	25	SUP
EUR/13/384 ASP/20/332 UAE/142/1	26	review of the frequency and channel arrangements in the MF and HF bands allocated on a primary basis to the maritime mobile service, taking into account the use of new digital technology, in accordance with Resolution 347 (WRC-97) ;

UAE/142/1	27	sharing between the fixed-satellite service (FSS) and fixed service in the 19 GHz band, when used bidirectionally by the FSS to provide feeder links for non-geostationary-satellite orbit (non-GSO) mobile-satellite service (MSS) systems;
EUR/13/384 ASP/20/332	28	to consider Appendix S13 and Resolution 331 (Rev.WRC-97) with a view to their deletion and, if appropriate, consider related changes to Chapter XVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to the global maritime distress and safety system (GMDSS)...;
J/133/59	29	... and the review of the operational procedures after the introduction of the GMDSS;
EUR/13/384 ASP/20/332 UAE/142/1	30	to consider the results of studies, and take necessary actions relating to:
EUR/13/384 ASP/20/332 UAE/142/1	31	the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97));
EUR/13/384 ASP/20/332 UAE/142/1	32	shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
EUR/13/384	33	consider the allocation of frequencies to the mobile service in the frequency ranges 5 150-5 350 MHz and 5 470-5 725 MHz;
EUR/13/384	34	review of spectrum and regulatory requirements to facilitate emerging terrestrial wireless interactive multimedia applications in accordance with Resolution [EUR/13/12] (WRC-2000);
EUR/13/384	35	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
EUR/13/384	36	to consider regulatory provisions and possible identification of spectrum above about 19.7 GHz for high-density systems in the fixed-satellite service;
EUR/13/384	37	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [EUR/13/13] (WRC-2000), with a view to improve sharing conditions for FSS;
EUR/13/384	38	to consider the results of studies related to Resolution 114 (WRC-95) , dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;
EUR/13/384	39	revise APS30 and APS30A in accordance with the decisions of WRC-2000;
EUR/13/384	40	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;

EUR/13/384	41	to consider outstanding items from WRC-2000;
EUR/13/384	42	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
EUR/13/384	43	to consider any additional changes to Appendix S18 to enable the use of digital communications by the maritime-mobile service, taking into account Resolution 342 (Rev.WRC-2000) ;
EUR/13/384	44	on the basis of the results of the technical, operational and regulatory studies conducted in accordance with Resolution [EUR/13/5] (WRC-2000) ;
EUR/13/384	45	to review and, if appropriate, revise the provisional pfd limits concerning the operation of RNSS (space-to-Earth) systems in the frequency band 1 151-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the aeronautical radionavigation, the radionavigation and the radiolocation services;
EUR/13/384	46	to consider compatibility between RNSS and ARNS in the band 960-1 215 MHz;
EUR/13/384	47	to consider, on the basis of the results of the studies in accordance with Resolution 130 (Rev.WRC-2000) , the inclusion of power limits or other frequency sharing mechanisms among GSO, non-GSO and terrestrial systems;
EUR/13/384	48	to consider regulatory provisions for high altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and possible additional frequency allocations for such high altitude platform stations in the fixed service in the range 18-32 GHz taking into account the results of ITU-R studies conducted in accordance with Resolution 122 (Rev.WRC-2000) ;
EUR/13/384	49	to consider whether earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz taking into account the results of the regulatory, technical and operational studies conducted in accordance with Resolution [EUR/13/8] (WRC-2000) ;
ASP/20/332	50	to consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz, taking into account Resolution 723 (WRC-97) ;
ASP/20/332	51	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (WRC-97) ;

ASP/20/332 UAE/142/1 J/133/61 and 62	52	to consider the preferred frequency bands and allocation for future mobile communication systems beyond IMT-2000, [e.g. the fourth generation system] [taking into account Resolution [UUU] (WRC-2000)];
ASP/20/332 UAE/142/1	53	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
CAN/24/114	54	SUP
ASP/20/332	55	to consider the additional allocations on a worldwide basis for downlinks in the 401-406 MHz to the non-GSO MSS, taking into account the results of ITU-R studies conducted in response to Resolution 219 (WRC-97) ;
ASP/20/332 J/133/63	56	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [XXX] (WRC-2000) relating to frequency bands above 3 GHz allocated exclusively for terrestrial radiocommunications;
ASP/20/332	57	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services, taking into account Resolution [BBB] (WRC-2000);
ASP/20/332 J/133/65	58	to review all EESS and SRS allocations between 35-38 GHz in accordance with Resolutions [CCC] (WRC-2000), [DDD] (WRC-2000) and [EEE] (WRC-2000);
ASP/20/332 J/133/66 and 67	59	to consider results of ITU-R studies in accordance with Resolution [ZZZ] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject, [keeping generic allocation for the mobile-satellite service];
ASP/20/332	60	to consider the additional allocations to MSS in the 1-3 GHz band;
CAN/24/109	61	to consider the need for interregional regulatory provisions, including power flux-density limits, to protect the fixed service in the bands 17.7-17.8 GHz (in Regions 1 and 3) and 21.4-22 GHz (in Region 2) from BSS systems in Region 2 and Regions 1 and 3, respectively;
CAN/24/110	62	to consider allocation of additional spectrum for the Earth exploration-satellite service (EESS) around 5 GHz;
UAE/142/1	63	Resolution 528 (WARC-92) ;
CAN/24/111	64	SUP
	65	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 728 (WRC-97) ;
CAN/24/113	66	SUP

B/35/95	67	to consider regulatory provisions and possibly identify additional spectrum allocation in bands above 17.8 GHz for high-density systems in the fixed-satellite service (HDFSS), taking full account of its future requirements;
S/127	68	to consider regulatory provisions and possible identification of spectrum above about 18 GHz for high-density systems in the fixed-satellite service;
AUS/58/1	69	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
AUS/58/2	70	to consider results of the ITU-R studies conducted in accordance with Resolution 207 (Rev.WRC-2000) [to mitigate HF interference in the bands allocated to the maritime mobile and aeronautical mobile (R) service];
AUS/58/3	71	to consider an additional allocation on a worldwide basis for EESS active radio altimeters in the band 5 460-5 570 MHz;
INS/60/1	72	Further studies on sharing between the mobile-satellite services below 1 GHz for narrow-band data applications and the terrestrial services, in particular digital trunked systems, are required to ascertain that it will not cause harmful interference to these terrestrial services, before additional allocations for the uplink of the mobile-satellite service in part of the 450-460 MHz band or other suitable bands could be proposed to WRC-02/03 for its consideration.
J/133/64	73	to review footnote S5.332 in the frequency band of 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services, taking into account Resolution [BBB] (WRC-2000) ;
UAE/142/1	74	sharing between the fixed-satellite service (FSS) and fixed service in the 19 GHz band, when used bidirectionally by the FSS to provide feeder links for non-geostationary-satellite orbit (non-GSO) mobile-satellite service (MSS) systems;
UAE/142/1	75	to consider results of ITU-R studies in accordance with Resolution [ZZZ] (WRC-2000) and take appropriate action on this subject;
UAE/142/1	76	to consider additional allocation to MSS in the 1-3 GHz band, taking into account Resolution 213 (Rev.WRC-97) ;
UAE/142/1	77	to review the technical and regulatory provisions for enabling the earth station on board vessels (ESV) to operate in the fixed-satellite service (FSS) bands 3 700-4 200 MHz and 5 925-6 425 MHz;
UAE/142/1	78	to review the sharing conditions between different services in the band 13.75-14 GHz in accordance with Resolution [DDD] (WRC-2000) ;
UAE/142/1	79	use of frequency adaptive systems in the MF/HF bands in accordance with Resolution 729 (WRC-97) ;

UAE/142/1	80	allocation of the frequency band 14.5-14.8 GHz to the FSS (Earth-to-space) in Region 3 (expansion of FSS to include other than feeder links of the broadcasting-satellite service);
Resolution 722	81	2.5 to review in Appendix S2 the Table of transmitter frequency tolerances, taking into account the frequency tolerance limits specified in Recommendation ITU-R SM.1045;
Resolution 721	82	8.3 to review the use of the frequency band 415-526.5 kHz by the aeronautical radionavigation and maritime mobile services;
Resolution 721	83	8.4 to review the use of the HF bands by the aeronautical mobile (R) and maritime mobile services with a view to meeting the changing needs of these services;
Resolution 721	84	8.8 consideration of changes to the allocations in Region 3 for the band 1 350-1 400 MHz to permit co-primary use by the fixed service,
CPM Report	85	potential for sharing around 4 300 MHz between radio altimeters and space-based passive earth sensors;



SUB-WORKING GROUP 4B-1

DRAFT REVISION OF APPENDIX S3 TO THE RADIO REGULATIONS

TABLE OF MAXIMUM PERMITTED SPURIOUS EMISSION POWER LEVELS

(See Article S3)

APPENDIX S3

**Table of maximum permitted spurious
emission power levels**

(See Article S3)

NOC 1 to 5

**Section I – Spurious emission limits for transmitters installed on
or before 1 January 2003 (valid until 1 January 2012)**

MOD 6

6 ~~The measurement methods for radar systems should be guided by Recommendation ITU R M.1177. For those radar systems for which acceptable methods of measurement do not exist, the lowest practicable power of spurious emission should be achieved. Radar systems are exempt from spurious emission limits under this section. The lowest practicable power of spurious emission should be achieved.~~

NOC Table 1

**Section II – Spurious emission limits for transmitters installed after 1 January 2003
and for all transmitters after 1 January 2012**

NOC 7

MOD 8

8 Guidance regarding the methods of measuring spurious emissions is given in the most recent version of Recommendation ITU-R SM.329. The e.i.r.p. method specified in that Recommendation should be used when it is not possible to accurately measure the power supplied to the antenna transmission line, for example radars, or for specific applications where the antenna is designed to provide significant attenuation at the spurious frequencies. Additionally, the e.i.r.p. method may need some modification for special cases, e.g. beam-forming radars.

NOC 9 to 11

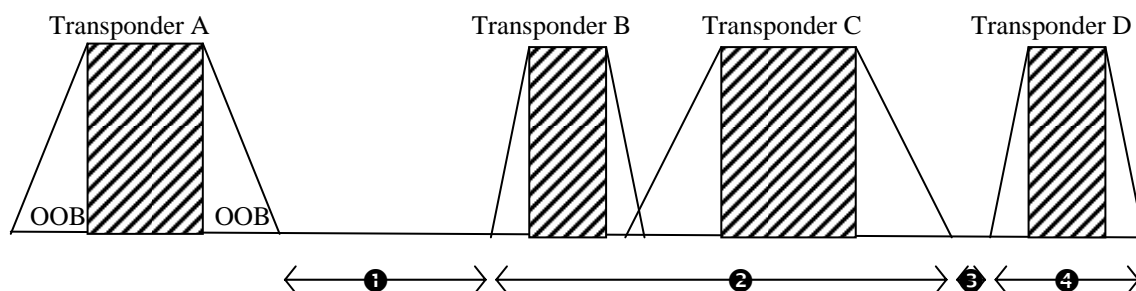
ADD 11bis

11bis As an emitted signal becomes more and more narrow (to the limiting case of an unmodulated carrier with theoretical necessary bandwidth of zero), the application of the term “necessary bandwidth” as used in determining the region where spurious emission limits apply to space services, becomes more and more difficult. In the limit, $\pm 250\%$ of necessary bandwidth (recognized in many cases as establishing the region beyond which spurious emissions are defined), approaches zero. Beacon and other unmodulated signals, such as those used in uplink and downlink circuits in control and tracking of satellites, are examples of a case where it is difficult to practically apply the term “necessary bandwidth” in determining where out-of-band emissions end, and spurious emissions begin. Pending further studies and definitive action by a future world radiocommunication conference, in calculating the region where spurious emission limits apply for transmitters using amplifiers to pass essentially an unmodulated signal (or a signal with very small bandwidth), the amplifier bandwidth is taken to be the necessary bandwidth.

ADD 11ter

11ter For the case of a single satellite operating more than one transponder into the same service area, and when considering the limits for spurious emissions as indicated by Headnote 11 to Appendix S3, spurious emissions from one transponder may fall on a frequency at which a companion, second transponder is transmitting. In these situations, the level of spurious emissions from the first transponder is well exceeded by the fundamental or out of band emissions of the second transponder. Therefore, the limits of Appendix S3 should not apply to those spurious emissions of a satellite that fall either within the necessary bandwidth or out of band region of another transponder on the same satellite, into the same service area. The diagram below is an example of a satellite transponder exempted from spurious emission limits of Appendix S3.

Figure 1
Example of applicability of spurious emission limits to a satellite transponder



Transponders A, B, C and D are operating on the same satellite into the same service area. Transponder A is exempted from spurious emission limits in frequency ranges 2 and 4, but is required to meet spurious emission limits in frequency ranges 1 and 3.

NOC 12

MOD TABLE II

TABLE II

Attenuation values used to calculate maximum permitted spurious emission power levels for use with radio equipment

Service category in accordance with Article S1, or equipment type¹⁵	Attenuation (dB) below the power supplied to the antenna transmission line
All services except those services quoted below:	$43 + 10 \log (P)$, or 70 dBc, whichever is less stringent
Space services (earth stations) ^{10, 44, 16}	$43 + 10 \log (P)$, or 60 dBc, whichever is less stringent
Space services (space stations) ^{10, 44, 17}	$43 + 10 \log (P)$, or 60 dBc, whichever is less stringent
Radiodetermination ¹⁴	$43 + 10 \log (PEP)$, or 60 dB, whichever is less stringent
Broadcast television ¹¹	$46 + 10 \log (P)$, or 60 dBc, whichever is less stringent, without exceeding the absolute mean power level of 1 mW for VHF stations or 12 mW for UHF stations. However, greater attenuation may be necessary on a case by case basis.
Broadcast FM	$46 + 10 \log (P)$, or 70 dBc, whichever is less stringent; the absolute mean power level of 1 mW should not be exceeded
Broadcasting at MF/HF	50 dBc; the absolute mean power level of 50 mW should not be exceeded
SSB from mobile stations ¹²	43 dB below <i>PEP</i>
Amateur services operating below 30 MHz (including with those using SSB) ^{12, 16}	$43 + 10 \log (PEP)$, or 50 dB, whichever is less stringent
Services operating below 30 MHz, except space, radiodetermination, broadcast, those using SSB from mobile stations, and amateur ¹²	$43 + 10 \log (X)$, or 60 dBc, whichever is less stringent, where $X = PEP$ for SSB modulation, and $X = P$ for other modulation
Low-power device radio equipment ¹³	$56 + 10 \log (P)$, or 40 dBc, whichever is less stringent
<u>Emergency transmitters</u> ¹⁸ Emergency position-indicating radio beacon Emergency locator transmitter Personal location beacon Search and rescue transponder Ship emergency, lifeboat and survival craft transmitters Land, aeronautical or maritime transmitters when used in emergency	No limit

NOC Definitions of P, PEP and dBc.

NOC Notes 10 to 13.

MOD Note 14

¹⁴ ~~These values are “design objectives”. This note will not be applicable after WRC-99~~ Radiodetermination (Radar as defined by No S1.100) system spurious emission dB attenuation shall be determined for radiated emission levels, not at the antenna transmission line. The measurement methods for determining the radiated spurious emission levels from the radar systems should be guided by Recommendation ITU-R M.1177.

NOC Note 15

ADD Note 16

¹⁶ Amateur earth stations operating below 30 MHz are in the service category “Amateur services operating below 30 MHz (including those using SSB)”.

ADD Note 17

¹⁷ Space stations in the space research service intended for operation in deep space as defined by No. S1.177, are exempt from spurious emission limits.

ADD Note 18

¹⁸ “Emergency position-indicating radio beacon”, “emergency locator transmitters”, “personal location beacons”, “search and rescue transponders”, “ship emergency and survival craft transmitters”, “land, aeronautical or maritime transmitters when used in emergency”.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/22-E
11 May 2000
Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

DRAFT REVISION OF

RECOMMENDATION 66 (Rev.WRC-~~97~~2000)

Studies of the maximum permitted levels of unwanted emissions

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that Appendix **S3** specifies the maximum permitted levels of spurious emissions, in terms of the mean power level of any spurious component supplied by a transmitter to the antenna transmission line;
- b) that the principal objective of Appendix **S3** is to specify the maximum permitted levels of spurious emissions that, while being achievable, provide protection against harmful interference;
- c) that excessive levels of unwanted emissions may give rise to harmful interference;
- d) that while out-of-band emissions can also give rise to harmful interference, the Radio Regulations do not provide general limits for these emissions;
- e) that while Appendix **S3** applies generally to the mean power of a transmitter and its spurious emissions, it also takes account of a variety of emissions where interpretation of the term “mean power”, and thus its measurement, would be difficult, particularly in the cases of digital modulation broadband systems, pulsed modulation and narrow-band high-power transmitters;
- ~~f) that while Appendix **S3** covers spurious emissions for all radio services, those listed for space services are included only as design objectives;~~
- ~~g)~~ that unwanted emissions from transmitters operating in space stations may cause harmful interference, particularly emissions from wideband amplifiers which cannot be adjusted after launch;
- ~~h)~~ that unwanted emissions may cause harmful interference to safety services and radio astronomy and space services using passive sensors;

h) that, for technical or operational reasons, more stringent spurious emission limits than the general limits in Appendix **S3** may be required to protect specific services, such as safety services and passive services in specific bands or situations;

i) that broadband digital modulation may cause unwanted emissions at frequencies far from the carrier frequency,

noting

a) that safety services and passive services have in many cases been allocated frequencies adjacent or close to those of services employing high-power transmitters;

b) that some administrations have adopted more stringent limits for spurious emissions than those specified in Appendix **S3**,

c) that at this time in response to Resolution 722 (WRC-97) 2.3.2, the ITU-R determined to recommend not placing general out-of-band limits in the Radio Regulations.

recommends that ITU-R

~~1 study, as a matter of urgency, the question of spurious emissions resulting from space service transmissions, and, on the basis of those studies, develop Recommendations for maximum permitted levels of spurious emissions in terms of mean power of spurious components supplied by the transmitter to the antenna transmission line;~~

~~2 submit a report to WRC-99 on the results of its studies with a view to reviewing and including spurious emission limits for space services in Appendix **S3**;~~

~~3~~ continue the study of spurious emission levels in all frequency bands, emphasizing the study of those frequency bands, services and modulation techniques not presently covered by Appendix **S3**;

~~4~~ study the question of unwanted emissions resulting from transmitters of all services and all modulation methods, and, on the basis of those studies, develop a Recommendation or Recommendations for maximum permitted levels of spurious emissions and out-of-band emissions;

~~5~~ establish appropriate measurement techniques for unwanted emissions, where those techniques do not currently exist, including the determination of reference levels for wideband transmissions as well as the applicability of reference measurement bandwidths;

~~6~~ study the reasonable boundary of spurious emissions and out-of-band emissions with a view to defining such a boundary in Article **S1**;

~~7~~ study those frequency bands and instances where, for technical or operational reasons, more stringent spurious emission limits than the general limits in Appendix **S3** may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;

~~86~~ study those frequency bands and instances where, for technical or operational reasons, out-of-band limits may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;

~~7~~ study the matter of reference bandwidth in the space service and the option of modifying Appendix S3, Table II by separately identifying individual space services;

~~9~~ report to a future competent world radiocommunication conference the results of studies under *recommends that ITU-R 3, 4 and 5* above, with a view to recommending whether or not it is appropriate to include general limits for out-of-band emissions in the Radio Regulations;

~~108~~ report the results of studies under *recommends that ITU-R 6, 7 and 8* above to a competent world radiocommunication conference(s).



ISTANBUL, 8 MAY – 2 JUNE 2000

Working Group 4B

**Draft Note by the Chairperson of Working Group 4B
to the Chairperson of GT PLEN-2**

Working group 4B has concluded that the issues related to unwanted emissions (in Recommends 8 of ITU-R Recommendation 66(Rev. WRC-2000)) should be considered by GT PLEN-2 for inclusion in the agenda of the next World Radiocommunication Conference. The draft revision of Recommendation 66 is contained in document DT/22.

Working group 4B has also concluded that the general out-of-band emission limits should not be considered for the inclusion in the agenda of the next Conference.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/24-E
10 May 2000
Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

**NOTE BY THE CHAIRPERSON OF SUB-WORKING GROUP 4B3
(SWG 4B3) – AGENDA ITEM 2**

Issues

At the first meeting of SWG 4B3, held at 12:45, 11 May 2000, the following issues related to agenda item 2 (incorporation by reference) were considered:

1. Question of the 4 missing ITU-R Recommendations from Volume 4 of the Radio Regulations.
2. Updating of references to ITU-R Recommendations revised during the last study period.
3. Action on Resolution **27 (Rev.WRC-97)**.
4. Meaning of incorporation by reference.
5. Mechanism for keeping track of changes involving incorporation by reference.
6. Action on Resolution **28 (WRC-95)**.

Actions recommended to WG 4B under the above points:

1. The reference to Recommendation ITU-R **SA.1154** in No. **S5.391** was judged to be mandatory in nature and the full text should therefore be included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **S.1256** in No. **S22.5A** was judged to be mandatory in nature and the full text should therefore be included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **S.1340** in No. **S5.511C** was judged to be mandatory in nature and the full text should therefore be included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **SA.1341** in No. **S5.511A** was judged to be mandatory in nature and the full text should therefore be included in Volume 4 of the Radio Regulations.

In addition it was noted that, although the reference to ITU-R **RA.769-1** in No. **S5.511A** does not appear to be mandatory in nature, it is treated as mandatory in the Annexes of Resolution **27 (Rev.WRC-97)** and therefore appears in Volume 4 of the Radio Regulations. COM 5 is therefore requested to provide COM 4B with a clarification of the status of the references to ITU-R **RA.769-1** in No. **S5.511A**.

- 2 The updates to Recommendations ITU-R **M.541-8** and **M.1185-1** were finalised during WRC-97 and the correct references to these updated Recommendations are already included in the current Radio Regulations.

With respect to Recommendation ITU-R **BO.1293**, this has actually been revised during the last study period. GT-PLN 1 is dealing with related matters at this conference and is therefore requested to advise COM 4B on whether the references in Appendices **S30/S30A** should be updated to reflect the changes agreed in ITU-R.

In addition, an anomaly was noted in relation to Recommendation ITU-R **M.1174**. A revision has apparently taken place and WG 5B is requested to advise COM 4B on whether the version referenced in the Radio Regulations should be updated to ITU-R **M.1174-1**.

3. Resolution **27 (Rev.WRC-97)** should be revised to reflect the work already carried out by the Bureau in response to the Resolution and to advise the next WRC and the Bureau on further actions needed.
- 4 The scope of incorporation by reference should be understood to include any class of reference, whether mandatory or non-mandatory, in line with Section 3 of Part A of the VGE Report. References that are intended to be of a mandatory character should be clearly so indicated. This will require a number of consequential changes in Resolution 27 and 28 and in Volume 4 of the Radio Regulations.
5. All WRC Committees should be reminded of the need to adhere to the procedures agreed at WRC-97 in respect of mandatory references to ITU-R Recommendations. These were first described in document CMR97/157 and have been reproduced in Annex 2 to Chapter 7 of the CPM Report. Among other things, these procedures require that a list of the ITU-R Recommendations proposed for incorporation by reference is developed, maintained and published, as a conference document, in line with developments during the conference.

In order to improve the mechanism for keeping track of new or revised instances of incorporation by reference, this list should from now onwards form the basis for production of an accurately based Volume 4 of the Radio Regulations following each WRC.

6. Resolution **28 (WRC-95)** should be revised to reflect the proposals for improving the application of incorporation by reference contained in Chapter 7 to the CPM Report and submissions to WRC-2000.

A drafting group was established to develop revised texts for Resolutions **27** and **28** in line with the above recommendations.

J.A. Shaw
Chairperson, Sub-Working Group 4B3, Box 889



WORKING GROUP 5A

FRAMEWORK FOR CONSENSUS ON WRC-2000 AGENDA ITEM 1.6.1

To provide guidance in the identification of additional spectrum for IMT-2000, the following provides a framework on which to build consensus on identifying suitable frequency band(s) to satisfy the requirements of WRC-2000 agenda item 1.6.1.

- 1 Identification of frequency bands through appropriate provisions at this conference to satisfy the requirement of additional spectrum for the IMT-2000 terrestrial component, recognizing that the CPM Report concludes that spectrum to the order of 160 MHz, beyond that identified already for initial IMT-2000 bands in RR S5.388 and beyond the spectrum used in the three Regions for first- and second-generation mobile systems, will be needed to meet the projected requirements of IMT-2000.
- 2 Spectrum identified for IMT-2000 should be identified globally, in order to maximize harmonized use, to the greatest extent possible. It is desirable to identify a limited number of contiguous global bands.
- 3 To meet the requirements of individual administrations, flexibility must be afforded in a number of areas:
 - in order to identify sufficient spectrum for those countries implementing IMT-2000, whilst also taking account of the requirements of those countries not having a need for additional spectrum for IMT-2000 at this time;
 - flexibility in the timing of availability and use of the bands identified for IMT-2000, in order to meet particular market demand and other national considerations;
 - the opportunity for administrations to determine, at a national level, how much spectrum to make available for IMT-2000 from within the identified bands;
 - to allow administrations to develop their own transition plans, tailored to meet their specific deployment of existing systems;
 - the ability for the identified bands to be used by all services allocated in those bands.
- 4 The particular needs of developing countries must be met.
- 5 To identify additional spectrum for IMT-2000 within current bands allocated to the mobile service.

6 To take into account the substantial work already done in ITU-R, as endorsed by the Radiocommunication Assembly 2000, on IMT-2000, as well as the ability of administrations to deploy other technologies in the bands identified.

Alan R. JAMIESON
Chairperson, Working Group 5A



~~Chairperson, Working Group 5A~~

**~~FRAMEWORK FOR CONSENSUS ON IDENTIFICATION OF
ADDITIONAL GLOBAL SPECTRUM FOR IMT-2000,
IN ACCORDANCE WITH WRC-2000 AGENDA ITEM 1.6.1~~**

To provide guidance in the identification of additional spectrum for IMT-2000, the following provides a framework on which to build consensus on identifying suitable frequency band(s) to satisfy the requirements of WRC-2000 agenda item 1.6.1.

- 1 Identification of frequency bands at this Conference to satisfy the requirement of additional spectrum for the IMT-2000 terrestrial component, recognising that the CPM Report concludes that spectrum to the order of 160 MHz, beyond that identified already for initial IMT-2000 bands in RR S5.388 and beyond the spectrum used in the three Regions for first and second generation mobile systems, will be needed to meet the projected requirements of IMT-2000.
- 2 Spectrum identified for IMT-2000 should ideally be identified globally, in order to maximise harmonised use, to the greatest extent possible.
- 3 To meet the requirements of individual administrations, flexibility must be afforded in a number of areas:
 - In order to identify sufficient spectrum for those countries implementing IMT-2000, whilst also taking account of the requirements of those countries not having a need for additional spectrum for IMT-2000 at this time.
 - Flexibility in the timing of availability and use of the bands identified for IMT-2000, in order to meet particular market demand and other national considerations.
 - The opportunity for administrations to determine, at a national level, how much spectrum to make available for IMT-2000 from within the identified bands.

- To allow administrations to develop their own transition plans, tailored to meet their specific deployment of existing systems.
- The ability for ~~existing services in the identified bands to be continued~~ to be used by all services allocated in those bands.

4 The particular needs of developing countries must be met.

5 To identify additional spectrum for IMT-2000 within current bands allocated to the mobile service.

6 To take into account the substantial work already done in ITU-R, as endorsed by the Radiocommunication Assembly 2000, on IMT-2000, as well as the ability of administrations to deploy other technologies in the bands identified.

Alan R. JAMIESON
Chairperson, Working Group 5A



Chairperson, Working Group 5A

**FRAMEWORK FOR CONSENSUS ON IDENTIFICATION OF
ADDITIONAL GLOBAL SPECTRUM FOR IMT-2000,
IN ACCORDANCE WITH WRC-2000 AGENDA ITEM 1.6.1**

To provide guidance in the identification of additional spectrum for IMT-2000, the following provides a framework on which to build consensus on identifying suitable frequency band(s) to satisfy the requirements of WRC-2000 agenda item 1.6.1.

- 1 Identification of frequency bands at this Conference to satisfy the requirement of additional spectrum for the IMT-2000 terrestrial component, recognising that the CPM Report concludes that spectrum to the order of 160 MHz, beyond that identified already for initial IMT-2000 bands in RR S5.388, will be needed to meet the projected requirements of IMT-2000.
- 2 Spectrum identified for IMT-2000 should ideally be identified globally, in order to maximise harmonised use, to the greatest extent possible.
- 3 To meet the requirements of individual administrations, flexibility must be afforded in a number of areas:
 - In order to identify sufficient spectrum for those countries implementing IMT-2000, whilst also taking account of the requirements of those countries not having a need for additional spectrum for IMT-2000 at this time.
 - Flexibility in the timing of availability and use of the bands identified for IMT-2000, in order to meet particular market demand and other national considerations.
 - The opportunity for administrations to determine, at a national level, how much spectrum to make available for IMT-2000 from within the identified bands.

- To allow administrations to develop their own transition plans, tailored to meet their specific deployment of existing systems.
 - The ability for existing services in the identified bands to be continued to be used.
- 4 The particular needs of developing countries must be met.
- 5 To identify additional spectrum for IMT-2000 within current bands allocated to the mobile service.
- 6 To take into account the substantial work already done in ITU-R, as endorsed by the Radiocommunication Assembly 2000, on IMT-2000.

Alan R. JAMIESON
Chairperson, Working Group 5A



Chairperson, Working Group 5A

STRUCTURE OF WORKING GROUP 5A

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.6 - issues related to IMT-2000:
 - 1.6.1 - review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;
 - 1.6.2 - identification of a global radio control channel to facilitate multimode terminal operation and worldwide roaming of IMT-2000.
- Agenda item 1.10 - to consider results of ITU-R studies carried out in accordance with Resolution **218 (WRC-97)**.
- Agenda item 1.11 - to consider constraints on existing allocations and to consider additional allocations on a worldwide basis for the non-geostationary (non-GSO) MSS below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolutions **214 (Rev.WRC-97)** and **219 (WRC-97)**.

Documents: See DT/1, DT/4

Chairperson: Mr A. Jamieson

Box 599

Secretary: Mr F. Leite

Box 2904

Group	Scope	Chairperson	Box No.
DG 5A-1	IMT-2000 (terrestrial component below 1 GHz)	Sabah Towaij (CAN)	538
SWG 5A1	1.6.1 (IMT-2000 satellite component and HAPS)	Harold Kimball (USA)	434
DG 5A1a	IMT-2000 HAPS	Sofie Maddens Toscano (POR)	1181
DG 5A1b	IMT-2000 satellite component	Kyu-Jin Wee (KOR)	29
SWG 5A2	1.10 + 1.11 (generic MSS and MSS below 1 GHz)	Mehdi Michael Razi (CAN)	1212
DG 5A2a	1.10 (generic MSS)	Walter Estermann (AUS)	522

NOTE - Proposals concerning the identification of spectrum for the terrestrial component of IMT-2000 will be dealt with directly by WG 5A.

Alan R. JAMIESON
Chairperson, Working Group 5A



Chairperson, Working Group 5A

STRUCTURE OF WORKING GROUP 5A

Terms of reference

To consider, with due regard to the requirements of existing and future services in the bands under consideration:

- Agenda item 1.6 - issues related to IMT-2000:
 - 1.6.1 - review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;
 - 1.6.2 - identification of a global radio control channel to facilitate multimode terminal operation and worldwide roaming of IMT-2000.
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- Agenda item 1.11 - to consider constraints on existing allocations and to consider additional allocations on a worldwide basis for the non-geostationary (non-GSO) MSS below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolutions **214 (Rev.WRC-97)** and **219 (WRC-97)**.

Documents: See DT/1, DT/4

Chairperson: Mr. A. Jamieson

Box: 599

Secretary: Mr. F. Leite

Box: 2904

At its second meeting, Working Group 5A established two Sub-Working Groups, as follows:

Sub-Working Group	Terms of reference	Chairperson	Box No.
5A1	1.6.1 (IMT-2000 satellite component and HAPS)	Mr. H. Kimball (USA)	434
5A2	1.10 + 1.11 (generic MSS and MSS below 1 GHz)	Mr. M. Razi (CAN)	1212

Note: Proposals concerning the identification of spectrum for the terrestrial component of IMT-2000 will be dealt with directly by WG5A.

Alan R. JAMIESON
Chairperson, Working Group 5A

**WRC-2000**

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/27-E
11 May 2000
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ISTANBUL, 8 MAY – 2 JUNE 2000

**SUB-WORKING
GROUP 5A-1**

Chairperson, Sub-Working Group 5A-1

PROPOSALS ON THE USE OF HAPS IN IMT-2000

1 Document 12(Add.6)

MOD USA/12/160

1 710-2 170 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 710-1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388 <u>ADD S5.BBB</u>	
1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
1 970-1 980	FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	
1 980-2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	
2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	2 010-2 025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>

2 025-2 110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392		
2 110-2 120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388 <u>ADD S5.BBB</u>		
2 120-2 160 FIXED MOBILE S5.388 <u>ADD 5.BBB</u>	2 120-2 160 FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388	2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
2 160-2 170 FIXED MOBILE S5.388 S5.392A <u>ADD S5.BBB</u>	2 160-2 170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>

ADD USA/12/161

S5.BBB In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, and in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz, may be used by high altitude platform stations as base stations within an IMT-2000 system in accordance with Recommendation ITU-R IMT.RSPC, Resolution **HAPS (WRC-2000)** and Resolution **IMT (WRC-2000)**. These bands are allocated to the fixed, mobile and the mobile-satellite services, and the use by IMT-2000 applications using high altitude platform stations as an IMT-2000 base station in these bands is based on the equality of rights between all allocated radio services and does not establish priority of assignments in these bands among stations of the primary services to which they are allocated.

ADD USA/12/162

DRAFT RESOLUTION HAPS (WRC-2000)

**Use of high altitude platform stations providing IMT-2000 in the bands
1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1
and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WARC-92 identified the bands 1 885-2 025 MHz and 2 110-2 200 MHz, intended for use on a worldwide basis for IMT-2000, including the bands 1 980-2 010 MHz and 2 170-2 200 MHz for the satellite component of IMT-2000, in No. **S5.388**;
- b) that a high altitude platform station (HAPS) is defined in S1.66A as “A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth”;
- c) that HAPS may offer a new means of providing IMT-2000 services with minimal network build out as it is capable to provide service to a large footprint together with a dense coverage;
- d) that, in accordance with MOD **S5.388** and Resolution **IMT (WRC-2000)**, administrations may use the bands identified for IMT-2000, including the bands noted herein, for stations of other primary services to which they were allocated;
- e) that these bands are allocated to the fixed, mobile and mobile-satellite services;
- f) that ITU-R did not address sharing and coordination between HAPS and some existing systems, such as PCS and MMDS, currently operating in some administrations in the bands 1 885-2 025 MHz and 2 110-2 200 MHz;
- g) that in accordance with **S5.BBB**, HAPS is allowed to be used as a base station of terrestrial IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2, which are allocated to the fixed, mobile and the mobile-satellite services. The use by high altitude platform stations as an IMT-2000 base station in these bands is based on the equality of rights between all allocated radio services and does not establish priority of assignments in these bands among stations of the primary services to which they are allocated,

resolves

- 1 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system shall give due consideration to the minimum performance characteristics and operational conditions given in Recommendation ITU-R M.[8/115], in particular:
 - 1.1 that for the purpose of protecting certain stations operating in neighbouring administrations from co-channel interference, administrations using HAPS as base stations to IMT-2000 shall use antennae that comply with the following antenna pattern:

$$\begin{aligned}
 G(\psi) &= G_m - 3(\psi/\psi_b)^2 & \text{dBi} & \quad \text{for} & \quad 0 \leq \psi \leq \psi_1 \\
 G(\psi) &= G_m + L_N & \text{dBi} & \quad \text{for} & \quad \psi_1 < \psi \leq \psi_2 \\
 G(\psi) &= X - 60\log(\psi) & \text{dBi} & \quad \text{for} & \quad \psi_2 < \psi \leq \psi_3 \\
 G(\psi) &= L_F & \text{dBi} & \quad \text{for} & \quad \psi_3 < \psi \leq 90^\circ
 \end{aligned}$$

where:

$G(\psi)$: gain at the angle ψ from the main beam direction (dBi)
 G_m : maximum gain in the main lobe (dBi)
 ψ_b : one-half of the 3 dB beamwidth in the plane of interest (3 dB below G_m) (degrees)
 L_N : near-in-side-lobe level in dB relative to the peak gain required by the system design, and has a maximum value of -25 dB
 L_F : $G_m - 73$ dBi far side lobe level (dBi)

$$\begin{aligned}
 \psi_1 &= \psi_b \sqrt{-L_N/3} & \text{degrees} \\
 \psi_2 &= 3.745 \psi_b & \text{degrees} \\
 X &= G_m + L_N + 60\log(\psi_2) & \text{dB} \\
 \psi_3 &= 10^{(X-L_F)/60} & \text{degrees}
 \end{aligned}$$

The 3 dB beamwidth ($2\psi_b$) is again estimated by:

$$(\psi_b)^2 = 7442/(10^{0.1G_m}) \text{ (in degrees}^2\text{)}$$

where G_m is the peak aperture gain (dBi);

1.2 that a HAPS operating as a base station to provide IMT-2000 shall not exceed a co-channel spectral power flux-density (spfd) level of -121.5 dB (W/(m²/MHz)) on the Earth's surface outside an administration's borders unless agreed otherwise with the affected neighbouring administration, noting that this does not necessarily protect all stations operating in co-channel services;

1.3 that a HAPS operating as a base station to provide IMT-2000, in order to protect mobile earth stations of the satellite component of IMT-2000 from interference, shall not exceed an out-of-band spfd level of -165 dB (W/(m²/4 kHz)) on the Earth's surface in the bands 2 160-2 200 MHz in Region 2 and 2 170-2 200 MHz in Regions 1 and 3;

1.4 that a HAPS operating as a base station to provide IMT-2000, in order to protect fixed stations from interference, shall not exceed an out-of-band spfd level on the Earth's surface in the bands 2 025-2 110 MHz of:

-165 dB(W/(m²/MHz)) for angles of arrival (θ) less than 5° above the horizontal plane;

-165 + 1.75 ($\theta - 5$) dB (W/(m²/MHz)) for angles of arrival between 5° and 25° above the horizontal plane; and

-130 dB(W/(m²/MHz)) for angles of arrival between 25° and 90° above the horizontal plane,

invites ITU-R

to complete additional studies of HAPS sharing and coordination criteria with, between and into other systems in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 in Region 2, and in adjacent bands,

further resolves

that ITU-R should expeditiously complete its studies, and at the next WRC, update ITU regarding HAPS sharing and coordination criteria with, between and into other systems in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2, and in adjacent bands.

2 Document 13(Add.1)

MOD EUR/13/9

For allocations at 1 885-2 170 MHz

1 710-2 170 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 710-1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388 <u>ADD S5.BBB</u>	
1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
1 970-1 980	FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	
1 980-2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	
2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	2 010-2 025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>

2 025-2 110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392		
2 110-2 120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388 <u>ADD S5.BBB</u>		
2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	2 120-2 160 FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388 <u>ADD S5.BBB</u>	2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.BBB</u> S5.392A	2 160-2 170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>

ADD EUR/13/10

S5.BBB In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, and in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz, may be used by high altitude platform stations as base stations to provide IMT-2000, in accordance with Resolution **HAPS** [EUR/13/3].

ADD EUR/13/11

RESOLUTION HAPS (WRC-2000) [EUR/13/3]

**Use of high altitude platform stations providing IMT-2000 in the bands
1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3
and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WARC-92 identified the bands 1 885-2 025 MHz and 2 110-2 200 MHz, intended for use on a worldwide basis for IMT-2000, including the bands 1 980-2 010 MHz and 2 170-2 200 MHz for the satellite component of IMT-2000, in RR **S5.388**;
- b) that a high altitude platform station (HAPS) is defined in **S1.66A** as “a station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth”;
- c) that HAPS may offer a new means of providing IMT-2000 services with minimal network build out as it is capable to provide service to a large footprint together with a dense coverage;
- d) that HAPS is proposed to be used as a base station of terrestrial IMT-2000 and should not have any priority over other terrestrial IMT-2000 use,

resolves

that HAPS implemented within a terrestrial IMT-2000 system shall conform to the minimum performance characteristics and operational conditions given in Recommendation ITU-R M.[8/115], in particular:

- a) that for the purpose of protecting stations operated in neighbouring countries from co-channel interference countries, where HAPS is used for base stations to provide IMT-2000 shall use antennas that comply with the following antenna pattern:

$$\begin{array}{llll} G(\psi) = G_m - 3(\psi/\psi_b)^2 & \text{dBi} & \text{for} & 0 \leq \psi \leq \psi_1 \\ G(\psi) = G_m + L_N & \text{dBi} & \text{for} & \psi_1 < \psi \leq \psi_2 \\ G(\psi) = X - 60 \log(\psi) & \text{dBi} & \text{for} & \psi_2 < \psi \leq \psi_3 \\ G(\psi) = L_F & \text{dBi} & \text{for} & \psi_3 < \psi \leq 90^\circ \end{array}$$

where:

$G(\psi)$ gain at the angle ψ from the main beam direction (dBi)

G_m maximum gain in the main lobe (dBi)

ψ_b one-half the 3 dB beamwidth in the plane of interest (3 dB below G_m)
(degrees)

L_N near-in-side-lobe level in dB relative to the peak gain required by the system design, and has a maximum value of -25 dB

L_F : $G_m - 73$ dBi far side-lobe level (dBi)

where:

$$\psi_1 = \psi_b \sqrt{-L_N / 3} \quad \text{degrees}$$

$$\psi_2 = 3.745 \psi_b \quad \text{degrees}$$

$$X = G_m + L_N + 60 \log (\psi_2) \quad \text{dB}$$

$$\psi_3 = 10^{(X-L_F)/60} \quad \text{degrees}$$

The 3 dB beamwidth ($2\psi_b$) is again estimated by:

$$(\psi_b)^2 = 7442 / (10^{0.1G_m}) \text{ (in degrees}^2\text{)}$$

where G_m is the peak aperture gain (dBi);

- b) that a HAPS operated as a base station to provide IMT-2000 shall not exceed a co-channel spectral power flux-density (spfd) level of $-121.5 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ on the Earth's surface outside country borders unless agreed otherwise with the affected neighbouring administration;
- c) that a HAPS operated as a base station to provide IMT-2000, in order to protect mobile earth stations of the satellite component of IMT-2000 from interference, shall not exceed an out-of-band spfd level of $-165 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$ on the Earth's surface in the bands 2 160-2 200 MHz in Region 2 and 2 170-2 200 MHz in Regions 1 and 3;
- d) that a HAPS operated as a base station to provide IMT-2000, in order to protect fixed stations from interference, shall not exceed an out-of-band spfd level on the Earth's surface in the band 2 025-2 110 MHz of:
 - 1) $-165 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for angles of arrival (θ) less than 5° above the horizontal plane;
 - 2) $-165 + 1.75 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for angles of arrival between 5° and 25° above the horizontal plane; and
 - 3) $-130 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for angles of arrival between 25° and 90° above the horizontal plane

3 Document 20

MOD ASP/20/84

1 710-2 170 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 710-1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388 <u>ADD S5.HHH</u>	
1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>	1 930-1 970 FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 <u>ADD S5.HHH</u>	1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>
1 970-1 980	FIXED MOBILE S5.388 <u>ADD S5.HHH</u>	
1 980-2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	
2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>	2 010-2 025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>
2 025-2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	
2 110-2 120	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388 <u>ADD S5.HHH</u>	
2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>	2 120-2 160 FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388 <u>ADD S5.HHH</u>	2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>
2 160-2 170 FIXED MOBILE S5.388 S5.392A <u>ADD S5.HHH</u>	2 160-2 170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.HHH</u>

ADD ASP/20/85

S5.HHH In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, and in Region 2, the bands 1 885-1 980 MHz and 2 110-2 160 MHz, may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000) (see Resolution **XXX (WRC-2000)**).

ADD ASP/20/86

S11.8A g) if it is a high altitude platform station.

For purposes of enabling HAPS operation in the bands identified in No. **S5.HHH**, No. **S11.26** should not apply to the bands identified for IMT-2000.

ADD ASP/20/87

ARTICLE S27A

ADD ASP/20/88

High altitude platform stations

ADD ASP/20/89

S27A.1 High altitude platform stations implemented within a terrestrial IMT-2000 system shall conform to the minimum performance characteristics and operational conditions given in Resolution **XXX (WRC-2000)**.

ADD ASP/20/90

S27A.2 The spectral power flux-density limit at the border of a neighbouring administration shall be as provided in Resolution **XXX (WRC-2000)** unless otherwise agreed by the affected administration.

ADD ASP/20/91

RESOLUTION XXX (WRC-2000)

**Minimum performance characteristics and operating conditions for
high altitude platform stations providing IMT-2000 services
in the bands 1 885-1 980 MHz, 2 010-2 025 MHz in
Regions 1 and 3 and 1 885-1 980 MHz and
2 110-2 160 MHz in Region 2**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that high altitude platform stations (HAPS) have the possibility of delivering IMT-2000 mobile and fixed wireless access using the proposed IMT-2000 terrestrial component radio transmission technologies and protocols;
- b) that each HAPS uses a phased array antenna to project hundreds of spot beams to provide telecommunications services to coverage areas that range in size from metropolitan to wider areas;
- c) that for non-HAPS terrestrial base stations, such as tower-based systems, the illumination of areas outside the intended operational area is dependent on the characteristics of the tower-mounted antenna and the propagation attenuation. For HAPS, the dependence is more on the characteristics of the HAPS mounted antenna especially the side-lobe performance and the pointing accuracy and as the coverage area increases the antenna performance becomes more demanding;
- d) that the characteristics of co-channel sharing and coordination between HAPS systems and other IMT-2000 are determined by the performance of the HAPS antennas, the IMT-2000 radio interface used by HAPS, and the HAPS coverage area;
- e) that the level of out-of-band interference from HAPS antennas, the IMT-2000 radio interface used by HAPS and the HAPS coverage area;
- f) that HAPS is proposed to be used as a base station of terrestrial IMT-2000 and should not have any priority over other terrestrial IMT-2000 use,

resolves

- 1 that for the purpose of protecting stations operated by neighbouring administrations from co-channel interference, administrations using HAPS as base stations to provide IMT-2000 shall use antennas that comply with the following antenna pattern:

$$\begin{aligned} G(\psi) &= G_m - 3(\psi/\psi_b)^2 \quad \text{dBi} \quad \text{for} \quad 0 \leq \psi \leq \psi_1 \\ G(\psi) &= G_m + L_N \quad \text{dBi} \quad \text{for} \quad \psi_1 < \psi \leq \psi_2 \\ G(\psi) &= X - 60 \log(\psi) \quad \text{dBi} \quad \text{for} \quad \psi_2 < \psi \leq \psi_3 \\ G(\psi) &= L_F \quad \text{dBi} \quad \text{for} \quad \psi_3 < \psi \leq 90^\circ \end{aligned}$$

where:

$G(\psi)$: gain at the angle ψ from the main beam direction (dBi)

G_m : maximum gain in the main lobe (dBi)

ψ_b : one-half of the 3 dB beamwidth in the plane of interest (3 dB below G_m) (degrees)

L_N : near-in-side-lobe level in dB relative to the peak gain required by the system design, and as a maximum value of -25 dB

$L_F = G_m - 73$ dBi far side-lobe level (dBi)

$$\psi_1 = \psi_b \sqrt{-L_N/3} \quad \text{degrees}$$

$$\psi_2 = 3.745\psi_b \quad \text{degrees}$$

$$X = G_m + L_N + 60 \log(\psi_2) \quad \text{dB}$$

$$\psi_3 = 10^{(X-L_F)/60} \quad \text{degrees}$$

The 3 dB beamwidth ($2\psi_b$) is again estimated by:

$$(\psi_b)^2 = 7442 / (10^{0.1G_m}) \quad (\text{in degrees}^2)$$

where G_m is the peak aperture gain (dBi);

2 that a HAPS operating as a base station to provide IMT-2000 shall not exceed a co-channel spectral power flux-density (spfd) level of -121.5 dB(W/(m² · MHz)) on the Earth's surface outside an administration's boundaries unless agreed otherwise with the affected neighbouring administration;

3 that a HAPS operating as a base station to provide IMT-2000, in order to protect mobile earth stations from interference, shall not exceed an out-of-band spfd level of -165 dB(W/(m² · 4 kHz)) on the Earth's surface in the bands 2 160-2 200 MHz in Region 2 and 2 170-2 200 MHz in Regions 1 and 3;

4 that a HAPS operating as a base station to provide IMT-2000, in order to protect fixed stations from interference, shall not exceed an out-of-band spfd level on the Earth's surface in the bands 2 025-2 110 MHz of:

- a) -165 dB(W/(m² · MHz)) for angles of arrival (θ) less than 5° above the horizontal plane;
- b) $-165 + 1.75(\theta - 5)$ dB (W/(m² · MHz)) for angles of arrival between 5° and 25° above the horizontal plane; and
- c) -130 dB(W/(m² · MHz)) for angles of arrival between 25° and 90° above the horizontal plane.

4 Document 24(Add.2)

MOD CAN/24/99

1 710-2 170 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 710-1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388 <u>ADD S5.BBB</u>	
1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 <u>ADD S5.BBB</u>	1 930-1 970 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
1 970-1 980	FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	
1 980-2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	
2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	2 010-2 025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	2 010-2 025 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
2 025-2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	
2 110-2 120	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388 <u>ADD S5.BBB</u>	
2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>	2 120-2 160 FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388 <u>ADD S5.BBB</u>	2 120-2 160 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>
2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.BBB</u> S5.392A	2 160-2 170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	2 160-2 170 FIXED MOBILE S5.388 <u>ADD S5.BBB</u>

ADD CAN/24/100

S5.BBB In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, and in Region 2 the bands 1 885-1 980 MHz and 2 110-2 160 MHz, may be used by high altitude platform stations as base stations to provide IMT-2000. These bands are allocated to the fixed, mobile and the mobile-satellite services, and the use by IMT-2000 applications using high altitude platform stations as an IMT-2000 base station in these bands shall not constrain the use of these bands by other stations of the primary services to which they are allocated. Resolution **HAPS (WRC-2000)** provides guidance on sharing and coordination matters for administrations considering deployment of HAPS stations.

ADD CAN/24/101

RESOLUTION HAPS (WRC-2000)

Use of high altitude platform stations providing IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WARC-92 identified the bands 1 885-2 025 MHz and 2 110-2 200 MHz, intended for use on a worldwide basis for IMT-2000, including the bands 1 980-2 010 MHz and 2 170-2 200 MHz for the satellite component of IMT-2000, in No. **S5.388**;
- b) that a high altitude platform station (HAPS) is defined in **S1.66A** as “A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth”;
- c) that HAPS may offer a new means of providing IMT-2000 services with minimal network build out as it is capable to provide service to a large footprint together with a dense coverage;
- d) that, in accordance with MOD **S5.388**, administrations may use the bands identified for IMT-2000, including the bands noted herein, for stations of other primary services to which they were allocated;
- e) that these bands are allocated to the fixed, mobile and mobile-satellite services;
- f) that ITU-R did not address sharing and coordination between HAPS and some existing systems, such as PCS and MMDS, currently operating in some administrations in the bands 1 885-2 025 MHz and 2 110-2 200 MHz;
- g) that in accordance with **S5.BBB**, HAPS is allowed to be used as a base station of terrestrial IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2, which are allocated to the fixed, mobile and the mobile-satellite services,

resolves

- 1 that administrations wishing to implement HAPS implemented in **S5.BBB** within a terrestrial IMT-2000 system should use as a guideline the minimum performance characteristics and operational conditions given in Recommendation ITU-R M.[8/115], until future studies relating to the compatibility of HAPS with systems other than IMT-2000 are completed;
- 2 that for the purpose of protecting stations operating in neighbouring administrations from co-channel interference, administrations using HAPS as base stations to IMT-2000 could use the specific pfd values at or beyond the boundary of the neighbouring administration in Recommendation ITU-R M.[8/115] as a guideline, subject to the agreement of the neighbouring administration,

invites ITU-R

to complete additional studies of HAPS sharing and coordination criteria with, between and into other systems in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 in Region 2, and in adjacent bands.



Chairperson, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUP 4A3

Sub-Working Group 4A3 (SWG 4A3) – Plenipotentiary Resolution 85

Terms of reference

- a) Study Resolution 49 in view of possible improvement.
- b) Resolve the ambiguity in applying Resolves 3 of Resolution 49.
- c) Prepare a draft report (Resolution) address to the Plenipotentiary Conference in reply to PP Resolution 85.
- d) Other relevant issues.

Documents: Doc. 32+corr.1

Chairperson: Mr. A. Frederich

Box 268

Secretary: Mr. M. Sakamoto

Box 2976

N. KISRAWI
Chairperson of Working Group 4A



Note by the Chairperson of Sub-Working Group 4A-2

ARTICLE S13

The Sub-Working Group considered the proposals in Addendum 7 to Document 13 and submit the attached proposed changes to Article S13.

In considering the changes proposed in S13.18, it was recognized that it may be necessary for the ITU Secretariat to provide additional support and effort in order to permit the approved Board minutes to be made available to administrations at least one month prior to the start of the subsequent meeting.

G.C. BROOKS

Chairperson of Sub-Working Group 4A-2

Section III – Maintenance of the Rules of Procedure by the Bureau

(MOD)

S13.13 The Rules of Procedure shall include, inter alia, calculation methods and other data required for the application of these Regulations. These shall be based upon the decisions of world radiocommunication conferences and the Recommendations of the Radiocommunication Sector. Where requirements arise for new data for which there are no such decisions or Recommendations the Bureau shall develop such data in accordance with No. ~~S13.14~~**S13.15**, and shall revise them when appropriate decisions or Recommendations are available.

MOD

S13.14 ~~The Bureau shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure. The Rules of Procedure approved by the Board shall be published and shall be open for comment by administrations. In case of continuing disagreement, the matter shall be submitted by the Director in his report, with the agreement of the concerned administration, to the next world radiocommunication conference. The Director of the Bureau shall also inform the appropriate study groups of this matter. Pending resolution of the matter, the Board and the Bureau shall continue to use the particular Rule of Procedure in dispute but, following resolution of the matter by a decision of a world radiocommunication conference, the Board shall promptly review and revise as necessary the Rules of Procedure and the Bureau shall review all relevant findings. Any administration may request a review or a study of the Rules of Procedure or may submit proposals for either changes to the existing Rules of Procedure or for new Rules of Procedure. Any such proposals for changes to existing Rules or new Rules shall be submitted to the Bureau as soon as possible so that the Bureau may make these proposals available to other administrations for comment before submitting the proposal to the Board.~~

ADD

S13.14A The Board may also request the Bureau to undertake studies with respect to the Rules of Procedure and such reviews shall be treated in accordance with **S13.15**.

MOD

S13.15 ~~If an administration, or the Board or the Bureau identifies a need for a special study, in relation to the Rules of Procedure, of any provisions of these Regulations or of a regional agreement with an associated frequency allotment or assignment plan, the case shall be handled under No. S13.14. The Bureau shall, where appropriate, prepare draft modifications, additions or deletions to the Rules of Procedure which shall be made available for comment by administrations before being submitted to the Board. The Director of the Bureau shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure. The same shall apply if as a consequence of the review of a finding or other action by the Board it is necessary to re-examine the Rules of Procedure.~~

NOC

S13.16 The Rules of Procedure shall be maintained and published in a form that will facilitate easy modification and maximize their value to administrations and other users.

ADD

S13.16A The Rules of Procedure approved by the Board shall be published and shall be open for comment by administrations. In case of continuing disagreement, the matter shall be submitted by the Director in his report, with the agreement of the concerned administration, to the next world radiocommunication conference. Pending resolution of the matter, the Board and the Bureau shall

continue to use the particular Rule of Procedure in dispute but, following resolution of the matter by a decision of a world radiocommunication conference, the Board shall promptly review and revise as necessary the Rules of Procedure and the Bureau shall review all relevant findings.

ADD

S13.16B The Director of the Bureau shall also, where appropriate, request ITU-R study groups to study relevant technical matters.

Section IV – Board documents

MOD

S13.17 ~~The Bureau shall, where appropriate, prepare draft modifications or additions to the Rules of Procedure which shall be made available for comment before being submitted to the Board. One week beforehand, the draft agenda of each Board meeting shall be sent by facsimile, or mailed, to all administrations and shall also be made available in electronic form. At the same time, all documents which are both referred to in that draft agenda and available at that time shall be sent by facsimile, or mailed, to those administrations requesting them as well as simultaneously being made accessible in electronic form.~~

MOD

S13.18 Within one week after a meeting of the Board, a summary of all decisions taken in that meeting, ~~shall be made available in electronic form, as well as the~~ After each Board meeting the approved minutes of the preceding that meeting, shall normally be published. These shall be circulated at least one month before the start of the following meeting to administrations by means of a circular-letter ~~from the Bureau and then these approved minutes shall also be~~ made available in electronic form.

MOD

S13.19 A copy of all documents considered at the Board's meetings, including the minutes, shall be available for public inspection by administrations in the offices of the Bureau and shall be available in electronic form as soon as possible.



NOTE BY THE CHAIRPERSON OF SUB-WORKING GROUP 4A2

ARTICLE S13

The Sub-Working Group considered the proposals in Addendum 7 to Document 13 and submit the attached proposed changes to Article S13.

In considering the changes proposed in S13.18, it was recognized that it may be necessary for the ITU secretariat to provide additional support and effort in order to permit the approved Board minutes to be made available to administrations at least one month prior to the start of the subsequent meeting.

G.C. BROOKS
Chairperson of Sub-Working Group 4A2

Section III – Maintenance of the Rules of Procedure by the Bureau

(MOD)

S13.13 The Rules of Procedure shall include, inter alia, calculation methods and other data required for the application of these Regulations. These shall be based upon the decisions of world radiocommunication conferences and the Recommendations of the Radiocommunication Sector. Where requirements arise for new data for which there are no such decisions or Recommendations the Bureau shall develop such data in accordance with No. ~~S13.14~~**S13.15**, and shall revise them when appropriate decisions or Recommendations are available.

MOD

S13.14 ~~The Bureau shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure. The Rules of Procedure approved by the Board shall be published and shall be open for comment by administrations. In case of continuing disagreement, the matter shall be submitted by the Director in his report, with the agreement of the concerned administration, to the next world radiocommunication conference. The Director of the Bureau shall also inform the appropriate study groups of this matter. Pending resolution of the matter, the Board and the Bureau shall continue to use the particular Rule of Procedure in dispute but, following resolution of the matter by a decision of a world radiocommunication conference, the Board shall promptly review and revise as necessary the Rules of Procedure and the Bureau shall review all relevant findings. Any administration may request a review or a study of the Rules of Procedure or may submit proposals for either changes to the existing Rules of Procedure or for new Rules of Procedure. Any such proposals for changes to existing Rules or new Rules shall be submitted to the Bureau as soon as possible so that the Bureau may make these proposals available to other administrations for comment before submitting the proposal to the Board.~~

ADD

S13.14A The Board may also request the Bureau to undertake studies with respect to the Rules of Procedure and such reviews shall be treated in accordance with **S13.15**.

MOD

S13.15 ~~If an administration, or the Board or the Bureau identifies a need for a special study, in relation to the Rules of Procedure, of any provisions of these Regulations or of a regional agreement with an associated frequency allotment or assignment plan, the case shall be handled under No. S13.14. The Bureau shall, where appropriate, prepare draft modifications or additions to the Rules of Procedure which shall be made available for comment before being submitted to the Board. The Director of the Bureau shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure. The same shall apply if as a consequence of the review of a finding or other action by the Board it is necessary to re-examine the Rules of Procedure.~~

MOD

S13.16 The Rules of Procedure shall be maintained and published in a form that will facilitate easy modification and maximize their value to administrations and other users. The Rules of Procedure approved by the Board shall be published and shall be open for comment by administrations. In case of continuing disagreement, the matter shall be submitted by the Director in his report, with the agreement of the concerned administration, to the next world radiocommunication conference. The Director of the Bureau shall also, where appropriate, inform the relevant study groups of this matter. Pending resolution of the matter, the Board and the Bureau shall continue to use the particular Rule of Procedure in dispute but, following resolution of the

matter by a decision of a world radiocommunication conference, the Board shall promptly review and revise as necessary the Rules of Procedure and the Bureau shall review all relevant findings.

Section IV – Board documents

MOD

S13.17 ~~The Bureau shall, where appropriate, prepare draft modifications or additions to the Rules of Procedure which shall be made available for comment before being submitted to the Board.~~ One week beforehand, the draft agenda of each Board meeting shall be sent by facsimile, or mailed, to all administrations and shall also be made available in electronic form. At the same time, all documents which are both referred to in that draft agenda and available at that time shall be sent by facsimile, or mailed, to those administrations requesting them as well as simultaneously being made accessible in electronic form.

MOD

S13.18 Within one week after a meeting of the Board, a summary of all decisions taken in that meeting, ~~shall be made available in electronic form, as well as the~~ After each Board meeting the approved minutes of the preceding that meeting, shall be published. These shall be circulated at least one month before the start of the following meeting to administrations by means of a circular-letter ~~from the Bureau and then~~ these approved minutes shall also be made available in electronic form.

MOD

S13.19 A copy of all documents considered at the Board's meetings, including the minutes, shall be available for public inspection by administrations in the offices of the Bureau and shall be available in electronic form as soon as possible.



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WORKING GROUP 4B

**Note by the Chairperson of Sub-Working Group 4B1
to the Chairperson of Working Group 4B**

Sub-Working Group 4B1 has considered the question whether or not to retain ITU-R Recommendation 507 and concluded that this Recommendation could be suppressed.

Dr. A. Jabbar
Chairperson, Sub-Working Group 4B1, Box 33



**NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B
TO THE CHAIRPERSON OF COMMITTEE 4**

AGENDA ITEM 2
(Incorporation by reference)

The Working Group considered the question of the four missing ITU-R Recommendations from Volume 4 of the Radio Regulations. The following was agreed:

The reference to Recommendation ITU-R **SA.1154** in No. **S5.391** was judged to be mandatory in nature and the full text should therefore ~~be~~ have been included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **S.1256** in No. **S22.5A** was judged to be mandatory in nature and the full text should therefore ~~be~~ have been included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **S.1340** in No. **S5.511C** was judged to be mandatory in nature and the full text should therefore ~~be~~ have been included in Volume 4 of the Radio Regulations.

The reference to Recommendation ITU-R **SA.1341** in No. **S5.511A** was judged to be mandatory in nature and the full text should therefore ~~be~~ have been included in Volume 4 of the Radio Regulations.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

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COMMITTEE 5

**Note by the Chairperson of Working Group 4B
to the Chairperson of Committee 5**

AGENDA ITEM 2
(Incorporation by reference)

The Working Group considered the reference to Recommendation ITU-R **RA.769-1**. It was noted that, although the reference to ITU-R **RA.769-1** in No. **S5.511A** does not appear to be mandatory in nature, it is treated as mandatory in the Annexes of Resolution **27 (Rev.WRC-97)** and therefore appears in Volume 4 of the Radio Regulations. Committee 5 is therefore requested to provide Working Group 4B with a clarification of the status of the references to ITU-R **RA.769-1** in No. **S5.511A**.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

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GT PLEN-1

**Note by the Chairperson of Working Group 4B
to the Chairperson of GT PLEN-1**

AGENDA ITEM 2
(Incorporation by reference)

The Working Group considered the reference to Recommendation ITU-R **BO.1293**. Recommendation ITU-R **BO.1293** has actually been revised during the last study period. Since GT PLEN-1 is dealing with related matters at this conference, it is therefore requested to advise Working Group 4B on whether the references in Appendices **S30/S30A** to this Recommendation should be updated to reflect the changes agreed in ITU-R.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

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WORKING GROUP 5B

**Note by the Chairperson of Working Group 4B
to the Chairperson of Working Group 5B**

AGENDA ITEM 2
(Incorporation by reference)

The Working Group considered the reference to Recommendation ITU-R **M.1174**. During the consideration, an anomaly was noted in relation to that Recommendation. A revision has apparently taken place and Working Group 5B is requested to advise Working Group 4B on whether the version referenced in the Radio Regulations should be updated to ITU-R **M.1174-1**.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

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COMMITTEE 4

**Note by the Chairperson of Working Group 4B
to the Chairperson of Committee 4**

AGENDA ITEM 2
(Incorporation by reference)

Suggested WRC procedures for adoption of texts for incorporation by reference

The Working Group considered the mechanism that this conference should apply in taking action under agenda item 2. The following procedures are therefore suggested for the conference's consideration for adding or updating references to ITU-R Recommendations contained in the Radio Regulations pursuant to Resolution 27 (Rev.WRC-97) and Resolution 28 (WRC-95). They are based on the procedures employed by WRC-97, and further developed by the Special Committee and contained in CPM-99 Report (Document 3), at Annex 2 to Chapter 7.

In order for a WRC to incorporate new texts or to update references to texts already incorporated, the following working procedures should be observed:

- the actual references to Recommendations liable to be incorporated must be published as conference documents, and approved on second reading by the plenary meeting in all cases where a WRC wishes them to be incorporated by reference;
- for a plenary meeting to adopt a text as being incorporated by reference on a mandatory basis, it is necessary and sufficient that the delegations participating in the plenary meeting should have been provided access to the text in question, but this does not necessarily mean that the texts should be published as official conference documents.

During the course of a WRC it will therefore be necessary to ensure that a list of the Recommendations proposed for incorporation by reference is developed, maintained and published as a conference document in line with developments during the conference, and that all texts listed for mandatory incorporation are available for delegates to consult in their final English, Spanish and French versions.

By adoption of a reference to a Recommendation at second reading in accordance with the above conditions, the plenary meeting is therefore deemed to have formally adopted the text of the Recommendation.

Following the conference, the secretariat shall update volume 4 of the Radio Regulations containing the full text of all Recommendations incorporated by reference on a mandatory basis. To ensure the completeness of this volume, the Committees should clearly identify their intentions with respect to Recommendations incorporated.

A. ALLISON
Chairperson of Working Group 4B, Box 68



WRC-2000

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**SWG 1 OF WORKING
GROUP 1 OF THE PLENARY**

NOTE BY THE CHAIRPERSON, SWG 1 OF GT PLEN-1

Attached for your convenience is the text of Chapter 5 of the CPM Report (the annexes to this chapter have not been included).

Jean CHARTIER
Chairperson,
Sub-Working Group 1 of GT PLEN-1
(Box 2688)

CHAPTER 5

Appendices S30 and S30A

(WRC-2000 agenda items 1.19, 1.19*bis*, 1.20, 1.21)

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Appendices S30 and S30A

5 Introduction

The World Radiocommunication Conference 1997 (WRC-97) under its agenda item 1.10 revised the Region 1 and 3 downlink and feeder-link Plans. This revision initiated various actions to be carried out either by the Radiocommunication Bureau or by the Radiocommunication Study Groups. These tasks are referred to in the following Resolutions of WRC-97:

- a) Resolution **49 (WRC-97)** "Administrative due diligence applicable to some satellite communication services"
- b) Resolution **53 (WRC-97)** "Updating the "Remarks" columns in the tables of Article 9A of Appendix **S30A** and Article 11 of Appendix **S30** to the Radio Regulations"
- c) Resolution **73 (WRC-97)** "Measures to solve the incompatibility between the broadcasting-satellite service in Region 1 and the fixed-satellite service in Region 3 in the frequency band 12.2-12.5 GHz"
- d) Resolution **532 (WRC-97)** "Review and possible revision of the 1997 broadcasting-satellite service Plans for Region 1 and 3"

WRC-97 in its Resolution **532 (WRC-97)** has resolved that an Inter-Conference Representative Group (IRG) be established to study the feasibility of increasing the minimum number of channels capacity for countries in Region 1 and 3 to an equivalent of around ten analogue channels in accordance with the principles set out in Annex 1 of that Resolution.

- e) Resolution **533 (WRC-97)** "Implementation of the decision of the WRC-97 relating to Appendices **S30** and **S30A** to the Radio Regulations"
- f) Resolution **534 (WRC-97)** "Implementation of Annex 5 to Appendix **S30** and Annex 3 to Appendix **S30A**"
- g) Resolution **536 (WRC-97)** "Operation of broadcasting satellite serving other countries"
- h) Resolution **538 (WRC-97)** "Use of the frequency bands covered by Appendices **S30/30** and **S30A/30A** by non-geostationary-satellite systems in the fixed-satellite service"

5.1 Agenda item 1.21

"to consider the report from the Radiocommunication Bureau on results of the analysis in accordance with Resolution **53 (WRC-97)** and take appropriate actions"

5.1.1 Updating of the "Remarks" columns in the tables of Article 9A of Appendix S30A and Article 11 of Appendix S30

Activities relating to the implementation of Resolution **53 (WRC-97)** with respect to the definitive results of the compatibility analysis between the Regions 1 & 3 revised Plans and other services having allocation in the Planned bands in all three Regions have been carried out by the Radiocommunication Bureau based on Notes 3 to 7 in Section 9A.2 of Article 9A of Appendix **S30A** and Notes 5 to 7 in Section 11.2 of Article 11 of Appendix **S30**. The results will be sent to administrations by a Circular Letter no later than early January 2000, at the latest.

5.2 Agenda item 1.20

"to consider the issues related to the application of Nos. **S9.8**, **S9.9** and **S9.17** and the corresponding parts of Appendix **S5** with respect to Appendices **S30** and **S30A**, with a view to possible deletion of Articles 6 and 7 of Appendices **S30** and **S30A**, also taking into consideration Recommendation **35 (WRC-95)**"

5.2.1 Procedures for the use of the guardbands of Appendices S30 and S30A Plans to perform space operations functions

The lack of a coordination procedure and criteria relating to the use of the guardbands of the BSS and associated feeder-link Plans to perform space operation functions was pointed out during WRC-95.

It was noted that the ITU-R had developed criteria that could be used in applying the procedures of Article **S9** or Appendices **S30** and **S30A** in this context. It was concluded that a possible way to apply these procedures in this context would be to coordinate such use using the same procedures as those applicable to non-planned services in the bands covered by these Appendices, specifically:

- to coordinate this use with the assignments subject to the Plan using Article 7 of Appendix **S30** or No. **S9.8** and Article 7 of Appendix **S30A** or No. **S9.9**, as appropriate;
- to coordinate this use with the assignments in non-planned service, and vice-versa, using the provisions of Articles **S9/S11**;
- to coordinate modifications to the Plans with such use using paragraph 4.3.1.5 or 4.3.3.5, as appropriate, of Article 4 of Appendix **S30**, and using paragraph 4.2.3.x of Article 4 of Appendix **S30A** (see section 5.2.3 for details on this possible additional provision).

This approach may be implemented by the inclusion in Article 2 of Appendix **S30** or in a footnote to the titles of Articles **S9** and **S11** of the following provision:

ADD

The use of the guardbands of the Plans in Appendix **S30**, as defined in section 3.9 of Annex 5 to this Appendix, to provide space operations functions in accordance with No. **S1.23** shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix/No. **S9.8**. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Plans with assignments intended to provide these functions shall be effected using paragraph 4.3.1.5 or 4.3.3.5, as appropriate, of Article 4 of Appendix **S30**.

and by the addition in Article 2 of Appendix **S30A** or in a footnote to the titles of Articles **S9** and **S11** of the following provision:

ADD

The use of the guardbands of the Plans in Appendix **S30A**, as defined in sections 3.1 and 4.1 of Annex 3 to this Appendix, to provide space operations functions in accordance with No. **S1.23** shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix/No. **S9.9**. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the

provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Plans with assignments intended to provide these functions shall be effected using paragraph 4.2.3.x of Article 4 of Appendix **S30A**.

The coordination criteria applicable in the above procedures would be equally applicable to the situations involving space operations functions in the guardbands of the Plans. It was noted that the ITU-R had identified an additional criterion, specifically related to this situation, which is still being studied.

5.2.2 Method to determine the need for coordination between assignments in Appendix S30A Plan or in the Plan modification process and non-planned space and terrestrial services

ITU-R concluded that the coordination method currently in section 3 of Annex 4 of Appendix **S30A** should be replaced by Appendix **S7**, in order to provide a consistent protection of non-planned services in respect of the planned and non-planned services in the frequency bands covered by Appendices **S30A**. This would align the situation in this respect to that currently existing between Appendix **S30A** plan and terrestrial services, where the method in Appendix **S7** is already specified in the relevant procedures. This change has been assumed in the following.

5.2.3 Identification of deficiencies in the current procedures of Articles 4, 6 and 7 of Appendices S30 and S30A and Article S9 of the Radio Regulations and possible modifications to these articles to correct these deficiencies

“Some other administrations are of the opinion that Agenda item 1.20 of WRC-2000 is limited to treat Articles 6 and 7 of Appendixes **S30** and **S30A** while protecting the full integrity of the Plans and this should be the sole objective of any proposed revisions to the Radio Regulations. However, the proposed modifications under item 5.2.3, 5.2.3.1, 5.2.3.2, and 5.2.3.2.1 contradict with the above objective. Therefore, this group of administrations does not agree with those proposals as well as with the relevant examples given in this Chapter. Modifications of Articles 6 and 7 of Appendixes **S30** and **S30A** shall in no way introduce limitations to the revision of Regions 1 and 3 Plans by a WRC.”

In the framework of Resolution 86 of the Plenipotentiary Conference (Minneapolis, 1998), the current situation of the relevant procedures of Article **S9** and Articles 4, 6 and 7 of Appendixes **S30** and **S30A** was analysed with regard to the two following possible principles:

- 1) all possible cases of interference that may arise in practice between planned BSS and non-planned services (e.g. FSS or FS) should be covered by a procedure;
- 2) the coordination between earth stations and terrestrial stations, and between earth stations operating in opposite directions of transmission should be undertaken by and between the administrations on the territory of which these stations are located.

The following conclusions were reached. It should be noted that in the following, modifications to the Plans are not considered as part of a non-planned service.

5.2.3.1 Coordination, with unplanned services, of modifications to the BSS Plans before inclusion in the Plans

There is no possibility to include in the coordination process the assignments for which a modification to one of the BSS Plans in Appendixes **S30** and **S30A** has been initiated, but not yet completed. This allows non-planned assignments to a space station, an earth station or a terrestrial station to be recorded in the Master Register after successful application of the appropriate

procedures of Article **S9** and Appendices **S30/S30A**, and modifications to one of the Appendices **S30/30A** Plans to be recorded in the relevant Plan, whilst these assignments might eventually be incompatible.

As proposed at CPM-97, equitable access to the orbit/spectrum resources between non-planned and planned services would require changes in Articles 6 and 7 of Appendices **S30** and **S30A** or in Appendix **S5** in order to solve this difficulty.

Under Articles 6 and 7 of Appendices **S30/S30A**, a simple solution to this difficulty was proposed at CPM-97, and consists in replacing the terms "assignment in conformity with a Plan", wherever it appears in Articles 6 or 7 of Appendices **S30/S30A**, by the terms "assignment in conformity with the appropriate Regional Plan or for which the corresponding Plan modification procedure has been initiated".

No modification would be required under Nos. **S9.8**, **S9.9** or **S9.17A**, but under Appendix **S5**, a similar change would be required to include in the coordination process the assignments for which Article 4 of Appendices **S30/S30A** has been initiated.

It was however noted that such modification and coupling between FSS and BSS publications would increase the workload of the Bureau and possibly lead to a backlog since examination of new FSS publications will require treatment by the Bureau of all modifications to the appropriate BSS Plan already submitted and vice versa.

5.2.3.2 Coordination between earth stations and terrestrial stations, and between earth stations operating in opposite directions of transmission

The coordination between earth stations and terrestrial stations, and between earth stations operating in opposite directions of transmission should normally be handled between the administrations on the territory of which these stations are located. This general principle is set forth in Resolution **1 (Rev.WRC-97)**, which *resolves* that "that, unless specifically stipulated otherwise by special arrangements communicated to the Union by administrations, any notification of a frequency assignment to a station shall be made by the administration of the country on whose territory the station is located". This was probably the intention of WARC-77 and RARC-83 in that it was not foreseen that the administration with the space station, which is the one applying the procedure of modification of the Plan, might one day be different from the one with the earth station. The fact that these two administrations could be different is now creating problems of principle, including those relating to sovereign rights.

5.2.3.2.1 Coordination between BSS receive earth stations and transmit terrestrial stations

a) Current situation under Appendix S30 with respect to national territory

Protection of receive BSS earth stations associated to successful modifications of the Plan is ensured by Article 6 of Appendix **S30** and its associated method for determining the need for a coordination in Annex 3 of Appendix **S30** (i.e. pfd limit at the edge of the BSS service area).

This allows an administration to request protection for its BSS receive earth stations in all the planned BSS frequency band and anywhere in its territory. A view was expressed that this may entail inequitable access to the spectrum resources between planned and non-planned services since the future terrestrial stations located near the edge of the service area will have to protect these BSS receive earth stations irrespective of the time of their deployment and their location. Nevertheless, it is recognized that if an administration is providing BSS over its territory, it is appropriate to seek full protection for existing and future BSS receive earth stations.

Pending modifications to the Plans are not protected from terrestrial stations until they become a part of the Plans, which can be a lengthy process (see section 5.2.3.1).

No. **S9.19** provides a regulatory approach similar to that of Article 6 of Appendix **S30** in that the protection of the BSS service area is ensured by a coordination process (No. **S9.19**) triggered by a pfd limit at the edge of the service area.

No. **S9.19** may therefore be considered as a possible replacement of Article 6 of Appendix **S30**, with the inclusion in Appendix **S5** of the coordination trigger currently included in Annex 3 of Appendix **S30**.

b) Difficulties with the current procedures

Coordination under Article 6 of Appendix **S30** is currently sought with the administration which applied the procedure of modification of the Plan which may not be the administration on whose territory the receive BSS earth stations are located. Potential solutions to this difficulty are identified in section d).

In addition, the protection of receive BSS earth stations associated to a proposed modification of the Plan is not covered by the current procedures since Article 4 of Appendix **S30** does not allow the proposed modification of the Plan to seek protection from terrestrial service. This issue is addressed in section c).

c) Procedure to seek protection of modifications to the Plan from terrestrial services

The protection of receive BSS earth stations associated to a modification of the Plan - whether this modification was successfully applied or not - could be sought by the administration on the territory of which these earth stations are located through the application of No. **S9.17**, which is now possible under the Radio Regulations which provisionally entered into force on 1 January 1999. However, this approach has the consequence of the responsible administration having to coordinate and notify a potentially large number of BSS receive earth stations, which has implications for the administration and the Bureau.

In BSS, receive earth stations are deployed ubiquitously over the service area and the BSS operator or administration on which territory the BSS earth stations are located does not know the location of these ubiquitous earth stations.

Since notification of BSS receive earth stations is not possible with the current Article **S11**, a possible solution to seek the coordination of BSS receive earth stations could be to use the same criteria applying to typical mobile earth stations (i.e. to determine the coordination area which would encompass all coordination areas determined for each location in the service area within which operation of the BSS receive earth stations is proposed). Alternatively, Article 4 could be modified to include an additional provision enabling an administration proposing a modification to the Plans to seek protection for the service area from terrestrial services.

d) Case of service areas exceeding national territory

The coordination between transmit terrestrial stations and receive BSS earth stations (in planned bands or unplanned bands) is a bilateral matter between the administrations concerned. In the case of the BSS service area covering territory other than that of the space station administration, the notifying administration of the space station is not involved. In the eventual case of harmful

interference, it is also a matter for the administrations concerned. Another approach to this issue would be to recognize in the RR the bilateral nature of this matter and delete Article 6 of Appendix **S30** or change it to cover the multinational aspect of this issue.

It was noted that section 1.1 of Annex 5 of Appendix **S30** provided the following definition of the service area: "the area on the surface of the Earth in which the administration responsible for the service has the right to demand that the agreed protection conditions be provided". It was also noted that in the case of a BSS covering the territory of administrations other than that of the administration responsible for the BSS space station, this definition causes some problems.

It was also noted that the Rule of Procedure on No. **S23.13** stated that in case of agreement under No. **S23.13**, it is understood that there is no objection to the inclusion of the territory in the planned service area.

A possible solution to protect the complete service area could be as follows:

- 1) the notifying administration or BR list by the country symbol those territories to be included in the proposed service area (the agreement should be sought in accordance with paragraph 2.1 of the existing Rules of Procedure concerning No. **S23.13**);
- 2) any administration that does not object to being in the service area within a period of four months is considered to be in the service area in order to be protected from transmitting terrestrial stations;
- 3) in order to protect this service area from future transmitting terrestrial stations, Article 6 of Appendix **S30** with the appropriate amendments would be used with respect to this service area and this would be applied by the administration of the terrestrial stations and the concerned administration for the protected service area.

e) Possible options to resolve the difficulties identified

Based on these considerations, five options were identified to cover the coordination between receive BSS earth stations and transmit terrestrial stations:

- Option A - under this option, protection of a modification to the Plan would be ensured over the entire service area as soon as the modification is entered in the Plan, using the criterion of Annex 3 of Appendix **S30** and the procedure of Article 6 of Appendix **S30**/No. **S9.19**.
- Option B - this option would be the same as option A, but protection would be extended from the date of receipt of the request for modification by the BR.
- Option C - this option would be the same as option A, but Article 6 of Appendix **S30** would be deleted and this coordination would be left to the administrations on the territories of which the BSS earth stations and terrestrial stations are located.
- Option D - under this option, protection would have to be sought through the application of No. **S9.17**, using the criterion of Annex 3 or Appendix **S7**, from the date of entry in the Plan of the modification.
- Option E - this option would be the same as option D, but protection would be extended from the date of receipt of the request for modification by the BR.

It was noted that the implications of options D and E could result in the requirement to coordinate and notify a very large number of BSS receive earth stations.

Annexes 1 and 2 provide example regulatory text reflecting options A and B.

Some administrations are of the view that they are obliged to coordinate their terrestrial stations in respect to BSS earth stations only when the country concerned has a BSS assignment appearing in the Plan or in the MIFR on its behalf.

5.2.3.2.2 Coordination between BSS receive earth stations and FSS transmit earth stations operating in opposite directions of transmission

The protection of receive BSS earth stations associated to a proposed modification to the Plan from FSS transmit earth stations operating in opposite directions of transmission (e.g. in the frequency band 12.5-12.7 GHz which is allocated to planned BSS in Region 2 and to FSS Earth-to-space in Region 1) could be sought by the administration on the territory of which these earth stations are located, through the application of No. **S9.17A**, which is now possible under the Radio Regulations which provisionally entered into force on 1 January 1999.

Another solution would be to retain Article 6 of Appendix **S30** with the necessary modifications.

In this case, as stated in Appendix **S5**, coordination will be required when the coordination area of the FSS transmit earth station will cover the territory of the administration within which the receive BSS earth stations are located.

The five options discussed in the previous section also apply in this situation.

5.2.3.2.3 Coordination between planned transmit BSS feeder-link earth stations and receive terrestrial stations

Coordination of transmit BSS feeder-link earth stations associated to a modification of the Plan with receive terrestrial stations (i.e. in the bands 14.5-14.8 GHz and 17.7-18.1 GHz in Regions 1 and 3, and in the band 17.7-17.8 GHz in Region 2) is currently sought by the administration which applied the procedure of modification of the Plan and which may not be the administration on whose territory these earth stations will be operated. In addition, the current procedure requires a global service area coordination (i.e. with typical BSS feeder-link earth stations) which is generally impossible to achieve.

In order to conform with Resolution **1 (Rev.WRC-97)**, such coordination could be limited to a case-by-case coordination undertaken by the appropriate administrations with the specific transmit BSS feeder-link earth stations located on their own territory, which has proven its efficiency throughout the years in the case of coordination between FSS earth stations and terrestrial stations.

A solution could consist in replacing paragraphs 4.2.1.3 and 4.2.3.3 of Article 4 of Appendix **S30A** by No. **S9.17** and by suppressing Article 6 of Appendix **S30A**. Another solution would be to retain Article 6 with the necessary modifications.

5.2.3.2.4 Coordination between planned transmit BSS feeder-link earth stations and FSS receive earth stations operating in opposite directions of transmission

As for the interference cases described in the previous sections, this type of coordination should normally be handled between the administrations on the territory of which these earth stations are located. In the same way as identified in section 5.2.3.2.3, procedures under 4.2.1.2/4.2.3.2 of Article 4 of Appendix **S30A** and section 7.2 of Article 7 of Appendix **S30A** could be replaced by No. **S9.17A**. Another solution would be to retain Article 7 with the necessary modifications.

5.2.3.2.5 Coordination of typical BSS or BSS feeder-link earth stations with terrestrial stations or earth stations operating in the opposite direction of transmission

It was noted that the current procedures of Appendices **S30** and **S30A** considered, for the coordination of BSS or BSS feeder-link earth stations with terrestrial stations or earth stations operating in the opposite direction of transmission, under Articles 4, 6 and 7 of these appendices, the whole BSS or BSS feeder-link service area:

- under Article 6 of Appendix **S30**, the criterion used in Annex 3 of Appendix **S30** is intended to protect the whole BSS service area from interference caused by terrestrial stations;
- under Articles 4 and 6 of Appendix **S30A** and under Sections 7.2 to 7.7 of Article 7 of Appendix **S30A**, the BSS feeder-link administration seeks and is entitled to protect any point of the service area from constraints relating to sharing with terrestrial stations or earth stations operating in the opposite direction of transmission.

It was noted that this situation allowed a modification to a Plan to benefit from protection rights vis-à-vis terrestrial services and earth stations operating in the opposite direction of transmission, without having acquired these rights through the application of a procedure.

The replacement of the provisions by **S9.17**, **S9.17A** and **S9.18** may lead to a more equitably balanced situation between the services involved in such a sharing situation, since the latter provisions are applicable only to specific earth stations. The possibility of extending these provisions to typical earth stations using modifications of the Plans, whilst ensuring equitable access to spectrum by all the services involved, requires further studies. It should be noted that five options have been identified to address this situation (see section 5.2.3.2.1).

It should be noted that possible solutions to this problem are likely to differ for Appendices **S30** and **S30A**, since the location of feeder-link earth stations is generally known in advance.

5.2.3.3 Interference situations not covered in the current regulations

5.2.3.3.1 Protection of Appendix S30 Region 2 Plan from non-planned BSS in Region 3

The coordination of planned BSS with non-planned BSS (i.e. in the frequency band 12.5-12.7 GHz, where BSS is planned in Region 2 and non-planned in Region 3) is covered in Article 4 of Appendix **S30** (4.3.3.6), but the reciprocal case is not covered in Article 7 of Appendix **S30** or in Article **S9**. This allows non-planned BSS assignments to be recorded in the Master Register after successful application of No. **S9.7** and Resolution **33 (Rev.WRC-97)**, whilst these assignments could affect BSS assignments in the Appendix **S30** Region 2 Plan or in the Plan modification process.

A regulatory solution to this difficulty was proposed at CPM-97, and included in the CPM Report to WRC-97. It consists in replacing the terms "fixed-satellite service" by "fixed-satellite service or broadcasting-satellite service where these services are not subject to a Plan", in Article 7 of Appendix **S30** or in No. **S9.8** and Appendix **S5**. Criteria of Annex 4 of Appendix **S30** could be used to determine if the coordination is required.

5.2.3.3.2 Coordination between non-planned BSS feeder links and modifications to BSS feeder-link Plan in the 17.8-18.1 GHz band

The current procedures do not provide for any coordination process between the BSS feeder-link assignments in Appendix **S30A** or their modifications and the non-planned FSS (Earth-to-space), i.e. non-planned BSS feeder links in Region 2 in the frequency band 17.8-18.1 GHz. This allows non-planned BSS feeder-link assignments in Region 2 to be recorded in the Master Register after successful application of No. **S9.7**, whilst these assignments could affect, or be affected by BSS feeder-link assignments in Appendix **S30A** in Regions 1 and 3, or in the Plan modification process. Symmetrically, this allows modifications to the feeder-link Plan in Region 1 and 3 to be included in this Plan without any coordination with non-planned Region 2 BSS feeder links, whilst the latter might be affected or might affect the former.

A solution to this difficulty was proposed at CPM-97 and included in the CPM Report to WRC-97. It involves:

- under Article 4 of Appendix **S30A**, the inclusion of an additional paragraph in order to protect Region 2 non-planned FSS (Earth-to-space) from modifications to the Region 1 and 3 feeder-link Plan;
- in Article 7 of Appendix **S30A**, the replacement of "FSS (space-to-Earth)" by "FSS" in order to protect Regions 1 and 3 feeder-link Plan from non-planned BSS in Region 2;
- in No. **S9.9**, the suppression of the term "space", before "station in the FSS", in such a way that the procedure would cover the interference caused by either an FSS space station or an FSS earth station, and the need to exclude **S9.17A** from the scope of **S9.9** (as currently done under **S9.7**).

In both cases, the criteria to determine if the coordination is required could be the same as between the feeder-link Plans, i.e. the criteria of section 5 of Annex 1 to Appendix **S30A**. However this requires further study.

5.2.3.3.3 Protection of planned BSS receive space stations from non-planned Region 2 BSS transmit space stations in the band 17.3 to 17.8 GHz

Non-planned BSS transmit space stations in the frequency band 17.3-17.8 GHz may apply section 7.1 of Article 7 of Appendix **S30A**, but No. **S9.9** currently does not cover this possibility. This could be done simply by replacing the words "station in the FSS" in No. **S9.9** by "station in the FSS or in the BSS".

5.2.3.3.4 Protection of non-planned BSS receive earth stations in Region 2 from modifications to BSS feeder-link Plan in the band 17.3 to 17.8 GHz

The protection of non-planned BSS receive earth stations in Region 2 in the band 17.3-17.8 GHz from modifications to one of the Plans in Appendix **S30A** is not covered by Article 4 of Appendix **S30A**, and the reciprocal situation is not covered either under section 7.2 of Article 7 of Appendix **S30A**, or under No. **S9.17A**. This could be solved simply by replacing in these provisions (either section 7.2 of Article 7 or No. **S9.17A**) the word "FSS" by "FSS or unplanned BSS".

The same difficulty identified under section 5.2.3.2.1 with respect to the coordination of typical BSS receive earth stations, i.e. the criteria to be used for seeking the coordination, is also applied to non-planned BSS receive earth stations.

5.2.3.3.5 Scope of footnotes S5.487 and S5.490

Footnotes **S5.487** for Regions 1 and 3, and **S5.490** for Region 2, appear to provide a super-primary status to the broadcasting-satellite service over the other primary services sharing the same band (FSS, BS, FS), in that they require the latter services not to cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix **S30**. These footnotes are also the subject of a Rule of Procedure, which concludes that, if, despite the application of the procedures of Appendix **S30**, harmful interference is actually caused to a broadcasting-satellite station, the station in the other service shall cease this interference.

It is understood by some administrations that these footnotes were adopted in order to ensure the protection of the assignments that were foreseen to be included in Appendix **S30** Plans by WARC -7 and RARC-83/WARC-Orb-85 against interference caused by assignments in other services which existed prior to the entry into force of these Plans, i.e. to avoid restrictions on the elaboration of the original Plans, as shown in the initial versions of these footnotes, adopted respectively by WARC-71 and WARC-79. One view was expressed that these restrictions apply only to the original Plans; another view considered that they apply to the Plans as they may be modified.

No. S5.43 states that where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter **SII** of these Regulations. It appears that this provision should not apply in the context of sharing between the primary services allocated in the frequency band covered by Appendix **S30**.

One view noted was that since assignments in other services received by the Bureau after the establishment of the Plans have to apply the procedures of Appendix **S30** to protect the Plans, the intent of **No. S5.487** and **No. S5.490** may be understood as covered by these procedures. For these reasons one conclusion which could be drawn is that modifications to the Plans cannot be considered as benefiting from the protection of **S5.487** and **S5.490**.

Another view noted was that sections 4.3.17 of Appendix **S30** and 4.2.18 of Appendix **S30A** indicate that frequency assignments that enter the Plans through the modification procedure shall enjoy the same status as those appearing in the appropriate Regional Plan and will be considered as a frequency assignment in conformity with the Plan. Thus, application of footnotes **S5.487** and **S5.490** may be understood as applying to modifications successfully entered into the Plans.

Therefore, the application of footnotes **S5.487** and **S5.490** to modifications to the Plans which are in conformity with these plans may need further clarification.

5.2.3.4 Example of additions/modifications to the Radio Regulations to resolve identified difficulties/inconsistencies

In order to facilitate the understanding of these proposals, attached Figures 5.1 to 5.4 provide a summary of the current procedures and an example of possible additions/modifications.

In these figures, the arrows indicate that the coordination is requested to the party in the direction of which the arrow is pointing. A code is used to identify coordination provisions taking place between the administrations with the space stations (thick boxes), between an administration with a space station and an administration with terrestrial stations (thin boxes) or between administrations with terrestrial or earth stations (dotted boxes). In the two first cases, coordination follows a publication by the Bureau. In the latter case, it is to be undertaken directly by the administrations on the territory of which the stations are located, without publication by the Bureau.

Annex 1 contains possible examples of modifications to the current provisions in Article **S9**, Appendices **S30** and **S30A** that might reflect the various options identified above in the case where Articles 6 and 7 of Appendix **S30** and **S30A** would be retained and the currently suspended provision Nos. **S9.8** and **S9.9** would be suppressed (Approach A).

Annex 2 contains possible examples of modifications to the current provisions in Article **S9**, Appendices **S30** and **S30A** that might reflect the various options identified above in the case where Articles 6 and 7 of Appendix **S30** would be suppressed and replaced by provision Nos. **S9.8** and **S9.18** and Articles 6 and 7 of Appendix **S30A** would be suppressed and replaced by provision Nos. **S9.9**, **S9.17A** and **S9.18** (Approach B).

A third Approach (Approach C) was identified based on separating the modifications to the Plans from the original Plans. This Approach may avoid most of these deficiencies since they appear to arise from the fact that a modification to a Plan is proposed by the space station administration (which may be different from the administration on the territory of which the BSS receive earth stations are located) and, once a modification is included in the Plan, it benefits from the same rights as any assignment included in the Plan by a conference (with the exception of the time-limit

to bring the assignment in service) whilst these rights may not have been coordinated with the services and administrations involved. This Approach requires further study.

5.2.3.5 Protection of the terrestrial service from modifications to the Appendix S30 BSS Plans

Annex 1 to Appendix **S30** of the Radio Regulations specifies limits for determining whether a service is affected by a proposed modification to the Plan and therefore it is necessary to seek the agreement of any other administration. Section 5 of Annex 1 specifies limits to the change in the power flux-density to protect the terrestrial services from modifications to the Region 2 BSS Plans. In addition, section 8 a) applies parts of section 5 to modifications to the Regions 1 and 3 BSS Plans.

ITU-R studied possible modification to the pfd limits in sections 5 b) and 5 c) of Annex 1. Section 5 c) specifies limits for determining whether terrestrial services of administrations in Region 1 east of longitude 30°E. in the 12.2-12.7 GHz band may be affected by modifications to the Region 2 BSS Plan.

Relaxation of the pfd limits in section 5 c) would facilitate BSS to certain geographical areas in Region 2. BSS transmit power to certain portions of Region 2 immediately adjacent to portions of Region 1 must be significantly reduced in order to meet the specified levels in the section 5c) pfd limit. These lower power levels necessitate the use of much larger BSS receive antennas than other Region 2 areas.

The pfd limits in section 5 b) determine if terrestrial services in Region 1 west of 30° E. and all of Region 3 may be affected by modifications to the Region 2 BSS Plan, or determine if terrestrial services in Regions 1 and 3 may be affected by modifications to the Regions 1 and 3 BSS Plan (see section 8 a) of Annex 1 to Appendix **S30**).

After reviewing various proposals, ITU-R found that the following proposal represented a good compromise package to replace the current pfd limits in both sections 5 b) and 5 c) of Annex 1:

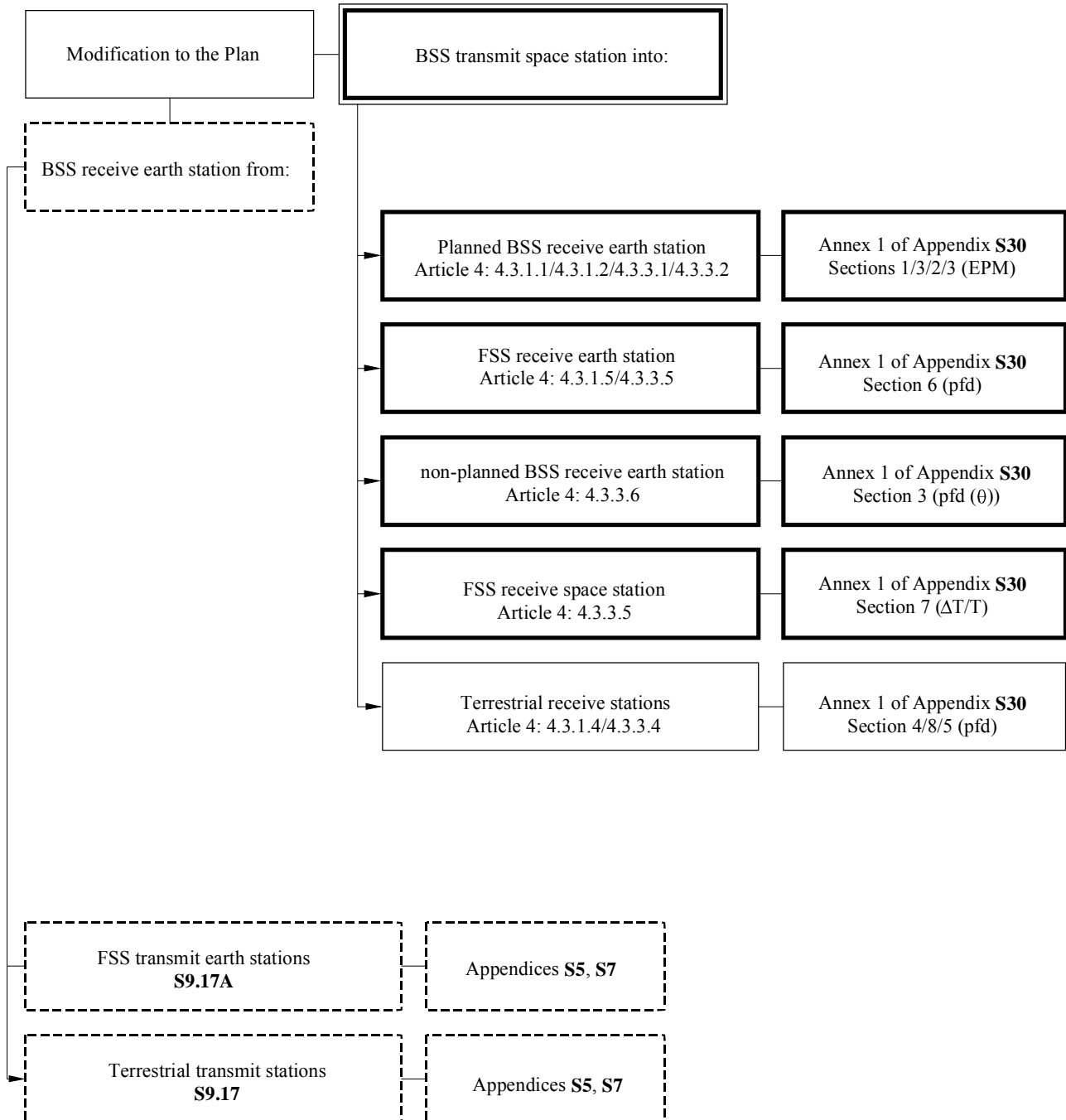
-148 dB(W/m ² /4 kHz)	for	0° ≤ γ < 5°
-148 + 0.5(γ - 5) dB(W/m ² /4 kHz)	for	5° ≤ γ < 25°
-138 dB(W/m ² /4 kHz)	for	25° ≤ γ < 90°

These pfd limits are currently contained in Table **S21-4** of Article **S21** for the protection of the FS from the FSS in the 12 GHz bands. These limits are more relaxed than the current limits in sections 5 b) and 5 c) at low arrival angles and thus meet the expressed concerns of the BSS community. On the other hand, they are more stringent at higher arrival angles than section 5 c) thus providing greater protection to the terrestrial services. Therefore these limits represent a compromise between the various requirements in the band. Furthermore the Article **S21** limits have been successfully applied for a long time to protect terrestrial services from the FSS.

Additionally, modification to these pfd limits may facilitate the revision of the Regions 1 and 3 Plans (under WRC-2000 agenda item 1.19 and Resolution **532 (WRC-97)**).

Administrations are encouraged to review all of the pfd limits in sections 4, 5 and 8 of Annex 1, which provide limits to determine if terrestrial services in the various regions may be affected by modifications to the BSS Plans, for possible modification or consolidation, with a view to establishing an equitable balance of constraints between the three Regions.

FIGURE 5.1
Procedures for the coordination of modifications to Appendix S30 Plans with other services
(Article 4 of Appendix S30, Article S9)

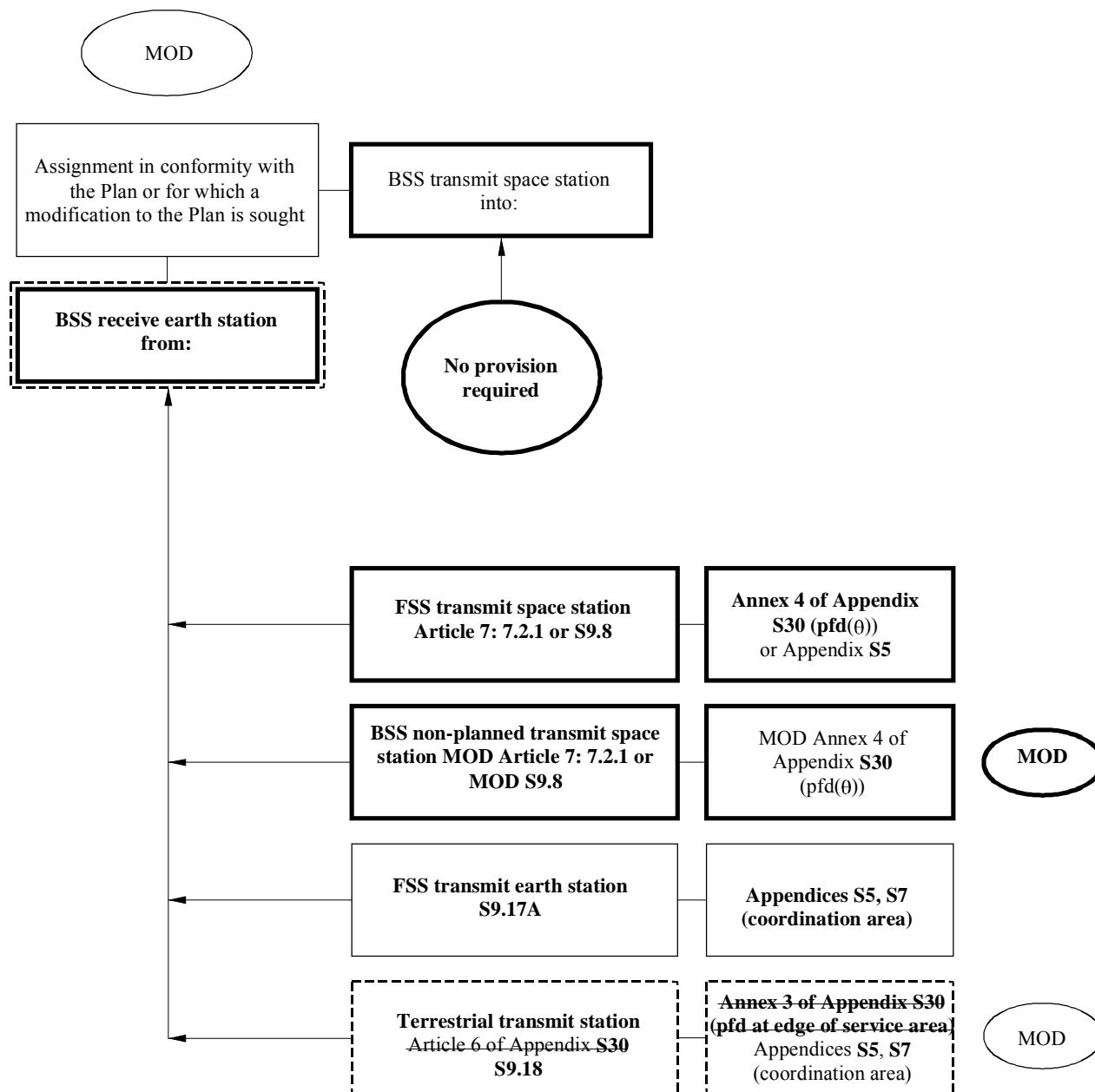


- Coordination between the administrations with the space stations.
- Coordination between the space station administration and the terrestrial station administration.
- Coordination between the administrations on the territory of which the stations are located.

CPM99/SC99-01

FIGURE 5-2

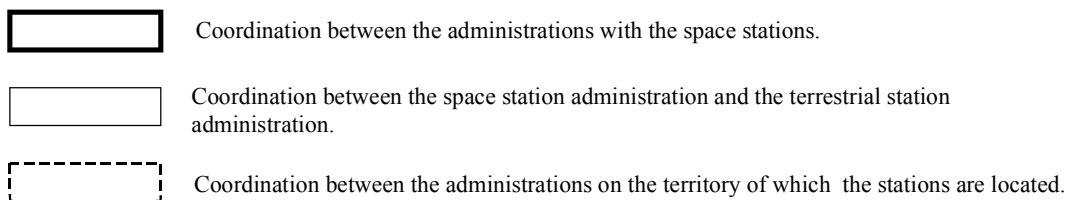
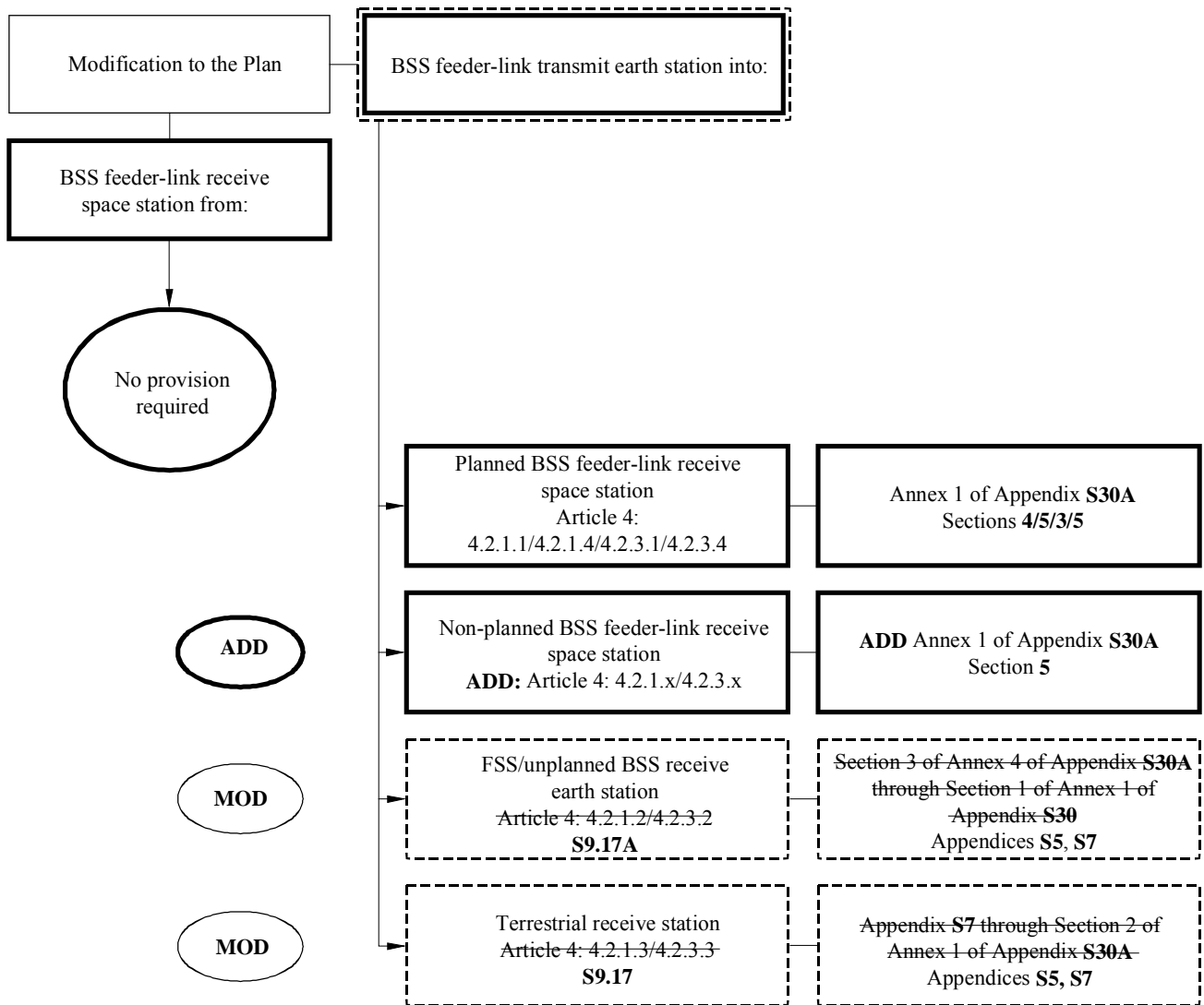
**Procedures for the coordination of non-planned services with assignments subject to Appendix S30 plans
(Articles 6 and 7 of Appendix S30, Article S9)**



- Coordination between the administrations with the space stations.
- Coordination between the space station administration and the terrestrial station administration.
- Coordination between the administrations on the territory of which the stations are located.

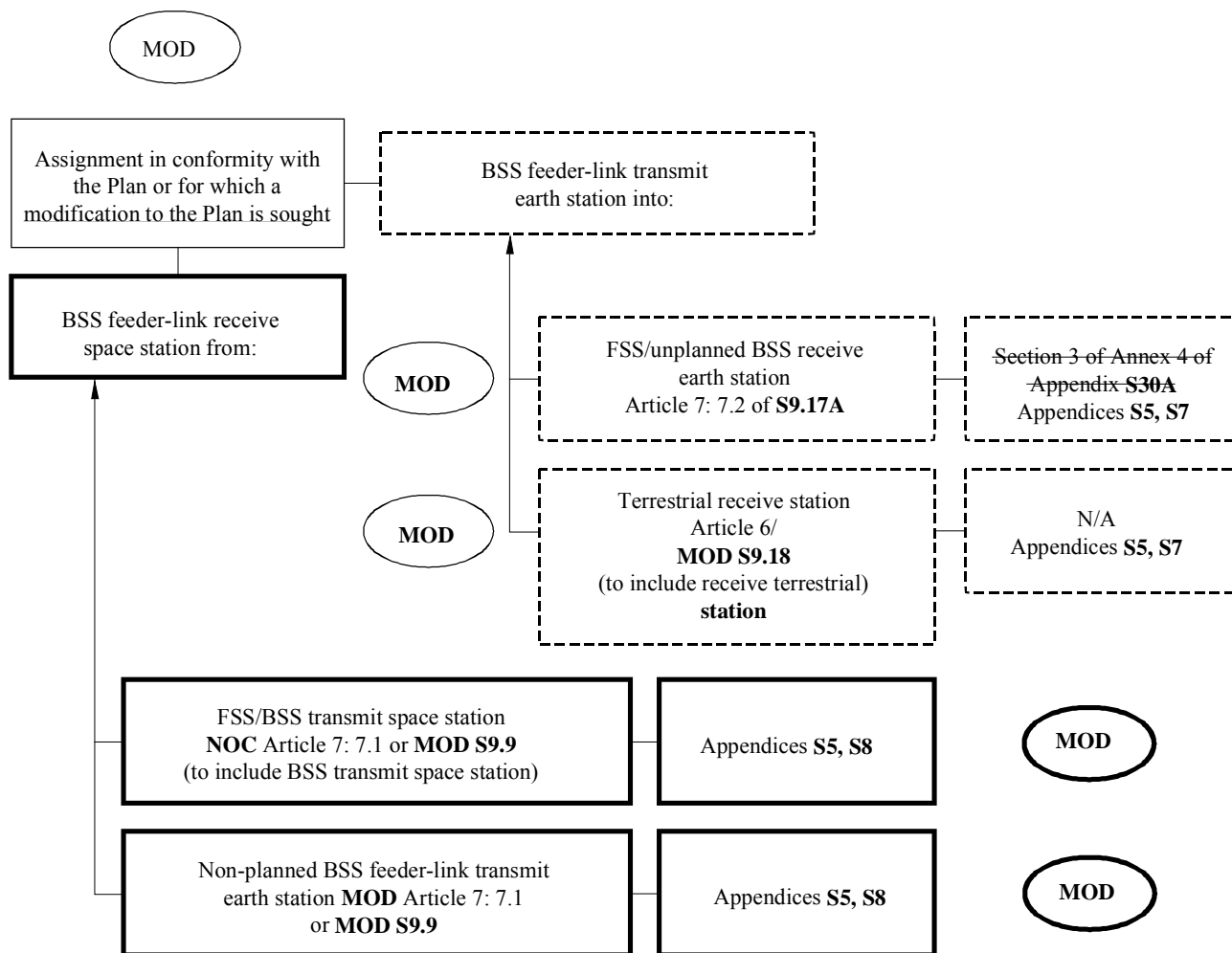
CPM99/SC99-02

FIGURE 5.3
Procedures for the coordination of modifications to Appendix S30A Plans with other services
(Article 4 of Appendix S30A, Article S9)



CPM99/SC99-03

FIGURE 5.4
**Procedures for the coordination of non-planned services with assignments subject to Appendix S30A plans
(Articles 6 and 7 of Appendix S30A, Article S9)**



- Coordination between the administrations with the space stations.
- Coordination between the space station administration and the terrestrial station administration.
- Coordination between the administrations on the territory of which the stations are located.

CPM99/SC99-04

5.3 Agenda item 1.19

"to consider the report of the inter-conference representative group (IRG) submitted by the Director of the Radiocommunication Bureau and determine the basis for replanning by the next conference so as to afford each country an amount of spectrum that permits the economical development of a broadcasting-satellite service system"

5.3.1 Progress report on ITU-R studies requested by the IRG

Activities relating to the implementation of Resolution **532 (WRC-97)** have been carried out by IRG and the Group of Technical Experts. The results of the studies will be submitted by the Director Radiocommunication Bureau to WRC-2000.

5.3.1.1 Appropriate technical criteria for compatibility analysis between BSS carriers

5.3.1.1.1 Interference protection masks

ITU-R has developed a draft revision of Recommendation ITU-R BO.1293 concerning protection masks and associated calculation methods for interference into broadcast-satellite systems involving digital emissions.

Following the GTE request to investigate, as a matter of urgency, to give more precise indications on the application of the general default values to be used for the implementation of the draft revised Recommendation ITU-R BO.1293. ITU-R reconfirmed that the general default values, as currently contained in Appendix 1 to Annex 1 of the draft revised Recommendation ITU-R BO.1293, can be applied to all Regions and communicated to the IRG. However, the IRG has not yet dealt with this matter. Moreover, the ITU-R confirmed the appropriateness of the application of the worse case approach to deal with interference from analogue assignments of the Plans into both analogue and digital assignments.

5.3.1.1.2 Interference protection ratio

ITU-R confirmed the protection ratio adopted by WRC-97 for the protection between analogue assignments of the plans, as well as for the protection of digital assignments against interference from analogue assignments, and proposed a new overall co-channel protection ratio value of 20 dB (i.e. 21 dB and 27 dB for downlink and feeder link respectively for "planned digital assignments"). However, further studies are still required to reduce the WRC-97 protection ratios in the case of the protection of digital assignments against interference from analogue assignments.

5.3.1.2 Applicability of Annex 7 limitations

5.3.1.2.1 8 dB e.i.r.p. reduction

ITU-R concluded that the 8 dB reduction in Annex 7 of Appendix **S30** is no longer necessary with respect to terrestrial service.

5.3.1.2.2 Scope of Annex 7 orbital limitation for review

ITU-R will conduct technical studies on the orbital limitations of paragraph A3 of Annex 7, which apply to proposed new BSS assignments in the orbital arc from 37° W to 10° E and adopted a set of preliminary guidelines for conducting studies with respect to these limitations. ITU-R has prepared further studies on this issue which have been sent to the IRG.

5.3.1.3 Channel configuration

ITU-R concluded that the technical implication of a channel configuration (spacing and bandwidth) mostly pertain to the availability of protection criteria and interference calculation methods (draft revision of Recommendation ITU-R BO.1293) that would apply for the new channel configuration.

ITU-R concluded that the draft revised Recommendation ITU-R BO.1293 facilitates the analyses of interference involving channel bandwidths larger than the reference bandwidth of 27 MHz. This has been communicated to the IRG.

5.3.1.4 Sharing criteria to be used for inter-service and interregional compatibility analysis

For its examination of the compatibility between BSS plan assignments and other services, ITU-R has been requested to review the existing sharing criteria of Annex 1, 4 and 6 of Appendix **S30** and Annex 1 and 4 of Appendix **S30A** in terms of their applicability to digital BSS carriers which are going to be used for the planning studies. ITU-R has carried out further studies the results of which have been sent to the IRG.

5.3.1.5 Fast roll-off antennas for BSS space stations

A draft new Recommendation ITU-R BO.[Doc. 11/116] contains (in its Annex 1) new fast roll-off antenna patterns to be used if necessary for the transmitting satellite antenna. This Recommendation presents updated co- and cross-polarization patterns for 12 GHz BSS satellite transmit antennas with fast roll-off characteristics. The new patterns reflect the technical progress and assure that any angle from the centre of the beam, the performance of the fast roll-off antenna exceeds or at least equals that of the "normal" satellite transmit antenna, which is not the case for the patterns currently content in Annex 1 of Appendix **S30**, § 3.1.3.3.

Draft new Recommendation ITU-R BO.[Doc. 11/116], on improved fast roll-off patterns for the space station transmitting antenna, gives cross-polarization performances which are considered feasible and adequate for elliptical beams.

However, composite beams are likely to be implemented by shaped beam techniques, which may only achieve such cross-polarization performances if not combined with fast roll-off co-polar patterns.

Consequently, ITU-R can not, at least for the time being, recommend to apply the draft new Recommendation ITU-R BO.[Doc. 11/116] in case of composite beams. This has been communicated to the IRG.

5.3.1.6 Coordination between co-located BSS and FSS satellites

ITU-R studies indicated that when conducting planning studies in relation to Appendix **S30A**, the criteria of Annex 4 of Appendix **S30A** could be used in order to ensure that existing and planned systems in the FSS and in the BSS are not adversely impacted by modifications in the orbital positions of Appendix **S30A** Plan. Moreover it was suggested that consideration might be given to a

$\Delta T/T$ of 6% in lieu of the 4% level currently appearing in Annex 4 of Appendix **S30A** together with the revised receiver system noise temperature of 600 K instead of 900 K.

5.3.1.7 Sharing with space operation functions in the guardbands of Appendices S30/S30A Plans

In the case where different channel spacings or bandwidths are used in the planning studies, there is a need to study the sharing situation between assignments of Appendices **S30/S30A** Plans and space operation service for BSS space stations only operating in the guardbands of these Plans. ITU-R is developing a Recommendation on coordination procedure for assignments of space operation service in the guardbands of Appendices **S30** and **S30A** Plans.

It was also noted that in accordance with No. 3.9.2 of Annex 5 of Appendix **S30**, the guardbands were intended to protect the services in the adjacent frequency bands.

5.4 Agenda item 1.19bis

"in accordance with Article **S14**, to consider objections expressed by administrations with respect to the Radio Regulations Board's Rule of Procedure relating to the application of No. **S23.13/2674** in order for the Bureau to modify its findings in accordance with the conclusions of the conference"

No. **S23.13/2674** states:

"§ 4 In devising the characteristics of a space station in the broadcasting-satellite service, all technical means available shall be used to reduce, to the maximum, the radiation over the territory of other countries unless an agreement has been previously reached with such countries."

In response to Resolution **531 (WRC-95)**, the RRB established a Rule of Procedure in 1996 which was later modified in 1998. If the service area of a BSS system exceeds the territory of the notifying administration, the Rule of Procedure requires that a separate agreement from the one required under Article 4 of Appendix **S30** or Resolution **33 (Rev.WRC-97)** be sought either directly from the administrations concerned or through the publication required under Resolution **33 (Rev. WRC-97)** or the plan modification procedure.

Some administrations consider that this Rule of Procedure should be applied retroactively to systems received by the BR for the application of Article 4 of Appendix **S30** before 18 November 1995. Other administrations consider that such a retroactive application of the Rule would not be appropriate.

5.5 Direct-to-home transmission/broadcasting-satellite service

The IRG requested the ITU-R to provide relevant advice (if any) on the proposal made by several countries at WRC-97 and which was deferred to it by WRC-97, i.e. to include in WRC-01 agenda the "review of the possibility of combining the direct-to-home transmission services by satellite and satellite-broadcasting services in the planned and non-planned bands and its implication on the relevant Articles of the Radio Regulations".

Although no contributions were received on this issue by the time of CPM99-2 (Geneva, 15-26 November 1999), the concerns expressed by some administrations on this issue were noted, however IRG has the prime responsibility for this issue.



Radiocommunication Bureau

NATIONAL PREFERENCES FOR THE BSS REPLANNING PROCESS
(WRC-2000 AGENDA ITEM 1.19)

1 National preferences confirmed as of 12 May 2000, 2400 hours, or requested as of 12 May 2000, 1700 hours

The national preferences indicated below for information were not included in the basic technical assumptions described in Document CMR2000/34, its Corrigendum 2 and its Addendum 1.

Following the adoption of Document CMR2000/183 by the second WRC-2000 Plenary Meeting, and in accordance with the third or second paragraphs of that document, these national preferences were either:

- described in Addenda 5 to 16 in Document CMR2000/34 and confirmed to the Radiocommunication Bureau before 12 May 2000, 2400 hours Istanbul time; or
- received by the Radiocommunication Bureau before 12 May 2000, 1700 hours Istanbul time.

1.1 Use of preferred feeder-link beams and channels for AUS at its orbital positions 152° E and 164° E, (see Addendum 13 to Document CMR2000/34)

AUS confirmed its national preferences (12 May 2000, 17:00 hours), and clarified that:

- additional feeder-link minimum size beams covering its off-shore territories are grouped with its corresponding mainland feeder-link beams; and
- additional channels 1, 5, 9 at 152° E and 4, 8, 12 at 164° E are assigned in addition to its current channels in the Appendix S30A Plan.

AUS also indicated that its request was made with the understanding that “the coordination status of any existing beams included in the new grouped beams (referred to in the third paragraph of section 3.2) will be maintained”. It is understood that “section 3.2” referred to above is contained in Addendum 13 to Document CMR2000/34.

1.2 Extended national beams for BEL and HOL (see Document CMR2000/159)

In Document CMR2000/159, dated 9 May 2000, BEL and HOL requested the following:

- “to include identical beams for Belgium and the Netherlands jointly covering the territories of these Administrations from the same orbital location.”
- “these new identical beams would replace the national beams of these Administrations.”
- “the size to be considered for these beams be 1.0°”.

It is understood that the test-points associated with these extended beams are those currently defined for the beams of both countries in the Plans of Appendices S30 and S30A. In the absence of complete beam characteristics, the requested beams will be calculated using these test-points, and the major axis and minor axis resulting from the calculation will then be adjusted in order to meet the requested of 1.0°.

1.3 Use of Appendix S30 Plan elliptical downlink beam for feeder link of BUL at the orbital position 1° W (see Addendum 8 to Document CMR2000/34)

At the fourth meeting of GT PLEN-1 (11 May 2000, 1430-1700 hours), BUL confirmed this request.

1.4 Use of elliptical feeder-link beams of Appendix S30A Plan and preferred channels for CHN at its orbital positions 62° E, 92° E and 134° E (see Addendum 7 to Document CMR2000/34 and its Addendum 1)

As indicated in section 2.3 of Document CMR2000/183, dated 11 May 2000, CHN agreed to the option contained in Addendum 1 to Addendum 7 to Document CMR2000/34, which proposes to use the orbital positions 62° E, 92.2° E and 134° E together with grouping of the adjacent channels assigned to this country at these positions.

1.5 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for CHN

As indicated in section 2.10 of Document CMR2000/183, dated 11 May 2000, CHN requested to assign 12 channels in the 14 GHz frequency band to its feeder-link beam CHN19000 at the orbital position 122.0° E.

1.6 Preferred orbital position for CHN/HKG and CHN/MAC

CHN requested (11 May 2000) to use for its beams CHN19000 and MAC00000 at the preferred orbital position 122.0° E and to not apply a $\pm 0.2^\circ$ orbital position offset to these beams.

1.7 Preferred orbital position, orbital arc and number of channels for CVA

CVA requested (12 May 2000, 1100 hours) to use the preferred orbital position 1° W or an orbital position within the arc 1° W to 25° W for its two beams CVA08500 and CVA08300, and to assign one channel to its beam CVA08500 and 6 channels to its beam CVA08300.

1.8 Extended national beams for CZE, HNG, HRV and SVK (see Addendum 5 to Document CMR2000/34)

In Document CMR2000/151, dated 8 May 2000, CZE, HNG, HRV and SVK confirmed this request.

1.9 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for IND (see Addendum 14 to Document CMR2000/34)

IND confirmed (12 May 2000, 1743 hours) to use only the 17 GHz frequency band for all its feeder-link beams at the orbital positions 56° E and 68° E.

1.10 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for IRN (see Addendum 14 to Document CMR2000/34)

As indicated in section 2.10 of Document CMR2000/183, dated 11 May 2000, IRN requested to use both 14 GHz and 17 GHz frequency bands and to assign 12 channels to its beams in each band.

1.11 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for ISR (see Addendum 14 to Document CMR2000/34)

ISR confirmed (12 May 2000, 1720 hours) to use only the 17 GHz frequency band for its feeder-link channels at the orbital position 4° W.

1.12 Use of 12 channels for J at the orbital positions 109.85° E, in addition to and grouped with its assignments at 109.85° E and 110° E (see Addendum 10 to Document CMR2000/34)

In Document CMR2000/133, dated 28 April 2000, J confirmed this request.

1.13 Use of specific downlink and feeder-link beams for KOR

As indicated in section 1 of Document CMR2000/183, dated 11 May 2000, KOR requested not to recalculate the ellipse characteristics of its downlink and feeder-link national beams as a consequence of the change to its orbital position from 110.0° E to 116.0° E.

1.14 Extended national beams for LTU and LVA at the orbital position 23° E (see Addendum 16 to Document CMR2000/34)

LTU and LVA confirmed this request (12 May 2000, 1900 hours). (See also Document CMR2000/158, dated 9 May 2000.)

1.15 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for MRC (see Addendum 14 to Document CMR2000/34)

As indicated in paragraph 3, section 2.10 of Document CMR2000/183, dated 11 May 2000, with respect to Morocco, the choice of the 17 GHz band is conditional upon not employing an orbital position offset of $\pm 0.2^\circ$ at the preferred orbital position 25° W.

It is understood that if it is not possible to use the 17 GHz frequency band without employing orbital position offset of $\pm 0.2^\circ$, then the 14 GHz frequency band should be investigated.

1.16 Preferred downlink and feeder-link channels for NOR

NOR confirmed (12 May 2000, 1115 hours) its request to use the channels 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 with circular polarization CL for the downlink and CR for the feeder link, for its national beam at the orbital position 0.8° W.

1.17 Preferred orbital position for PNG

PNG requested (12 May 2000, 1613 hours) to use the preferred orbital position 134.0° E.

1.18 Additional or alternative use of the 14 GHz and/or the 17 GHz frequency bands for PSE

PSE requested (12 May 2000, 1440 hours) to use only the 17 GHz frequency band for its feeder-link channels.

1.19 Preferred downlink and feeder-link test-points and orbital position for TON

TON requested (12 May 2000, 1525 hours) to use new test-points for both its downlink and feeder-link beams at the new preferred orbital position 170.75° E. [The location of these test-points is subject to further clarification from this Administration.]

1.20 Use of alternative orbital position within the arc 25° W to 10° E for TUN instead of 30° W (see Addendum 15 to Document CMR2000/34)

TUN confirmed (12 May 2000, 1600 hours) the use of the preferred orbital position 25.0° W or an orbital position in the arc 25.0° W to 25.0° E for its beams TUN15000 and TUN27200. (See also Document CMR2000/192, dated 12 May 2000.)

1.21 Use of separate beams for USA at the orbital positions 170° E and 122° E (see Addendum 9 to Document CMR2000/34)

USA confirmed its request (12 May 2000, 1935 hours).

1.22 Use of specific downlink beam for VTN

As indicated in paragraph 4, section 1 of Document CMR2000/183, dated 11 May 2000, VTN requested to use at its preferred orbital position 107° E the same elliptical beam for both its downlink and feeder link. The ellipse characteristics of this beam are those used in the basic study for the feeder-link beam of VTN. In addition, VTN requested to use normal roll-off antenna patterns for its transmitting space station (i.e. R13TSS) instead of the fast-roll patterns used in the IRG study and the Appendix S30 Plan.

2 National preferences requested at the last IRG meeting but not confirmed as of 12 May 2000, 2400 hours

GT PLEN-1 is invited to confirm or otherwise that the following national preferences have to be included in the re-planning process in place of the basic technical assumptions described for these countries in Document CMR2000/34 and its Corrigendum 2.

2.1 Extended national beams for JOR, LBN and SYR (see Addendum 6 to Document CMR2000/34)

2.2 Use of a channel bandwidth of 33 MHz for LAO instead of the standard value of 27 MHz (see Addendum 11 to Document CMR2000/34)

2.3 Use of the 14 GHz frequency band in addition to the 17 GHz frequency band for SEY (see Addendum 14 to Document CMR2000/34)



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Documents 24(Add.2) and 28

WORKING GROUP 4B

Sub-Working Group 4B-4

MOD

RESOLUTION 10 (Rev.WRC-2000)

Relating to the use of radiotelegraph and radiotelephone links wireless two-way telecommunications by the Red Cross, Red Crescent, and Red Lion and Sun organizations International Red Cross and Red Crescent Movement

The World ~~Administrative~~ Radiocommunication Conference, Geneva, 1979 (Istanbul, 2000),
considering

- a) that the worldwide ~~relief work of~~ humanitarian operations carried out by the International Red Cross, and Red Crescent, and Red Lion and Sun organizations is Movement - composed of the International Committee of the Red Cross, the International Federation of Red Cross and Red Crescent Societies and National Red Cross and Red Crescent Societies - are of increasing great importance and often indispensable;
- b) that in such circumstances normal communication facilities are frequently overloaded, damaged, completely interrupted or not available;
- c) that it is necessary to facilitate by all possible measures the reliable intervention of these national and international organizations;
- d) that rapid and independent contact is essential to the intervention of these organizations;
- e) that for ~~international relief work of the Red Cross, it is necessary that the national Red Cross, Red Crescent, and Red Lion and Sun organizations be able to communicate with each other as well as with the International Committee of the Red Cross and the League of Red Cross Societies~~ the efficient and safe conduct of their humanitarian operations these organizations rely heavily on wireless two-way telecommunication facilities, particularly on an extensive HF and VHF radio network,

~~decides~~resolves to urge administrations

1 to take account of the possible needs of the International Red Cross, and Red Crescent, and Red Lion and Sun organizations Movement for wireless two-way telecommunication by radiomeans when normal communication facilities are interrupted or not available;

2 to assign to these organizations the minimum number of necessary working frequencies in accordance with the Table of Frequency Allocations; ~~in the case of fixed circuits between 3 MHz and 30 MHz, the frequencies shall be selected, as far as possible, adjacent to the amateur bands~~Radio Regulations;

3 to take all practicable steps to protect such ~~links~~communications from harmful interference.

MOD

RESOLUTION 644 (~~WRC-97~~Rev.WRC-2000)

Telecommunication resources for disaster mitigation and relief operations

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that ITU, in the same spirit as reflected in Articles 40 and 46 of its Constitution ~~and in Resolution 209 (Mob-87)~~, has specifically recognized the importance of the international use of radiocommunications in the event of natural disasters, epidemics, famines and similar emergencies;
- b) that the Plenipotentiary Conference (~~Kyoto, 1994~~)of the International Telecommunication Union (Minneapolis, 1998), in endorsing Resolution 719 of the World Telecommunication Development Conference (~~Buenos Aires, 1994~~Valetta, 1998), adopted Resolution 36 (Rev.Minneapolis, 1998) ~~on telecommunications for disaster mitigation and disaster relief operations in the service of humanitarian assistance~~;
- c) that administrations have been urged to take all practical steps to facilitate the rapid deployment and effective use of telecommunication resources for disaster mitigation and disaster relief operations by reducing and, where possible, removing regulatory barriers and strengthening transborder cooperation between States,

recognizing

- a) the potential of modern telecommunication technologies as an essential tool for disaster mitigation and relief operations and the vital role of telecommunications for the safety and security of relief workers in the field;
- b) the particular needs of developing countries and the special requirements of the inhabitants of remote areas;
- c) the progress made in the implementation of Resolution 36 (Rev.Minneapolis 1998) with respect to the preparation of the Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations,

noting

~~with appreciation the scheduling of~~ the Intergovernmental Conference on Emergency Telecommunications (ICET-98) from 16 to 18 June 1998 in Tampere, Finland, which ~~is expected to adopt~~adopted the Convention referred to in *recognizing c)* above,

resolves

to invite ~~ITU R~~the ITU Radiocommunication Sector to continue to study, as a matter of urgency, those aspects of radiocommunications that are relevant to disaster mitigation and relief operations, such as decentralized means of communications that are appropriate and generally available, including amateur radio facilities and mobile and portable satellite terminals,

requests the Director of the Radiocommunication Bureau

to support administrations in their work towards the implementation of Resolution 36 (Rev.Minneapolis 1998),

instructs the Secretary-General

to work closely with the United Nations Emergency Relief Coordinator with a view to further increasing the Union's involvement in, and support to, disaster communications, and ~~to report on the outcome of the Tampere Conference to the 1998 Plenipotentiary Conference so that that Conference or the Council may take any action that it deems necessary, to take any action deemed appropriate to implement the provisions of the Tampere Convention,~~

invites

the United Nations Emergency Relief Coordinator and the Working Group on Emergency Telecommunications to collaborate closely with ITU in further work towards the implementation of Resolution 36 (Rev.Minneapolis, 1998), and in particular the adoption of the Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations,

urges administrations

to give their full support to the adoption of the said Convention and its national implementation.

ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY****Radiocommunication Bureau****List of “Existing”¹ and “Part B”² Systems which have been Received by the
Radiocommunication Bureau**

Table 1 contains the list of satellite networks which satisfy the conditions of Principle 3 of Annex 1 to Resolution 532(WRC-97).

Table 2 contains the list of satellite networks included in WRC-97 Plans for which the 8 years regulatory lapsing period does not apply, which were notified under Article 5 of the above-mentioned Appendices S30 and S30A before 12 May 2000 but have not been brought into use.

Table 3 contains the list of satellite networks successfully completed the procedure of Article 4 of Appendices S30 and S30A which were not brought into use before 12 May 2000.

It should be noted that one Administration “A” listed in Table 1 has requested that in application of paragraphs 4.3.15 and 4.2.16 of Appendices S30 and S30A respectively, the assignments of its two “existing” systems be grouped with assignments belonging to networks of five other Administrations “B, C, D, E and F” included in the Appendices S30 and S30A Plans.

The Conference at its second Plenary on Friday 12 May 2000 confirmed that the above-mentioned grouping arrangement is acceptable and to be carried forward (the same grouping arrangement) in the replanning process. However, the Conference considered that if it is possible to find different orbital positions and/or channels to be used as national assignments of any or all of these 5 administrations “B, C, D, E and F” grouped with the subject “existing systems” of administration “A”, in that case there is no need to carry forward the above-mentioned grouping. Further information on this issue is provided in the attachment as mentioned.

Attachment 1: List of the systems included in the replanning process.

Attachment 2: Information on the grouping arrangement.

¹ Whenever the term “existing” is used in this document, it refers to notified assignments that are in conformity with Appendices S30 and S30A, which have been brought into use and for which the date of bringing into use has been confirmed to the Bureau.

² Satellite systems for which the procedures of Article 4 of Appendices S30 and S30A have been successfully completed.

ATTACHMENT 1

Table 1: Satellite networks which satisfy the conditions of Principle 3 of Annex 1 to Resolution 532(WRC-97); i.e. “existing” systems

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section Number		Date of receipt for publication request ³	Date of bringing into use	Date of Receipt of due diligence ⁴ information	Down link EIRP (dBW)		Number of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
1	ARS	ARABSAT-BSS1 (Channels 1 – 20)	26.0 E	08.08.95	73	69	12.05.00 16:47	01.04.99	29.09.98	50	50	20	20	Examination in progress
2	E	HISPASAT-1 (27 MHz Analog)	30.0 W	13.02.90	9	5	03.07.92	01.09.92	Yet to be provided ⁵	57.6	57.6	5	5	Included in the Appendices S30 and S30A Plans by WRC-97.
3	E	HISPASAT-1 (27 MHz Digital)	30.0 W	13.02.90	9 Corr-1	5 Corr-1	16.08.99	01.12.95	21.09.98	57.6	57.6	5	5	Examined and published
4	E	HISPASAT-1 (33 MHz Digital)	30.0 W	13.10.94	9 Add-1	5 Add-1	18.10.99	01.12.98	22.12.99	57.6	57.6	5	5	Examined and published
5	E	HISPASAT-2 (27 MHz Analog)	30.0 W	07.03.91	14	11	25.07.95	16.02.00	16.06.99	59.0	59.0	10	10	Included in the Appendices S30 and S30A Plans by WRC-97.
6	E	HISPASAT-2 (27 MHz Digital) (APS30 only)	30.0 W	07.03.91	14 Corr-1	--	24.04.00	16.02.00	16.06.99	58.5	58.5	10	--	Examined, yet to be published

³ The Service Areas associated to these networks are those initially received by the Radiocommunication Bureau under relevant provisions of Article 4 of Appendix S30 and their associated Rules of Procedure, in particular under paragraphs 4.3.14 for publication under paragraph 4.3.17.

⁴ In accordance with Resolution 49(WRC-97). Details of the administrative due diligence information are available in the BR secretariat (BSS Team).

⁵ To be provided before 21 November 2000 in accordance with *Resolves* 3 of Resolution 49 (WRC-97).

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section Number		Date of receipt for publication request ³	Date of bringing into use	Date of Receipt of due diligence ⁴ information	Down link EIRP (dBW)		Number of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
7	E	HISPASAT-3 (27/33 MHz Digital) (APS30 only)	30.0 W	30.10.95	103	--	12.05.00 10:30	16.02.00	12.05.00 10:30	54.5	56	40	--	Examination in progress
8	EGY	NILESAT-1S	7.0 W	24.10.94	41	37	12.05.00 16:15	28.04.98	02.05.00	51.7	52.0	18	18	Examination in progress
9	F/EUT	EUTELSAT B-13E (APS30)	13.0 E	11.05.93	26	--	26.01.00	18.12.96	03.02.00	51.4	55.5	40	--	Examined and published
		(APS30A)			--	23	27.01.00			--	--	--	40	
10	F/EUT	EUTELSAT-36 (APS30A only)	36.00 E	17.03.95	--	59	25.04.00	27.04.00	06.04.00	--	--	--	40	Examination in progress
11	J	BS-3M	110.0 E	Not applicable	Not applicable	Not applicable	Not applicable	31.03.96	Not applicable	63.2	64.4	8	8	Included in the Appendices S30 and S30A Plans by WRC-97.
12	J	BS-3N	109.85 E	27.05.93	28	24	31.04.94	15.06.95	30.06.98	63.2	64.4	8	8	Included in the Appendices S30 and S30A Plans by WRC-97.
13	KOR	KOREASAT-1 (Analog)	116.0 E	15.10.90	12	9	15.11.95	05.02.96	04.04.00	63.6	63.7	6	6	Included in the Appendices S30 and S30A Plans by WRC-97.
14	KOR	KOREASAT-1 (Digital)	116.0 E	28.09.93	12 Add-1	9 Add-1	15.11.95	05.02.96	04.04.00	63.6	63.7	6	6	Included in the Appendices S30 and S30A Plans by WRC-97.
15	KOR	KOREASAT-2 (Digital)	113.0 E	28.09.93	22 Add-1	18 Add-1	12.05.00 16:24	30.12.99	04.04.00	47.4	51.9	6	6	Examination in progress

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section Number		Date of receipt for publication request ³	Date of bringing into use	Date of Receipt of due diligence ⁴ information	Down link EIRP (dBW)		Number of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
16	LUX	DBL (APS30)	19.2 E	11.03.91 11.03.93	15+ Add-1	--	09.03.99	01.01.96	26.04.99	49.3	54.5	40	--	Examined and published
		(APS30A)		04.05.93 01.07.93	--	22+Add-1	12.05.00 11:44			--	--	--	40	Examination in progress
17	LUX	DBL-28.2E (APS30)	28.2 E	23.12.94	51	--	28.01.00	30.08.98	22.12.99	55.0	55.0	40	--	Examined, yet to be published
		(APS30A)			--	47	12.05.00 11:44			--	--	--	40	Examination in progress
18	NOR	BIFROST-2	0.8 W	31.08.92	23	19	21.10.97	01.07.98	03.08.99	54.5	54.5	15	15	Included in the Appendices S30 and S30A Plans by WRC-97.
19	NOR	BIFROST	0.8 W	20.05.92	20	16	21.19.97	01.07.98	23.12.99	59.0	59.0	5	5	Examined and published
20	RUS	RST-1	36.0 E	Not applicable	31	28	Not applicable	28.01.99	Not applicable	53.0	53.0	8	8	National assignment. Included in the Appendices S30 and S30A Plans by WRC-97.
21	S	TELE-X	5.0 E	Not applicable	Not applicable	Not applicable	Not applicable	02.04.89	Not applicable	63.2	63.2	1	1	Included in the Appendices S30 and S30A Plans by WRC-97.
22	S	SIRIUS	5.2 E	12.08.91	17	13	19.04.93	01.04.95	Yet to be provided ⁶	58.0	59.5	5	5	Included in the Appendices S30 and S30A Plans by WRC-97.
23	S	SIRIUS-W	13.0 W	25.08.92	21	17	04.02.00	04.05.00	09.03.00	52.9	52.9	5	5	Examined and published

⁶ To be provided before 21 November 2000 in accordance with *Resolves* 3 of Resolution 49 WRC-97)

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section Number		Date of receipt for publication request ³	Date of bringing into use	Date of Receipt of due diligence ⁴ information	Down link EIRP (dBW)		Number of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
24	S	SIRIUS-2 (APS30)	5.00 E	27.03.95	65+a1	--	05.05.00	21.11.97	30.06.98	51.5	57.0	25	--	Examination in progress
		(APS30A)			--	61	12.05.00 15:33			--	--	--	16	Examination in progress
25	S	SIRIUS-3 (APS30)	5.20 E	11.04.95	66	--	05.05.00	01.12.99	31.12.99	57.0	57.0	13	--	Examination in progress
		(APS30A)				62	12.05.00 15:33			--	--	--	9	Examination in progress

Table 2: Satellite networks included in WRC-97 Plans as national assignments for which the 8 years regulatory lapsing period does not apply, which were notified before 12 May 2000 but have not been brought into use

1	2	3	4	5	6	7	8	9	10	11	12	13	14
No.	Adm.	Satellite Network	Orbital Position	Request for publication	Notification Date of Receipt	Date of bringing into use	Operational Status on 12.05.00 to be confirmed	Resolution 49 Due diligence information	Down link EIRP (dBW)		Number of Channels		Status of Examination
									Min	Max	APS30	APS30A	
1	AUS	AUSSAT C 152E BSS	152.0 E	Not applicable	18.09.97	01.10.00	No	Not Applicable	58.2	59.4	18	18	Examination in progress
2	RUS	RST-1	36.0 E	Not applicable	28.04.00	15.05.00	No	Not Applicable	53.0	53.0	8	8	Examination in progress
3	RUS	RST-2	56.0 E	Not applicable	28.04.00	15.05.00	No	Not Applicable	55.0	55.0	8	8	Examination in progress

Table 3: Satellite networks successfully completed the procedure of Article 4 of Appendices S30/S30A which were not brought into use before 12 May 2000

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section		Date of receipt for publication request ⁷	Date of bringing into use	Date of Receipt of due diligence ⁸ information	Down link EIRP (dBW)		No. of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
1	ARS	ARABSAT-BSS1 (Channels 21-40)	26.0 E	08.08.95	73	69	12.05.00 16:47	01.01.02	29.09.98	50	50	20	20	Examination in progress
2	D	EUROPE*STAR-1B	45.0 E	13.02.95	58	54	28.04.00	15.02.03	17.04.00	52.0	52.0	40	40	Examination in progress
3	F	RADIOSAT-5	7.0 W	11.11.94	42	38	03.05.00	10.11.02	11.05.00	51.8	56.0	25	25	Examination in progress
4	F	RADIOSAT-5A (AP30)	7.0 W	12.10.95	76	--	03.05.00	11.10.03	11.05.00	51.8	56.0	15	--	Examination in progress
		(AP30A)			--	72	12.05.00 16:15			--	--	--	14	Examination in progress
5	G	GE-SATCOM E1 (APS30A only)	24.0 W	14.11.95	--	106	28.04.00	10.11.03	28.04.00	--	--	--	40	Examination in progress
6	LAO	LSTAR3B	116.0 E	18.10.95	90	86	03.05.00	30.12.00	08.05.00	52.8	57.9	24	24	Examination in progress
7	LAO	LSTAR4B	126.0 E	18.10.95	91	87	03.05.00	30.06.01	08.05.00	54.8	57.9	24	24	Examination in progress
8	TUR	TURKSAT-BSS	42.0 E	03.03.95	60	56	28.04.00	15.09.00 for ch 1-22 and 15.02.03 for ch 23-40	21.04.00 for ch 1-22 and 25.04.00 for ch 23-40	49.0	54.0	40	40	Examination in progress

⁷ The Service Areas associated to these networks are those initially received by the Radiocommunication Bureau under relevant provisions of Article 4 of Appendix S30 and their associated Rules of Procedure, in particular under paragraphs 4.3.14 for publication under paragraph 4.3.17.

⁸ In accordance with Resolution 49(WRC-97). Details of the administrative due diligence information are available in the BR secretariat (BSS Team).

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite Network	Orbital Position	Date of receipt for publication request	Special Section		Date of receipt for publication request ⁷	Date of bringing into use	Date of Receipt of due diligence ⁸ information	Down link EIRP (dBW)		No. of Channels		Status of examination and publication
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
9	USA	USASAT29H APS30 only	41.0 E	18.10.95	93	--	27.03.00	17.10.00	05.05.00	55.0	55.0	40	--	Examined, yet to be published.
10	USA	USASAT29M APS30 only	149.0 E	18.10.95	98	--	27.03.00	17.10.00	05.05.00	44.0	53.0	24	--	Examined, yet to be published.
11	USA	USASAT29N APS30 only	164.0 E	18.10.95	99	--	27.03.00	17.10.00	05.05.00	51.5	55.0	24	--	Examined, yet to be published.
12	USA	USASAT29O APS30 only	173.0 E	18.10.95	100	--	27.03.00	17.10.00	05.05.00	55.0	55.0	24	--	Examined, yet to be published.
13	USA	USASAT29R APS30 only	132.0 E	16.11.95	117	--	27.03.00	17.10.00	05.05.00	42.0	55.0	24	--	Examined, yet to be published.
14	USA	USABSS-1 ⁹ USABSS-2 ⁹ USABSS-2A ⁹ APS30 only	101.2 W 100.8 W 100.85 W	18.12.95	118	--	20.04.00	18.01.94 01.09.94 24.07.95	07.05.97	Region 2 Plan	Region 2 Plan	16 16 16	-- -- --	Examination in progress
15	USA	USABSS-3 ⁹	119.2 W	03.06.96	131	131	04.05.00	28.12.95	04.05.00	Region 2 Plan	Region 2 Plan	11	11	Not yet started

⁹ Region 2 Plan network required to be protected according to the methodology as described in Document No.CMR2000/34.

ATTACHMENT 2

Grouping arrangement and possible course of actions to be pursued during re-planning.

1. Grouping administration “A” with administration “B” and administration “A” with administration “C” may lead to the grouping of administration “B” with administration “C” if they (administrations “A”, “B”, “C”) use the same or adjacent channels. This implies that administration “B” should agree to be grouped with administration “C”.
2. Some “existing systems” included in the IRG studies may require more protection than that used in the IRG studies.
3. It may be necessary to split some national Plan beams belonging to other administrations, so that some channels of those beams are grouped and others are not grouped.

Possible measures to overcome difficulties during the re-planning process:

1. Keep the proposed grouping arrangement. Splitting some national Plan beams may be required in this case.
 2. Move some grouped national Plan beams of other administrations outside of the orbital separation limit ($\pm 15/\pm 9$ degrees from the orbital positions of the “existing” systems) in order to avoid grouping.
 3. If some administrations grouped with these “existing”/“Part B” systems want to keep their preferred orbital positions within the defined orbital separation limit ($\pm 15/\pm 9$ degrees from the orbital positions of the “existing” systems) then, the proposed grouping arrangement with these “existing systems” should be maintained for the administrations, which are kept within the orbital separation limit. Splitting some national Plan beams may be required in this case.
-



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A**Chairperson, Working Group 4A****TERMS OF REFERENCE OF SUB-WORKING GROUP 4A-4****SUB-WORKING GROUP 4A-4 (SWG 4A-4) -
COORDINATION PROCEDURES FOR NON-GSO/BSS (SOUND)****Terms of reference**

- a) Prepare proposed modification to Radio Regulations relating to coordination procedures for non-GSO/BSS (sound) based on the following proposals.
- b) Other relevant issues.

Proposals

Resolution EEE	ADD	ASP/20/341
S5 (2 520-2 700 MHz)	MOD	ASP/20/344
S5.XXX	ADD	ASP/20/345
S9.12 i)	MOD	ASP/20/346
S9.13 ii)	MOD	ASP/20/347
S9.12 i)	ADD	ASP/20/348
S9.13 ii)	ADD	ASP/20/349
Appendix S5, Table S5-1 Nos. S9.11 and S9.19	MOD	ASP/20/342
Appendix S5, Table S5-1 Nos. S9.12 and S9.13	MOD	ASP/20/343
S5.393	MOD	USA/12/158

Chairperson: Mr S. Kaltenmark Box 431
 Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
 Chairperson of Working Group 4A



CHAIRPERSON, SUB-WORKING GROUP 4A-1

FIRST REPORT FROM SUB-WORKING GROUP 4A-1
TO WORKING GROUP 4A

Please replace the Table in Annex 2B with the attached.

ANNEX 2B

Table of characteristics to be submitted for space and radio astronomy services

A – General characteristics of the satellite network or the earth station

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
A.1.a	X	X	X	X	X		X	X	X	A.1.a	
A.1.b							X			A.1.b	
A.1.c								X		A.1.c	
A.1.d									X	A.1.d	
A.1.e.1						X				A.1.e.1	
A.1.e.2						X				A.1.e.2	X
A.1.e.3						X				A.1.e.3	
A.1.e.4										A.1.e.4	X
A.1.f	X	X	X	X	X	X	X	X	X	A.1.f	X
A.2.a	X	X	X	X	X	X	X	X	X	A.2.a	
A.2.b	X			X						A.2.b	
A.2.c										A.2.c	X
A.3			X	X	X	X	X	X		A.3	X
A.4.a.1	X			X			X	X	X	A.4.a.1	
A.4.a.2				X			X	X		A.4.a.2	
A.4.a.3				X						A.4.a.3	
A.4.a.4				X						A.4.a.4	
A.4.a.5				X						A.4.a.5	
A.4.b.1		X	X		X					A.4.b.1	
A.4.b.2		X	X		X					A.4.b.2	
A.4.b.3		X	X		X					A.4.b.3	
A.4.b.4		X	X		X					A.4.b.4	
A.4.b.5					X					A.4.b.5	
A.4.c						X				A.4.c	
A.5				X	X	X	X	X	X	A.5	
A.6				X	X	X	X	X	X	A.6	
A.7.a						X		X		A.7.a	
A.7.b						X		X		A.7.b	
A.7.c i)						X		X		A.7.c i)	
A.7.c ii)						X				A.7.c ii)	
A.7.d						X		X		A.7.d	
A.7.e						X		X		A.7.e	
A.8							X			A.8	

X Mandatory information

O Optional information

C This information need only be furnished when it has been used as a basis to effect coordination with another administration

* The application of this column is suspended pending the decision of WRC-99.



Chairperson, Sub-Working Group 4A-1

**FIRST REPORT FROM SUB-WORKING GROUP 4A-1
TO WORKING GROUP 4A**

Please find attached a list of changes to the Radio Regulations consequential to the revision of Appendix S7, outside Appendix S7 itself.

Those changes identified by administrations concern the following parts of the Radio Regulations:

- Article S1
- Appendix S4
- Resolution 27
- Resolution 60
- Resolution 712

SWG 4A-1 proposes modification to Resolution 712, under the assumption that WG 4B decides to retain this Resolution in the Radio Regulations. If it is not the case, SWG 4A-1 does not oppose the suppression of Resolution 712.

- Recommendation 105
- Recommendation 711
- Appendix S5

Some proposed changes to Appendix S5 are of an editorial nature and may be discussed in SWG 4A-6. In particular, SWG 4A-1 could not decide whether or not Tables S5-1A and S5-2 should be renumbered S5-2 and AS5-2 respectively.

SWG 4A-1 could not reach any agreement regarding the proposed modifications to the third column of Table S5-1. Two options were identified and they are therefore proposed to WG 4A. Note that the reference to Table S5-2 has to be treated with respect to the editorial changes mentioned above. SWG 4A-1 raised the issue that the same modification should apply to the same column over the rows related to Nos. S9.12, S9.13 and S9.14.

The suppression of section 2 of Annex 1 to Appendix S5 is felt to be beyond the scope of SWG 4A-1.

– Article S9

The proposed modifications to Article S9 (S9.17, S9.19 and S9.31) are in the list of proposals under agenda item 1.3 (see Document DT/1). Thus, they were introduced within SWG 4A-1. However, SWG 4A-1 feels that these proposed modifications are beyond its terms of reference, and it was decided that those proposals should be addressed by WG 4A.

J-C. PREVOTAT
Chairperson, Sub-Working Group 4A-1,
Box 1306

MOD

S1.171 *coordination area:* When determining the need for coordination, the area associated with surrounding an earth station outside of which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than a permissible level sharing the same frequency band with terrestrial stations, or surrounding a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the permissible level of interference will not be exceeded and coordination is therefore not required.

NOC

S1.172 *coordination contour:* The line enclosing the *coordination area*.

MOD

S1.173 *coordination distance:* When determining the need for coordination, the distance on a given azimuth from an earth station sharing the same frequency with terrestrial stations, or from a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than at the permissible level of interference will not be exceeded and coordination is therefore not required.

ADD

S1.173A *coordination:* is the process, undertaken between administrations, for ensuring that proposed frequency assignments may be brought into use in a manner which is compatible with existing assignments, or with other proposed assignments; the process may involve the adjustment of technical characteristics and a detailed evaluation of the propagation conditions using methods agreed by the administrations concerned.

A.7 Earth station site characteristics

For a specific earth station:

- a) The horizon elevation angle in degrees and, in the case of a station submitted in accordance with Appendix **S30A**, the antenna gain in the direction of the horizon for each azimuth around the earth station.

ADD

- b) The distance in kilometres from the earth station to the horizon for each azimuth around the earth station.

SUP

- b)

SUP

- c)

ADD

- c) That is operating to an associated geostationary space station and having due regard to possible inclined-orbit operation of the associated space station:
- i) the planned minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane;
 - ii) the planned range of operating azimuthal angles for the direction of maximum radiation in degrees, clockwise from True North.

ADD

- d)* That is operating to associated non-geostationary space stations, the minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane for each azimuth around the earth station.

(MOD)

- ~~*de)*~~ The altitude (metres) of the antenna above mean sea level.

ANNEX 2B

Table of characteristics to be submitted for space and radio astronomy services

A – General characteristics of the satellite network or the earth station

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
A.1.a	X	X	X	X	X		X	X	X	A.1.a	
A.1.b							X			A.1.b	
A.1.c								X		A.1.c	
A.1.d									X	A.1.d	
A.1.e.1						X				A.1.e.1	
A.1.e.2						X				A.1.e.2	X
A.1.e.3						X				A.1.e.3	
A.1.e.4										A.1.e.4	X
A.1.f	X	X	X	X	X	X	X	X	X	A.1.f	X
A.2.a	X	X	X	X	X	X	X	X	X	A.2.a	
A.2.b	X			X						A.2.b	
A.2.c										A.2.c	X
A.3			X	X	X	X	X	X		A.3	X
A.4.a.1	X			X			X	X	X	A.4.a.1	
A.4.a.2				X			X	X		A.4.a.2	
A.4.a.3				X						A.4.a.3	
A.4.a.4				X						A.4.a.4	
A.4.a.5				X						A.4.a.5	
A.4.b.1		X	X		X					A.4.b.1	
A.4.b.2		X	X		X					A.4.b.2	
A.4.b.3		X	X		X					A.4.b.3	
A.4.b.4		X	X		X					A.4.b.4	
A.4.b.5					X					A.4.b.5	
A.4.c						X				A.4.c	
A.5				X	X	X	X	X	X	A.5	
A.6				X	X	X	X	X	X	A.6	
A.7.a						X		X		A.7.a	
A.7.b						X		X		A.7.b	
A.7.c i)						X		X		A.7.c i)	
A.7.c ii)						X				A.7.c ii)	
A.7.d						X		X		A.7.d	
A.7.e						X		X		A.7.e	
A.8							X			A.8	

X Mandatory information

O Optional information

C This information need only be furnished when it has been used as a basis to effect coordination with another administration

* The application of this column is suspended pending the decision of WRC-99.

MOD

ANNEX 4 TO RESOLUTION 27 (Rev.WRC-97)

List of ITU-R Recommendations referred to in the Radio Regulations¹

Recommendation	Title	Status ²	Document	RR provision ³
ITU-R SF.356-4	Maximum allowable values of interference from line of sight radio relay systems in a telephone channel of a system in the fixed satellite service employing frequency modulation, when the same frequency bands are shared by both systems	NOC	1997 SF Series	AP S7, § 2.3.1, Note 2
ITU-R SF.357-4	Maximum allowable values of interference in a telephone channel of an analogue angle-modulated radio relay system sharing the same frequency bands as systems in the fixed-satellite service	MOD	1997 SF Series	AP S7, § 2.3.1, Note 2
ITU-R IS.847-1	Determination of the coordination area of an earth station operating with a geostationary space station and using the same frequency band as a system in a terrestrial service	NOC	1997 IS Series	AP S5, Table S5-1 AP S5, Annex 2, Tables 2 and 3
ITU-R IS.848-1	Determination of the coordination area of a transmitting earth station using the same frequency band as receiving earth stations in bidirectionally allocated frequency bands	NOC	1997 IS Series	AP S5, Table S5-1
ITU-R IS.849-1	Determination of the coordination area for earth stations operating with non-geostationary spacecraft in bands shared with terrestrial services	NOC	1997 IS Series	AP S5, Table S5-1 AP S5, Annex 2, Tables 2 and 3
ITU-R M.1185-1	Method for determining coordination distance between ground-based mobile earth stations and terrestrial stations operating in the 148.0-149.9 MHz band	MOD	1997 M Series, Part 5	AP S5, Annex 1, § 3.2, Table 1 Resolution 46 (Rev.WRC-97), Annex 2, Table 1

SUP

RESOLUTION 60

Relating to information on the propagation of radio waves used in the determination of the coordination area

MOD

RESOLUTION 712 (Rev.WRC-952000)

Consideration by a future competent World Radiocommunication Conference of issues dealing with allocations to space services

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a) that the agenda of WARC-92 called for the development of new Recommendations and Resolutions relating to allocations to space services which were not placed on the agenda of that Conference;
- b) that Recommendation ITU-R SA.363-5 recommends that frequencies below 1 GHz are technically suitable for telecommand of satellites operating below an altitude of 2 000 km;
- c) that the United Nations Conference on Environment and Development (UNCED) (Rio de Janeiro, 1992) identified an urgent need for systematic observations of forest cover, and that such observations can best be performed using frequencies in the range 420-470 MHz;
- d) that Resolution 35 of the Plenipotentiary Conference (Kyoto, 1994) considered that application of the latest telecommunication and information technologies, especially those associated with space systems, can be extremely useful in implementing and conducting environment protection activities such as monitoring air, river, harbour and sea pollution, remote sensing, wildlife studies, forestry development, and others;
- e) that the status of existing allocations available for use by active space-based sensors between 1 and 25 GHz, in frequency bands shared with radiolocation or radionavigation systems, needs to be reviewed in order to facilitate worldwide usage by active space-based sensors;
- f) that the allocations to the Earth exploration-satellite service in the frequency bands 8.025-8.4 GHz and 18.6-18.8 GHz are complex and not uniform worldwide, and that the band 18.6-18.8 GHz is vital for passive sensing of ecologically important data;
- g) that the allocation of the frequency band 13.75-14 GHz to the fixed-satellite service by WARC-92 reduced the total bandwidth available for active space-based sensors in the frequency range 13-14 GHz, which is important for wideband sensor instruments, e.g. radar altimeters, scatterometers;
- h) that future active Earth sensing requirements for monitoring environmental data in the 35 GHz and 95 GHz ranges have been identified;

i) that ITU-R has agreed to certain important technical parameters required for coordination of the space services under Appendix **S7**,

resolves

that, based on proposals from administrations and taking into account the results of studies in the Radiocommunication Study Groups and the 1997 Conference Preparatory Meeting (CPM-97), WRC-97 should consider the following matters:

- 1 provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz;
- 2 provision of up to 3.5 MHz of frequency spectrum to the Earth exploration-satellite service (active sensors) in the frequency range 420-470 MHz;
- 3 use of existing allocations by space-based active sensors operating in the Earth exploration-satellite and space research services in frequency bands shared with the radiolocation or radionavigation services, between 1 GHz and 25 GHz, with a view to the possibility of establishing common worldwide primary allocations;
- 4 use of existing allocations in the frequency range from 7 GHz to 20 GHz to the Earth exploration-satellite, meteorological-satellite, space research and space operation services, with a view to the possibility of establishing common worldwide primary allocations to these services in appropriate bands, taking into account Recommendation **706**;
- 5 provision of up to 500 MHz of frequency spectrum around 35 GHz and up to 1 GHz of frequency spectrum around 95 GHz for use by space-based active Earth sensors;
- 6 inclusion of ITU-R approved technical coordination parameters in Appendix **S7**, ~~taking into account Resolution **60** and Recommendation **711**~~, taking into account Resolution [ZZZ].

invites the Radiocommunication Study Groups

to carry out the necessary studies, taking into account the present uses of allocated bands, with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of the Conference,

instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

SUP

RECOMMENDATION 105 (WRC-95)

**Further work by ITU-R on determination of the coordination area
around earth stations operating with geostationary-satellite
networks in the fixed-satellite service and earth stations
providing feeder links to non-geostationary-satellite
networks in the mobile-satellite service operating
in opposite directions of transmission**

SUP

RECOMMENDATION 711

Relating to the coordination of earth stations

TABLE S5-1

MOD

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.15 Non-GSO/ terrestrial	A specific earth station or a typical earth station in respect of terrestrial stations in frequency bands for which a footnote refers to No. S9.11A allocated with equal rights to space and terrestrial services, where the coordination area of the earth station includes the territory of another country	[See Table S5-2] <u>or</u> <u>[frequency bands for which a footnote refers to No. S9.11A]</u>	The coordination area of the earth station covers the territory of another administration	See § 2 of Annex 1 of this Appendix <u>Appendix S7</u>	

MOD

No. S9.16 Terrestrial/ non-GSO	A transmitting station in a terrestrial service within the coordination area of an earth station in a non-GSO network in frequency bands for which a footnote refers to No. S9.11A	[See Table S5-2] <u>or</u> <u>[frequency bands for which a footnote refers to No. S9.11A]</u>	Transmitting terrestrial station is situated within the coordination area of a receiving earth station	See § 2 of Annex 1 of this Appendix	The coordination area of the affected earth station has already been determined using the calculation method of No. S9.15 <u>Appendix S7</u>
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MOD

No. S9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz 100 MHz allocated with equal rights to space and terrestrial services in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. S9.15	Any frequency band allocated to a space service, except those mentioned in the Plans in Appendix S30A	The coordination area of the earth station covers the territory of another administration	Appendix S7 (for earth stations in the radiodetermination satellite service (RDSS) in the bands: 1 610-1 626.5 MHz, 2 483.5-2 500 MHz and 2 500-2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	NOTE—For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used
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MOD

No. S9.17 GSO, non-GSO/ terrestrial (<i>cont.</i>)				2) For receiving earth stations in the meteorological satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming $4/3$ Earth radius	Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices
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MOD

No. S9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of the frequency bands subject to the Plans in Appendix S30A	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	i) For bands in Table S5-2, see § 2 of Annex 1 of this Appendix ii) See Recommendations ITU R IS.847, ITU R IS.848 and ITU R IS.849 Appendix S7	
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MOD

[TABLE S5-1A2]

MOD

Applicability of No. S9.11A for space services

NOTE - Annex 1 contains the relevant coordination thresholds for sharing between the mobile-satellite service (MSS) (space-to-Earth) and terrestrial services ~~as well as the relevant coordination areas for mobile earth stations operating below 3 GHz~~. It also contains the relevant coordination thresholds for sharing between non-GSO MSS feeder links (space-to-Earth) and terrestrial services ~~as well as the relevant coordination areas for earth stations providing feeder links for non-GSO satellites operating in the MSS and for non-GSO FSS earth stations~~.

MOD

[TABLE A5-2]

SUP

[2 **Hard limits]**

SUP

3 Coordination areas for mobile earth stations operating below 3 GHz and earth stations providing feeder links for non-GSO satellites operating in the MSS and for non-GSO FSS earth stations

MOD

S9.17 *f*)¹³ for any specific earth station ~~or~~ typical mobile earth station or typical earth station in the broadcasting-satellite service in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15** and Article 4 of Appendix S30A and the coordination of earth stations in the broadcasting-satellite service which are subject to the Appendix S30 Plans;

MOD

S9.19 *i)* for any transmitting station of a terrestrial service in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to an earth station or earth stations defined within a service area of the broadcasting-satellite service, except where this service is subject to the Appendix **S30** Plans;

MOD

S9.31 The information sent under No. **S9.29** shall also, in the cases covered by Nos. **S9.15**, **S9.17** or **S9.17A**, include a copy of diagrams drawn to appropriate scale indicating, for both transmission and reception, the location of the earth station and its associated coordination area, or the coordination area related to the service area in which it is intended to operate the mobile earth station or earth station in the broadcasting-satellite service except where this service is subject to the Appendix S30 plan, and the data on which the diagrams are based. In respect of terrestrial stations, in the cases covered by Nos. **S9.16**, **S9.18** and **S9.19** the information shall include the locations of terrestrial stations within the coordination area of the relevant earth station.



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A**Chairperson, Working Group 4A****TERMS OF REFERENCE OF SUB-WORKING GROUP 4A-5****SUB-WORKING GROUP 4A-5 (SWG 4A-5) - SIMPLIFICATION OF
COORDINATION PROCEDURE****Terms of reference**

a) Prepare proposed modification to Radio Regulations relating to the following items based on the proposals listed below:

- 1 Date of bringing into use of satellite frequencies
 - 2 Separation of uplink and downlink
 - 3 Coordination trigger
 - 4 Mandatory electronic filing
 - 5 Publication of coordination requests
 - 6 Identification of networks subject to coordination
 - 7 Suspension of BR identification
 - 8 Deletion of API
- b) Other relevant issues.

Proposals

Date of bringing into use of satellite frequencies		
S4 (Annex 2A, A2)	MOD	EUR/13/306, 307
App. S4 (Annex 2A, A2)	MOD	AUS/KOR/INS/J/NZL/107/42
		IRN/126

Separation of uplink and downlink		
S4 (Section D)	SUP	EUR/13/308
App. S4 (Annex 2A, D)	SUP	AUS/KOR/INS/J/NZL/107/43, 44, 45
App. S4 (Annex 2A)	SUP	CAN/24/81
App. S8 (1)	MOD	AUS/KOR/J/NZL/107/56
		INS/105/1
App. S8 (2)	MOD	INS/105/2
App. S8 (2.1)	MOD	INS/105/3
App. S8 (2.2)	MOD	AUS/KOR/J/NZL/107/57
App. S8 (2.2.1.1)	SUP	AUS/KOR/J/NZL/107/58
App. S8 (2.2.1.1)	MOD	INS/105/4
App. S8 (2.2.1.2)	MOD	AUS/KOR/J/NZL/107/59
		INS/105/5
App. S8 (2.2.2)	MOD	AUS/KOR/J/NZL/107/60
App. S8 (2.2.2.1)	SUP	AUS/KOR/J/NZL/107/61
App. S8 (2.2.2.1)	MOD	INS/105/6
App. S8 (2.2.2.2)	MOD	AUS/KOR/J/NZL/107/62
		INS/105/7
App. S8 (2.2.3)	MOD	AUS/KOR/J/NZL/107/63
		INS/105/8
App. S8 (2.3)	SUP	AUS/KOR/J/NZL/107/64
App. S8 (2.3)	MOD	INS/105/9
App. S8 (2.4)	MOD	AUS/KOR/J/NZL/107/65
		INS/105/10
App. S8 (3.1)	SUP	AUS/KOR/J/NZL/107/66
App. S8 (3.1)	MOD	INS/105/11
App. S8 (3.2)	MOD	AUS/KOR/J/NZL/107/67
		INS/105/12
App. S8 (Annex IV, 2)	MOD	AUS/KOR/J/NZL/107/68
App. S8 (Annex IV, 3)	MOD	AUS/KOR/J/NZL/107/69
App. S8 (Annex IV, 4)	MOD	AUS/KOR/J/NZL/107/70
App. S8 (Annex IV)	MOD	INS/105/13

Coordination trigger		
S9.40 e)	MOD	AUS/KOR/INS/J/NZL/107/30
App. S5 (Table S5-1)	MOD	AUS/KOR/INS/J/NZL/107/54, 55 USA/12/159
Res. XXX	ADD	E/F/LUX/NOR/HOL/S/69/1

Mandatory electronic filing, suspension of BR identification, coordination arc, publication of coordination requests, etc.		
S9	MOD	USA/12/153
A.S9.1bis	ADD	USA/12/154
A.S9.5bis (footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/5
S11	MOD	USA/12/155 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/27
A.S11.3bis (footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/28
Res. XXX (BEL/DNK/LIE/LUX/NOR/HOL/SUI/)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/34
A.S11.1bis	ADD	USA/12/156
Res. (RP)	ADD	USA/12/157

Identification of networks subject to coordination		
S9.36 b)	MOD	EUR/13/309 AUS/KOR/INS/J/NZL/107/25
S9.36.2	ADD	EUR/13/310 AUS/KOR/INS/J/NZL/107/26
S9.37	MOD	AUS/KOR/INS/J/NZL/107/27
S9.41	MOD	EUR/13/311
S9.43A	ADD	AUS/KOR/INS/J/NZL/107/33
S9.43B	ADD	AUS/KOR/INS/J/NZL/107/34

Deletion of API		
S9	NOC	AUS/KOR/INS/J/NZL/107/3
S9 (Section I)	MOD	AUS/KOR/INS/J/NZL/107/4 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/3
S9.1	MOD	AUS/KOR/INS/J/NZL/107/5 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/4
S9.1A	ADD	AUS/KOR/INS/J/NZL/107/6 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/6
S9.2	MOD	AUS/KOR/INS/J/NZL/107/7 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/1,7
S9.2B	ADD	AUS/KOR/INS/J/NZL/107/8 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/8
S9 (Sub-Section IA)	SUP	AUS/KOR/INS/J/NZL/107/11 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/9
S9.3	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/2 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/10
S9.4	MOD	AUS/KOR/INS/J/NZL/107/12
S9.5	MOD	AUS/KOR/INS/J/NZL/107/13

S9.5A	SUP	AUS/KOR/INS/J/NZL/107/14 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/11
S9 (Sub-Section IB)	SUP	AUS/KOR/INS/J/NZL/107/15 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/12
S9.5B	SUP	AUS/KOR/INS/J/NZL/107/16 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/13
S9.5B.1	SUP	AUS/KOR/INS/J/NZL/107/17 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/16
S9.5C	SUP	AUS/KOR/INS/J/NZL/107/18 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/14
S9.5D	SUP	AUS/KOR/INS/J/NZL/107/19 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/15
S9 (Section II)	NOC	AUS/KOR/INS/J/NZL/107/20
S9 (Section IIA)	NOC	AUS/KOR/INS/J/NZL/107/21
S9.30	MOD	AUS/KOR/INS/J/NZL/107/22 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/17
S9.30A	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/18
S9.30.1	ADD	AUS/KOR/INS/J/NZL/107/23
S9.30bis	ADD	AUS/KOR/INS/J/NZL/107/24
S9.38	MOD	AUS/KOR/INS/J/NZL/107/28 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/19
S9.39	MOD	AUS/KOR/INS/J/NZL/107/29
S9.40 e)	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/20
S9.41	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/21
S9.51	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/22
S9.52	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/23
S9.52A	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/24
S9.55	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/25
S9.64	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/26
S11	NOC	AUS/KOR/INS/J/NZL/107/35
S11 (Section I)	NOC	AUS/KOR/INS/J/NZL/107/36
S11.44	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/29
S11.44	MOD	AUS/KOR/INS/J/NZL/107/37
S11.44A	MOD	AUS/KOR/INS/J/NZL/107/38 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/30
S11.44B	MOD	AUS/KOR/INS/J/NZL/107/39 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/31
S11.48	MOD	AUS/KOR/INS/J/NZL/107/41 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/32
S11.49	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/33
App. S4	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/33
App. S4 (Annex 2B, A)	SUP	AUS/KOR/INS/J/NZL/107/46
App. S4 (Annex 2B, B)	SUP	AUS/KOR/INS/J/NZL/107/47
App. S4 (Annex 2B, C)	SUP	AUS/KOR/INS/J/NZL/107/48

App. S4 (Annex 2B, D)	SUP	AUS/KOR/INS/J/NZL/107/49
App. S5 1, e)	MOD	AUS/KOR/INS/J/NZL/107/50
App. S5 (Note 3)	MOD	AUS/KOR/INS/J/NZL/107/51
App. S5 (Note 3 <i>bis</i>)	ADD	AUS/KOR/INS/J/NZL/107/52
App. S5 (Note 4)	MOD	AUS/KOR/INS/J/NZL/107/53
Res. TTT	ADD	AUS/KOR/INS/J/NZL/107/71
Res. 49	MOD	AUS/KOR/INS/J/NZL/107/72

Chairperson: Mr J.P. Albuquerque Box 887
Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
Chairperson of Working Group 4A



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A**Chairperson, Working Group 4A****TERMS OF REFERENCE OF SUB-WORKING GROUP 4A-5****SUB-WORKING GROUP 4A-5 (SWG 4A-5) - SIMPLIFICATION OF
COORDINATION PROCEDURE****Terms of reference**

a) Prepare proposed modification to Radio Regulations relating to the following items based on the proposals listed below:

- 1 Date of bringing into use of satellite frequencies
 - 2 Separation of up- and downlink
 - 3 Coordination trigger
 - 4 Mandatory electronic filing
 - 5 Publication of coordination requests
 - 6 Identification of networks subject to coordination
 - 7 Suspension of BR identification
 - 8 Deletion of API
- b) Other relevant issues.

Proposals

Date of bringing into use of satellite frequencies		
S4 (Annex 2A, A2)	MOD	EUR/13/306, 307
App. S4 (Annex 2A, A2)	MOD	AUS/KOR/J/NZL/107/42
		IRN/126

Separation of up- and downlink		
S4 (section D)	SUP	EUR/13/308
App. S4 (Annex 2A, D)	SUP	AUS/KOR/J/NZL/107/43, 44, 45
App. S4 (Annex 2A)	SUP	CAN/24/81
App. S8 (1)	MOD	AUS/KOR/J/NZL/107/56
		INS/105/1
App. S8 (2)	MOD	INS/105/2
App. S8 (2.1)	MOD	INS/105/3
App. S8 (2.2)	MOD	AUS/KOR/J/NZL/107/57
App. S8 (2.2.1.1)	SUP	AUS/KOR/J/NZL/107/58
App. S8 (2.2.1.1)	MOD	INS/105/4
App. S8 (2.2.1.2)	MOD	AUS/KOR/J/NZL/107/59
		INS/105/5
App. S8 (2.2.2)	MOD	AUS/KOR/J/NZL/107/60
App. S8 (2.2.2.1)	SUP	AUS/KOR/J/NZL/107/61
App. S8 (2.2.2.1)	MOD	INS/105/6
App. S8 (2.2.2.2)	MOD	AUS/KOR/J/NZL/107/62
		INS/105/7
App. S8 (2.2.3)	MOD	AUS/KOR/J/NZL/107/63
		INS/105/8
App. S8 (2.3)	SUP	AUS/KOR/J/NZL/107/64
App. S8 (2.3)	MOD	INS/105/9
App. S8 (2.4)	MOD	AUS/KOR/J/NZL/107/65
		INS/105/10
App. S8 (3.1)	SUP	AUS/KOR/J/NZL/107/66
App. S8 (3.1)	MOD	INS/105/11
App. S8 (3.2)	MOD	AUS/KOR/J/NZL/107/67
		INS/105/12
App. S8 (Annex IV, 2)	MOD	AUS/KOR/J/NZL/107/68
App. S8 (Annex IV, 3)	MOD	AUS/KOR/J/NZL/107/69
App. S8 (Annex IV, 4)	MOD	AUS/KOR/J/NZL/107/70

Coordination trigger		
S9.40 e)	MOD	AUS/KOR/J/NZL/107/30
App. S5 (Table S5-1)	MOD	AUS/KOR/J/NZL/107/54, 55 USA/12/159
Res. XXX	ADD	LUX/NOR/HOL/69/1

Mandatory electronic filing, suspension of BR identification, coordination arc, publication of coordination requests etc.		
S9	MOD	USA/12/153
A.S9.1bis	ADD	USA/12/154
A.S9.5bis (footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/5
S11	MOD	USA/12/155 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/27
A.S11.3bis (footnote)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/28
Res. XXX (BEL/DNK/LIE/LUX/NOR/HOL/SUI/)	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/34
A.S11.1bis	ADD	USA/12/156
Res. (RP)	ADD	USA/12/157

Identification of networks subject to coordination		
S9.36 b)	MOD	EUR/13/309 AUS/KOR/J/NZL/107/25
S9.36.2	ADD	EUR/13/310 AUS/KOR/J/NZL/107/26
S9.37	MOD	AUS/KOR/J/NZL/107/27
S9.41	MOD	EUR/13/311
S9.43A	ADD	AUS/KOR/J/NZL/107/33
S9.43B	ADD	AUS/KOR/J/NZL/107/34

Deletion of API		
S9	NOC	AUS/KOR/J/NZL/107/3
S9 (Section I)	MOD	AUS/KOR/J/NZL/107/4 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/3
S9.1	MOD	AUS/KOR/J/NZL/107/5 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/4
S9.1A	ADD	AUS/KOR/J/NZL/107/6 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/6
S9.2	MOD	AUS/KOR/J/NZL/107/7 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/1, 7
S9.2B	ADD	AUS/KOR/J/NZL/107/8 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/8
S9 (Sub-Section IA)	SUP	AUS/KOR/J/NZL/107/11 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/9
S9.3	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/2 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/10
S9.4	MOD	AUS/KOR/J/NZL/107/12
S9.5	MOD	AUS/KOR/J/NZL/107/13

S9.5A	SUP	AUS/KOR/J/NZL/107/14 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/11
S9 (Sub-Section IB)	SUP	AUS/KOR/J/NZL/107/15 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/12
S9.5B	SUP	AUS/KOR/J/NZL/107/16 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/13
S9.5B.1	SUP	AUS/KOR/J/NZL/107/17 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/16
S9.5C	SUP	AUS/KOR/J/NZL/107/18 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/14
S9.5D	SUP	AUS/KOR/J/NZL/107/19 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/15
S9 (Section II)	NOC	AUS/KOR/J/NZL/107/20
S9 (Section IIA)	NOC	AUS/KOR/J/NZL/107/21
S9.30	MOD	AUS/KOR/J/NZL/107/22 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/17
S9.30A	ADD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/18
S9.30.1	ADD	AUS/KOR/J/NZL/107/23
S9.30bis	ADD	AUS/KOR/J/NZL/107/24
S9.38	MOD	AUS/KOR/J/NZL/107/28 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/19
S9.39	MOD	AUS/KOR/J/NZL/107/29
S9.40 e)	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/20
S9.41	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/21
S9.51	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/22
S9.52	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/23
S9.52A	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/24
S9.55	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/25
S9.64	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/26
S11	NOC	AUS/KOR/J/NZL/107/35
S11 (Section I)	NOC	AUS/KOR/J/NZL/107/36
S11.44	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/29
S11.44	MOD	AUS/KOR/J/NZL/107/37
S11.44A	MOD	AUS/KOR/J/NZL/107/38 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/30
S11.44B	MOD	AUS/KOR/J/NZL/107/39 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/31
S11.48	MOD	AUS/KOR/J/NZL/107/41 BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/32
S11.49	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/33
App. S4	MOD	BEL/DNK/LIE/LUX/NOR/HOL/SUI/68/33
App. S4 (Annex 2B, A)	SUP	AUS/KOR/J/NZL/107/46
App. S4 (Annex 2B, B)	SUP	AUS/KOR/J/NZL/107/47
App. S4 (Annex 2B, C)	SUP	AUS/KOR/J/NZL/107/48

App. S4 (Annex 2B, D)	SUP	AUS/KOR/J/NZL/107/49
App. S5 1, e)	MOD	AUS/KOR/J/NZL/107/50
App. S5 (Note 3)	MOD	AUS/KOR/J/NZL/107/51
App. S5 (Note 3 <i>bis</i>)	ADD	AUS/KOR/J/NZL/107/52
App. S5 (Note 4)	MOD	AUS/KOR/J/NZL/107/53
Res. TTT	ADD	AUS/KOR/J/NZL/107/71
Res. 49	MOD	AUS/KOR/J/NZL/107/72

Chairperson: Mr J. P. Albuquerque Box 887
Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
Chairperson of Working Group 4A



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A**Chairperson, Working Group 4A****TERMS OF REFERENCE OF SUB-WORKING GROUPS 4A-6****SUB-WORKING GROUP 4A-6 (SWG 4A-6) - REFINEMENT OF
COORDINATION PROCEDURE****Terms of reference**

a) Prepare proposed modification to Radio Regulations relating to the following items based on the proposals listed below:

- 1 Inclination of an orbit
- 2 Deadline for notification
- 3 S5.43 Category of services
- 4 Definition of frequency assignment
- 5 Impact of delay of publication by BR
- 6 Old circulars and special sections in CD-ROM
- 7 Possible modification to Appendix S5

b) Other relevant issues.

Proposals

Inclination of an orbit		
S1.185	MOD	AUS/KOR/J/NZL/107/1

Deadline for notification		
S11.44	MOD	EUR/13/381
S11.44.1	ADD	EUR/13/382

S5.43 Category of services		
S5.43	MOD	EUR/13/379, 380 CAN/24/104
S5.43A	ADD	CAN/24/104

Definition of frequency assignment		
S8.1.1	MOD	AUS/KOR/J/NZL/107/2

Impact of delay of publication by BR		
S11.44G	MOD	AUS/KOR/J/NZL/107/40

Editorial addition to the Table of AP30/30A		
App. S30 Art. 10 Table 4	ADD	ASP/20/340
App. S30 Art. 11 Section 11.3	ADD	ASP/20/339
App. S30A (Table 2)	MOD	INS/101/1
App. S30A (Table 2A)	MOD	INS/101/2
App. S30A (Table 2B)	MOD	INS/101/3

Old circulars and special sections in CD-ROM		
		F/134/1

Possible modification to Appendix S5		
App. S5 (Table S5-1)	MOD	CAN/24/75
App. S5 (Table S5-1A)	MOD	CAN/24/76, 77
App. S5 (Annex 1, 1 to 1.3)	NOC	CAN/24/78
App. S5 (Annex 1, 2 to 2.5)	SUP	CAN/24/79
App. S5 (Annex 1, 2 to 2.5)	SUP	CAN/24/80
App. S5 (Annex 1, section 2)	SUP	EUR/13/290

Chairperson: Mr P. McGill

Box 82

Secretary: Mr M. Sakamoto

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N. KISRAWI
Chairperson of Working Group 4A



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A**Chairperson, Working Group 4A****TERMS OF REFERENCE OF SUB-WORKING GROUPS 4A-8****SUB-WORKING GROUP 4A-8 (SWG 4A-8) -
PLENIPOTENTIARY RESOLUTION 88****Terms of reference**

- a) Prepare proposed modification to Radio Regulations in reply to PP Resolution 88 based on the proposals listed below.
- b) Other relevant issues.

Proposals

Provision No.	Proposal	Proposal No.
S9 (Section III)	ADD	USA/12/146
S9.2B	MOD	EUR/13/313
S9.2B1	ADD	EUR/13/314
S9.2C	ADD	AUS/KOR/J/NZL/107/9
9.2C.1	ADD	AUS/KOR/J/NZL/107/10
S9.38	MOD	EUR/13/315
S9.38.1	ADD	EUR/13/316
S9.40 <i>bis</i>	ADD	AUS/KOR/J/NZL/107/31
S9.40 <i>bis</i> .1	ADD	AUS/KOR/J/NZL/107/32
S9.70	ADD	USA/12/147
S9.71	ADD	USA/12/148
S9.72	ADD	USA/12/149
S9.73	ADD	USA/12/150
S9.74	ADD	USA/12/151
App. S30 (4.3.6)	MOD	EUR/13/317
App. S30 (4.3.6)	ADD	EUR/13/318
App. S30A (4.2.7)	MOD	EUR/13/319
App. S30A (4.2.7)	ADD	EUR/13/320

App. S30B	MOD	EUR/13/321, 322
Res. (CR-1)	ADD	USA/12/152
		KOR/84/1

Chairperson: Mr D. Spalt Box 344

Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
Chairperson of Working Group 4A



Chairperson, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUP 4A7

Sub-Working Group 4A7 (SWG 4A7) - Plenipotentiary Resolution 87

Terms of reference

- a) Prepare proposed modifications to the Radio Regulations, if any, in reply to PP Resolution 87, based on the proposals listed below.
- b) Other relevant issues.

Proposals

Provision No.	Proposal	Proposal No.
S7.9	ADD	EUR/13/312
		USA/12
S9.1	NOC	IAP/14/291
S9.1.1	NOC	IAP/14/292
S9.6.1	NOC	IAP/14/293
S11.15.1	NOC	IAP/14/294

Chairperson: Mr M. Amero Box 603

Secretary: Mr M. Sakamoto Box 2976

N. KISRAWI
Chairperson, Working Group 4A



Chairperson, Working Group 5C

STRUCTURE OF SUB-WORKING GROUPS

(Documents: see DT/12(Rev.1))

1 Sub-Working Group 5C-1 (Agenda item 1.5)

Scope

- a) To consider possible additional frequency allocations for services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (WRC-97) (Recommendations ITU-R F.1500, F.1501 and SF.1481).
- b) Other relevant issues:
Chairperson: Mr K. Yard (G), Box 1015

2 Sub-Working Group 5C-2 (Agenda items 1.16 and 1.17)

Scope

- a) To consider allocation of frequency bands above 71 GHz to the Earth exploration-satellite (passive) and radio astronomy services, taking into account Resolution 723 (WRC-97).
- b) To consider possible worldwide allocation for the Earth exploration-satellite (passive) and space research (passive) services in the band 18.6-18.8 GHz, taking into account the results of the ITU-R studies.
- c) Other relevant issues:
Chairperson: Mr S. Sayeenathan (IND), Box 757

3 Sub-Working Group 5C-3 (Agenda item 1.4)

Scope

- a) To consider allocations related to WRC-97 Resolutions 126, 128, 129, 133, 134 and 726.

- b) Other relevant issues:
Chairperson: Mr D. Jansky (USA), Box 5

4 Ad hoc Group 1 of Working Group 5C

Scope

Sharing aspects between HDFS systems and SRS (deep space) (space-to-Earth) above 30 GHz.

Chairperson: Ms K. Medley (USA), Box 113

5 Other groups established

Group	Scope	Chairperson	Box No.
DG 5C-1a	Resolution 122 (HAPS)	Mr A. Dixon (UK)	804
DG 5C-2 ad hoc 1	Agenda item 1.16	Mr M. Ohishi (J)	961
DG 5C-3a	Band 55.78-56.26 GHz	Mr B Kaufman (USA)	432
DG 5C-3b	Band 31.8-33.4 GHz	Mr A. Hashimoto (J)	15
DG 5C-3c	Band 37.0-43.5 GHz (pfd limits)	Mr O. Marzouk (F)	2716
DG 5C-3 ad hoc 1	Band 37.0-43.5 GHz (allocations)	Mr D. Jansky (USA)	5

D. JANSKY
Chairperson, Working Group 5C
Box 5

L. CASADO
Secretary, Working Group 5C
Box 2901



Chairperson, Working Group 5C

STRUCTURE OF SUB-WORKING GROUPS

(Documents: see DT/12 (Rev.1))

1 Sub-Working Group 5C1 (Agenda item 1.5)

Scope

- a) To consider possible additional frequency allocations for services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (WRC-97) (Recommendations ITU-R F.1500, F.1501 and SF.1481)
- b) Other relevant issues

Chairperson: Mr. K. Yard (G), Box # 1015

2 Sub-Working Group 5C2 (Agenda items 1.16 and 1.17)

Scope

- a) To consider allocation of frequency bands above 71 GHz to the earth exploration-satellite (passive) and radio astronomy services, taking into account Resolution 723 (WRC-97)
- b) To consider possible worldwide allocation for the earth exploration-satellite (passive) and space research (passive) services in the band 18.6-18.8 GHz, taking into account the results of the ITU-R studies
- c) Other relevant issues

Chairperson: Mr. S. Sayeenathan (IND), Box # 757

3 Sub-Working Group 5C3 (Agenda item 1.4)

Scope

- a) To consider allocations related to WRC-97 Resolutions 126, 128, 129, 133, 134 and 726
- b) Other relevant issues

Chairperson: Mr. D. Jansky (USA), Box # 5

D. JANSKY

Chairperson, Working Group 5C, Box # 5

L. Casado

Secretary, Working Group 5C, Box # 2901



SUB-WORKING GROUP 4B-4

MOD

RESOLUTION 5 (Rev.WRC-2000)

**Relating to technical cooperation with the developing countries in
the study of propagation in tropical areas⁺**

The World ~~Administrative~~ Radiocommunication Conference, ~~Geneva, 1979~~ (Istanbul, 2000),

having noted

that the assistance provided for the developing countries by the Union in cooperation with other United Nations specialized agencies, such as the United Nations Development Programme (UNDP), in the field of telecommunication augurs well for the future,

being aware

- a) of the fact that the developing countries, particularly those in tropical areas, require adequate knowledge of radio wave propagation in their territories in order to make rational and economical use of the radio spectrum;
- b) of the importance of propagation in radiocommunications;
- c) of the importance of the work of ITU-T and ITU-R Study Groups for the development of telecommunications in general and radiocommunications in particular,

considering

- a) the need for the developing countries themselves to study telecommunications in general and propagation in particular in their territories, this being the best means of enabling them to acquire telecommunication techniques and to plan their systems effectively and in conformity with the special conditions in the tropical areas;
- b) the scarcity of resources available in these countries,

⁺ ~~WRC 97 made editorial amendments to this Resolution.~~

resolves to invite the Secretary-General

1 to offer the assistance of the Union to developing countries in the tropical areas which endeavour to carry out national propagation studies in order to improve and develop their radiocommunications;

2 to assist these countries, if necessary with the collaboration of international and regional organizations such as the African ~~Postal and Telecommunications Union (APTU)~~, the ~~Panafriean Telecommunication Union (PATU)~~ and the Union of National Radio and Television Organizations of Africa (URTNA) which may be concerned, in carrying out national propagation measurement programmes, including collecting appropriate meteorological data, on the basis of ITU-R Recommendations and Questions in order to improve the use of the radio spectrum;

3 to arrange funds and resources for this purpose from the UNDP or other sources in order to enable the Union to provide the countries concerned with adequate and effective technical assistance for the purpose of this Resolution,

urges administrations

to submit the results of these propagation measurements to the ITU-R for consideration in its studies,

invites the Council

to follow the progress made in carrying out programmes of propagation measurements and the results achieved, and to take any action that it considers necessary.

MOD

RESOLUTION 20 (~~Mob-87~~Rev.WRC-2000)

**Technical cooperation with developing countries in
the field of aeronautical telecommunications**

~~The World Administrative Radiocommunication Conference for the Mobile Services, Geneva, 1987 (Istanbul, 2000),~~

considering

- a) that the allocations of the frequency bands and the provisions concerning ~~the~~various aeronautical mobile services have been revised several times by recent conferences;
- b) that some of these frequency bands and provisions ~~are intended for~~support the worldwide implementation of new aeronautical telecommunication systems;
- c) that on the other hand, some of these frequency bands and provisions support existing aeronautical systems that may be affected by the revision~~these new systems will employ more advanced techniques, such as satellite communications, in combination with modern information transmission media;~~
- d) that as a consequence of a), b) and c), this technological modernization should serve~~will be necessary to~~ maintain and improve the safety and regularity of international civil aviation, the accuracy and security of aeronautical radionavigation and the efficiency of distress and rescue systems;
- e) that the developing countries may require assistance in improving the training of technical staff, as well as in introducing new systems, in coping with technological modernization and enhancing the operation of aeronautical telecommunications,

recognizing

- a) the value of the assistance which, in conjunction with other international organizations, the Union has provided and may continue to provide to developing countries in the field of telecommunications;
- b) that Resolution 20 (Mob-87) adopted by the World Administrative Radio Conference for the Mobile Services (Geneva, 1987) provides a good basis for technical cooperation with developing countries in the field of aeronautical telecommunications that has been undertaken by the International Civil Aviation Organization,

instructs the Secretary-General

- 1 to encourage the International Civil Aviation Organization (ICAO) to continue its assistance to developing countries which are endeavouring to improve their aeronautical telecommunications, in particular by providing them with technical advice for the planning, establishment, operation and maintenance of equipment, as well as help with the training of staff, essentially in matters relating to the new technologies;
- 2 for this purpose, to seek the continued collaboration of ICAO, the United Nations Conference for Trade and Development (UNCTAD) and other specialized agencies of the United Nations, as appropriate;

~~3~~ ~~to inform ICAO that this Conference has recognized the valuable cooperation provided by that organization to developing countries in its technical assistance programmes;~~

43 to continue to give special attention to seeking the aid of the United Nations Development Programme (UNDP) and other sources of financial support, to enable the Union to render sufficient and effective technical assistance in the field of aeronautical telecommunications,

invites the developing countries

so far as possible, to give a high level of priority to and include in their national programmes of requests for technical assistance projects relating to aeronautical telecommunications and to support multinational projects in that field.

MOD

RESOLUTION 51 (Rev.WRC-972000)

Provisional application of certain provisions of the Radio Regulations as modified by WRC-97 and transitional arrangements Transitional arrangements relating to the advance publication and coordination of satellite networks

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that as a result of the review under Resolution 18 of the Plenipotentiary Conference (Kyoto, 1994), a number of provisions relating to the advance publication, coordination and notification of assignments for satellite networks have been modified and these should be applied provisionally as soon as possible;
- b) that ~~it was~~WRC-97 decided to reduce the regulatory time-frame for bringing a satellite network into use, and to delete the advance publication information (API) if not followed by the coordination data within 24 months of the date of receipt of the API;
- c) that there are a number of satellite networks for which the relevant information has been communicated to ITU prior to the end of ~~this Conference~~WRC-97, and it is necessary to provide for some transitional measures for the treatment of this information by the Radiocommunication Bureau;
- d) that WRC-97 decided that the provisions of Sections I, IA and IB of Article S9 and provisions of Article S11 (Nos. S11.43A, S11.44, S11.44B to S11.44I, S11.47 and S11.48), as revised by WRC-97, shall be applied by the Bureau and by administrations on a provisional basis as of 22 November 1997;
- e) that WRC-97 decided that, for satellite networks which are subject to coordination for which the API has been received by the Bureau prior to 22 November 1997 but the coordination data has not been received by the Bureau prior to this date, the responsible administration shall have until 22 November 1999 or the end of the period pursuant to the application of No. 1056A, whichever date comes earlier, to submit the coordination data in accordance with the applicable provisions of the Radio Regulations; otherwise the Bureau shall cancel the relevant API in accordance with No. 1056A or No. S9.5D as applicable;
- f) that WRC-97 decided that the revised Appendix S4 with respect to the API for satellite networks which are subject to coordination under Section II of Article S9 shall be applied as of 22 November 1997.

resolves

- 1 ~~that the provisions of Sections I, IA and IB of Article S9 and provisions of Article S11 (Nos. S11.43A, S11.44, S11.44B to S11.44I, S11.47 and S11.48), as revised by this Conference, shall be applied by the Bureau and by administrations on a provisional basis as of 22 November 1997;~~

2 ——— that, for satellite networks which are subject to coordination for which the API has been received by the Bureau prior to 22 November 1997 but the coordination data has not been received by the Bureau prior to this date, the responsible administration shall have until 22 November 1999 or the end of the period pursuant to the application of No. **1056A**, whichever date comes earlier, to submit the coordination data in accordance with the applicable provisions of the Radio Regulations; otherwise the Bureau shall cancel the relevant API in accordance with No. **1056A** or No. **S9.5D** as applicable;

3 ——— that, for satellite networks for which the API has been received by the Bureau prior to 22 November 1997, the maximum allowed time period from the date of receipt of the API publication of the Special Section of the Weekly Circular referred to in **S9.2B** to bring the relevant frequency assignments into use shall be six years plus the extension pursuant to No. **1550** of the Radio Regulations (1994 version) (see also Resolution **49 (WRC-97)**);

4 ——— that the revised Appendix **S4** with respect to the API for satellite networks which are subject to coordination under Section II of Article **S9** shall be applied as of 22 November 1997;

5 ——— that, for those networks which are subject to coordination for which the API has been received but not yet published prior to 22 November 1997, the Bureau shall publish only the information of the revised Appendix **S4** as modified by this Conference.

MOD

RESOLUTION 124 (Rev.WRC-972000)

**Protection of the fixed service in the frequency band 8 025-8 400 MHz
sharing with geostationary-satellite systems of the Earth
exploration-satellite service (space-to-Earth)**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that prior to WRC-97, the band 8 025-8 400 MHz was allocated to the Earth exploration-satellite service (space-to-Earth) on a secondary basis in Regions 1 and 3, except for those countries listed in No. **S5.464**;
- b) that the power flux-density limits given in Table **S21-4** of Article **S21** apply to emissions from space stations of the Earth exploration-satellite service (space-to-Earth);
- c) that, for those administrations where the secondary allocation applied before ~~this Conference~~WRC-97, geostationary orbital avoidance was not required for the fixed service and, therefore, the power flux-density limits given in Table **S21-4** of Article **S21** may give rise to excessive interference to the fixed service;
- d) that ~~the administrations identified by No. S5.462A have~~WRC-97 adopted provisional power flux-density limits as specified in No. S5.462A which are lower than those shown in Table S21-4 of Article S21 to protect the fixed service;
- e) that prior to WRC-97, no studies have had been conducted in this frequency band by ITU-R on the power flux-density values to apply to space stations of geostationary-satellite systems in the Earth exploration-satellite service where geostationary orbital avoidance has not been implemented by stations of the fixed service,

considering further

- a) that the band 8 025-8 400 MHz is used extensively by the fixed service in accordance with ITU-R radio-frequency channel arrangements for the 8 GHz band (see Recommendation ITU-R F.386) and is also used by some countries for television outside broadcast applications;
- b) that Recommendation ITU-R F.1502 which was developed in response to Resolution 124 (WRC-97) and approved in 2000 recommends the power flux-density limits different from those in No. S5.462A,

resolves

to invite ITU R to study, as matter of urgency, the required power flux density limits to be applied to space stations of geostationary satellite systems in the Earth exploration satellite service (space to Earth) in the frequency band 8 025-8 400 MHz where geostationary orbital avoidance has not been implemented by the fixed service sharing the band, to invite a future competent world radiocommunication conference to review No. S5.462A, taking into account Recommendation ITU-R F.1502, and to take appropriate action.

urges administrations

to provide ITU R with the necessary technical parameters of fixed service links requiring protection in this frequency band.

MOD

RESOLUTION 127 (Rev.WRC-972000)

Studies relating to consideration of allocations in bands around 1.4 GHz for feeder links of the non-geostationary-satellite systems in the mobile-satellite service with service links operating below 1 GHz

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the agenda of ~~this Conference~~WRC-97 included consideration of the adoption of additional allocations for ~~the non-geostationary (non-GSO) mobile-satellite systems in the mobile-satellite-service (MSS);~~
- b) that the Report of the ~~1997~~1999 Conference Preparatory Meeting (CPM-~~97~~99) stated that the Radiocommunication Bureau has identified ~~at least 2325~~ non-GSO MSS networks ~~as of 26 November 1999~~ at frequencies below 1 GHz, at some stage of coordination under Resolution **46 (Rev.WRC-972000)**, and that many of the proposed networks cannot be implemented in the existing allocations because there is not enough spectrum;
- c) that CPM-97 stated that due to the extreme sensitivity of radio astronomy observations interference from unwanted (spurious and out-of-band) emissions can be a problem, but also noted that interference to radio astronomy can be avoided using various techniques including low-power transmitter levels, choice of modulation, bit shaping, output filtering and band limiting filters, the use of which can minimize the band separation necessary to meet the recommended interference threshold levels for out-of-band emissions;
- ~~d) ——— that, since CPM-97, one administration has carried out additional analyses and hardware demonstrations with a view to determining the feasibility of sharing between non-GSO MSS feeder links and services such as the Earth exploration satellite (passive), radio astronomy and space research (passive) services in bands around 1.4 GHz;~~
- ed) that factors taken into account by ~~these~~post-CPM-97 activities in order to protect the passive services around 1.4 GHz from out-of-band emissions include: the use of narrow-band non-GSO MSS feeder-link transmissions; the use of spectrum-efficient modulation methods, such as Gaussian filtered minimum shift keying, having inherently rapid roll-off of out-of-band emissions; the use, where necessary, of band-pass filters in satellite transmitters and MSS feeder-link transmitting earth stations; and guardbands where necessary;
- fe) that factors taken into account by ~~these~~post-CPM-97 activities concerning sharing with the radiolocation service include the use of conventional techniques that may be applied in MSS satellite receivers, such as intermediate frequency limiters and time diversity, which have long been employed to protect radiolocation receivers, and techniques such as transmitted waveforms employing time diversity, which have been employed to protect receivers in other services from high-power pulsed radar transmitters;

~~d/)~~ that, since CPM-97, ~~one administration has~~ ITU-R studies have been carried out additional analyses and hardware demonstrations containing theoretical analyses with a view to determining the feasibility of sharing between if the operation of non-GSO MSS feeder links and services such as in bands around 1.4 GHz would be compatible with the Earth exploration-satellite (passive), radio astronomy and space research (passive) services in bands around 1.4 GHz;

g) that the theoretical analyses have indicated that sufficient reduction of out-of-band and spurious emissions could be achieved to protect the sensitive science services in nearby bands;

h) that additional tests and measurements of feeder-link transmissions from systems having the characteristics, performance and reliability of equipment that would be used in operational systems are necessary;

i) that such additional tests and measurements will be completed prior to WRC-02/03, recognizing

that the bands near 1.4 GHz are extensively used by many other services operating in accordance with the Radio Regulations, including fixed and mobile services,

noting

a) that Resolution **214 (Rev.WRC-97)** states under *resolves* 1. that further studies are urgently required on operational and technical means to facilitate sharing between non-GSO MSS and other radiocommunication services having allocations and operating below 1 GHz;

~~b) that a former resolution identified issues relating to frequency sharing between the MSS and terrestrial services at frequencies below 3 GHz as being among the urgent studies required in preparation for this Conference;~~

~~c) that one administration performed such studies, which were submitted to ITU-R, but these studies could not be considered due to time limitations;~~

~~d/)~~ that, since WRC-95, ~~one administration has performed~~ ITU-R studies have been carried out on sharing between space and terrestrial services and feeder links near 1.4 GHz for non-GSO MSS systems with service links below 1 GHz,

resolves requests ITU-R, as a matter of urgency,

1 to invite ITU-R, as a matter of urgency, to continue studies, and to carry out additional tests and demonstrations to validate the studies to determine the on operational and technical measures required to facilitate sharing in portions of the band 1 390-1 400 1 393 MHz between existing and currently planned services and feeder links (Earth-to-space) for non-GSO MSS systems with service links operating below 1 GHz;

2 to invite ITU-R, as a matter of urgency, to carry out additional tests and demonstrations to validate the studies to determine on operational and technical means to facilitate sharing, in portions of the band 1 427 1 429-1 432 MHz, between existing and currently planned services and feeder links (space-to-Earth) for non-GSO MSS systems with service links operating below 1 GHz;

3 to invite ITU-R, as a matter of urgency, to study operational and technical measures required carry out additional studies, including the measurement of emissions from equipment that would be employed in operational systems to protect passive services in the band 1 400-1 427 MHz from unwanted emissions from feeder links near 1.4 GHz for non-GSO MSS systems with service links operating below 1 GHz;

resolves

4—~~to invite a future competent conference*~~~~—~~[WRC-02/03] to consider, on the basis of completion of studies referred to in ~~resolves~~requests ITU-R 1, 2 and 3, additional allocations for feeder links on a worldwide basis for non-GSO MSS systems with service links below 1 GHz,

urges administrations

to participate actively in such studies, with the involvement of interested parties.

*—*Note by the Secretariat*—~~See Resolution 722 (WRC-97).~~

MOD

RESOLUTION 728 (Rev.WRC-972000)

**Studies relating to consideration of allocations in the broadcasting
band 470-862 MHz to non-geostationary mobile-satellite services**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the agenda of ~~WRC-97~~this Conference included consideration of the adoption of additional allocations for non-geostationary mobile-satellite services (non-GSO MSSs);
- b) that the Report of the 1997~~9~~ Conference Preparatory Meeting (CPM-97~~9~~) stated that the Radiocommunication Bureau has identified at least [~~23~~22] non-GSO MSS networks [as of 28 April 1999] at frequencies below 1 GHz, at some stage of coordination under Resolution **46**, and that many of the proposed networks cannot be implemented in the existing allocations because there is not enough spectrum;
- c) that CPM-97 considered the protection requirements for analogue television in the band 470-862 MHz against a narrow-band MSS signal in the most sensitive and least sensitive portions of an analogue television channel and the protection requirements for a digital television channel, based on existing Recommendations ITU-R BT.655-4, ITU-R BT.417-4 and ITU-R IS.851-1;
- d) that CPM-97 stated that the protection ratios for a narrow-band interfering signal in the least sensitive parts of an analogue television channel are to be verified by further studies;
- e) that CPM-97 stated the region of lower protection requirements and commensurately higher permissible interfering power flux-density levels as being 100 kHz from the band edges of an analogue television channel, at least in some countries;
- f) that CPM-97 stated that the interfering effects of a non-GSO MSS transmission will depend on its specific characteristics (e.g. duty-cycle, duration, periodicity, etc.), that interference contributions from sources other than MSS (even those from other broadcasting stations) have to be taken into account, that slightly lower values of field strength to be protected may need to be assumed in countries where television networks are relatively sparse, and that studies on sharing are necessary;
- g) that the permissible aggregate interfering power flux-density resulting from these protection requirements, in some portions of an analogue television channel, may be useful in determining the feasibility of sharing with non-GSO MSS transmitter space-to-Earth links;
- h) that these bands are also allocated in part to fixed and mobile terrestrial systems and radionavigation systems;
- i) that, in many countries, the channels assigned for analogue television may also be used for digital television, and that during the period of parallel operation of analogue and digital television networks the usage of this band for television will increase,

noting

- a) that on completion of studies, parts of the bands now allocated to the broadcasting service between 470 MHz and 862 MHz might be considered suitable for worldwide allocation to non-GSO MSS space-to-Earth transmissions;
- b) that the bandwidth required in these television channels may be 1-2% of the total band 470-862 MHz to be shared with the above systems;
- c) the need to protect the radio astronomy service in the band 608-614 MHz against interference from MSS transmissions, including unwanted emissions,

resolves

1 to invite ITU-R to carry out additional studies to determine operational and technical means that may facilitate co-frequency sharing between narrow-band non-GSO MSS (space-to-Earth) transmissions and the services to which the band 470-862 MHz is allocated, including the bands where the broadcasting service is also allocated, and including consideration of digital television systems;

2 to invite ~~a future competent conference~~ [WRC-06] to consider, on the basis of the results of the studies referred to in *resolves* 1, the possibility of making additional allocations on a worldwide basis for non-GSO MSS, taking into account, in particular, *considering h) and i)* above, with a view to considering allocations at a future conference.

urges administrations

to participate actively in such studies, with the involvement of interested parties.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Sub-Working Group 4B-4

DRAFT NOTE
BY THE CHAIRPERSON OF WORKING GROUP 4B
TO THE CHAIRPERSON OF WORKING GROUP 2 OF THE PLENARY

Working Group 4B has reviewed Resolution 124 (WRC-97) and noted that the ITU-R studies in response to this resolution have been completed. These results are presented in Recommendation ITU-R F.1502 which was approved by the 2000 Radiocommunication Assembly (see Document 160). However, Resolution 124 (WRC-97) did not resolve that a future conference review the results of these studies.

Working Group 4B has modified Resolution 124 to correct this oversight and the attention of Working Group 2 of the Plenary is drawn to Resolution 124 (Rev. WRC-2000) in Document [DT/47]

A. ALLISON
Chairperson of Working Group 4B, Box 68



Sub-Working Group 4B-3

MOD

RESOLUTION 27 (Rev.WRC-972000)

**Use of incorporation by referenceReferences to ITU-R and ITU-T
Recommendations in the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the principles of incorporation by reference were adopted by the WRC-95, ~~revised by WRC-97 and further refined~~have been revised by this Conference (see Annexes 1 and 2 to this Resolution);
- b) that there are provisions of the Radio Regulations containing references which ~~employ mandatory incorporation by reference but fail to distinguish adequately whether the status of the referenced text is mandatory or non-mandatory, make explicit reference to the ITU-R or ITU-T Recommendations incorporated;~~
- e) ~~that the 1997 Conference Preparatory Meeting (CPM-97) for this Conference urged administrations to give further consideration to the status of material incorporated by reference:~~
 - ~~———— using the initial assessment provided by the Radiocommunication Bureau in the CPM Report and the set of principles given in Annex 1 to this Resolution;~~
 - ~~———— noting that mandatory references shall be explicit and use the appropriate regulatory language;~~
 - ~~———— taking into account the factors set out in Annex 2 to this Resolution;~~
- d) ~~that the Director of the Radiocommunication Bureau has drawn up a list (see Annex 1 to the CPM Report to this Conference) of the provisions of the Radio Regulations using incorporation by reference, which provides an initial assessment of the status of each reference and forms the basis for the work on appropriate referencing, examples of which are contained in Annex 3 to this Resolution;~~
- e) ~~that the Bureau has drawn up a list, contained in Annex 4 to this Resolution, of the ITU-R Recommendations to which explicit reference is made in the Radio Regulations;~~

noting

that references to Resolutions or Recommendations of a world radiocommunication conference (WRC) require no special procedures, and are acceptable without restriction, since such texts will have been agreed by a WRC.

resolves

1 that for the purposes of the Radio Regulations, the term “incorporation by reference” shall only apply to those references intended to be mandatory;

2 that when introducing new instances of incorporation by reference:

– only texts which are relevant to a specific WRC agenda item may be considered;

– for the correct method of reference, the principles set out in Annex 1 to this Resolution and the guidance contained in Annex 2 to this Resolution shall be applied;

3 that the procedure described in Annex 3 to this Resolution shall be employed during WRCs for the adoption of texts for incorporation by reference;

4 that all texts incorporated by reference at the conclusion of each WRC shall be collated and published in a volume of the Radio Regulations (see Annex 3 to this Resolution),

~~that ITU-R and ITU-T Recommendations incorporated or proposed for incorporation by reference in the provisions of the Radio Regulations be identified and examined at WRC-99, with a view to establishing the correct method of reference in accordance with the principles set out in Annex 1 to this Resolution and taking into account the factors listed in Annex 2 to this Resolution, in order to complete the simplification of the Radio Regulations in respect of incorporation by reference;~~

instructs the Director of the Radiocommunication Bureau

~~to bring this Resolution to the attention of ITU-R and arrange for a review of the provisions of the Radio Regulations containing references to ITU-R or ITU-T Recommendations and propose suitable recommendations to the CPM-99 for inclusion in its Report to WRC-99, using the list of provisions contained in Annex 3 to this Resolution together with the guidance contained in Annexes 1 and 2 to this Resolution, and taking into account the list of ITU-R Recommendations contained in Annex 4 to this Resolution,~~

urges administrations

to prepare proposals to future conferences to clarify the status of references where there remain ambiguities regarding the mandatory or non-mandatory status of those references where those references are relevant to specific agenda items~~use the CPM Report to WRC-99 in order to prepare their proposals on incorporation by reference to that Conference.~~

MOD

ANNEX 1 TO RESOLUTION 27 (Rev.WRC-972000)

Principles of incorporation by reference

1 For the purposes of the Radio Regulations, the term “incorporation by reference” shall apply only to those references intended to be mandatory.

2 Where the relevant texts are brief, the referenced material should be placed in the body of the Radio Regulations rather than using incorporation by reference.

3 Texts which are of a non-mandatory nature or which refer to other texts of a non-mandatory nature shall not be considered for incorporation by reference.

~~1 Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference could, for example, be made to “the latest version” of a Recommendation.~~

~~2 Mandatory references to Resolutions or Recommendations of a world radiocommunication conference (WRC) are acceptable without restriction, since such texts will have been agreed by a WRC.~~

~~3 Where mandatory references are suggested, and the relevant texts are brief, the referenced material should be incorporated in the body of the Radio Regulations.~~

4 If, on a case-by-case basis, it is decided to incorporate material by reference on a mandatory basis, then the following provisions shall apply:

4.1 ~~the referenced text~~ incorporated by reference shall have the same treaty status as the Radio Regulations themselves;

4.2 the reference must be explicit, specifying the specific part of the text (if appropriate) and the version or issue number;

4.3 ~~the referenced text~~ incorporated by reference must be adopted by the Plenary of a competent WRC, but ~~should need~~ not be published as a conference document or part of the Final Acts;

4.4 all texts incorporated by reference ~~must~~ shall be ~~readily available~~ published following a WRC, by being published in a separate volume; in accordance with resolves 4.

~~4.5 If, between WRCs, a referenced text incorporated by reference (e.g. an ITU-R Recommendation) is updated, the reference in the Radio Regulations shall continue to apply to the original earlier version incorporated by reference until such time as a competent WRC agrees to incorporate the new version of the reference. The mechanism for considering such a step is given in Resolution 28 (Rev.WRC-952000).~~

6 Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference should be made using the terminology “the most recent version” of a Recommendation.

MOD

ANNEX 2 TO RESOLUTION 27 (Rev.WRC-972000)

~~Factors to be considered for the further a~~Application of incorporation by reference

~~In reviewing~~When introducing new instances of incorporation by reference into the provisions of the Radio Regulations ~~or reviewing existing instances of incorporation by reference,~~employing references to other texts, administrations and ~~ITU-R study groups~~ should address the following factors in order to ensure that the correct style of reference is employed for the intended purpose:

- 1 whether each reference is mandatory, i.e. incorporated by reference, or non-mandatory;
- 2 ~~whether in existing non-mandatory references, or mandatory references which are determined to be of non-mandatory character, appropriate linking language is used, e.g. the words “should” or “may”;~~
- 3 ~~whether in existing mandatory references shall use, or other types of reference which are determined to be of mandatory character, clear mandatory linking language is used, e.g. the word i.e. “shall”;~~
- 3 non-mandatory references, or ambiguous references that are determined to be of a non-mandatory character, shall use appropriate linking language, e.g. “should” or “may”;
- 4 mandatory references shall be explicitly and specifically identified, e.g. “Recommendation ITU-R M.541-8”;
- 5 if the intended reference material is, as a whole, unsuitable as treaty text, the reference shall be limited to just those portions of the material in question which are of a suitable nature, e.g. “Annex A to Recommendation ITU-R Z.123-4” or “pfd in Table X of Recommendation ITU-R Y.543-2”;
- 4 ~~whether the incorporated ITU R or ITU T Recommendation(s) are explicitly identified;~~
- 5 ~~where referenced ITU R or ITU T Recommendations are not explicitly identified, determine which ones should be identified;~~
- 6 ~~whether text incorporated from ITU R or ITU T Recommendations should be placed directly in the Radio Regulations instead of using incorporation by reference;~~
- 7 ~~if the ITU R or ITU T Recommendation to be incorporated is, as a whole, unsuitable as treaty status text, whether to limit the reference to those portions of the ITU R or ITU T Recommendation which are of a suitable nature or to place the mandatory portion directly in the Radio Regulations.~~

SUP

ANNEX 3 TO RESOLUTION 27 (Rev.WRC-97)
**Provisions of the Radio Regulations referring to ITU-R and
ITU-T Recommendations**

ADD

ANNEX 3 TO RESOLUTION 27 (Rev.WRC-2000)
WRC procedures for adoption of texts for incorporation by reference

WRC-97 established the precedent of handling texts of ITU-R Recommendations incorporated by reference without reproducing them in full as conference documents (see Document WRC97/157). It is necessary and sufficient that the referenced texts be made available to delegations in sufficient time for all administrations to consult the referenced texts in their final English, Spanish and French versions. A copy of the texts will be made available to each administration upon its request.

During the course of each WRC a list of the texts incorporated by reference shall be developed and maintained by the working committees. This list shall be published as a conference document in line with developments during the conference. [The Editorial Committee shall monitor this process and report any deficiencies.]

By adoption of the linking reference provisions at second reading, and provided that the referenced text is available for delegates to consult, as stated above, the plenary meeting will be deemed to have formally adopted the referenced text.

Following the end of each WRC, the Bureau and General Secretariat will update the volume of the Radio Regulations serving as the repository of texts incorporated by reference in line with developments at the conference as recorded in the above-mentioned document.

SUP

ANNEX 4 TO RESOLUTION 27 (Rev.WRC-97)
List of ITU-R Recommendations referred to in the Radio Regulations¹

MOD

RESOLUTION 28 (Rev.WRC-952000)

**Revision of references to ITU-R Recommendations incorporated
by reference in the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a) that the Voluntary Group of Experts on simplification of the Radio Regulations (VGE) proposed the transfer of certain texts of the Radio Regulations to other documents, especially to ITU-R Recommendations, using the incorporation by reference procedure;
- b) that, in some cases, the provisions of the Radio Regulations imply an obligation on Member States[‡] to conform to the criteria or specifications incorporated by reference;
- c) that references to incorporated texts shall be explicit and shall refer to a precisely identified provision (see Resolution 27 (Rev.WRC-2000));
- d) that the texts of ITU-R Recommendations incorporated by reference are contained in a separate volume of the Radio Regulations;
- ~~e) that, taking into account the rapid evolution of technology, ITU-R may revise the ITU-R Recommendations incorporated by reference at short intervals;~~
- ~~e) that revised and approved Recommendations will not have the same legal force as the initial Recommendations, incorporated by reference until a competent world radiocommunication conference has so decided;~~
- f) that following revision of an ITU-R Recommendation incorporated by reference, the reference in the Radio Regulations shall continue to apply to the earlier version until such time as a competent WRC agrees to incorporate the new version;
- ~~fg) that it would be desirable to ensure, that the texts incorporated by reference in the cases provided for in the Radio Regulations, that the provisions reflect the most recent technical developments,~~

noting

- a) that administrations need sufficient time to examine the consequences of any changes to ITU-R Recommendations already incorporated by reference and would therefore benefit greatly from being advised, as early as possible, of which ITU-R Recommendations have been revised and approved during the elapsed study period;
- b) that the principles set out in Resolution 27 (Rev.WRC-2000) are intended to ensure that references to material serving a mandatory purpose are accurate, up-to-date and appropriate,

resolves

- 1 that each Radiocommunication Assembly shall communicate to the following world radiocommunication conference a list of the ITU-R Recommendations incorporated by reference in the Radio Regulations which have been revised and approved during the elapsed study period;
- 2 that, on this basis, the WRC shall examine those revised ITU-R Recommendations, and decide whether or not to update the corresponding references in the Radio Regulations;

3 that, if the WRC decides not to update the corresponding references, the current referenced version shall be maintained in the Radio Regulations~~ITU-R shall continue publishing the ITU-R Recommendations currently referenced in the Radio Regulations;~~

4 that WRCs shall place the examination of ITU-R Recommendations in conformity with *resolves* 1 and *resolves* 2 of this Resolution on the agenda of future WRCs,

instructs the Director of the Radiocommunication Bureau

to provide the CPM immediately preceding each WRC with a list, for inclusion in the CPM Report, of those texts already incorporated by reference that have been revised or approved since the previous WRC, or that may be revised in time for the approaching WRC,

urges administrations

1 _____ to participate actively in the work of the Radiocommunication Study Groups and the Radiocommunication Assembly in the revision of those Recommendations to which mandatory references are made in the Radio Regulations;

2 _____ to examine any indicated revisions of ITU-R Recommendations incorporated by reference and to prepare proposals on possible updating of relevant references in the Radio Regulations.



SUB-WORKING GROUP 4B-3

MOD

RESOLUTION 27 (Rev.WRC-972000)

**Use of incorporation by reference ~~References to ITU-R and ITU-T~~
Recommendations in the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1997~~ Istanbul, 2000),

considering

- a) that the principles of incorporation by reference were adopted by the WRC-95, revised by WRC-97 and further refined ~~have been revised by this Conference (see Annexes 1 and 2 to this Resolution);~~
- b) that there are provisions of the Radio Regulations containing references which ~~employ mandatory incorporation by reference but fail to distinguish adequately whether the status of the referenced text is mandatory or non-mandatory, make explicit reference to the ITU-R or ITU-T Recommendations incorporated;~~
- e) ~~that the 1997 Conference Preparatory Meeting (CPM-97) for this Conference urged administrations to give further consideration to the status of material incorporated by reference:~~
 - ~~———— using the initial assessment provided by the Radiocommunication Bureau in the CPM Report and the set of principles given in Annex 1 to this Resolution;~~
 - ~~———— noting that mandatory references shall be explicit and use the appropriate regulatory language;~~
 - ~~———— taking into account the factors set out in Annex 2 to this Resolution;~~
- d) ~~that the Director of the Radiocommunication Bureau has drawn up a list (see Annex 1 to the CPM Report to this Conference) of the provisions of the Radio Regulations using incorporation by reference, which provides an initial assessment of the status of each reference and forms the basis for the work on appropriate referencing, examples of which are contained in Annex 3 to this Resolution;~~

~~e) — that the Bureau has drawn up a list, contained in Annex 4 to this Resolution, of the ITU-R Recommendations to which explicit reference is made in the Radio Regulations,~~

noting

that references to Resolutions or Recommendations of a world radiocommunication conference (WRC) require no special procedures, and are acceptable without restriction, since such texts will have been agreed by a WRC.

resolves

1 that for the purposes of the Radio Regulations, the term “incorporation by reference” shall only apply to those references intended to be mandatory;

2 that when introducing new instances of incorporation by reference:

- only texts which are relevant to a specific WRC agenda item may be considered;
- for the correct method of reference, the principles set out in Annex 1 to this Resolution and the guidance contained in Annex 2 to this Resolution shall be applied;

3 that the procedure described in Annex 3 to this Resolution shall be employed during WRCs for the adoption of texts for incorporation by reference;

4 that all texts incorporated by reference at the conclusion of each WRC shall be collated and published as a separate volume of the Radio Regulations (see Annex 3 to this Resolution).

~~that ITU-R and ITU-T Recommendations incorporated or proposed for incorporation by reference in the provisions of the Radio Regulations be identified and examined at WRC 99, with a view to establishing the correct method of reference in accordance with the principles set out in Annex 1 to this Resolution and taking into account the factors listed in Annex 2 to this Resolution, in order to complete the simplification of the Radio Regulations in respect of incorporation by reference;~~

instructs the Director of the Radiocommunication Bureau

~~to bring this Resolution to the attention of ITU-R, arrange for a review of the provisions of the Radio Regulations containing references to ITU-R or ITU-T Recommendations and propose suitable recommendations to the CPM 99 for inclusion in its Report to WRC 99, using the list of provisions contained in Annex 3 to this Resolution together with the guidance contained in Annexes 1 and 2 to this Resolution, and taking into account the list of ITU-R Recommendations contained in Annex 4 to this Resolution,~~

urges administrations

~~to prepare proposals to future conferences to clarify the status of references where there remain ambiguities regarding the mandatory or non-mandatory status of those references where those references are relevant to specific agenda items use the CPM Report to WRC 99 in order to prepare their proposals on incorporation by reference to that Conference.~~

MOD

ANNEX 1 TO RESOLUTION 27 (Rev.WRC-972000)

Principles of incorporation by reference

1 For the purposes of the Radio Regulations, the term “incorporation by reference” shall apply only to those references intended to be mandatory.

2 Where the relevant texts are brief, the referenced material should be placed in the body of the Radio Regulations rather than using incorporation by reference.

3 Texts which are of a permissive nature or which refer to other texts of a permissive nature are not suitable for incorporation by reference.

~~1 Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference could, for example, be made to “the latest version” of a Recommendation.~~

~~2 Mandatory references to Resolutions or Recommendations of a world radiocommunication conference (WRC) are acceptable without restriction, since such texts will have been agreed by a WRC.~~

~~3 Where mandatory references are suggested, and the relevant texts are brief, the referenced material should be incorporated in the body of the Radio Regulations.~~

4 If, on a case-by-case basis, it is decided to incorporate material by reference on a mandatory basis, then the following provisions shall apply:

4.1 ~~the referenced text~~ incorporated by reference shall have the same treaty status as the Radio Regulations themselves;

4.2 the reference must be explicit, specifying the specific part of the text (if appropriate) and the version or issue number;

4.3 ~~the referenced text~~ incorporated by reference must be adopted by the Plenary of a competent WRC, but ~~should need~~ not be published as a conference document or part of the Final Acts;

4.4 all texts incorporated by reference ~~must~~ shall be readily available following a WRC, by being published in a separate volume of the Radio Regulations;

~~4.5 If, between WRCs, a referenced text incorporated by reference (e.g. an ITU-R Recommendation) is updated, the reference in the Radio Regulations shall continue to apply to the original earlier version incorporated by reference until such time as a competent WRC agrees to incorporate the new version of the reference. The mechanism for considering such a step is given in Resolution 28 (Rev.WRC-952000).~~

6 Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference should be made using the terminology “the most recent version” of a Recommendation.

MOD

ANNEX 2 TO RESOLUTION 27 (Rev.WRC-972000)

~~Factors to be considered for the further a~~Application of incorporation by reference

~~In reviewing~~When introducing new instances of incorporation by reference into the provisions of the Radio Regulations ~~or reviewing existing instances of incorporation by reference,~~employing references to other texts, administrations and ~~ITU-R study groups~~ should address the following factors in order to ensure that the correct style of reference is employed for the intended purpose:

1 whether each reference is mandatory, i.e. incorporated by reference, or non-mandatory;

2 ~~whether in existing non-mandatory references, or mandatory references which are determined to be of non-mandatory character, appropriate linking language is used, e.g. the words “should” or “may”;~~

3 ~~whether in existing mandatory references shall use, or other types of reference which are determined to be of mandatory character, clear mandatory linking language is used, e.g. the word i.e. “shall”;~~

3 non-mandatory references, or ambiguous references that are determined to be of a non-mandatory character, shall use appropriate linking language, e.g. “should” or “may”;

4 mandatory references shall be explicitly and specifically identified, e.g. “Recommendation ITU-R M.541-8”;

5 if the intended reference material is, as a whole, unsuitable as treaty text, the reference shall be limited to just those portions of the material in question which are of a suitable nature, e.g., “Annex A to ITU-R Recommendation Z.123-4” or “pfd. in Table X of Recommendation ITU-R Y.543-2”;

4 ~~whether the incorporated ITU-R or ITU-T Recommendation(s) are explicitly identified;~~

5 ~~where referenced ITU-R or ITU-T Recommendations are not explicitly identified, determine which ones should be identified;~~

6 ~~whether text incorporated from ITU-R or ITU-T Recommendations should be placed directly in the Radio Regulations instead of using incorporation by reference;~~

7 ~~if the ITU-R or ITU-T Recommendation to be incorporated is, as a whole, unsuitable as treaty status text, whether to limit the reference to those portions of the ITU-R or ITU-T Recommendation which are of a suitable nature or to place the mandatory portion directly in the Radio Regulations.~~

SUP

ANNEX 3 TO RESOLUTION 27 (Rev.WRC-97)
**Provisions of the Radio Regulations referring to ITU-R and
ITU-T Recommendations**

ADD

ANNEX 3 TO RESOLUTION 27 (Rev.WRC-2000)
WRC procedures for adoption of texts for incorporation by reference

In accordance with **RoP40**, WRC-97 established the precedent of handling texts of ITU-R Recommendations incorporated by reference without reproducing them in full as conference documents (see Document WRC97/157). It is necessary and sufficient that the delegations participating in the plenary meeting should have been provided access to consult the referenced texts in their final English, Spanish and French versions.

During the course of each WRC a list of the texts incorporated by reference shall be developed and maintained by the working committees. This list shall be published as a conference document in line with developments during the conference. The Editorial Committee shall monitor this process and report any deficiencies.

By adoption of the linking reference provisions at second reading, and provided that the referenced text is available for delegates to consult, the plenary meeting will be deemed to have formally adopted the referenced text.

Following the end of each WRC, the Bureau and General Secretariat will update the volume of the Radio Regulations serving as the repository of texts incorporated by reference in line with developments at the conference as recorded in the above-mentioned document.

SUP

ANNEX 4 TO RESOLUTION 27 (Rev.WRC-97)
List of ITU-R Recommendations referred to in the Radio Regulations¹

MOD

RESOLUTION 28 (Rev.WRC-952000)

**Revision of references to ITU-R Recommendations incorporated
by reference in the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a) that the Voluntary Group of Experts on simplification of the Radio Regulations (VGE) proposed the transfer of certain texts of the Radio Regulations to other documents, especially to ITU-R Recommendations, using the incorporation by reference procedure;
- b) that, in some cases, the provisions of the Radio Regulations imply an obligation on Member States[‡] to conform to the criteria or specifications incorporated by reference;
- c) that references to incorporated texts shall be explicit and shall refer to a precisely identified provision (see Resolution 27 (Rev.WRC-2000));
- d) that the texts of ITU-R Recommendations incorporated by reference are contained in a separate volume of the Radio Regulations;
- ~~e) that, taking into account the rapid evolution of technology, ITU-R may revise the ITU-R Recommendations incorporated by reference at short intervals;~~
- ~~e) that revised and approved Recommendations will not have the same legal force as the initial Recommendations, incorporated by reference until a competent world radiocommunication conference has so decided;~~
- f) that following revision of an ITU-R Recommendation incorporated by reference, the reference in the Radio Regulations shall continue to apply to the earlier version until such time as a competent WRC agrees to incorporate the new version;
- ~~fg) that it would be desirable to ensure, that the texts incorporated by reference in the cases provided for in the Radio Regulations, that the provisions reflect the most recent technical developments,~~

noting

- a) that administrations need sufficient time to examine the consequences of any changes to ITU-R Recommendations already incorporated by reference and would therefore benefit greatly from being advised, as early as possible, of which ITU-R Recommendations have been revised and approved during the elapsed study period;
- b) that the principles set out in Resolution 27 (Rev.WRC-2000) are intended to ensure that references to material serving a mandatory purpose are accurate, up-to-date and appropriate,

resolves

- 1 that each Radiocommunication Assembly shall communicate to the following world radiocommunication conference a list of the ITU-R Recommendations incorporated by reference in the Radio Regulations which have been revised and approved during the elapsed study period;
- 2 that, on this basis, the WRC shall examine those revised ITU-R Recommendations, and decide whether or not to update the corresponding references in the Radio Regulations;

3 that, if the WRC decides not to update the corresponding references, the current referenced version shall be maintained in the Radio Regulations~~ITU-R shall continue publishing the ITU-R Recommendations currently referenced in the Radio Regulations;~~

4 that WRCs shall place the examination of Recommendations in conformity with *resolves 1* and *resolves 2* of this Resolution on the agenda of future WRCs,

instructs the Director of the Radiocommunication Bureau

to provide the CPM immediately preceding each WRC with a list, for inclusion in the CPM Report, of those texts already incorporated by reference that have been revised or approved since the previous WRC, or that may be revised in time for the approaching WRC,

urges administrations

1 _____ to participate actively in the work of the Radiocommunication Study Groups and the Radiocommunication Assembly in the revision of those Recommendations to which mandatory references are made in the Radio Regulations;

2 _____ to examine any indicated revisions of ITU-R Recommendations incorporated by reference and to prepare proposals on possible updating of relevant references in the Radio Regulations.



Report by the Chairperson of Sub-Working Group 4A-9

At its meeting on 17 May 2000, the Sub-Working Group considered the revised text of Resolution 80 (WRC-97).

The text agreed following the various comments made is submitted below, for consideration in Working Group 4A.

N. CALDERON
Chairperson, Sub-Working Group 4A-9
Box 2557

RESOLUTION 80 (Rev.WRC-972000)

Due diligence in applying the principles embodied in the Constitution

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that Articles 12 and 44 of the Constitution (~~Geneva, 1992~~Minneapolis, 1998) lay down the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite orbit and associated orbits;
- b) that those principles have been incorporated in the Radio Regulations through No. **S0.3**;
- c) that, in accordance with Nos. **S11.30**, **S11.31** and **S11.31.2**, notices shall be examined with respect to the provisions of the Radio Regulations, including the provision relating to the basic principles, appropriate rules of procedure being developed for the purpose;
- d) that the Board, after examining the Radio Regulations, reached the conclusion that there are no provisions currently in the Radio Regulations that link the formal notification or coordination procedures with the principles stated in S0.3 of the preamble to the Regulations;
- e) that the Committee on the Peaceful Uses of Outer Space of the Legal Subcommittee of the United Nations General Assembly has drawn up recommendations in this respect in document A/AC.105/C.2/L.221,

noting

- a) that in accordance with the provisions of No. 127 of the Convention the Conference may give instructions to the Sectors of the Union;
- b) that according to No. 160C of the Convention, the Radiocommunication Advisory Group shall review any matter as directed by a conference,

resolves

- 1 ~~to instruct the Radio Regulations Board, as a matter of urgency and within the framework of Nos. S11.30, S11.31 and S11.31.2, to develop the rules of procedure to be followed in examining due compliance with the principles reflected in No. S0.3 in the process leading up to the recording of frequency assignments in the International Frequency Register. These rules shall be applied from a date to be decided by WRC-99;~~
- 1 to instruct the Radiocommunication Advisory Group to carry out studies and draw up draft provisions that link the formal notification, coordination and registration procedures with the principles stated in S0.3 of the preamble to the Radio Regulations. The study should take into account the following:

1.1 the recommendations of the Committee on the Peaceful Uses of Outer Space of the Legal Subcommittee of the United Nations General Assembly, in particular:

- “(a) Where coordination is required between countries with a view to the utilization of satellite orbits, including the geostationary satellite orbit, the countries concerned should take into account the fact that access to that orbit must take place, *inter alia*, in an equitable manner and according to the ITU Radio Regulations. Consequently, in the case of comparable requests for access to the spectrum/orbit resource by a country already having access to the orbit/spectrum resource and a developing country or another country seeking it, the country already having such access should take all practicable steps to enable the developing country or other country to have equitable access to the requested orbit/spectrum resource;
- (b) Countries wishing to use frequencies and satellite orbits, including the geostationary satellite orbit, in the above-mentioned cases file such requests according to the relevant provisions of the ITU Radio Regulations, taking into account resolution 18 of the ITU Plenipotentiary Conference (Kyoto, 1994) and resolution 49 of the ITU World Radiocommunication Conference (Geneva, 1997) in order to guarantee effective use of the orbit/spectrum resource;”

1.2 the report of the Board according to which developing countries may experience difficulties relating to the following aspects:

- the “first come first served” concept restricts and sometimes prevents access and use of certain frequency bands and orbit positions;
- a relative disadvantage for developing countries in coordination negotiations due to various reasons such as a lack of resources and expertise;
- perceived differences in consistency of application of the Radio Regulations;
- the submitting of “paper” satellites that restricts access options;
- the growing use of the bands of the Plans of Appendices **S30** and **S30A** by regional, multichannel systems, which may modify the main purpose of these Plans to provide equitable access to all countries;
- the considerable processing delays in the Radiocommunication Bureau are due to the very complex procedures required and the large number of filings submitted. These delays contribute to a coordination backlog of 18 months which could extend to three years and creates uncertain regulatory situations, additional delay in the coordination process that cannot be overcome by administrations, and the possible loss of the assignment because the allotted time is exceeded;
- satellite systems may already be in orbit before completion of coordination;
- statutory time-frames, such as in **S11.48**, may often be insufficient for developing countries to be able to complete the regulatory requirements as well as the design, construction and launch of satellite systems;
- no provisions for international monitoring to confirm the bringing into use of satellite networks (assignments and orbits),

invites

the Radio Regulations Board and other organs of the Sector to make contributions,

instructs

21 ~~that the Board~~ Director of the Radiocommunication Bureau shall to circulate the draft ~~of these rules of procedure~~ provisions to administrations by 31 ~~October 1998~~ December 2001 with a view to receiving comments by 31 March ~~1999~~ 2002;

32 ~~that the Board~~ Director of the Radiocommunication Bureau shall to submit to WRC-~~99~~ 03 a detailed report on the action taken on this Resolution.



Chairperson, Drafting Group 5B-2A

PROPOSED MODIFICATIONS TO ARTICLE S5 OF THE RADIO REGULATIONS

Following the discussions that were held in Drafting Group 5B-2A dealing with new allocations to RNSS under agenda item 1.15.1, the following proposal to allocate the band 5 000-5 030 MHz to RNSS is conveyed to Drafting Group 5B-2 for consideration at its next meeting.

Vincent MEENS
Chairperson, Drafting Group 5B-2A
Box 264

ARTICLE S5

MOD

4 800-5 830 MHz

Allocation to services		
Region 1	Region 2	Region 3
5 000-5 150	AERONAUTICAL RADIONAVIGATION S5.367 <u>MOD</u> S5.444 S5.444A <u>ADD</u> S5.444B S5.444C	

MOD

S5.444 The band ~~5 000~~5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. **S5.444A** and Resolution **114 (WRC-95)** apply.

ADD

S5.444B *Additional allocation:* The band 5 000-5 010 MHz is also allocated to the radionavigation-satellite service (Earth-to-space) on a primary basis. For the use of that band Resolution **COM 5B-X (WRC-2000)** applies.

ADD

S5.444C *Additional allocation:* The band 5 010-5 030 MHz is also allocated to the radionavigation-satellite service (space-to-Earth) (space-to-space) on a primary basis. In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz the aggregate power flux-density radiated in bands above 5 030 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) (space-to-space) operating in the band 5 010-5 030 MHz shall not exceed the level of $-124.5 \text{ dB(W/m}^2\text{)}$ in 150 kHz. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, the aggregate power flux-density radiated in the 4 990-5 000 MHz band by all the space stations within any RNSS (space-to-Earth) (space-to-space) system operating in the 5 010-5 030 MHz band shall not exceed the level of $-171 \text{ dB(W/m}^2\text{)}$ in a 10 MHz bandwidth into any radio astronomy observatory site for more than 2% of the time. For the use of this band Resolution **COM 5B-Y (WRC-2000)** applies.

ADD

RESOLUTION COM 5B-X (WRC-2000)

Studies on compatibility between stations of the radionavigation-satellite service (RNSS) (Earth-to-space) operating in the frequency band 5 000-5 010 MHz, and the international standard system (microwave landing system) operating in the 5 030-5 150 MHz band

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that the aeronautical radionavigation service is allocated on a primary basis in the band 5 000-5 250 MHz;
- b) that WRC-2000 added a primary allocation to the radionavigation-satellite service (Earth-to-space) in the 5 000-5010 MHz band;
- c) that the band 5 030 to 5 150 MHz is to be used for the operation of the international standard MLS for precision approach and landing. The requirements for this system shall take precedence over other uses of this band as per footnote **S5.444**;
- d) that unwanted emissions from the RNSS stations may fall into the frequency band used by the MLS;
- e) that studies to determine the compatibility between these RNSS transmitters and the MLS receivers operated on board aircraft used during approach and landing have not been carried out;
- f) that the MLS can be well-protected through the implementation of an adequate separation distance between the stations of the RNSS (Earth-to-space) transmitter and the MLS receiver, and other mitigation techniques,

requests ITU-R

to conduct as a matter of urgency, the appropriate technical, operational and regulatory studies to ensure that stations of the RNSS (Earth-to-space) do not cause harmful interference to the operation of the international standard MLS, and to develop, if needed, appropriate Recommendations,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

requests the Secretary General

to bring this Resolution to the attention of ICAO.

ADD

RESOLUTION COM 5B-Y (WRC-2000)

**Studies on compatibility between the radionavigation-satellite service (RNSS)
(space-to-Earth) (space-to-space) operating in the frequency band
5 010-5 030 MHz, and the radio astronomy service (RAS)
operating in the band 4 990-5 000 MHz**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that new radiocommunication services are developing, many of which require satellite transmitters, and need to be allocated sufficient spectrum;
- b) that research in radio astronomy depends critically upon the ability to make observations at the extreme limits of sensitivity and/or precision;
- c) that transmissions from RNSS space stations in the frequency band 5 010 to 5 030 MHz near the radio astronomy service operating in the band 4 990-5 000 MHz may cause interference harmful to the radio astronomy service;
- d) that Recommendation ITU-R RA.769-1 recommends, *inter alia*, that all practicable steps be taken to reduce to the absolute minimum all unwanted emissions falling into RAS bands, particularly those emissions from aircraft, spacecraft and balloons;
- e) that protection requirements of RAS are explained and interference threshold values detailed in the Annex to Recommendation ITU-R RA.769-1;
- f) that different coupling mechanisms apply to interfering emissions from terrestrial transmitters or from transmitters on board GSO or non-GSO satellites;
- g) that WRC-97* has revised Recommendation 66, which asks to study those frequency bands and instances where, for technical or operational reasons, out-of-band limits may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;
- [h]** that provisional limits of pfd values for space service applications in several new footnotes have been agreed which require verification and possible amendment;]
- i) that administrations may require criteria to protect RAS from interference detrimental to radio astronomy observations from transmissions space-to-Earth by space stations,

noting

- a) that this Conference has adopted footnotes **S5.444C** specifying a provisional pfd limit in the band 4 990-5 000 MHz, for space-to-Earth out-of-band emissions of the RNSS operating in the band 5 010-5 030 MHz;

* Recommendation 66 may be modified at this Conference and consequential changes may need to be introduced in this *considering*.

** This *considering* may need to be revisited depending on the decision taken by this Conference on the applicability of provisional pfd values in other proposed RNSS bands.

b) that the general problem of protection of radio astronomy and passive services is under study in ITU-R *inter alia* in response to Recommendation 66,

requests ITU-R

1 to conduct, or continue to conduct, as a matter of urgency and in time for consideration by WRC-03, the appropriate technical, operational and regulatory studies to review the provisional pfd limits concerning the operation of space stations in order to ensure that the space services (space-to-Earth) in the band 5 010-5 030 MHz will not cause interference detrimental to the RAS in the band 4 990-5 000 MHz;

2 to report to CPM-03 on the conclusions of the studies asked for under 1 above,

urges administrations

1 to participate actively in the aforementioned studies by submitting contributions to ITU-R;

2 to ensure that systems designed to operate in the RNSS frequency band 5 010-5 030 MHz incorporate interference avoidance techniques, such as filtering, to the extent feasible,

resolves

that WRC-03 be invited to review the provisional pfd limit on the RNSS in the band 5 010-5 030 MHz,

*instructs the Radiocommunication Bureau****

as of the end of WRC-03, to review and, if appropriate, revise any finding previously made on the compliance with the limits contained in frequency band 5 010-5 030 MHz of an RNSS (space-to-Earth) (space-to-space) system for which notification information has been received before the end of WRC-03. This review shall be based on the values, as revised, if appropriate, by WRC-03***.

*** It was considered by the Drafting Group of the need to ask Committee 4 what information is needed to be provided to the Bureau to check the compliance with the pfd value specified in S5.444C.



Chairperson, Sub-Working Group 4A-1

**SECOND REPORT FROM SUB-WORKING GROUP 4A-1
TO WORKING GROUP 4A**

Please find attached the proposal for revision of Appendix S7.

J-C. PREVOTAT
Chairperson, Sub-Working Group 4A-1
Box 1306

SUP

APPENDIX S7

**Method for the determination of the coordination area around an
earth station in frequency bands between 1 GHz and 40 GHz shared
between space and terrestrial radiocommunication services**

ADD

APPENDIX S7

Methods for the determination of the coordination area around an earth station in frequency bands between 100 MHz and 105 GHz

1 Introduction

This Appendix addresses the determination of the coordination area (see No. S1.171) around a transmitting or receiving earth station, that is sharing spectrum in frequency bands between 100 MHz and 105 GHz with terrestrial radiocommunication services, or with earth stations operating in the opposite direction of transmission.

The coordination area represents the area surrounding an earth station sharing the same frequency band with terrestrial stations, or the area surrounding a transmitting earth station that is sharing the same bidirectionally allocated frequency band with receiving earth stations, within which the permissible level of interference may be exceeded and hence, coordination is required. The coordination area is determined on the basis of known characteristics for the coordinating earth station and on conservative assumptions for the propagation path and for the system parameters for the unknown terrestrial stations (see Tables 1 and 2 of Annex VII), or the unknown receiving earth stations (Table 3 of Annex VII), that are sharing the same frequency band.

1.1 Overview

This Appendix contains procedures and system parameters for calculating an earth station's coordination area, including predetermined distances.

The procedures allow the determination of a distance in all azimuthal directions around a transmitting or receiving earth station, beyond which the predicted path loss would be expected to exceed a specified value for all but a specified percentage of the time. This distance is called the coordination distance (see No. S1.173). When the coordination distance is determined for each azimuth around the coordinating earth station it defines a distance contour, called the coordination contour (see No. S1.172), that encloses the coordination area.

It is important to note that although the determination of the coordination area is based on technical criteria it represents a regulatory concept. Its purpose is to identify the area within which detailed evaluations of the interference potential need to be performed in order to determine whether the coordinating earth station or any of the terrestrial stations, or in the case of a bidirectional allocation any of the receiving earth stations that are sharing the same frequency band, will experience unacceptable levels of interference. Hence, the coordination area is not an exclusion zone within which the sharing of frequencies between the earth station and other terrestrial stations or earth stations is prohibited, but a means for determining the area within which more detailed calculations need to be performed. In most cases a more detailed analysis will show that sharing within the coordination area is possible since the procedure for the determination of the coordination area is based on unfavourable assumptions with regard to the interference potential.

For the determination of the coordination area, two separate cases may have to be considered:

- for the earth station when it is transmitting and hence capable of interfering with receiving terrestrial stations or earth stations;

- for the earth station when it is receiving and hence it may be the subject of interference from transmitting terrestrial stations.

Calculations are performed separately for great circle propagation mechanisms (propagation mode (1)) and, if required by the sharing scenario (see § 1.4), for scattering from hydrometeors (propagation mode (2)). The coordination contour is then determined using the greater distance predicted by the propagation mode (1) and propagation mode (2) calculations for each azimuth around the coordinating earth station. Separate coordination contours are produced for each sharing scenario. Guidance and examples of the construction of coordination contours, and their component propagation mode (1) and propagation mode (2) contours are provided in § 1.6.

To facilitate bilateral discussion it can be useful to calculate additional contours, defining smaller areas, that are based on less conservative assumptions than those used for the calculation of the coordination contour.

1.2 Appendix structure

In this Appendix the general principles are separated from the detailed text on methods. The former is contained in the main body of this Appendix and the latter are contained in a series of annexes, enabling the user to select only those sections that are relevant for a specific sharing scenario.

Table 1 is provided to help the user to navigate through the Appendix and Annexes, it also indicates the relevant sections that need to be explored for a specific coordination case.

TABLE 1
Cross-reference between sharing scenarios and calculation methods

Applicable sections of Appendix S7, Annexes to Appendix S7	Sharing scenarios of § 1.4 of Appendix S7 ↓	§ 1.4.1 Earth station operating to a geostationary space station	§ 1.4.2 Earth stations operating to non-geostationary space stations *	§ 1.4.3 Earth stations operating to both geostationary and non-geostationary space stations	§ 1.4.4 Earth stations operating in bidirectionally allocated frequency bands	§ 1.4.5 Broadcasting satellite service earth stations	§ 1.4.6 Mobile (except aeronautical mobile) earth stations	§ 1.4.7 Aeronautical mobile earth stations
§ 1.3 Basic concepts		X	X	X	X	X	X	X
§ 1.5 Propagation model concepts and considerations		X	X	X	X	See § 1.4.1, § 1.4.2, § 1.4.3 or § 1.4.4 as applicable and § 1.6	See § 1.4.1, § 1.4.2, § 1.4.3 or § 1.4.4 as applicable and § 1.6	See § 1.4.1, § 1.4.2, § 1.4.3 or § 1.4.4 as applicable and § 1.6
§ 1.6 The coordination contour: concepts and construction		X	X	X	X			
§ 2.1 The earth stations operate to geostationary space stations		X		X				
§ 2.2 The earth stations operate to non-geostationary space stations			X	X				
§ 3 Determination of the coordination area between earth stations operating in bidirectionally allocated frequency bands					X			
§ 4 General considerations for the determination of the propagation mode (1) required distance		X	X	X	X			
§ 5 General considerations for the determination of the propagation mode (2) required distance		X		X				
Annex I Determination of the required distance for propagation mode (1)		X	X	X	X			
Annex II Determination of the required distance for propagation mode (2)		X		X				
Annex III Antenna gain towards the horizon for earth stations operating to geostationary space stations		X		X				
Annex IV Antenna gain towards the horizon for earth stations operating to non-geostationary space stations			X	X	X			
Annex V Determination of the coordination area for a transmitting earth station with respect to receiving earth stations operating to geostationary space stations in bidirectionally allocated frequency bands					X			
Annex VI Supplementary and auxiliary contours		X	X	X	X			
Annex VII System parameters and predetermined coordination distances for determination of the coordination area around an earth station		X	X	X	X			

* For an earth station using a non-tracking antenna the procedure of § 2.1 is used. For an earth station using a non-directional antenna the procedures of § 2.1.1 are used.

1.3 Basic concepts

Determination of the coordination area is based on the concept of the permissible interference power at the antenna terminals of a receiving terrestrial station or earth station. Hence, the attenuation required to limit the level of interference between a transmitting terrestrial station or earth station and a receiving terrestrial station or earth station to the permissible interference power for $p\%$ of the time is represented by the “minimum required loss”. Where, the minimum required loss is the loss that needs to be equalled or exceeded by the predicted path loss for all but $p\%$ of the time*.

For propagation mode (1) the following equation applies:

$$L_b(p) = P_t + G_t + G_r - P_r(p) \quad \text{dB} \quad (1)$$

where

- p : the maximum percentage of time for which the permissible interference power may be exceeded;
- $L_b(p)$: the propagation mode (1) minimum required loss (dB) for $p\%$ of the time; this value must be exceeded by the propagation mode (1) predicted path loss for all but $p\%$ of the time;
- P_t : the maximum available transmitting power level (dBW) in the reference bandwidth at the terminals of the antenna of a transmitting terrestrial station or earth station;
- $P_r(p)$: permissible interference power of an interfering emission (dBW) in the reference bandwidth to be exceeded for no more than $p\%$ of the time at the terminals of the antenna of a receiving terrestrial station or earth station that may be subject to interference, where the interfering emission originates from a single source;
- G_t : the gain (dB relative to isotropic) of the antenna of the transmitting terrestrial station or earth station. For a transmitting earth station, this is the antenna gain towards the physical horizon on a given azimuth; for a transmitting terrestrial station, the maximum main beam axis antenna gain is to be used;
- G_r : the gain (dB relative to isotropic) of the receiving antenna of the terrestrial or earth station that may be subject to interference. For a receiving earth station, this is the gain towards the physical horizon on a given azimuth; for a receiving terrestrial station, the maximum main beam axis antenna gain is to be used.

In the case of a receiving earth station, the permissible interference power $P_r(p)$ is specified with respect to the actual percentage of time the receiver is in operation, rather than the total elapsed time.

For propagation mode (2), a volume scattering process is involved and a modification of the above approach is necessary. Where the coordinating earth station antenna beam intersects a rain cell, a common volume may be formed with a terrestrial station beam or an earth station beam (operating in the opposite direction of transmission in bidirectionally allocated frequency bands). In the case of a terrestrial station, the assumptions are made that the terrestrial station beamwidth is relatively

* When p is a small percentage of the time, in the range 0.001% to 1.0%, the interference is referred to as “short-term”; if $p \geq 20\%$, it is referred to as “long-term” (see § 1.5.3).

large in comparison with that of the coordinating earth station (terrestrial station gain values are given in Tables 1 and 2 of Annex VII) and that the terrestrial station is some distance from the common volume. The terrestrial station beam is therefore assumed to illuminate the whole rain cell, which is represented by a vertical cylinder filled with hydrometeors that give rise to isotropically scattered signals. This scattering process may give rise to unwanted coupling between the coordinating earth station and terrestrial stations or earth stations operating in bidirectionally allocated frequency bands, via the common volume.

The earth station antenna gain and its beamwidth are inter-dependent. The size of the common volume, and the number of scattered signals arising within that volume, increases as the gain of the earth station antenna transmitting or receiving those signals decreases, the one effect compensating for the other. A term which approximates the full integral required to evaluate the volume scattering process within the earth station antenna beam is included in equation (II-11). Therefore in the procedure for evaluation of interference that may arise from propagation mode (2) mechanisms a simplifying assumption can be made that the path loss is independent of the earth station antenna gain¹.

Hence for propagation mode (2), equation (1) reduces to:

$$L_x (p) = P_t + G_x - P_r (p) \quad \text{dB} \quad (2)$$

where

$L_x (p)$: is the minimum loss required for propagation mode (2).

G_x : is the maximum antenna gain (dBi) assumed for the terrestrial station. Tables 1 and 2 of Annex VII give values of G_x for the various frequency bands.

To facilitate the calculation of propagation mode (2) auxiliary contours (see Annex VI) the calculation is further modified by placing the terrestrial network antenna gain G_x within the iterative loop for the propagation mode (2) required loss calculations².

Hence equation (2) further reduces to:

$$L (p) = P_t - P_r (p) \quad \text{dB} \quad (3)$$

where

$L (p)$: the propagation mode (2) minimum required loss (dB) for $p\%$ of the time; this value must be exceeded by the propagation mode (2) predicted path loss for all but $p\%$ of the time.

For both modes of propagation, P_t and $P_r (p)$ are defined for the same radio-frequency bandwidth (the reference bandwidth). Further $L_b (p)$, $L (p)$ and $P_r (p)$ are defined for the same small percentage of the time, and that these values are set by the performance criteria of the receiving terrestrial, or receiving earth station, that may be subject to interference.

¹ If the earth station antenna has a wide beamwidth, the method can still be used to determine the propagation mode (2) contour. However, the fact that the antenna beam may be wider than the rain cell and hence not actually fully filled with hydrometeors will mean that the interference potential may be slightly over-estimated.

² See equation (II-11).

For an earth station operating to geostationary space stations, Annex III provides the numerical method for determining the minimum angle between the earth station antenna main beam axis and the physical horizon as a function of azimuth, and the corresponding antenna gain. In the case of a space station in a slightly inclined geostationary orbit, the minimum elevation angle and corresponding horizon gain will depend on the maximum inclination angle to be coordinated.

For an earth station operating to non-geostationary space stations, the antenna gain in the direction of the horizon of the earth station varies as a function of time and Annex IV provides the numerical methods for its determination.

For an earth station operating in a frequency band with a bidirectional allocation, the antenna gain to be used in determining the propagation mode (1) minimum required loss is calculated using the methods in Annex III or Annex IV, as appropriate.

Determination of the coordination area requires the calculation of the predicted path loss and its comparison with the minimum required loss, for every azimuth around the coordinating earth station, where:

- 1) the predicted path loss, is dependent on several factors including the length and general geometry of the interfering path (e.g., antenna pointing, horizon elevation angle), antenna directivity, radio climatic conditions, and the percentage of the time during which the predicted path loss is less than the minimum required loss; and
- 2) the minimum required loss is based on system and interference model considerations.

The required coordination distance is the distance at which these two losses are considered to be equal for the stated percentage of time.

In determining the coordination area the pertinent parameters of the coordinating earth station are known, but knowledge of the terrestrial stations or other earth stations sharing that frequency range is limited. Hence it is necessary to rely on assumed system parameters for the unknown terrestrial stations or the unknown receiving earth stations. Further, many aspects of the interference path between the coordinating earth station and the terrestrial stations or other earth stations (e.g. antenna geometry and directivity) are unknown.

The determination of the coordination area is based on unfavourable assumptions regarding system parameter values and interference path geometry. However, in certain circumstances, to assume that all the worst-case values will occur simultaneously is unrealistic, and leads to unnecessarily large values of minimum required loss. This could lead to unnecessarily large coordination areas. For propagation mode (1) detailed analyses, supported by extensive operational experience, have shown that the requirement for the propagation mode (1) minimum required loss can be reduced because of the very small probability that the worst case assumptions for system parameter values and interference path geometry will exist simultaneously. Therefore a correction is applied within the calculation for the propagation mode (1) predicted path loss in the appropriate sharing scenario to allow benefit to be derived from these mitigating effects. The application of this correction factor is described in more detail in § 4.4.

This correction applies to cases of coordination with the fixed service. It is frequency, distance and path dependent. It does not apply in the case of the coordination of an earth station with mobile stations, nor with other earth stations operating in the opposite direction of transmission, nor in the case of propagation via hydrometeor scatter (propagation mode (2)).

A number of propagation models are used to cover the propagation mechanisms that exist in the full frequency range. These models predict the path loss as a monotonically increasing function of distance. Therefore, coordination distances are determined by calculating the path loss iteratively for an increasing distance until either the minimum required loss is achieved, or a maximum calculation distance limit is reached (see § 1.5.3).

The iteration method always starts at a defined value of minimum distance, d_{min} in km, and iteration is performed using a uniform step size (s km) for increasing the distance. A step size of 1 km is recommended.

1.4 Sharing scenarios

The following subsections describe the basic assumptions made for the various earth station sharing scenarios. These subsections need to be read in conjunction with the information contained in Table 1 and § 1.6 which contains guidance on the development of a coordination contour. Except as discussed in §§ 1.4.5 to 1.4.7, the earth stations around which coordination areas are determined are assumed to be fixed earth stations authorized to operate at a single permanent location. In cases of earth stations that can be operated from a number of fixed locations, the coordination areas are determined for each individual location.³

1.4.1 Earth stations operating to geostationary space stations

For an earth station operating to a space station in the geostationary orbit, the space station appears to be stationary with respect to the Earth. However variations in gravitational forces acting on the space station and limitations in positional control mean a geostationary space station's orbital parameters are not constant. Movement from the space station's nominal orbital position in an east/west direction (longitudinal tolerance) is limited within the Radio Regulations (see No. S22.6 to No. S22.18), but movement in the north/south direction (inclination excursion) is not specified.

Relaxation in the north/south station-keeping of a geostationary space station allows its orbit to become inclined with an inclination that increases gradually with time. Therefore the determination of the coordination area requires consideration of the range of movement of the earth station antenna. Although the direction of pointing of the earth station antenna may in practice vary with time, the earth station antenna may also be pointing in one direction for considerable periods of time. Hence the gain of the earth station antenna in the direction of the horizon is assumed to be constant. For an earth station operating to a space station in an orbit as described above, an assumption of constant horizon gain as the inclination angle increases may lead to a conservative estimation of the coordination area, the degree of conservatism increases with increasing inclination angle.

For an earth station operating to a geostationary space station the coordination area is determined using the procedures described in § 2.1.

³ While some fixed satellite systems transmit to fixed earth stations operating at unspecified locations within a service area defined by an administration, methods for determining the coordination areas are specified only for individual sites. To minimize the number of individual earth stations requiring detailed coordination in these cases, administrations may wish to develop bilateral agreements based on distances, calculated in accordance with Recommendation ITU-R SM.1448, extended from the periphery of a service area.

1.4.2 Earth stations operating to non-geostationary space stations

Earth stations operating to a non-geostationary space station may use a directional or a non-directional antenna. Furthermore, earth stations using a directional antenna may track the orbital path of a non-geostationary space station.

While an earth station operating to a geostationary space station is assumed to have a constant antenna gain towards the horizon, for an earth station antenna that is tracking the orbital path of a non-geostationary space station, the antenna gain towards the horizon will vary with time. Therefore, it is necessary to estimate the variation of the antenna gain with time towards the horizon for each azimuth in order to determine the coordination area. The procedure is described in § 2.2.

For an earth station operating to a non-geostationary space station, the motion of a relatively high gain tracking antenna reduces the probability of interference due to propagation mode (2) mechanisms and hence the propagation mode (2) required distances will be relatively short. The minimum coordination distance d_{min} (see § 1.5.3) will provide adequate protection in these cases. The propagation mode (2) contour is therefore taken to be identical to a circle represented by the minimum coordination distance. Propagation mode (2) calculations are not required in these circumstances and the coordination area is determined using the propagation mode (1) procedure in § 2.2 only.

For an earth station operating to a non-geostationary space station using a non-directional antenna, a similar situation applies, and the low gain means that propagation mode (2) required distances will be less than the minimum coordination distance. Hence for the case of non-directional antenna the propagation mode (2) contour is also coincident with the circle represented by d_{min} , and the coordination area is determined using the propagation mode (1) procedures described in § 2.1.1, only.

For an earth station operating to a non-geostationary space station using a non-tracking directional antenna, the potential for interference arising from propagation mode (2) is identical to an earth station operating to a geostationary space station. Hence, for the case of non-tracking directional antenna the coordination area is determined using both the propagation mode (1) and propagation mode (2) procedures described in § 2.1.

1.4.3 Earth stations operating to both geostationary and non-geostationary space stations

For earth stations that are sometimes intended to operate to geostationary space stations and at other times to non-geostationary space stations, separate coordination areas are determined for each type of operation. In such cases, the coordination area for the geostationary space station is determined using the procedures described in § 2.1 and, in addition, the coordination area for the non-geostationary space station is determined using the procedure described in § 2.2. For each case, the percentage of time is specified for all the operational time that the receiving earth station is expected to spend in reception from geostationary space stations or non-geostationary space stations as appropriate.

1.4.4 Earth stations operating in bidirectionally allocated frequency bands

For earth stations operating in some frequency bands there may be equal primary allocations to space services operating in both the Earth-to-space and space-to-Earth directions. In this case, where two earth stations are operating in opposite directions of transmission it is only necessary to establish the coordination area for the transmitting earth station, as receiving earth stations will automatically be taken into consideration. Hence, a receiving earth station operating in a

bidirectionally allocated frequency band will only be involved in coordination with a transmitting earth station if it is located within the transmitting earth station's coordination area.

For a transmitting earth station operating to either geostationary or non-geostationary satellites in a bidirectionally allocated frequency band, the coordination area is determined using the procedures described in § 3.

1.4.5 Broadcasting-satellite service earth stations

For earth stations in the broadcasting-satellite service operating in the unplanned bands, the coordination area is determined by extending the periphery of the specified service area, within which the earth stations are operating, by the coordination distance which is based on a typical BSS earth station. In calculating the coordination distance no additional protection can be assumed to be available from the earth station horizon elevation angle, i.e. $A_h = 0$ dB in Annex I, for all azimuth angles around the earth station.

1.4.6 Mobile (except aeronautical mobile) earth stations

For a mobile (except aeronautical mobile) earth station, the coordination area is determined by extending the periphery of the specified service area, within which the mobile (except aeronautical mobile) earth stations are operating, by the coordination distance. The coordination distance may be represented by a predetermined coordination distance (see § 4 of Annex VII), or it may be calculated. In calculating the coordination distance no additional protection can be assumed to be available from the earth station horizon elevation angle, i.e. $A_h = 0$ dB in Annex 1, for all azimuth angles around the earth station.

1.4.7 Aeronautical mobile earth stations

For aeronautical mobile earth stations the coordination area is determined by extending the periphery of the specified service area, within which the aeronautical mobile earth station operates, by an appropriate predetermined coordination (see § 4 of Annex VII) distance for the respective services.

1.5 Propagation model concepts

For each mode of propagation, according to the requirements of the specific sharing scenario (see § 1.4) it is necessary to determine the predicted path loss. The determination of this predicted path loss is based on a number of propagation mechanisms.

Interference may arise through a range of propagation mechanisms whose individual dominance depends on climate, radio frequency, time percentage of interest, distance and path topography. At any one point in time, one or more mechanisms may be present. The propagation mechanisms that are considered within this Appendix in the determination of the interference potential are as follows:

- *Diffraction*: In as far as it relates to diffraction losses occurring over the earth station's local physical horizon. This effect is referred to below as "site shielding". The remainder of the path along each radial is considered to be flat and therefore free of additional diffraction losses.
- *Tropospheric scatter*: This mechanism defines the "background" interference level for paths longer than about 100 km beyond which the diffraction field becomes very weak.

- *Surface ducting*: This is the most important short-term interference mechanism over water and in flat coastal land areas, and can give rise to high signal levels over longer distances, sometimes more than 500 km. Such signals can exceed the equivalent “free-space” level under certain conditions.
- *Elevated layer reflection and refraction*: The treatment of reflection and/or refraction from layers at heights up to a few hundred metres is an important mechanism that enables signals to by-pass any diffraction losses due to the underlying terrain under favourable path geometry situations. Again the impact can be significant over long distances.
- *Hydrometeor scatter*: Hydrometeor scatter can be a potential source of interference between terrestrial link transmitters and earth stations because it may act isotropically, and can therefore have an impact irrespective of whether the common volume is on or off the great-circle interference path between the coordinating earth station and terrestrial stations, or receiving earth stations operating in bidirectionally allocated frequency bands.

In this Appendix propagation phenomena are classified into two modes as follows:

- *Propagation mode (1)*: propagation phenomena in clear air, (tropospheric scatter, ducting, layer reflection/refraction, gaseous absorption and site shielding). These phenomena are confined to propagation along the great-circle path;
- *Propagation mode (2)*: hydrometeor scatter.

1.5.1 Propagation mode (1)

For the determination of the propagation mode (1) required distances, the applicable frequency range has been divided into three parts:

- For VHF/UHF frequencies between 100 MHz and 790 MHz and for time percentages from 1% to 50% of an average year.
- From 790 MHz to 60 GHz and for time percentages from 0.001% to 50% of an average year.
- From 60 GHz to 105 GHz and for time percentages from 0.001% to 50% of an average year.

The variation in predicted path loss due to the horizon elevation angle around an earth station is calculated by the method described in § 1 of Annex I using the horizon elevation angles and distances along different radials from the earth station. For all frequencies between 100 MHz and 105 GHz the attenuation arising from the horizon characteristics is included in the value of propagation mode (1) predicted path loss, unless its use is specifically prohibited for a particular sharing scenario (see § 1.4.5 and § 1.4.6).

In the determination of the propagation mode (1) required distance, the world is divided into four basic radio-climatic zones. These zones are defined as follows.

- Zone A1: coastal land, i.e. land adjacent to a Zone B or a Zone C area (see below), up to an altitude of 100 m relative to mean sea or water level, but limited to a maximum distance of 50 km from the nearest Zone B or Zone C area; in the absence of precise information on the 100 m contour, an approximation (e.g. 300 feet) may be used. Large

inland areas of at least 7 800 km² which contain many small lakes, or a river network, comprising more than 50% water, and where more than 90% of the land is less than 100 m above the mean water level may be included in Zone A1*.

- Zone A2: all land, other than coastal land as defined in Zone A1 above.
- Zone B: “cold” seas, oceans and large bodies of inland water situated at latitudes above 30°, with the exception of the Mediterranean Sea and the Black Sea. A “large” body of inland water is defined, for the administrative purpose of coordination, as one having an area of at least 7 800 km², but excluding the area of rivers. Islands within such bodies of water are to be included as water within the calculation of this area if they have elevations lower than 100 m above the mean water level for more than 90% of their area. Islands that do not meet these criteria should be classified as land for the purposes of calculating the area of the water.
- Zone C: “warm” seas, oceans and large bodies of inland water situated at latitudes below 30°, as well as the Mediterranean Sea and the Black Sea.

1.5.2 Propagation mode (2)

For the determination of the propagation mode (2) required distance, interference arising from hydrometeor scatter can be ignored at frequencies below 1 000 MHz and above 40.5 GHz outside the minimum coordination distance (see § 1.5.3.1). Below 1 000 MHz the level of the scattered signal is very low and above 40.5 GHz, although significant scattering occurs, the scattered signal is then highly attenuated on the path from the scatter volume to the receiving terrestrial station or earth station. Site shielding is not relevant to propagation mode (2) mechanisms as the interference path is via the main beam of the coordinating earth station antenna.

1.5.3 Distance limits

The effect of interference on terrestrial and space systems often needs to be assessed by considering long and short term interference criteria. These criteria are generally represented by a permissible interference power not to be exceeded for more than a specified percentage of time.

The long-term criterion (typically associated with percentages of time $\geq 20\%$) protects the error performance objective (for digital systems) or noise performance objective (for analogue systems) objectives to meet specified long-term interference criteria. This criterion will generally represent a low level of interference and hence require a high degree of isolation between the coordinating earth station and terrestrial stations, or receiving earth stations operating in bidirectionally allocated bands.

The short-term criterion is a higher level of interference, typically associated with time percentages in the range 0.001% to 1% of time, which will either make the interfered-with system unavailable, or cause its specified short-term interference objectives (error rate or noise) to be exceeded.

This Appendix addresses only the protection of the short-term criterion. There is therefore an implicit assumption that if the short-term criterion is satisfied, then any associated long-term criteria will also be satisfied. This assumption may not remain valid at short distances because additional propagation effects (diffraction, building/terrain scattering etc.) requiring a more detailed analysis become significant. A minimum coordination distance is therefore needed to avoid this difficulty. This minimum coordination distance is always the lowest value of coordination distance used. At

* These additional areas may be declared as coastal Zone A1 areas by administrations for inclusion in the ITU Digital World Map (IDWM).

distances equal to or greater than the minimum coordination distance, it can be assumed that interference due to continuous (long-term) propagation effects will not exceed levels permitted by the long-term criteria.

In addition to the minimum coordination distance, it is also necessary to set an upper limit to the calculation distance. Hence the coordination distance, on any azimuth, must lie within the range between the minimum coordination distance and the maximum calculation distance.

1.5.3.1 Minimum coordination distance

For reasons stated in § 1.5.3 it is necessary to set a lower limit to the coordination distance (d_{min}). The iterative calculation of the coordination distance starts at this specified minimum distance and this distance varies according to radiometeorological factors and the frequency band (see § 4.2). The same minimum coordination distance applies to both propagation mode (1) and propagation mode (2) calculations.

1.5.3.2 Maximum calculation distance

Maximum calculation distances are required for propagation modes (1) and (2). In the case of mode (1) this distance corresponds to the maximum coordination distance, d_{max1} , given in § 4.3 for each of the four radioclimatic Zones. The propagation mode (1) maximum calculation distance is therefore dependent on the mixture of radioclimatic Zones in the propagation path. This dependency is described in § 4.3.

The maximum calculation distance for propagation mode (2) is given in § 2 of Annex II.

1.6 The coordination contour: concepts and construction

The coordination distance, determined for each azimuth around the coordinating earth station, defines the coordination contour that encloses the coordination area. The coordination distance lies within the range defined by the minimum coordination distance and the maximum calculation distance.

In this Appendix the procedures determine the distance at which the minimum required loss is equal to the predicted path loss. In addition some procedures⁴ require that, for any azimuth, the greater of the distances determined for propagation mode (1) and propagation mode (2) is the distance to be used in determining the coordination contour. In both these cases, the distance at which the minimum required loss is equal to the predicted path loss may or may not be within the range of valid values that define the limits for the coordination distance. Hence the distance determined from the application of all the procedures is referred to as the required distance.

The coordination area is determined by one of the following methods:

- calculating, in all directions of azimuth from the earth station, the coordination distances and then drawing to scale on an appropriate map the coordination contour; or
- extending the service area in all directions by the calculated coordination distance(s); or
- for some services and frequency bands extending the service area in all directions by a predetermined coordination distance.

⁴ The same procedures are also used to develop supplementary and auxiliary contours (see § 1.6.1 and § 1.6.2).

Where a coordination contour includes the potential interference effects arising from both propagation mode (1) and propagation mode (2), the required distance used for any azimuth is the greater of the propagation mode (1) and propagation mode (2) required distances.

The sharing scenarios and the various procedures contained in this Appendix are based on different assumptions. Hence the coordination area developed for one sharing scenario is likely to be based on different sharing considerations, interference paths and operational constraints than the coordination area developed under a different sharing scenario. Separate coordination areas are therefore required for each sharing scenario described in § 1.4 and each coordination area is specific to the radiocommunication services covered by the sharing scenario under which it was developed. Further, the coordination area developed for one sharing scenario cannot be used to determine the extent of any impact on the radiocommunication services covered by a different sharing scenario. Thus a coordinating earth station operating in a bidirectionally allocated frequency band and also sharing with terrestrial stations will have two separate coordination areas:

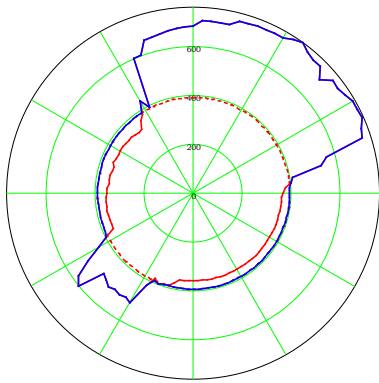
- one coordination area for determining those administrations with terrestrial services that may be affected by the operation of the coordinating earth station; and
- one coordination area for determining those administrations with receiving earth stations that may be affected by the operation of the coordinating (transmitting) earth station.

This means that the establishment of the coordination area for an earth station will generally require the determination of several individual coordination areas, each drawn on a separate map. For example, an earth station which transmits to a geostationary space station in the band 10.7-11.7 GHz will need to develop the following coordination areas with respect to:

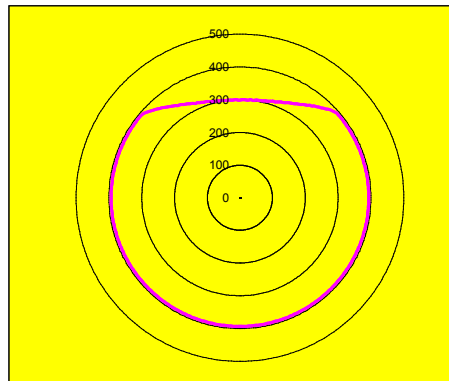
- 1) analogue terrestrial services which receive in the same band; this will comprise the potential effects arising from both propagation mode (1) and propagation mode (2) interference paths;
- 2) an earth station operating to a geostationary space station which receives in the same band, this will comprise the potential effects arising from both propagation mode (1) and propagation mode (2) interference paths;
- 3) an earth station operating to a non-geostationary space station which receives in the same band; this will comprise the potential effects arising from propagation mode (1) interference paths.

In addition separate coordination contours are produced if the earth station both transmits and receives in bands shared with terrestrial services. However, for earth stations in bidirectionally allocated frequency bands, the coordination contours with respect to other earth stations are only produced for a transmitting earth station (see § 1.4.4).

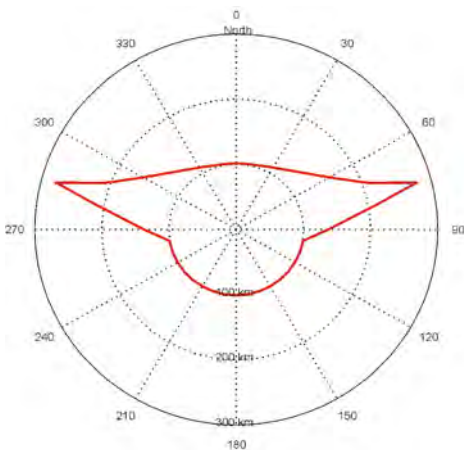
An example of the coordination area for each of the sharing scenarios in § 1.4 is provided in Figure 1. It will be noticed that for some of the sharing scenarios there is a commonality to the construction of the coordination contour (shown by a solid line) that encompasses each coordination area. For those sharing scenarios where both propagation mode (1) and propagation mode (2) interference paths need to be taken into consideration, the parts of the propagation mode (1) contour and that part of the propagation mode (2) contour located within the overall coordination contour may be drawn using dashed lines.



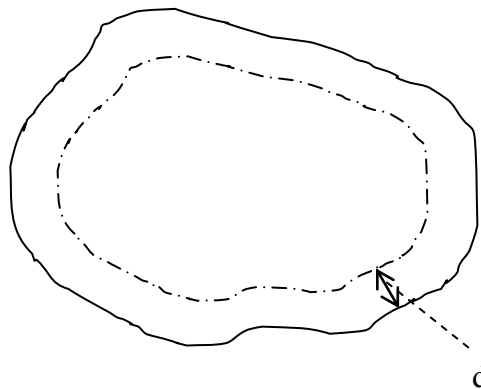
The coordination contour is an example of an earth station operating to a GSO space station in § 1.4.1 and § 1.4.3. The coordination contour is marked by the outer line and is comprised of a propagation mode (1) contour and a circular propagation mode (2) contour. The propagation mode (1) contour could also be an example of an earth station with a non-tracking directional antenna operating to a non-GSO space station in § 1.4.2.



The coordination contour is an example of an earth station with a tracking antenna operating to a non-GSO space station in § 1.4.2 and § 1.4.3.



The coordination contour is an example of an earth station operating in bidirectionally allocated frequency bands in § 1.4.4. The coordination contour has been developed from a propagation mode (1) contour for a coordinating earth station operating to a non-GSO space station with respect to unknown earth stations operating to GSO space stations. For a propagation mode (2) contour for the GSO-GSO case see Annex V.



The coordination contour is an example of an earth station operating in a specified service area in § 1.4.5, § 1.4.6, § 1.4.7. The coordination contour is marked by the solid outer line and the specified service area by the broken inner line. The coordination distance, d , may be a constant value, or vary with azimuth, depending on the sharing scenario and the type of radiocommunication service.

FIGURE 1

Examples of coordination contours for the sharing scenarios listed in § 1.4

In addition to the coordination contour, supplementary contours (see No. S9.53.1) and auxiliary contours (see § 1.6.1 and § 1.6.2) may be drawn to facilitate more detailed sharing discussions. Supplementary contours are based on the coordinating earth station sharing frequency bands with other radiocommunication services, or other types of radio systems in the same service, that have less onerous sharing criteria than the radio system used for developing the coordination area. These supplementary contours may be developed by the same method used to determine the coordination contour, or by other methods as agreed on a bilateral basis between administrations. For example, the Time Variant Gain method described in § 4 of Annex VI can be used to generate supplementary contours for earth stations operating to non-geostationary space stations. Auxiliary contours are based on less conservative assumptions, with regard to the interference path and operational constraints, for the unknown terrestrial stations, or earth stations. Auxiliary contours are developed separately for propagation mode (1) and propagation mode (2) interference paths. In this context, the contours from which the coordination contour was developed are called main contours, and the auxiliary contours for propagation mode (1) and propagation mode (2) are referenced to the appropriate main contour. The variations in the assumptions used for developing auxiliary contours to the propagation mode (1) contour, or the propagation mode (2) contour, can also be applied to supplementary contours. Hence, auxiliary contours may be drawn for both a main, or a supplementary, contour.

Supplementary contours are always drawn on a separate map as they apply to other types of radio system within the same radiocommunication service, or to radio systems in different radiocommunication services. However, as auxiliary contours apply to variations in the assumptions used in developing the main, or supplementary, contour they are always drawn on the same map that contains the corresponding main, or supplementary, contour.

While the use of supplementary or auxiliary contours allows less conservative assumptions with regard to the interference path and operational constraints to be taken into consideration, earth stations may transmit or receive a variety of classes of emissions. Hence, the earth station parameters to be used in the determination of the coordination contour, and any supplementary or auxiliary contours, are those which lead to the greatest distances for each earth station antenna beam and each allocated frequency band which the coordinating earth station shares with other radiocommunication systems.

2 Determination of the earth station coordination area with respect to terrestrial stations

This section contains the procedures for determining the coordination area for the case of earth stations sharing frequency bands with terrestrial stations. These procedures cover the cases for earth stations operating to space stations in the geostationary orbit, or in non-geostationary orbits, and are described in the following subsections.

For earth stations operating to space stations in non-geostationary orbits, consideration has to be given to the potential time-varying nature of the earth station's antenna gain towards the horizon.

2.1 The earth stations operate to geostationary space stations

For an earth station operating to a geostationary space station the value of G_t and G_r towards the horizon is considered to be constant with time. The percentage of time associated with L_b in equation (1) is the same as the time percentage, p , associated with $P_r(p)$. When determining the coordination area between a coordinating earth station operating to a geostationary space station and terrestrial systems, the coordination distance on any azimuth is the greater of the propagation

mode (1) and propagation mode (2) required distances. The required distances for propagation mode (1) and propagation mode (2) are determined using the procedures described in § 2.1.1 and § 2.1.2 respectively, after taking into consideration the following discussion on station-keeping.

When the north/south station-keeping of a geostationary space station is relaxed, the orbit of the space station becomes inclined with an inclination that increases gradually with time. This movement of the space station from its nominal position may require small corresponding adjustments in the elevation angle of the earth station antenna beam. Hence, to avoid considering the time variation in antenna gain in the direction of the horizon, the coordination area of an earth station operating to a space station in a slightly inclined geostationary orbit is determined for the minimum angle of elevation and the associated azimuth at which the space station is visible to the earth station (see Annex III).

2.1.1 Determination of the coordinating earth station's propagation mode (1) contour

Determination of the propagation mode (1) contour is based on great circle propagation mechanisms and it is assumed, for the interference path, that all the terrestrial stations are pointing directly at the coordinating earth station's location. The required distance, on each azimuth, for propagation mode (1) is that distance which will result in a value of propagation mode (1) predicted path loss that is equal to the propagation mode (1) minimum required loss, $L_b(p)$ dB, as defined in § 1.3.

$$L_b(p) = P_t + G_e + G_x - P_r(p) \quad \text{dB} \quad (4)$$

where

P_t : and $P_r(p)$ are as defined in § 1.3;

G_e : the gain of the coordinating earth station antenna (dBi) towards the horizon at the horizon elevation angle and azimuth under consideration;

G_x : the maximum antenna gain (dBi) assumed for the terrestrial station. Tables 1 and 2 of Annex VII give values for G_x for the various frequency bands.

The propagation mode (1) required distance is determined using the procedures described in § 4, and the detailed methods in Annex I. Specific guidance relevant to the application of the procedures is provided in § 4.4.

2.1.2 Determination of the coordinating earth station's propagation mode (2) contour

The required distance for hydrometeor scatter is that distance that will result in a propagation mode (2) predicted path loss equal to the propagation mode (2) minimum required loss $L(p)$, as defined in equation (3). This propagation mode (2) required distance is determined using the guidance in § 5, and the detailed methods in Annex II.

For an earth station operating to a geostationary space station having a slightly inclined orbit, the rain-scatter coordination contour for each of the satellite's two most extreme orbit positions are determined individually, using the relevant elevation angles and their associated azimuths to the satellite. The rain scatter area is the total area contained within the two resulting overlapping coordination contours.

2.2 The earth stations operate to non-geostationary space stations

For earth stations that operate to non-geostationary space stations and track the space station, the antenna gain in the direction of the horizon on any azimuth varies with time.

The method used to determine the coordination contour is the "Time Invariant Gain" (TIG) method.

The method uses fixed values of antenna gain based on the maximum assumed variation in horizon antenna gain on each azimuth under consideration. In considering the horizon gain of the antenna for either a transmitting or a receiving earth station, only the horizon gain values during the operational time are to be considered. The horizon antenna gain may be determined using Annex IV. Reference or measured antenna radiation patterns may be used as described in Annex III. The values of horizon antenna gain defined below are used for each azimuth when applying equation (4) to determine the propagation mode (1) required distances:

$$\begin{aligned} G_e &= G_{max} & \text{for} & & (G_{max} - G_{min}) \leq 20 \text{ dB} \\ G_e &= G_{min} + 20 & \text{for} & & 20 \text{ dB} < (G_{max} - G_{min}) < 30 \text{ dB} \\ G_e &= G_{max} - 10 & \text{for} & & (G_{max} - G_{min}) \geq 30 \text{ dB} \end{aligned} \quad (5)$$

where

- G_e : the gain of the coordinating earth station antenna (dBi) towards the horizon at the horizon elevation angle and azimuth under consideration in equation (4);
- G_{max}, G_{min} : maximum and minimum values of the horizon antenna gain (dBi), respectively, on the azimuth under consideration.

The maximum and minimum values of the horizon antenna gain, on the azimuth under consideration, are derived from the antenna pattern and the maximum and minimum angular separation of the antenna main beam axis from the direction of the physical horizon at the azimuth under consideration.

Where a single value of minimum elevation angle for the main beam axis of the earth station antenna is specified for all azimuths, the minimum and maximum values of horizon gain can be determined, for each azimuth under consideration, from the antenna pattern and the horizon elevation angle at that azimuth. The plot of the horizon elevation angle against azimuth is called the horizon profile of the earth station.

Additional constraints maybe included in the determination of the maximum and minimum values of the horizon antenna gain where an earth station is operating to a constellation of non-geostationary satellites at a latitude for which no satellite is visible at the earth station's specified minimum elevation angle over a range of azimuth angles. Over this range of azimuth angles, the minimum elevation angle of the earth station antenna main beam axis is given by the minimum elevation angle at which any satellite of the constellation is visible at that azimuth. The azimuthal dependence of this minimum satellite visibility elevation angle may be determined from consideration of the orbital altitude and inclination of the satellites in the constellation, without recourse to simulation, using the procedure in § 1.1 of Annex IV. In this case, the horizon gain to be used in the method depends on the profile of the composite minimum elevation angle. This minimum composite elevation angle at any azimuth is the greater of the minimum satellite visibility elevation angle, at the azimuth under consideration, and the specified minimum elevation angle for the earth station which is independent of the azimuth.

Thus, at each azimuth under consideration, the maximum horizon antenna gain will be determined from the minimum value of the angular separation from the earth station horizon profile at this azimuth to the profile of the minimum composite elevation angle. Similarly, the minimum horizon antenna gain will be determined from the maximum value of the angular separation from the earth station horizon profile at this azimuth to the profile of the minimum composite elevation angle. The procedure for calculating the minimum and maximum angular separations from the profile of the minimum composite elevation angle is given in § 1.2 of Annex IV.

The propagation mode (1) required distance is then determined using the procedures described in § 4, and the detailed methods in Annex I. Specific guidance relevant to the application of the propagation calculations is provided in § 4.4.

3 Determination of the coordination area between earth stations operating in bidirectionally allocated frequency bands

This section describes the procedures to be used for the determination of the bidirectional coordination area for an earth station transmitting in a frequency band allocated to space services in both Earth-to-space and space-to-Earth directions.

There are various coordination scenarios involving only non-time-varying antenna gains, or only time-varying antenna gains (both earth stations operate to non-geostationary space stations) or, one time-varying antenna gain and one non time-varying antenna gain.

The following subsections describe the methods for the determination of coordination area which are specific to each of these bidirectional cases. The procedures applicable to the coordination scenario where both earth stations operate to geostationary space stations are given in § 3.1. The other bidirectional coordination scenarios are considered in § 3.2, where particular attention is given to the approaches for using the horizon gain of the receiving earth station for each of the possible coordination scenarios in the appropriate procedure of § 2.

Table 3 of Annex VII provides the parameters that are to be used in the determination of the coordination area. Table 3 of Annex VII also indicates whether, in each band, the receiving earth stations operate to geostationary or non-geostationary space stations. In some bands, receiving earth stations may operate to both geostationary and non-geostationary space stations. Table 2 below indicates the number of coordination contours, which needs to be drawn for each coordination scenario and the section(s) containing the applicable calculation methods. When drawn, each coordination contour must be appropriately labelled.

TABLE 2
Coordination contours required for each bidirectional scenario

Coordinating earth station operating to a space station in the	Unknown receiving earth station operating to a space station in the	Section containing the method to determine G_t and G_r	Contours required	
			No.	Details
Geostationary orbit	Geostationary orbit	§ 3.1	1	A coordination contour comprising both propagation mode (1) and propagation mode (2) contours.
	Non-geostationary orbit	§ 3.2.1	1	A propagation mode (1) coordination contour.
	Geostationary or non-geostationary orbits ⁵	§ 3.1.1 and § 3.2.1	2	Two separate coordination contours, one for the geostationary orbit (propagation mode (1) and mode (2) contours) and one for the non-geostationary orbit (propagation mode (1) contour).
Non-geostationary orbit	Geostationary orbit	§ 3.2.2	1	A propagation mode (1) coordination contour.
	Non-geostationary orbit	§ 3.2.3	1	A propagation mode (1) coordination contour.
	Geostationary or non-geostationary orbits ⁵	§ 3.2.2 and § 3.2.3	2	Two separate propagation mode (1) coordination contours, one for the geostationary orbit and one for the non-geostationary orbit.

3.1 The coordinating and unknown earth stations operate to geostationary space stations

When both earth stations operate to space stations in the geostationary orbit, it is necessary to develop a coordination contour, comprising both propagation mode (1) and propagation mode (2) contours, using the procedures described in § 3.1.1 and § 3.1.2, respectively.

3.1.1 Determination of the coordinating earth station's propagation mode (1) contour

The procedure for the determination of the propagation mode (1) contour in this case differs from that described in § 2.2 in two ways. First, the parameters to be used for the unknown receiving earth station are those in Table 3 of Annex VII. Second and more significantly, the knowledge that both earth stations operate to geostationary satellites can be used to calculate the worst-case value of the horizon gain of the receiving earth station toward the transmitting earth station for each azimuth at the transmitting earth station. The propagation mode (1) required distance is that distance, which will result in a value of propagation mode (1) predicted path loss which is equal to the propagation mode (1) minimum required loss, $L_b(p)$ dB, as defined in § 1.3, and repeated here for convenience.

$$L_b(p) = P_t + G_t + G_r - P_r(p) \text{ (dB)} \quad (6)$$

⁵ In this case the bidirectional frequency band may contain allocations in the Earth-to-space direction for space stations in both the geostationary orbit and non-geostationary orbits. Hence the coordinating administration will not know if the unknown receiving earth stations are operating to space stations in the geostationary orbit or non-geostationary orbit.

where

P_t and $P_r(p)$: are as defined in § 1.3;

G_t : gain of the coordinating (transmitting) earth station antenna (dBi) towards the horizon at the horizon elevation angle and the azimuth under consideration;

G_r : the horizon gain of the unknown receiving earth station on the azimuth toward the transmitting earth station on the specific azimuth from the coordinating earth station. Values are determined by the procedure in § 2.1 of Annex V, based on parameters from Table 3 of Annex VII.

To facilitate the determination of the values of G_r to be used at an azimuth from the transmitting earth station, several simplifying approximations must be made:

- that the horizon elevation of the receiving earth station is zero degrees on all azimuths;
- that the receiving earth station operates to a space station that has zero degrees orbital inclination and may be located anywhere on the geostationary orbit that is above the minimum elevation angle, given in Table 3 of Annex VII, for the location of the receiving earth station;
- that the latitude of the receiving earth station is the same as that of the transmitting earth station;
- that plane geometry can be used to interrelate the azimuth angles at the respective earth stations, rather than using the great circle path.

The first three assumptions provide the basis for determining the horizon gain of the receiving earth station on any azimuth. The assumption of 0° horizon elevation angle is conservative since the increase in horizon antenna gain due to a raised horizon would, in practice, be more than offset by any real site shielding⁶. The last two assumptions in the list simplify the calculation of the sum of G_t and G_r along any azimuth. Since the propagation mode (1) required distances are small, in global geometric terms, these approximations may introduce a small error in the determination of the horizon gain of the receiving earth station antenna that, in any case, will not exceed 2 dB. Because of the assumption of plane geometry, for a given azimuth at the transmitting earth station the appropriate value of the horizon gain of the receiving earth station is the value on the reciprocal (i.e., ± 180 degrees, see § 2.1 of Annex V) azimuth at the receiving earth station.

The propagation mode (1) required distance is then determined using the procedures described in § 4, and the detailed methods in Annex I. Specific guidance relevant to the application of the propagation calculations is provided in § 4.4.

3.1.2 Determination of the coordinating earth station's propagation mode (2) contour

The procedure for the determination of the propagation mode (2) contour for a transmitting earth station operating to a geostationary space station uses the same simplifying approximations made in § 3.1.1, but it is based on a geometrical construction that avoids the requirement for a complex propagation model (see § 3 of Annex V). Auxiliary contours cannot be used in this method, as the calculations are not based on the propagation mode (2) required loss.

⁶ While no site shielding can be assumed for the receiving earth station, any site shielding that may exist at the transmitting earth station is considered by taking into account the horizon elevation angle in accordance with § 1 of Annex I.

The propagation mode (2) contour is determined using the elevation angle and the azimuth from the coordinating transmitting earth station to the space station, together with the following two considerations:

- i) the minimum coordination distance (see § 4.2), which will be the required distance for some azimuths; and
- ii) a worst-case required distance determined by the hydrometeor scatter geometry for a receiving earth station located in either of two 6 degree azimuth sectors. Within these sectors the receiving earth station is assumed to be operating at the minimum elevation angle to a space station in the geostationary orbit and its main beam intersects the beam for the coordinating transmitting earth station at the point where the latter beam passes through the rain height (h_R). Although the scattering can occur anywhere between the coordinating earth station and this point, the intersection of the two beams at this point represents the worst-case interference scenario. Hence, it results in the worst-case distance requirement for receiving earth stations located in the two azimuth sectors.

For an earth station operating to a space station in an inclined orbit, the lowest expected operational antenna elevation angle and its associated azimuth are used in the calculations.

The propagation mode (2) contour is determined using the method in § 3 of Annex V.

3.2 The coordinating or unknown earth stations operate to non-geostationary space stations

For the cases where a coordinating (transmitting) earth station operates to non-geostationary space stations, the following procedures assume that the earth station is tracking the space station, otherwise see § 1.4.2. Hence to determine of the coordination area, the method described in § 2.2 is used.

Table 3 of Annex VII provides values of horizon antenna gain to be used in the calculations.

One or more of the following three procedures may be needed to determine the required propagation mode (1) coordination contours of Table 2. Propagation mode (2) contours are not required for any of the cases where either of the earth stations operates to space stations in non-geostationary orbits.

3.2.1 A coordinating earth station operates to geostationary space station with respect to unknown earth stations operating to non-geostationary space stations

When the coordinating earth station operates to a space station in the geostationary orbit and the unknown earth stations operate to space stations in non-geostationary orbits, the propagation mode (1) coordination area is determined using the procedures described in § 2.1.1. The only modification needed is to use the horizon antenna gain (G_r) of the unknown receiving earth station in place of the terrestrial station gain (G_x). The appropriate values for this gain and the appropriate system parameters are contained in Table 3 of Annex VII.

3.2.2 A coordinating earth station operates to non-geostationary space station with respect to unknown earth stations operating to geostationary space stations

When the coordinating earth station operates to space stations in non-geostationary orbits and the unknown earth stations operate to space stations in the geostationary orbit, the horizon antenna gain (G_r) for the unknown receiving earth station is determined in accordance with the simplifying approximations of § 3.1.1, as elaborated in § 1.1 of Annex V, and the parameters of Table 3 of

Annex VII. Determination of the propagation mode (1) coordination area then follows the procedure of § 2.2 by using the appropriate horizon gain of the receiving earth station at each azimuth under consideration and the appropriate system parameters from Table 3 of Annex VII.

3.2.3 The coordinating and unknown earth stations operate to non-geostationary space stations

When the coordinating earth station operates to space stations in non-geostationary orbits and the unknown earth stations operate to space stations in non-geostationary orbits, the propagation mode (1) coordination area is determined using the procedure described in § 2.2. The only modification is to use the horizon antenna gain (G_r) of the unknown receiving earth station in place of the terrestrial station antenna gain. The appropriate values for this gain and the appropriate system parameters are given in Table 3 of Annex VII.

4 General considerations for the determination of the propagation mode (1) required distance

For the determination of the propagation mode (1) required distances, the applicable frequency range has been divided into three parts. The propagation calculations for the VHF/UHF frequencies between 100 MHz and 790 MHz are based upon propagation mode (1) predicted path loss curves. From 790 MHz to 60 GHz the propagation modelling uses tropospheric scatter, ducting and layer reflection/refraction models. At higher frequencies up to 105 GHz the model is based on a free-space loss and a conservative assumption for gaseous absorption. The possible range of time percentages is different in the different propagation models.

After taking site shielding (§ 1 of Annex I) into consideration, for the coordinating earth station only, the following methods are used to determine the propagation mode (1) required distances:

- For frequencies between 100 MHz and 790 MHz the method described in § 2 of Annex I.
- For frequencies between 790 MHz and 60 GHz the method described in § 3 of Annex I.
- For frequencies between 60 GHz and 105 GHz the method described in § 4 of Annex I.

The three methods referred to above rely on a value of propagation mode (1) minimum required loss, determined according to the appropriate system parameters in Table 1, 2 and 3 of Annex VII.

4.1 Radio-climatic information

For the calculation of the propagation mode (1) required distance, the world has been classified in terms of a radio-meteorological parameter representing clear-air anomalous propagation conditions. The percentage of time β_e for which these clear-air anomalous propagation conditions exist, is latitude dependent and is given by:

$$\beta_e = \begin{cases} 10^{1.67-0.015 \zeta_r} & \text{for } \zeta_r \leq 70^\circ \\ 4.17 & \text{for } \zeta_r > 70^\circ \end{cases} \quad (7)$$

$$\quad \quad \quad (8)$$

with:

$$\zeta_r = \begin{cases} |\zeta| - 1.8 & \text{for } |\zeta| > 1.8^\circ \\ 0 & \text{for } |\zeta| \leq 1.8^\circ \end{cases} \quad (9)$$

where

ζ (in degrees) is the latitude of the earth station's location

For frequencies between 790 MHz and 60 GHz the path centre sea level surface refractivity (N_0) is used in the propagation mode (1) calculations. This can be calculated using:

$$N_0 = 330 + 62.6 \exp \left(- \left(\frac{\zeta - 2}{32.7} \right)^2 \right) \quad (11)$$

4.2 Minimum coordination distance for propagation modes (1) and (2)

The minimum coordination distance can be calculated in two steps. First calculate distance d_x using:

$$d_x = 100 + \frac{(\beta_e - 40)}{2} \text{ km} \quad (12)$$

where

β_e is given in § 4.1

Then calculate the minimum coordination distance at any frequency (f in GHz) in the range 100 MHz - 105 GHz using:

$$d_{min} = \begin{cases} 100 + \frac{(\beta_e - f)}{2} \text{ km} & \text{for } f < 40 \text{ GHz} & (13) \\ \frac{(54 - f)d_x + 10(f - 40)}{14} \text{ km} & \text{for } 40 \text{ GHz} \leq f < 54 \text{ GHz} & (14) \\ 10 \text{ km} & \text{for } 54 \text{ GHz} \leq f < 66 \text{ GHz} & (15) \\ \frac{10(75 - f) + 45(f - 66)}{9} \text{ km} & \text{for } 66 \text{ GHz} \leq f < 75 \text{ GHz} & (16) \\ 45 \text{ km} & \text{for } 75 \text{ GHz} \leq f < 90 \text{ GHz} & (17) \\ 45 - \frac{(f - 90)}{1.5} \text{ km} & \text{for } 90 \text{ GHz} \leq f \leq 105 \text{ GHz} & (18) \end{cases}$$

The distance from which all iterative calculations start (for both propagation mode (1) and propagation mode (2)), is the minimum coordination distance (d_{min}) as given in equations (13) to (18).

4.3 Maximum coordination distance for propagation mode (1)

In the iterative calculation described in Annex I, it is necessary to set an upper limit (d_{max1}) to the propagation mode (1) coordination distance.

For frequencies less than or equal to 60 GHz and propagation paths entirely within a single Zone, the distance shall not exceed the maximum coordination distance given in Table 3 for that Zone.

For mixed paths, the required distance can comprise one or more contributions from Zones A1, A2, B and C. The aggregate distance for any one zone must not exceed the value given in Table 3. The overall required distance must not exceed the value in Table 3 for the zone in the mixed path having the largest Table 3 value. Thus a path comprising both Zones A1 and A2 must not exceed 500 km.

TABLE 3
Maximum coordination distances for propagation mode (1) for frequencies below 60 GHz

Zone	d_{max1} (km)
A1	500
A2	375
B	900
C	1 200

For frequencies above 60 GHz the maximum coordination distance d_{max1} is given by:

$$d_{max1} = 80 - 10 \log\left(\frac{p}{50}\right) \quad (19)$$

where

p is defined in § 1.3.

4.4 Guidance on application of propagation mode (1) procedures

As explained in § 1.3, for those cases where earth stations are sharing with terrestrial stations, it is appropriate to apply a correction factor (C_i in dB) to the worst case assumptions on system parameters and interference path geometry. This correction factor takes into account that the assumption that all the worst-case values will occur simultaneously is unrealistic when determining the propagation mode (1) required distances.

The characteristics of terrestrial systems depend on the frequency band, and the value of the correction factor to be applied follows the frequency dependence given in equation (20). At frequencies between 100 MHz and 400 MHz, and between 60 GHz and 105 GHz, sharing between earth stations and terrestrial systems is a recent development and there is little established practical experience, or opportunity to analyse operational systems. Hence, the value of the correction factor is 0 dB in these bands. Between 400 MHz and 790 MHz and between 4.2 GHz and 60 GHz the value of the correction factor is reduced in proportion to the logarithm of the frequency, as indicated in equation (20).

The value of the nominal correction to be used at any frequency f (GHz) is therefore given by:

$$X(f) = \begin{cases} 0 & f \leq 0.4 \\ 3.3833X(\log f + 0.3979), & 0.4 < f \leq 0.79 \\ X & 0.79 < f \leq 4.2 \\ -0.8659X(\log f - 1.7781), & 4.2 < f \leq 60 \\ 0 & f > 60 \end{cases} \quad \text{dB} \quad (20)$$

where

X : is 15 dB for a transmitting earth station and 25 dB for a receiving earth station.

In principle the value of the nominal correction, $X(f)$, is distance and path independent. However, there are a number of issues relating to interference potential at the shorter distances, and it is not appropriate to apply the full nominal correction at these distances. The correction factor is therefore applied proportionally with distance along the azimuth under consideration, starting with 0 dB at d_{min} , such that the full value of $X(f)$ is achieved at a nominal distance of 375 km from the earth station.

Hence, the correction is applied using the correction constant $Z(f)$ dB/km where

$$Z(f) = \frac{X(f)}{375 - d_{min}} \quad \text{dB/km} \quad (21)$$

The correction factor C_i (dB) is calculated in equations (I-6b) and (I-31) from the correction constant $Z(f)$ (dB/km).

At distances greater than 375 km, the correction factor C_i to be applied is the value of C_i at 375 km distance.

In addition, the correction factor is applied to its highest value only on land paths. The correction factor is 0 dB for wholly sea paths. A proportion of the correction factor is applied on mixed paths. The amount of correction to be applied to a particular path is determined by the path description parameters used for the propagation mode (1) calculation (correction factors C_i and C_{2i} in § 2 and § 3 respectively of Annex I). As the correction factor is distance dependent it is applied automatically within the iterative calculation used to determine the propagation mode (1) required distance (see Annex I).

The correction factor does not apply to the bidirectional case and therefore in the determination of the bidirectional coordination contour:

$$Z(f) = 0 \text{ dB/km}$$

For the determination of propagation mode (1) auxiliary contours, the propagation mode (1) minimum required loss $L_b(p)$ for p per cent of time (see § 1.3) equation (1) is replaced by:

$$L_{bq}(p) = L_b(p) + Q \quad \text{dB} \quad (22)$$

where

Q : is the auxiliary contour value in dB

Note that auxiliary contour values are assumed to be negative (i.e. -5, -10, -15, -20 dB etc.).

5 General considerations for the determination of the propagation mode (2) required distance

The determination of the contour for scattering from hydrometeors (e.g., rain scatter) is predicted on a path geometry that is substantially different from that of the great-circle propagation mechanisms. Hydrometeor scatter can occur where the beams of the earth station and the terrestrial station intersect (partially or completely) at, or below, the rain height h_R (see § 3 of Annex II). It is assumed that at heights above this rain height the effect of scattering will be suppressed by additional attenuation, and it will not, therefore, contribute significantly to the interference potential. For the determination of the propagation mode (2) contour, it is assumed that the main beams of any terrestrial stations exactly intersect the main beam of the coordinating earth station. The mitigating effects of partial beam intersections can be determined using propagation mode (2) auxiliary contours.

Since, to a first approximation, microwave energy is scattered isotropically by rain, interference can be considered to propagate equally at all azimuths around the common volume centred at the beam intersection (see § 1.3). Generally, the beam intersection will not lie on the great-circle path between the two stations. The common volume can therefore result from terrestrial stations located anywhere around the earth station, including those behind the earth station.

The propagation mode (2) contour is a circle with a radius equal to the propagation mode (2) required distance. Unlike the case for propagation mode (1), the propagation mode (2) contour is not centred on the earth station's physical location, instead it is centred on a point on the earth's surface immediately below the centre of the common volume.

A common volume can exist, with equal probability, at any point along the earth station beam between the earth station's location and the point at which the beam reaches the rain height. To provide appropriate protection for/from terrestrial stations⁷, the centre of the common volume is assumed to be half way between the earth station and the point at which its beam intersects the rain height. The distance between the projection of this point on to the earth surface and the location of the earth station is known as Δd (see § 4 of Annex II). The centre of the propagation mode (2) contour is therefore Δd km from the earth station on the azimuth of the earth station's main beam axis.

5.1 The required distance for propagation mode (2)

Propagation mode (2) required distances are measured along a radial originating at the centre of the rain scatter common volume. The calculation requires iteration for distance, starting at the same minimum distance defined for propagation mode (1) until either the required propagation mode (2) minimum required loss, or a latitude-dependent propagation mode (2) maximum calculation distance, is achieved. The propagation mode (2) calculations use the method described in Annex II. The calculations only need to be performed in the frequency range 1 000 MHz to 40.5 GHz. Outside this frequency range, rain scatter interference can be neglected and the propagation mode (2) required distance is set to the minimum coordination distance given by equations (13) to (18).

⁷ This procedure does not apply for the case of an earth sharing a frequency band with other earth station operating in the opposite direction of transmission, as for that specific case the propagation mode (2) contour is based on a geometric construction.

ANNEX I

Determination of the required distance for propagation mode (1)

1 Adjustments for earth station horizon elevation angle and distance

For propagation mode (1), the required distance depends on the characteristics of the physical horizon around the earth station. The horizon is characterised by the horizon distance d_h (see below), and the horizon elevation angle ε_h . The horizon elevation angle is defined here as the angle (in degrees), viewed from the centre of the earth station antenna, between the horizontal plane and a ray that grazes the physical horizon in the direction concerned. The value of ε_h is positive when the physical horizon is above the horizontal plane and negative when it is below.

It is necessary to determine horizon elevation angles and distances for all azimuths around an earth station. In practice it will generally suffice to do this in azimuth increments of 5° . However, every attempt should be made to identify, and take into consideration, minimum horizon elevation angles that may occur between those azimuths examined in 5° increments.

For the purposes of the determination of the propagation mode (1) required distance it is useful to separate the propagation effects related to the local horizon around the earth station which, on some or all azimuths, may be determined by nearby hills or mountains, from the propagation effects on the remainder of the path. This is achieved by referencing the propagation model to a 0° horizon elevation angle for the coordinating earth station, and then to include a specific term A_h to deal with the known horizon characteristics of the earth station being coordinated. Where appropriate, A_h modifies the value of the path loss, on each azimuth, from which the propagation mode (1) required distance is derived.

There are two considerations to be taken into account that can change the level of attenuation for the propagation mode (1) path loss for the reference 0° case.

- The first is where the coordinating earth station has a positive horizon elevation angle (on a particular azimuth). In this case it will benefit from additional diffraction propagation losses over the horizon (generally referred to as site shielding). In this case the attenuation A_h is positive and reduces the value of path loss that is required, compared to the reference 0° horizon elevation angle case (see equations (I-5a) and (I-5b)).
- The second situation is where the coordinating earth station is at a location above the local foreground, and has a negative (downward) horizon elevation angle on a particular azimuth. In this case a measure of additional protection is necessary because the path angular distance along the radial is reduced and hence the path loss for a given distance will be lower than for the zero degree elevation angle case. It is convenient to deal with this effect as part of the site shielding calculation. Hence, in this case the attenuation A_h will be negative and it increases the value of the path loss that is required, compared to the reference 0° horizon elevation angle case.

The contribution made by the attenuation arising from the coordinating earth station's horizon characteristics to the propagation mode (1) minimum required loss modifies the value of path loss that then needs to be determined in the three propagation mode (1) models. The attenuation A_h is calculated for each azimuth around the coordinating earth station as follows.

The distance of the horizon (d_h), from the earth station's location, is determined by:

$$d_h = \begin{cases} 0.5 \text{ km} & \text{if no information is available about the horizon distance, or if the distance is } < 0.5 \text{ km.} \\ \text{horizon distance (km)} & \text{if this is within the range } 0.5 \text{ km} \leq \text{horizon distance} \leq 5.0 \text{ km.} \\ 5.0 \text{ km} & \text{if the horizon distance is } > 5.0 \text{ km.} \end{cases}$$

The contribution made by the horizon distance d_h to the total site shielding attenuation is given by A_d in dB for each azimuth using:

$$A_d = 15 \left[1 - \exp\left(\frac{0.5 - d_h}{5}\right) \right] \left[1 - \exp(-\varepsilon_h f^{1/3}) \right] \quad \text{dB} \quad (\text{I-1})$$

where

f : throughout this Annex is in GHz.

The total site shielding attenuation along each azimuth from the coordinating earth station is given by:

$$A_h = \begin{cases} 20 \log(1 + 4.5 \varepsilon_h f^{1/2}) + \varepsilon_h f^{1/3} + A_d & \text{dB} & \text{for } \varepsilon_h \geq 0^\circ & (\text{I-2a}) \\ 3[(f+1)^{1/2} - 0.0001f - 1.0487] \varepsilon_h & \text{dB} & \text{for } 0^\circ > \varepsilon_h \geq -0.5^\circ & (\text{I-2b}) \\ -1.5[(f+1)^{1/2} - 0.0001f - 1.0487] & \text{dB} & \text{for } \varepsilon_h < -0.5^\circ & (\text{I-2c}) \end{cases}$$

The value of A_h must be limited to satisfy the conditions:

$$-10 \leq A_h \leq (30 + \varepsilon_h) \quad (\text{I-3})$$

In equations I-1, I-2 and I-3 the value of ε_h must always be expressed in degrees. The limits defined in equation (I-3) are specified because protection outside these limits may not be realized in practical situations.

2 Frequencies between 100 MHz and 790 MHz

The propagation model given in this section is limited to an average annual time percentage (p) in the range 1% to 50%.

An iterative process is used to determine the propagation mode (1) required distance. First, equation I-5 is evaluated. Then commencing at the minimum coordination distance, d_{min} , given by the method described in § 1.5.3 of the main body of this Appendix, equations (I-6) to (I-9) are iterated for distances d_i (where $i = 0, 1, 2, \dots$) incremented in steps of s (km) as described in § 1.3 of the main body of this Appendix. In each iteration d_i is referred to as the current distance. This process is continued until either of the following expressions becomes true:

$$L_2(p_I) \geq \begin{cases} L_I(p) & \text{for the main, or supplementary, contour} \\ L_{Iq}(p) & \text{for the auxiliary contour} \end{cases} \quad (\text{I-4a})$$

or:

$$d_i \geq \begin{cases} d_{maxI} & \text{for the main, or supplementary, contour} \\ d_I & \text{for the auxiliary contour} \end{cases} \quad (\text{I-4b})$$

The required distance, d_I , or the auxiliary contour distance d_q are then given by the current distance for the last iteration: i.e.

$$d_I = d_i \quad (\text{I-4c})$$

or:

$$d_q = d_i \quad (\text{I-4d})$$

As the eventual mix of zones along a path is unknown, all paths are treated as if they are potential land and sea paths. Parallel calculations are undertaken, the first assuming the path is all land and a second assuming it is all sea. A non-linear interpolation is then performed, the output of which depends upon the current mix of land and sea losses in the distance d_i . Where the current mix along the path includes sections of both warm sea and cold sea zones, all the sea along that path is assumed to be warm sea.

For the main, or supplementary, contour:

$$L_1(p) = L_b(p) - A_h \quad (\text{I-5a})$$

For an auxiliary contour:

$$L_{Iq}(p) = L_{bq}(p) - A_h \quad (\text{I-5b})$$

where

$L_b(p)$ dB and $L_{bq}(p)$ Db are the minimum required loss required for $p\%$ of the time for the main, or supplementary, contour and the auxiliary contour of value Q dB respectively (see § 1.3 and § 1.6 of the main body of this Appendix).

Iterative calculations:

At the start of each iteration calculate the current distance for $i = 0, 1, 2$, etc.:

$$d_i = d_{\min} + i.s \quad (\text{I-6a})$$

The correction factor, C_i dB, (see § 4.4 of the main body of this Appendix) for the distance d_i is given by:

$$C_i = \begin{cases} Z(f)(d_i - d_{\min}) \text{ (dB)} & \text{for the main, or supplementary, contour} \\ 0 & \text{(dB) for the auxiliary contour} \end{cases} \quad (\text{I-6b})$$

where

$Z(f)$ is given by equation (21) in § 4.4 of the main body of this Appendix.

At distances greater than 375 km the value of the correction factor (C_i in equation (I-6b)) to be applied, is the value of C_i at the 375 km distance.

The loss, $L_{bl}(p)$ for the assumption of the path being wholly land (Zones A1 or A2) is evaluated successively using:

$$L_{bl}(p) = 142.8 + 20\log f + 10\log p + 0.1d_i + C_i \quad (\text{I-7})$$

The loss, $L_{bs}(p)$, for the assumption of the path being wholly cold sea (Zone B) or warm sea (Zone C) is evaluated successively using:

$$L_{bs}(p) = \begin{cases} \left. \begin{aligned} &49.91\log(d_i + 1840f^{1.76}) + 1.195f^{0.393}(\log p)^{1.38}d_i^{0.597} \\ &+ (0.01d_i - 70)(f - 0.1581) + (0.02 - 2 \times 10^{-5}p^2)d_i \\ &+ 9.72 \times 10^{-9}d_i^2p^2 + 20.2 \end{aligned} \right\} \text{for Zone (B)} \quad (\text{I-8a})$$

$$\left. \begin{aligned} &49.343\log(d_i + 1840f^{1.58}) + 1.266(\log p)^{(0.468+2.598f)}d_i^{0.453} \\ &+ (0.037d_i - 70)(f - 0.1581) + 1.95 \times 10^{-10}d_i^2p^3 + 20.2 \end{aligned} \right\} \text{for Zone (C)} \quad (\text{I-8b})$$

The predicted path loss at the current distance is then given by:

$$L_2(p) = L_{bs}(p) + \left[1 - \exp\left(-5.5\left(\frac{d_{tm}}{d_i}\right)^{1.1}\right) \right] \cdot (L_{bl}(p) - L_{bs}(p)) \quad (\text{I-9})$$

where

d_{tm} (km): is the longest continuous land (inland + coastal) distance, i.e. Zone A1 + Zone A2 within the current path distance.

3 Frequencies between 790 MHz and 60 GHz

The propagation model given in this section is limited to an average annual time percentage (p_1) in the range 0.001% to 50%.

An iterative process is used to determine the propagation mode (1) required distance. First, equations (I-11) to (I-21) are evaluated. Then, commencing at the minimum coordination distance, d_{min} , equations (I-22) to (I-32) are iterated for distances d_i , where $i = 0, 1, 2, \dots$, incremented in steps of s (km) as described in § 1.3 of the main body of this Appendix. For each iteration d_i is referred to as the current distance. This process is continued until either of the following expressions becomes true:

$$\begin{cases} (L_5(p) \geq L_3(p)) \text{ AND } (L_6(p) \geq L_4(p)) & \text{for the main, or supplementary, contour} \\ (L_5(p) \geq L_{3q}(p)) \text{ AND } (L_6(p) \geq L_{4q}(p)) & \text{for the auxiliary contour} \end{cases} \quad (\text{I-10a})$$

or:

$$d_i \geq \begin{cases} d_{max1} & \text{for the main, or supplementary, contour} \\ d_1 & \text{for the auxiliary contour} \end{cases} \quad (\text{I-10b})$$

The required distance, d_1 , or the auxiliary contour distance, d_q is then given by the current distance for the last iteration, i.e.

$$d_1 = d_i \quad (\text{I-10c})$$

or:

$$d_q = d_i \quad (I-10d)$$

The specific attenuation due to gaseous absorption

Calculate the specific attenuation (dB/km) due to dry air:

$$\gamma_o = \begin{cases} \left[7.19 \times 10^{-3} + \frac{6.09}{f^2 + 0.227} + \frac{4.81}{(f - 57)^2 + 1.50} \right] f^2 \times 10^{-3} & \text{for } f \leq 56.77 \text{ GHz} \\ 10 & \text{for } f > 56.77 \text{ GHz} \end{cases} \quad \begin{matrix} \text{(I-11a)} \\ \text{(I-11b)} \end{matrix}$$

$$\text{for } f > 56.77 \text{ GHz} \quad (\text{I-11b})$$

The specific attenuation due to water vapour is given as a function of ρ (the water vapour density in units of g/m^3) by the following equation:

$$\gamma_w(\rho) = \left(0.050 + 0.0021\rho + \frac{3.6}{(f - 22.2)^2 + 8.5} \right) f^2 \rho \times 10^{-4} \quad (\text{I-12})$$

Calculate the specific attenuation (dB/km) due to water vapour for the troposcatter propagation model using a water vapour density of 3.0 g/m^3 :

$$\gamma_{\text{wt}} = \gamma_{\text{w}} \quad (3.0) \quad (\text{I-13a})$$

Calculate the specific attenuation (dB/km) due to water vapour for the ducting propagation model using a water vapour density of 7.5 g/m^3 for paths over land, Zones A1 and A2, using:

$$\gamma_{\text{wdl}} = \gamma_{\text{w}} \quad (7.5) \quad (\text{I-13b})$$

Calculate the specific attenuation (dB/km) due to water vapour for the ducting propagation model using a water vapour density of 10.0 g/m^3 for paths over sea, Zones B and C, using:

$$\gamma_{\text{wds}} = \gamma_{\text{w}} (10.0) \quad (\text{I-13c})$$

Note that the value of 10 g/m^3 is used for both zones B and C in view of the lack of data on the variability of water vapour density on a global basis, particularly the minimum values.

Calculate the frequency-dependent ducting specific attenuation (dB/km):

$$\gamma_d = 0.05 f^{1/3} \quad (\text{I-14})$$

For the ducting model:

Calculate the reduction in attenuation arising from direct coupling into over-sea ducts (dB):

$$A_c = \frac{-6}{(1 + d_c)} \quad (\text{I-15})$$

where

d_c (km): is the distance from a land based earth station to the coast in the direction being considered;

d_c : is zero in other circumstances.

Calculate the minimum loss to be achieved within the iterative calculations:

$$A_1 = 122.43 + 16.5 \log f + A_h + A_c \quad (\text{I-16})$$

For the main, or supplementary, contour:

$$L_3(p) = L_b(p) - A_1 \quad (\text{I-17a})$$

For an auxiliary contour:

$$L_{3q}(p) = L_{bq}(p) - A_1 \quad (\text{I-17b})$$

where

$L_b(p)$ dB and $L_{bq}(p)$ dB are the minimum required loss required for $p\%$ of the time for the main, or supplementary, contour and the auxiliary contour of value Q dB respectively (see § 1.3 and § 1.6 of the main body of this Appendix).

For the tropospheric scatter model:

Calculate the frequency-dependent part of the losses (dB):

$$L_f = 25 \log(f) - 2.5 \left[\log\left(\frac{f}{2}\right) \right]^2 \quad (\text{I-19})$$

Calculate the non-distance-dependent part of the losses (dB):

$$A_2 = 187.36 + 10\varepsilon_h + L_f - 0.15 N_0 - 10.1 \left(-\log\left(\frac{p}{50}\right) \right)^{0.7} \quad (\text{I-20})$$

where

ε_h : is the earth station horizon elevation angle in degrees;

N_0 : is the path centre sea level surface refractivity (see equation 11, § 4.1 to the main body of this Appendix).

Calculate the minimum required value for the distance dependent losses (dB):

For the main, or supplementary, contour:

$$L_4(p) = L_b(p) - A_2 \quad (\text{I-21a})$$

For an auxiliary contour:

$$L_{4q}(p) = L_{bq}(p) - A_2 \quad (\text{I-21b})$$

where

$L_b(p)$ dB and $L_{bq}(p)$ dB are the minimum required loss required for $p\%$ of the time for the main, or supplementary, contour and the auxiliary contour of value Q dB respectively (see § 1.3 and § 1.6 of the main body of this Appendix).

Iterative calculations:

At the start of each iteration calculate the current distance for $i = 0, 1, 2, \dots$:

$$d_i = d_{\min} + i.s \quad (\text{I-22})$$

Calculate the specific attenuation due to gaseous absorption (dB/km):

$$\gamma_g = \gamma_o + \gamma_{wdl} \left(\frac{d_t}{d_i} \right) + \gamma_{wds} \left(1 - \frac{d_t}{d_i} \right) \quad (\text{I-23})$$

where

d_t (km): is the current aggregate land distance, Zone A1 + Zone A2, within the current path distance.

Calculate the following zone-dependent parameters:

$$\tau = 1 - \exp \left(- \left(4.12 \times 10^{-4} (d_{lm})^{2.41} \right) \right) \quad (\text{I-24})$$

where

d_{lm} (km): is the longest continuous inland distance, Zone A2, within the current path distance;

$$\mu_1 = \left[10^{\frac{-d_{lm}}{16-6.6\tau}} + \left[10^{-(0.496+0.354\tau)} \right]^5 \right]^{0.2} \quad (\text{I-25})$$

where

d_{lm} (km): is the longest continuous land (i.e. inland + coastal) distance, Zone A1 + Zone A2 within the current path distance.

μ_1 shall be limited to $\mu_1 \leq 1$.

$$\sigma = -0.6 - 8.5 \times 10^{-9} d_i^{3.1} \tau \quad (\text{I-26})$$

σ shall be limited to $\sigma \geq -3.4$.

$$\mu_2 = \left(2.48 \times 10^{-4} d_i^2\right)^\sigma \quad (\text{I-27})$$

μ_2 shall be limited to $\mu_2 \leq 1$.

$$\mu_4 = \begin{cases} 10^{(-0.935 + 0.0176\zeta_r) \log \mu_1} & \text{for } \zeta_r \leq 70^\circ \\ 10^{0.3 \log \mu_1} & \text{for } \zeta_r > 70^\circ \end{cases} \quad (\text{I-28a})$$

$$\mu_4 = \begin{cases} 10^{0.3 \log \mu_1} & \text{for } \zeta_r > 70^\circ \end{cases} \quad (\text{I-28b})$$

where

ζ_r : is given in equations (9) and (10), § 4.1 to the main body of this Appendix.

Calculate the path-dependent incidence of ducting (β) and a related parameter (Γ_1) used to calculate the time dependency of the path loss:

$$\beta = \beta_e \cdot \mu_1 \cdot \mu_2 \cdot \mu_4 \quad (\text{I-29})$$

where

β_e is given in equations (7) and (8), § 4.1 to the main body of this Appendix.

$$\Gamma_1 = \frac{1.076}{(2.0058 - \log \beta)^{1.012}} \exp \left(- (9.51 - 4.8 \log \beta + 0.198 (\log \beta)^2) \times 10^{-6} d_i^{1.13} \right) \quad (\text{I-30})$$

Calculate the correction factor, C_{2i} dB, (see § 4.4 to the main body of this Appendix) using:

$$C_{2i} = \begin{cases} Z(f)(d_i - d_{min})\tau \quad (\text{dB}) & \text{for the main, or supplementary, contour} \\ 0 \quad (\text{dB}) & \text{for the auxiliary contour} \end{cases} \quad (\text{I-31})$$

where

$Z(f)$ is calculated using (equation 21) in § 4.4 to the main body of this Appendix.

At distances greater than 375 km the value of the correction factor (C_{2i} in equation (I-31)) to be applied, is the value of C_{2i} at the 375 km distance.

Calculate the distance-dependent part of the losses (dB) for ducting:

$$L_5(p) = (\gamma_d + \gamma_g) d_i + (1.2 + 3.7 \times 10^{-3} d_i) \log \left(\frac{p}{\beta} \right) + 12 \left(\frac{p}{\beta} \right)^{\gamma_r} + C_{2i} \quad (\text{I-32})$$

and for tropospheric scatter:

$$L_6(p) = 20 \log(d_i) + 5.73 \times 10^{-4} (112 - 15 \cos(2\zeta)) d_i + (\gamma_o + \gamma_{wt}) d_i + C_{2i} \quad (\text{I-33})$$

For the determination of distances for auxiliary contours, $C_{2i} = 0$ dB.

4 Frequencies between 60 GHz and 105 GHz

This propagation model is valid for average annual percentage time (p) in the range from 0.001% to 50%.

An iterative process is used to determine the propagation mode (1) required distance. First, equations (I-34) to (I-38) are evaluated. Then commencing at the minimum coordination distance, d_{min} , equations (I-39) and (I-40) are iterated for distances d_i , where $i = 0, 1, 2, \dots$, incremented in steps of s km as described in § 1.3 of the main body of this Appendix. For each iteration d_i is referred to as the current distance.

This process is continued until either of the following expressions becomes true:

$$L_9(p) \geq \begin{cases} L_8(p) & \text{for the main, or supplementary, contour} \\ L_{8q}(p) & \text{for the auxiliary contour} \end{cases} \quad (\text{I-33a})$$

or:

$$d_i \geq \begin{cases} d_{max1} & \text{for the main, or supplementary, contour} \\ d_1 & \text{for the auxiliary contour} \end{cases} \quad (\text{I-33b})$$

The required distance, d_1 , or the auxiliary contour distance d_q are then given by the current distance for the last iteration: i.e.

$$d_1 = d_i \quad (\text{I-33c})$$

or:

$$d_q = d_i \quad (\text{I-33d})$$

Calculate the specific attenuation in dB/km for dry air in the frequency range 60 GHz to 105 GHz using:

$$\gamma_{om} = \begin{cases} \left[2 \times 10^{-4} \left(1 - 1.2 \times 10^{-5} f^{1.5} \right) + \frac{4}{(f-63)^2 + 0.936} + \frac{0.28}{(f-118.75)^2 + 1.771} \right] f^2 6.24 \times 10^{-4} \text{ dB/km} & \text{for } f > 63.26 \text{ GHz} \\ 10 \text{ dB/km} & \text{for } f \leq 63.26 \text{ GHz} \end{cases} \quad (\text{I-34a})$$

$$10 \text{ dB/km} \quad \text{for } f \leq 63.26 \text{ GHz} \quad (\text{I-34b})$$

Calculate the specific attenuation in dB/km for an atmospheric water vapour density of 3 g/m³ using:

$$\gamma_{wm} = \left(0.039 + 7.7 \times 10^{-4} f^{0.5} \right) f^2 2.369 \times 10^{-4} \quad (\text{I-35})$$

Calculate a conservative estimate of the specific attenuation in dB/km for gaseous absorption using:

$$\gamma_{gm} = \gamma_{om} + \gamma_{wm} \quad \text{dB/km} \quad (\text{I-36})$$

For the required frequency, and the value of earth station site shielding, A_h dB, as calculated using the method described in § 1 of this Annex, calculate the minimum loss to be achieved in the iterative calculations.

$$L_7 = 92.5 + 20 \log(f) + A_h \quad \text{dB} \quad (\text{I-37})$$

For the main, or supplementary, contour:

$$L_8(p) = L_b(p) - L_7 \quad \text{dB} \quad (\text{I-38a})$$

For an auxiliary contour:

$$L_{8q}(p) = L_{bq}(p) - L_7 \quad \text{dB} \quad (\text{I-38b})$$

where

$L_b(p)$ dB and $L_{bq}(p)$ dB are the minimum required loss required for $p\%$ of the time for the main or supplementary contour and the auxiliary contour of value Q dB respectively (see § 1.3 and § 1.6 of the main body of this Appendix).

Iterative calculations:

At the start of each iteration calculate the current distance for $i = 0, 1, 2$ etc.:

$$d_i = d_{min} + i.s \quad (\text{I-39})$$

Calculate the distance-dependent losses for the current distance:

$$L_9(p) = \gamma_{gm} d_i + 20 \log(d_i) + 2.6 \left[1 - \exp\left(\frac{-d_i}{10}\right) \right] \log\left(\frac{p}{50}\right) \quad (\text{I-40})$$

For frequencies above 60 GHz the correction factor (see § 4.4 of the main body of this Appendix) is 0 dB. Therefore a correction term has not been added to equation (I-40).

ANNEX II

Determination of the required distance for propagation mode (2)

1 Overview

The algorithm given below allows propagation mode (2) path loss, $L_r(p)$ (dB), to be obtained as a monotonic function of rainfall rate, $R(p)$ (mm/h), and with the hydrometeor scatter distance, r_i (km), as a parameter. The model is valid for average annual time percentage (p) in the range 0.001 to 10%. The procedure to determine the hydrometeor scatter contour is as follows:

- a) The value of $R(p)$, is determined for the appropriate rain climatic Zones A to Q.
- b) Values of $L_r(p)$, are then calculated for incremental values of r_i , starting at the minimum coordination distance d_{min} , in steps of s (km), as described in § 1.3 of the main body of this Appendix. The correct value of r_i is that for which the corresponding value of $L_r(p)$ equals or exceeds the propagation mode (2) minimum required loss $L(p)$. This value of r_i is the propagation mode (2) required distance and is denoted d_r .
- c) If the iterative calculation results in r_i equalling or exceeding the appropriate maximum calculation distance (d_{max2}) given in § 2, then the calculation is terminated and d_r is assumed to be equal to d_{max2} . Hence the iteration stops when either of the following expressions becomes true:

$$L_r(p) \geq L(p) \quad (II-1a)$$

or:

$$r_i \geq d_{max2} \quad (II-1b)$$

- d) The contour for propagation mode (2) is a circle of radius d_r (km) centred on a point along the azimuth of the earth station antenna main beam at a horizontal distance of Δd (km) from the earth station.

2 Maximum calculation distance

As discussed in § 1.5.3 of the main body of this Appendix, it is necessary to set upper limits to the maximum distance used in the iterative calculation of the required distance. The maximum calculation distance to be used for propagation mode (2) (d_{max2}) is latitude dependent and is given in the following equation:

$$d_{max2} = \sqrt{17\,000(h_R + 3)} \text{ (km)}$$

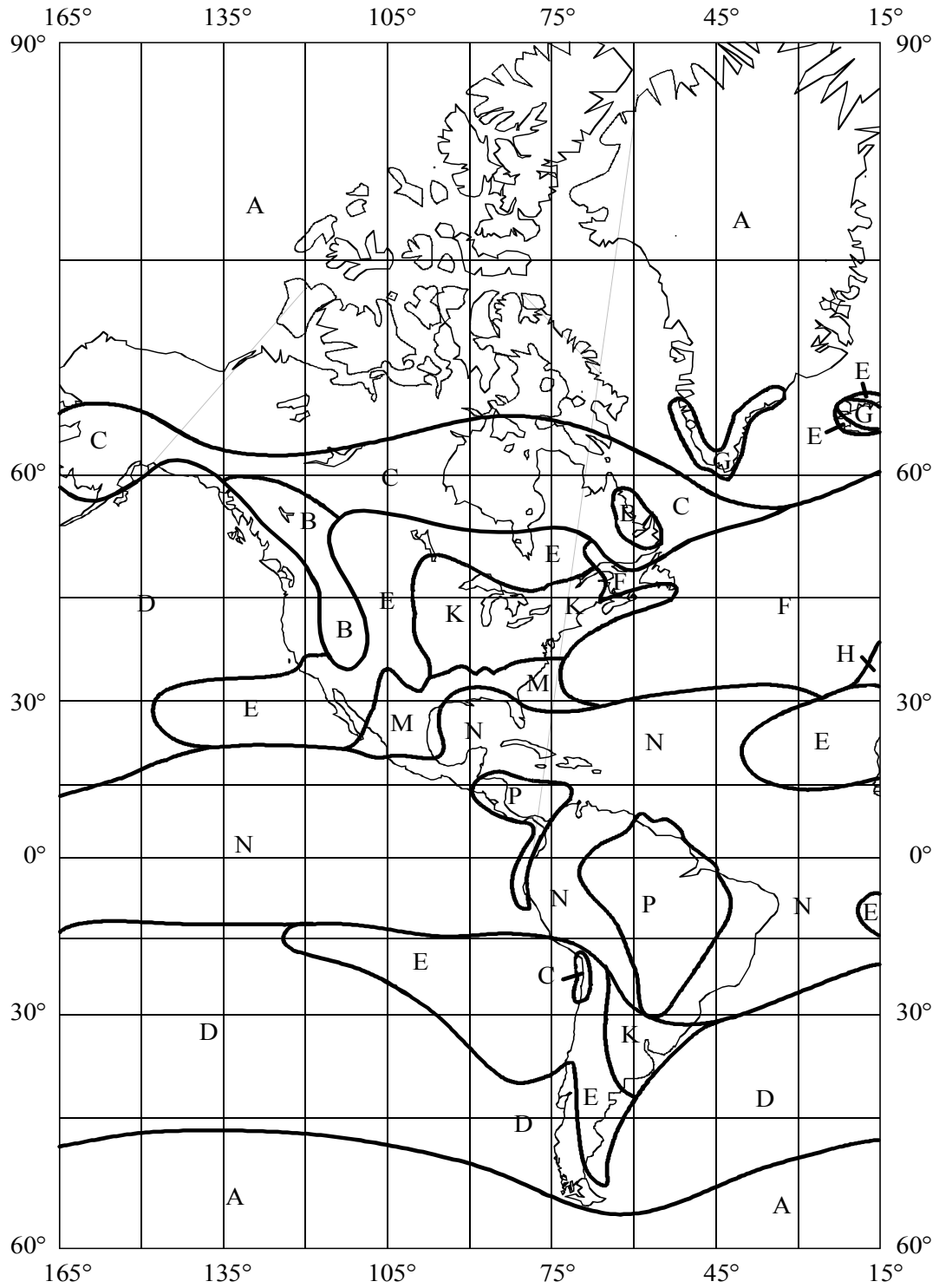
where

h_R is defined in equations (II-13) and (II-14).

3 Calculation of the propagation mode (2) contour

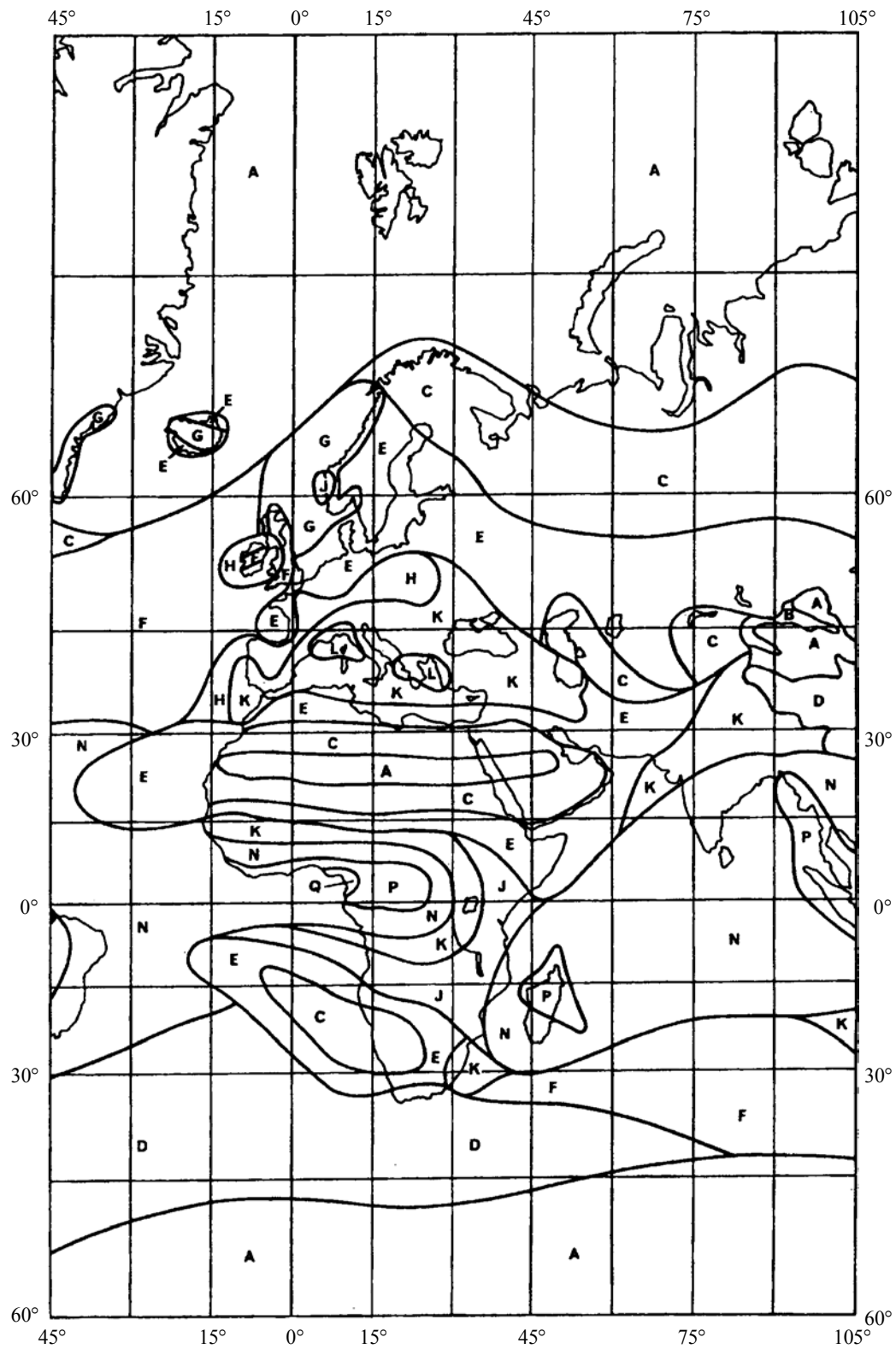
Determine $R(p)$, the rainfall rate (mm/h) exceeded on average for $p\%$ of a year. The world has been divided into a number of rain climatic zones (see Figures II-1, II-2 and II-3) which show different precipitation characteristics.

FIGURE II-1



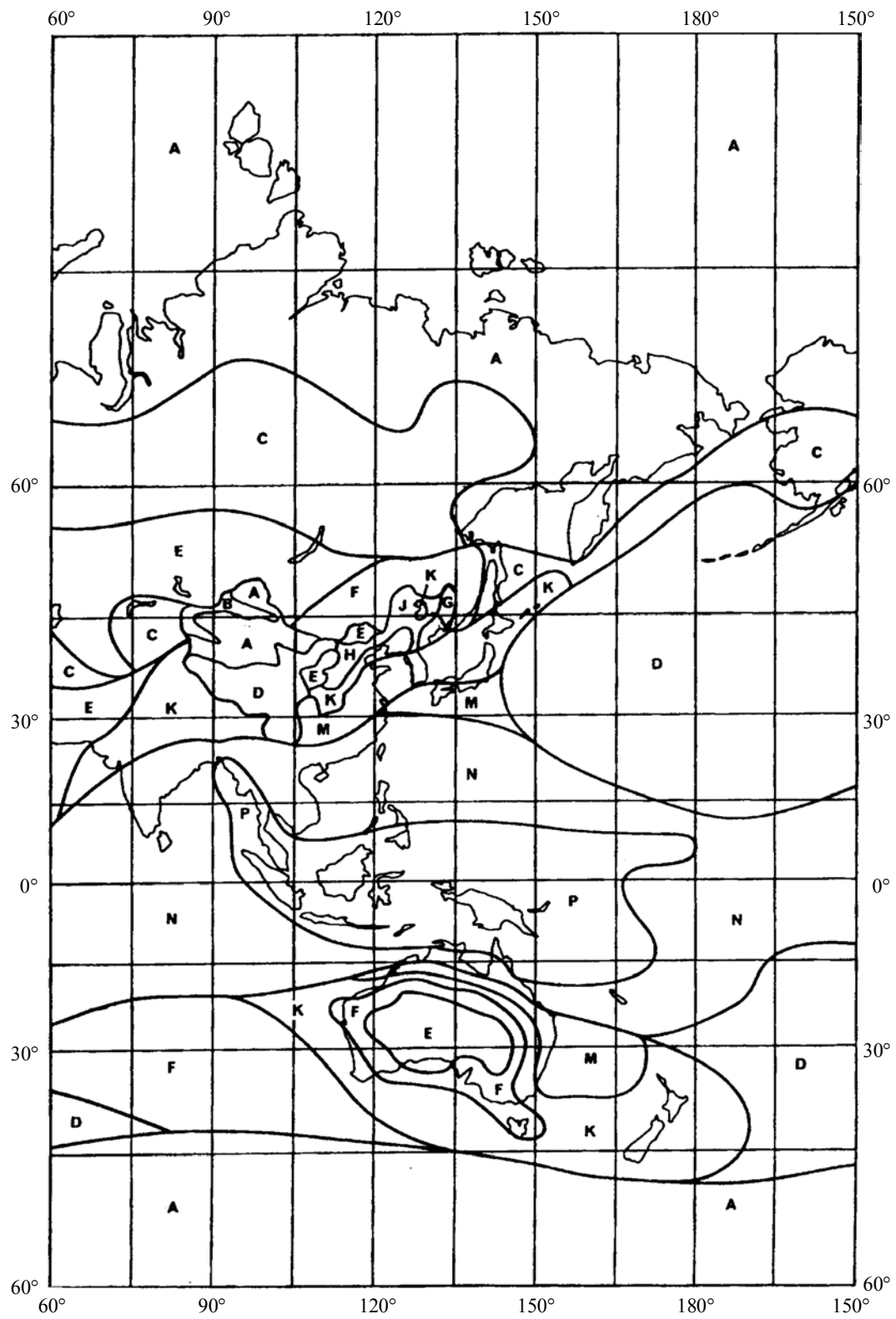
Rose 1/1004-021AP

FIGURE II-2



Rose 1/1004-022AP

FIGURE II-3



Rose 1/1004-023AP

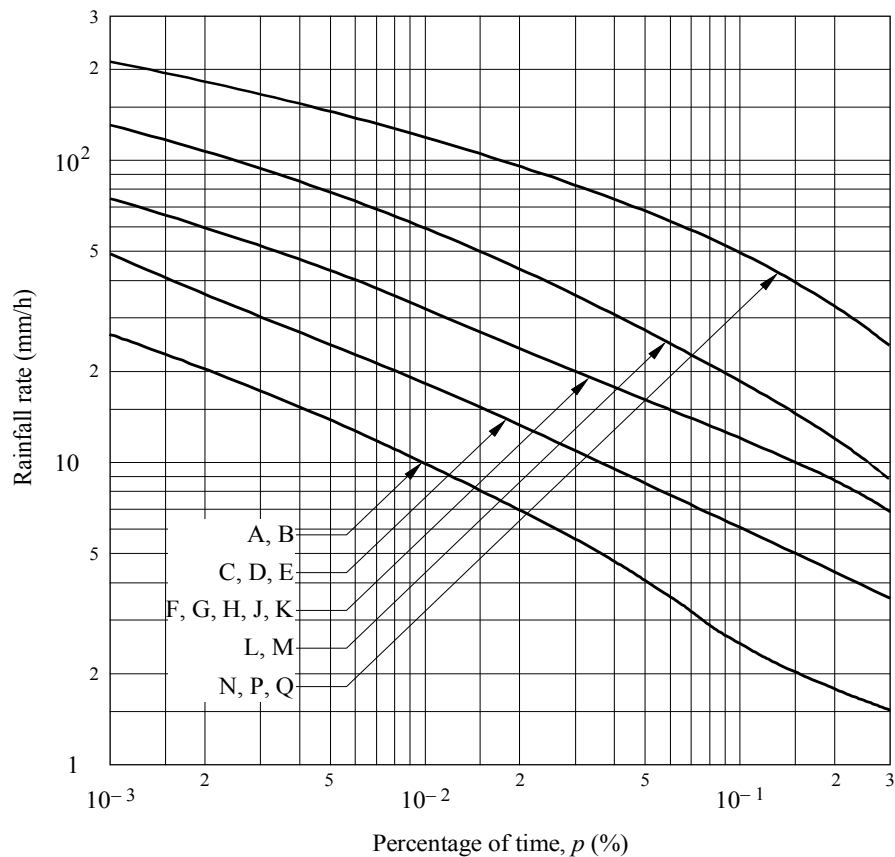
The curves shown in Figure II-4 represent consolidated rainfall-rate distributions, each applicable to several of these rain climatic Zones.

Determine which rain climatic Zone is applicable to the location of the earth station:

- For $0.001\% < p < 0.3\%$ and the applicable rain climatic Zone:
Determine $R(p)$ either from Figure II-4 or from equations (II-2, II-3, II-4, II-5, II-6).
- For $p \geq 0.3\%$:
Use equation (II-7) with values of $R(0.3\%)$ and p_c obtained from Table II-1.

FIGURE II-4

Consolidated cumulative distributions of rainfall rate for the rain climatic zones shown in figures II-1, II-2, and II-3



Rose 1/1004-024

Rain climatic Zones A, B

$$R(p) = 1.1 p^{-0.465} + 0.25 [\log(p/0.001) \log^3(0.3/p)] - [\log(p/0.1) + 1.1]^2 \quad (\text{II-2})$$

Rain climatic Zones C, D, E

$$R(p) = 2 p^{-0.466} + 0.5 [\log(p/0.001) \log^3(0.3/p)] \quad (\text{II-3})$$

Rain climatic Zones F, G, H, J, K

$$R(p) = 4.17 p^{-0.418} + 1.6 [\log(p/0.001) \log^3(0.3/p)] \quad (\text{II-4})$$

Rain climatic Zones L, M

$$R(p) = 4.9 p^{-0.48} + 6.5 \left[\log(p/0.001) \log^2(0.3/p) \right] \quad (\text{II-5})$$

Rain climatic Zones N, P, Q

$$R(p) = 15.6 \left(p^{-0.383} + \left[\log(p/0.001) \log^{1.5}(0.3/p) \right] \right) \quad (\text{II-6})$$

TABLE II-1

Values of R and p_c for the different rain climatic Zone

Rain climatic zone	R (0.3%) (mm/h)	p _c (%)
A, B	1.5	2
C, D, E	3.5	3
F, G, H, J, K	7.0	5
L, M	9.0	7.5
N, P, Q	25.0	10

where

p_c %: is the reference time percentage above which the rainfall rate R(p) can be assumed to be zero.

$$R(p) = R(0.3\%) \left[\frac{\log(p_c / p)}{\log(p_c / 0.3)} \right]^2 \quad (\text{II-7})$$

Determine the specific attenuation (dB/km) due to rain using values of k and α from Table II-2 in equation II-9. Values of k and α at frequencies other than those in Table II-2 can be obtained by interpolation using a logarithmic scale for frequency, a logarithmic scale for k and a linear scale for α.

TABLE II-2

Values of k and α for vertical polarization as a function of the frequency

Frequency (GHz)	k	α
1	0.000 0352	0.880
4	0.000 591	1.075
6	0.001 55	1.265
8	0.003 95	1.31
10	0.008 87	1.264
12	0.016 8	1.20
14	0.029	1.15
18	0.055	1.09
20	0.069 1	1.065
22.4	0.090	1.05
25	0.113	1.03
28	0.150	1.01
30	0.167	1.00
35	0.233	0.963
40	0.310	0.929
40.5	0.318	0.926

let:

$$R = R(p) \quad (\text{II-8})$$

Then the specific attenuation (dB/km) due to rain is given by:

$$\gamma_R = k R^\alpha \quad (\text{II-9})$$

Calculate the effective diameter of the rain cell.

$$d_s = 3.5 R^{-0.08} \quad (\text{II-10})$$

Then, calculate the effective scatter transfer function.

$$R_{cv} = \frac{2.17}{\gamma_R d_s} \left(1 - 10^{\frac{-\gamma_R d_s}{5}} \right) \quad (\text{II-11})$$

Calculate the additional attenuation outside the common volume.

$$\Gamma_2 = 631 k R^{(\alpha-0.5)} \times 10^{-(R+1)^{0.19}} \quad (\text{II-12})$$

Determine the rain height above ground, h_R (km):

For North America and Europe west of 60° E longitude:

$$h_R = 3.2 - 0.075 (\zeta - 35) \quad \text{for } 35 \leq \zeta \leq 70 \quad (\text{II-13})$$

where

ζ is the latitude of the coordinating earth station.

For all other areas of the world:

$$h_R = \begin{cases} 5 - 0.075(\zeta - 23) & \text{for } \zeta > 23 & \text{northern hemisphere} & (\text{II-14a}) \\ 5 & \text{for } 0 \leq \zeta \leq 23 & \text{northern hemisphere} & (\text{II-14b}) \\ 5 & \text{for } 0 \geq \zeta \geq -21 & \text{southern hemisphere} & (\text{II-14c}) \\ 5 + 0.1(\zeta + 21) & \text{for } -71 \leq \zeta < -21 & \text{southern hemisphere} & (\text{II-14d}) \\ 0 & \text{for } \zeta < -71 & \text{southern hemisphere} & (\text{II-14e}) \end{cases}$$

Determine the specific attenuation due to water vapour absorption (a water vapour density of 7.5 g/m³ is used):

$$\gamma_{wr} = \left[0.06575 + \frac{3.6}{(f - 22.2)^2 + 8.5} \right] f^2 7.5 \times 10^{-4} \quad (\text{II-15})$$

3.1 Iterative calculations:

Evaluate equations (II-16) to (II-21) inclusive for increasing values of r_i , where r_i is the current distance (km) between the region of maximum scattering and the possible location of a terrestrial station and $i = 0, 1, 2, \dots$. Continue this process until either of the conditions given in equations II-1a and II-1b is true. Then the rain-scatter required distance d_r is the current value of r_i .

$$r_i = d_{\min} + i.s \quad (\text{II-16})$$

Determine the loss above the rain height, L_{ar} (dB), applicable to scatter coupling:

$$L_{ar} = \begin{cases} 6.5[6(r_i - 50)^2 \times 10^{-5} - h_R] & \text{for } 6(r_i - 50)^2 \times 10^{-5} > h_R \\ 0 & \text{for } 6(r_i - 50)^2 \times 10^{-5} \leq h_R \end{cases} \quad \text{(II-17a)}$$

Calculate the additional attenuation for the departure from Rayleigh scattering.

$$A_b = \begin{cases} 0.005 (f - 10)^{1.7} R^{0.4} & \text{for } 10 \text{ GHz} < f < 40.5 \text{ GHz} \\ 0 & \text{for } f \leq 10 \text{ GHz or when } L_{ar} \neq 0 \end{cases} \quad \text{(II-18a)}$$

Calculate the effective path length for oxygen absorption.

$$d_0 = \begin{cases} 0.7 r_i + 32 & \text{for } r_i < 340 \text{ km} \\ 270 & \text{for } r_i \geq 340 \text{ km} \end{cases} \quad \text{(II-19a)}$$

$$\text{(II-19b)}$$

Calculate the effective path length for water vapour absorption.

$$d_v = \begin{cases} 0.7 r_i + 32 & \text{for } r_i < 240 \text{ km} \\ 200 & \text{for } r_i \geq 240 \text{ km} \end{cases} \quad \text{(II-20a)}$$

$$\text{(II-20b)}$$

Determine the propagation mode (2) path loss, L_r (dB):

$$L_r = 168 + 20 \log r_i - 20 \log f - 13.2 \log R - G_x + A_b - 10 \log R_{cv} + \Gamma_2 + L_{ar} + \gamma_o d_0 + \gamma_{wr} d_v \quad \text{(II-21)}$$

where

γ_o : is given in equation (I-11) and

G_x : is the terrestrial network antenna gain in Tables 1 or 2 of Annex VII.

4 Construction of the propagation mode (2) contour

In order to determine the centre of the circular propagation mode (2) contour, it is necessary to calculate the horizontal distance to this point from the earth station, along the azimuth of the earth station antenna main beam axis. The distance, Δd (km), to the centre of the propagation mode (2) contour is given by:

$$\Delta d = \frac{h_R}{2 \tan \varepsilon_s} \quad \text{(II-23)}$$

where

ε_s : is the earth station antenna main beam axis elevation angle and Δd shall be limited to the distance $(d_r - 50)$ km.

The propagation mode (2) required distance d_r must lie within the range between the minimum coordinating distance d_{\min} , and the propagation mode (2) maximum calculation distance $d_{\max 2}$.

Draw the propagation mode (2) contour as a circle of radius d_r km around the centre determined above. The propagation mode (2) contour is the locus of points on this circle. However, if any part of the propagation mode (2) contour falls within the contour defined by the minimum coordination distance, this arc of the propagation mode (2) contour is taken to be identical to the contour based on the minimum coordination distance and the propagation mode (2) contour is then no longer circular.

ANNEX III

Antenna gain toward the horizon for earth stations operating to geostationary space stations

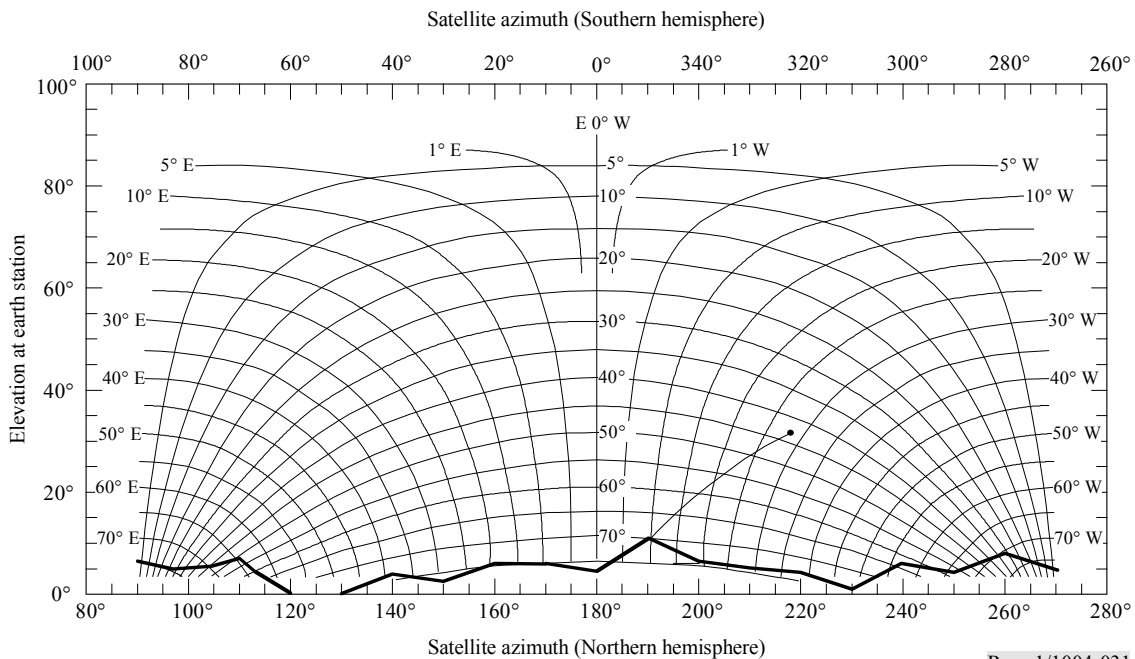
1 General

The gain component of the earth station antenna in the direction of the physical horizon around an earth station is a function of the angular separation between the antenna main beam axis and the horizon in the direction under consideration. When the earth station is used to transmit to a space station in a slightly inclined orbit, all possible pointing directions of the antenna main beam axis need to be considered. For earth station coordination, knowledge of $\phi(\alpha)$, the minimum possible value of the angular separation that will occur during the operation of the space station, is required for each azimuth.

When a geostationary space station maintains its location close to its nominal orbital position, the earth station's main beam axis elevation angle ε_s and azimuth angle α_s to the space station from the earth station's latitude ζ are uniquely related. Figure III-1 shows the possible location arcs of positions of a space station on the geostationary orbit in a rectangular azimuth/elevation plot. It shows arcs corresponding to a set of earth station latitudes and the intersecting arcs correspond to points on the orbit with a fixed difference in longitude East or West of the earth station. Figure III-1 also shows a portion of the horizon profile $\varepsilon_h(\alpha)$. The off-axis angle $\phi(\alpha)$ between the horizon profile at an azimuth of 190° and a space station located 28° W of an earth station at 43° N latitude is indicated by the great-circle arc shown dashed on Figure III-1.

FIGURE III-1

Position arcs of geostationary satellites with horizon and the arc from the horizon
at azimuth 190° to a satellite 28° W of an earth station at 43° N latitude

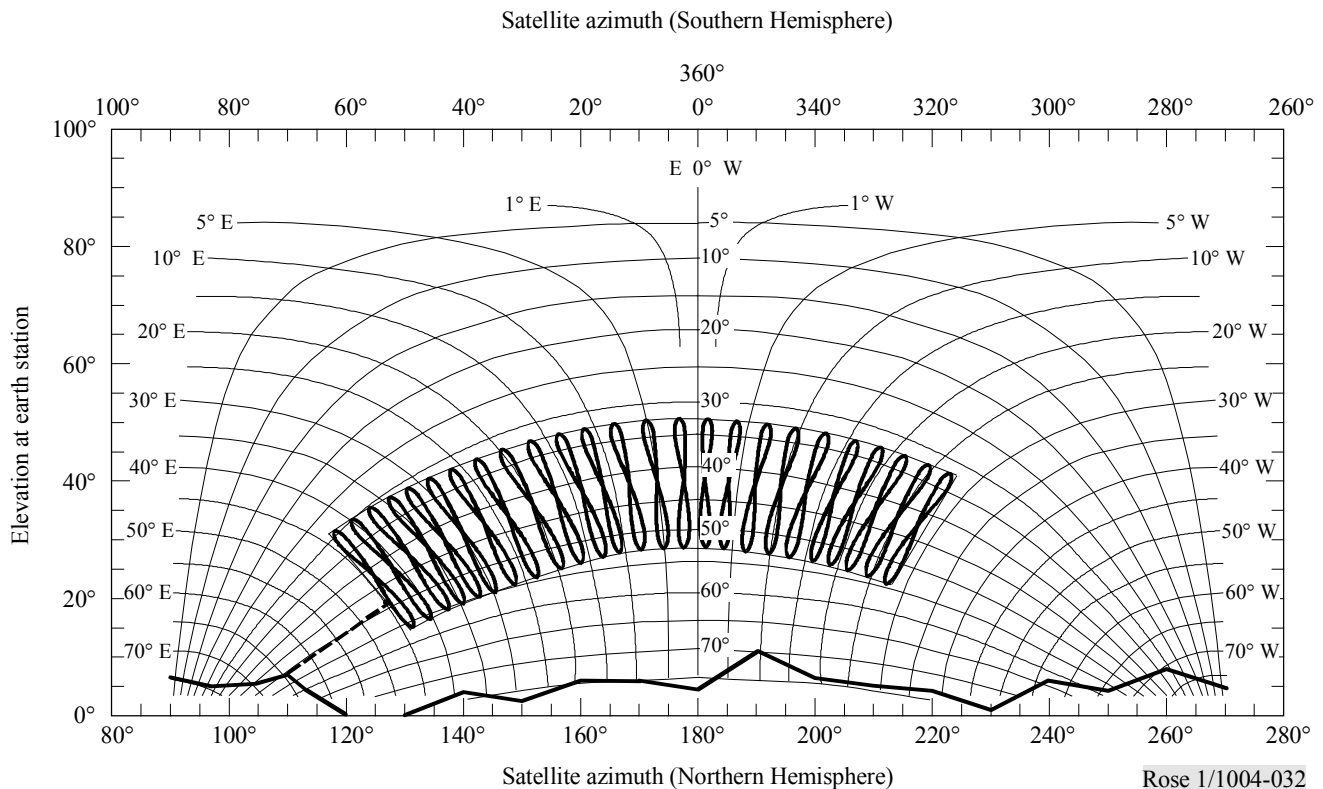


When the north/south station-keeping of a geostationary satellite is relaxed, the orbit of the satellite becomes inclined with an inclination that increases gradually with time. As viewed from the earth, the position of the satellite traces a figure eight during each 24-hour period. Figure III-2 shows the variations in the trajectories of a set of satellites, each with 10° inclination, spaced by 3° along the geostationary orbit from 28° W to 44° E with respect to an earth station at 43° N latitude. Figure III-2 also shows, with a dashed curve, the great-circle arc corresponding to the minimum off-axis angle $\phi(\alpha)$ between a point on the trajectory of one of the satellites and the horizon profile at an azimuth of 110° .

Editorial Note - Delete the words “the envelope of” in the title caption of Figure III-2.

FIGURE III-2

Position arcs of geostationary satellites with horizon and the arc from the horizon at azimuth 110° to the envelope of satellites with 10° inclination on the geostationary orbital arc from 28° W to 44° E of an earth station at 43° N latitude



For a transmitting earth station operating in a frequency band that is also allocated for bidirectional use by receiving earth stations operating to geostationary space stations, refer to § 2.1 of Annex V.

2 Determination of the angular separation $\phi(\alpha)$

For the determination of the off-axis angle $\phi(\alpha)$, two cases are distinguished. These depend on whether or not the earth station will operate to a space station in a slightly inclined orbit. The following equations may be used both of these cases:

$$\psi_s(i, \delta) = \arccos (\sin \zeta \sin i + \cos \zeta \cos i \cos \delta) \quad (\text{III-1})$$

$$\varepsilon_s(i, \delta) = \arcsin \left[\frac{K \cos \psi_s(i, \delta) - 1}{\left(1 + K^2 - 2K \cos \psi_s(i, \delta)\right)^{1/2}} \right] \quad (\text{III-2})$$

$$\alpha'_{os}(i, \delta) = \arccos \left[\frac{\sin i - \cos \psi_s \sin \zeta}{\sin \psi_s \cos \zeta} \right] \quad (\text{III-3})$$

$$\alpha_s(i, \delta) = \alpha_{os}(i, \delta) \quad \text{for a space station located east of the earth station } (\delta \geq 0) \quad (\text{III-4})$$

$$\alpha_s(i, \delta) = 360^\circ - \alpha_{os}(i, \delta) \quad \text{for a space station located west of the earth station } (\delta \leq 0) \quad (\text{III-5})$$

$$\varphi(\alpha, i, \delta) = \arccos [\cos \varepsilon_h(\alpha) \cos \varepsilon_s(i, \delta) \cos (\alpha - \alpha_s(i, \delta)) + \sin \varepsilon_h(\alpha) \sin \varepsilon_s(i, \delta)] \quad (\text{III-6})$$

where

- ζ : latitude of the earth station (positive for north; negative for south)
- δ : difference in longitude from the earth station to a space station
- i : latitude of a sub-satellite point (positive for north; negative for south)
- $\psi_s(i, \delta)$: great-circle arc between the earth station and a sub-satellite point
- $\alpha_s(i, \delta)$: space station azimuth as seen from the earth station
- $\varepsilon_s(i, \delta)$: space station elevation angle as seen from the earth station
- $\varphi(\alpha, i, \delta)$: angle between the main beam and the horizon direction corresponding to the azimuth (α) under consideration when the main beam is steered towards a space station with a sub-satellite point at latitude i and longitude difference δ
- α : azimuth of the direction under consideration
- ε_h : elevation angle of the horizon at the azimuth, α under consideration
- $\varphi(\alpha)$: angle to be used for horizon gain calculation at the azimuth under consideration, α
- K : orbit radius/earth radius, which for the geostationary orbit is assumed to be 6.62.

All arcs mentioned above are in degrees.

Case 1: Single space station, no orbital inclination

For a space station operating with no orbital inclination at an orbital position with difference in longitude δ_0 , equations (III-1) to (III-6) may be applied directly using $i = 0$ to determine $\varphi(\alpha)$ for each azimuth α . Thus:

$$\varphi(\alpha) = \varphi(\alpha, 0, \delta_0) \quad (\text{III-7})$$

where

δ_0 : longitude difference from the earth station to the space station.

Case 2: Single space station, in a slightly inclined orbit

For a space station operating in a slightly inclined orbit on a portion of the geostationary arc with nominal longitude difference of δ_0 , the maximum orbital inclination over its lifetime, i_s , must be considered. Equations (III-1) to (III-6) may be applied to develop the minimum off-axis angle to each of four arcs in azimuth/elevation that bound the trajectory of the space station in angle and elevation. The bounding arcs correspond to the maximum and minimum latitudes of the sub-satellite points and the extremes of the difference in longitude between the earth and space stations when the space station is operating at its maximum inclination.

The determination of the minimum off-axis angles in equations (III-8), (III-9), (III-10), (III-11) and (III-12) may be made by taking increments along a bounding contour. The step size in inclination i or longitude δ should be between 0.5° and 1.0° and the end points of the respective ranges should be included in the calculation.

The horizon profile $\varepsilon_h(\alpha)$ used in the determination of $\varphi(\alpha)$ is specified at increments in azimuth α that do not exceed 5° .

Thus:

$$\varphi(\alpha) = \min_{n = 1 \text{ to } 4} \varphi_n(\alpha) \quad (\text{III-8})$$

with:

$$\varphi_1(\alpha) = \min \varphi(\alpha, -i_s, \delta) \delta_0 - \delta_s \leq \delta \leq \delta_0 + \delta_s \quad (\text{III-9})$$

$$\varphi_2(\alpha) = \min \varphi(\alpha, i_s, \delta) \delta_0 - \delta_s \leq \delta \leq \delta_0 + \delta_s \quad (\text{III-10})$$

$$\varphi_3(\alpha) = \min \varphi(\alpha, i, \delta_0 - \delta_s) - i_s \leq i \leq i_s \quad (\text{III-11})$$

$$\varphi_4(\alpha) = \min \varphi(\alpha, -i_s, \delta_0 + \delta_s) - i_s \leq i \leq i_s \quad (\text{III-12})$$

$$\delta_s = (i_s / 15)^2 \quad (\text{III-13})$$

where

i_s : maximum operational inclination angle of the satellite orbit

δ_s : maximum longitude change from nominal value of the sub-satellite point of a satellite with orbital inclination i_s .

3 Determination of antenna gain

The relationship $\varphi(\alpha)$ is used to derive a function for the horizon antenna gain in dBi, $G(\varphi)$ as a function of the azimuth α , by using the actual earth station antenna pattern, or a formula giving a good approximation. For example, in cases where the ratio between the antenna diameter and the wavelength is equal to or greater than 35, the following equation is used:

$$G(\varphi) = \begin{cases} G_{amax} - 2.5 \times 10^{-3} \left(\frac{D}{\lambda} \varphi \right)^2 & \text{for } 0 < \varphi < \varphi_m \\ G_1 & \text{for } \varphi_m \leq \varphi < \varphi_r \\ 29 - 25 \log \varphi & \text{for } \varphi_r \leq \varphi < 36^\circ \\ -10 & \text{for } 36^\circ \leq \varphi \leq 180^\circ \end{cases} \quad (\text{III-14})$$

$$G_I = \begin{cases} -1 + 15 \log \left(\frac{D}{\lambda} \right) & \text{dBi for } \frac{D}{\lambda} \geq 100 \\ -21 + 25 \log \left(\frac{D}{\lambda} \right) & \text{dBi for } 35 \leq \frac{D}{\lambda} < 100 \end{cases}$$

$$\varphi_m = \frac{20\lambda}{D} \sqrt{G_{amax} - G_I} \quad \text{degrees}$$

$$\varphi_r = \begin{cases} 15.85 \left(\frac{D}{\lambda} \right)^{-0.6} & \text{degrees for } \frac{D}{\lambda} \geq 100 \\ 100 \left(\frac{\lambda}{D} \right) & \text{degrees for } 35 \leq \frac{D}{\lambda} < 100 \end{cases}$$

Where a better representation of the actual antenna pattern is available, it may be used.

In cases where D/λ is not given, it may be estimated from the expression:

$$20 \log \frac{D}{\lambda} \approx G_{amax} - 7.7$$

where

G_{amax} : main beam axis antenna gain (dBi).

D: is the antenna diameter and λ is the wavelength: both expressed in metres.

G_1 : gain of the first side lobe

ANNEX IV

Antenna gain toward the horizon for earth stations operating to non-geostationary space stations

This Annex presents methods which may be used to determine the antenna gain towards the horizon for earth stations operating to non-geostationary satellites using the method described in § 2.2 of the main body of this Appendix.

1 Determination of the horizon antenna gain

In its simplest implementation, this method depends on the minimum elevation angle of the beam axis of the earth station antenna (ε_{sys}), which is a system parameter that has the same value on all azimuths from the earth station. If the horizon elevation angle at an azimuth under consideration is ε_{h} degrees, the minimum separation angle from the horizon at this azimuth to any possible pointing angle for the main beam axis of the antenna (φ_{min}) is equal to the difference between these two angles ($\varepsilon_{\text{sys}} - \varepsilon_{\text{h}}$), but it is not less than zero degrees. The maximum separation angle from the horizon at this azimuth to any possible pointing angle for the main beam axis of the antenna (φ_{max}) is equal to the difference between the sum of these two angles and 180 degrees ($180 - \varepsilon_{\text{sys}} - \varepsilon_{\text{h}}$). The maximum and minimum values of horizon gain for the azimuth under consideration are obtained from the gain pattern of the earth station antenna at these off-axis angles. Where no pattern is available the pattern of § 3 of Appendix III may be used.

Additional constraints may be included in the determination of the maximum and minimum values of horizon antenna gain where an earth station operates with a constellation of non-geostationary satellites that are not in near-polar orbit. In this case, depending on the latitude of the earth station, there may be portions of the hemisphere above the horizontal plane at the earth station in which no satellite will appear. To include these visibility limitations within this method, it is first necessary to determine, for a closely spaced set of azimuth angles around the earth station, the minimum elevation angle at which a satellite may be visible. This minimum satellite visibility elevation angle (ε_{v}) may be determined from consideration of the visibility of the edge of the shell formed by all possible orbits having the orbital inclination and altitude of the satellites in the constellation.

The lowest elevation angle toward which the main-beam axis of the earth station antenna will point on any azimuth is the minimum composite elevation angle (ε_{c}), which is equal to the greater of the minimum satellite visibility elevation angle (ε_{v}) and the minimum elevation angle of the earth station (ε_{sys}). After the minimum composite elevation angle has been determined for all azimuths by the procedure of § 1.1 of this Annex, the resulting profile of the minimum composite elevation angles can be used, in the procedure of § 1.2 of this Annex, to determine the maximum and minimum values of horizon gain at any azimuth.

Further information and an example of this method are contained in Recommendation ITU-R SM.1448.

1.1 Determination of satellite visibility limits

The visibility limits of a constellation of satellites can be determined from the inclination angle of the most inclined satellite and the altitude of the lowest satellite in the constellation. For this determination, six cases may be distinguished, but not all of these may be applicable for a given constellation and a given earth station latitude. The azimuth and the corresponding lower limit on the elevation angle are developed by a parametric method using a set of points on the edge of the

orbital shell of the constellation. The approach is to develop this relationship for azimuths to the east of a station in the northern hemisphere. Elevation angles for azimuths to the west of the station and for all azimuths for stations in the southern hemisphere are obtained by symmetry. The following equations, which are applicable to circular orbits only, may be used for the complete determination of the horizon antenna gain in all practical cases:

$$\psi(\delta) = \arccos(\sin \zeta \sin i + \cos \zeta \cos i \cos \delta) \quad (\text{IV-1})$$

$$\varepsilon_v(\delta) = \arcsin \left[\frac{K_1 \cos[\psi(\delta)] - 1}{\left(1 + K_1^2 - 2K_1 \cos[\psi(\delta)]\right)^{1/2}} \right] \quad (\text{IV-2})$$

$$\alpha_0(\delta) = \arccos \left[\frac{\sin i - \cos[\psi(\delta)] \sin \zeta}{\sin[\psi(\delta)] \cos \zeta} \right] \quad (\text{IV-3})$$

with

$$\alpha(\delta) = \begin{cases} \alpha_0(\delta) & \text{and} \\ 360 - \alpha_0(\delta) & \text{for earth stations north of the Equator} \\ 180 - \alpha_0(\delta) & \text{and} \\ 180 + \alpha_0(\delta) & \text{for earth stations south of the Equator} \end{cases} \quad (\text{IV-4})$$

where

- i : the orbital inclination of the satellites in the constellation assumed to be positive and between 0° and 90°
- ζ : modulus of the latitude of the earth station
- δ : difference in longitude from the earth station to a point on the edge of the orbital shell of the constellation
- $\psi(\delta)$: great-circle arc between the earth station and a point on the surface of the earth directly below the point on the edge of the orbital shell of the constellation
- $\alpha(\delta)$: azimuth from the earth station to a point on the edge of the orbital shell
- $\alpha_0(\delta)$: the principle azimuth, an azimuth between 0 and 180 degrees, from an earth station north of the Equator to a point on the edge of the orbital shell
- $\varepsilon_v(\delta)$: elevation angle from the earth station to a point on the edge of the orbital shell
- K_1 : orbit radius/earth radius for the lowest altitude satellite in the constellation (earth radius = 6 378.14 km)
- $\psi_m = \arccos(1/K_1)$

All arcs mentioned above are in degrees.

For any latitude on the surface of the earth, the azimuth for which the minimum elevation angle to a satellite can be greater than zero, and the corresponding elevation angles, may be determined by implementing the calculations under the following case(s). No more than two of these cases will be applicable for any latitude. For situations not specifically addressed in the following cases, no satellite is visible at elevation angles at or below 90° on any azimuth.

Case 1: For: $\zeta \leq i - \psi_m$

For this case a satellite may be visible to the horizon for all azimuths about the earth station ($\varepsilon_v = 0$).

Case 2: For: $i - \psi_m < \zeta \leq \arcsin(\sin i \cos \psi_m)$

For this case the azimuth angles and elevation are developed parametrically by choosing a set of values of δ , uniformly spaced on the interval 0 to δ_1 , and applying equations (IV-1) to (IV-4). For this purpose the spacing between values is not to exceed 1.0 degree, and the endpoints are to be included.

$$\delta_1 = \arccos \left[\frac{\cos \psi_m - \sin \zeta \sin i}{\cos \zeta \cos i} \right]$$

At any principal azimuth ($\alpha_0(\delta)$) that is not included in the set, the minimum elevation angle is zero ($\varepsilon_v = 0$), except for azimuths where Case 6 additionally applies.

Case 3: For: $\arcsin(\sin i \cos \psi_m) < \zeta < i$, and $\zeta < 180 - \psi_m - i$

For this case the azimuth angles and elevation are developed parametrically by choosing a set of values of δ , uniformly spaced on the interval 0 to δ_2 , and applying equations (IV-1) to (IV-4). For this purpose the spacing between values is not to exceed 1.0 degree, and the endpoints are to be included.

$$\delta_2 = 2 \arctan \left[\frac{\sqrt{\sin^2 \psi_m - \cos^2 i \sin^2 \delta_i}}{\sin \zeta \cos i \sin \delta_i} \right] - \delta_i$$

At any principal azimuth ($\alpha_0(\delta)$) that is not included in the set, the minimum elevation angle is zero ($\varepsilon_v = 0$), except for azimuths where Case 6 additionally applies.

Case 4: For: $i \leq \zeta < i + \psi_m$, and $\zeta < 180 - i - \psi_m$

For this case, the minimum elevation angle is given explicitly in terms of the principal azimuth angle α_0 as follows:

$$\varepsilon_v = \begin{cases} 90 & \text{for } 0 \leq \alpha_0 < \alpha_2 \\ 0 & \text{for } \alpha_2 \leq \alpha_0 \leq 180 \end{cases}$$

where

$$\alpha_2 = \arccos \left[\frac{\sin i - \cos \psi_m \sin \zeta}{\sin \psi_m \cos \zeta} \right]$$

Note that a minimum elevation angle of 90 degrees in this formulation indicates that no satellite is visible at elevation angles at or below 90 degrees on these azimuths, furthermore, within the range of principal azimuths where the minimum elevation angle is zero, Case 6 may additionally apply.

Case 5: For $180 - i - \psi_m \leq \zeta \leq 90$

For this case, a satellite may be visible to the horizon for all azimuths about the earth station ($\varepsilon_v = 0$).

Case 6: For $\zeta < \psi_m - i$

This case may occur additionally with Case 2, Case 3 or Case 4 and a satellite may be visible only above a minimum elevation angle for other principal azimuths.

For this case the other principal azimuths and the corresponding elevation angles are developed parametrically by choosing a set of values δ , uniformly spaced on the interval 0 to δ_3 , and applying equations (IV-1) to (IV-4) with i replaced by $-i$. For this purpose the spacing between values is not to exceed 1.0 degree and the end points are to be included.

$$\delta_3 = \arccos \left[\frac{\cos \psi_m + \sin \zeta \sin i}{\cos \zeta \cos i} \right]$$

1.2 Determination of minimum and maximum horizon gain from the minimum visible elevation angle profile

The horizon gain of the earth station antenna is determined from the profile of values of the minimum composite elevation angle (ε_c). At any azimuth the minimum composite elevation angle is the greater of the minimum satellite visibility elevation angle at that azimuth (ε_v) and the minimum elevation angle for the earth station (ε_{sys}). The following procedure may be used to determine the maximum and minimum values of horizon antenna gain for each azimuth under consideration.

The following equation may be used to determine the angular separation from the horizon profile, at an azimuth angle α and horizon elevation angle ε_h , to a point on the profile of the minimum composite elevation angle, where the minimum composite elevation angle is ε_c at an azimuth angle of α_c :

$$\varphi(\alpha, \alpha_c) = \arccos [\sin \varepsilon_h(\alpha) \sin (\varepsilon_c(\alpha_c)) + \cos \varepsilon_h(\alpha) \cos (\varepsilon_c(\alpha_c)) \cos (\alpha - \alpha_c)] \quad (IV-5)$$

where

α : azimuth of the direction under consideration

$\varepsilon_h(\alpha)$: elevation angle of the horizon at the azimuth, α , under consideration

$\varepsilon_c(\alpha_c)$: minimum composite elevation angle at the azimuth, α_c

α_c : azimuth corresponding to ε_c .

The minimum value of the separation angle φ_{min} , for the azimuth under consideration, is determined by finding the minimum value of $\varphi(\alpha, \alpha_c)$ for any azimuth α_c , and the maximum value, φ_{max} , is determined by finding the maximum value of $\varphi(\alpha, \alpha_c)$ for any azimuth α_c . The azimuth angles (α) are usually taken in increments of 5 degrees; however, to accurately determine the minimum separation angle, the values of the minimum composite elevation angle, ε_c , needs to be determined for a spacing of 1 degree or less in the azimuth α_c . Where the procedure in § 1.1 of this Annex do not provide a profile of minimum composite elevation angle with a close enough spacing in azimuth angles, linear interpolation may be used to develop the necessary intermediate values. The maximum and minimum horizon antenna gains, G_{max} and G_{min} , to be used in the equations of § 2.2 of the main body of this Appendix for the azimuth under consideration, are obtained by applying the off-axis angles, φ_{min} and φ_{max} , respectively, in the earth station antenna pattern. If the earth station antenna pattern is not known then the antenna pattern in § 3 of Annex III is used. In

many cases, ϕ_{\max} will be large enough on all azimuths so that G_{\min} will be equal to the minimum gain of the antenna pattern at all azimuths.

ANNEX V

Determination of the coordination area for a transmitting earth station with respect to receiving earth stations operating to geostationary space stations in bidirectionally allocated frequency bands

1 Introduction

The propagation mode (1) coordination area of a transmitting earth station, with respect to unknown receiving earth stations that operate to geostationary space stations, requires the determination of the horizon gain of the antenna of the receiving earth station at each azimuth of the transmitting earth station. Different methods then need to be applied to determine the coordination area of the coordinating earth station depending on whether it operates to geostationary or non-geostationary space stations. When both the coordinating earth station and the unknown receiving earth stations operate to geostationary space stations, it is also necessary to determine a propagation mode (2) coordination contour.

The coordination area of a transmitting earth station, with respect to unknown receiving earth stations that operate to non-geostationary space stations, can be determined by minor modifications to the methods applicable to the determination of coordination area of transmitting earth stations with respect to terrestrial stations. (See §§ 3.2.1 and 3.2.3 of the main body of the Appendix.)

2 Determination of the bidirectional coordination contour for propagation mode (1)

For a transmitting earth station operating in a frequency band that is also allocated for bidirectional use by receiving earth stations operating to geostationary space stations, further development of the procedures in Annex III is needed. It is necessary to determine the horizon gain of the unknown receiving earth station, the horizon gain to be used at each azimuth at the coordinating (transmitting) earth station, for the determination of the bidirectional coordination area.

2.1 Calculation of horizon gain for unknown receiving earth stations operating to geostationary space stations

The value of G_r , the horizon gain of the receiving earth station, for each azimuth (α) at the transmitting earth station is found by the following steps:

- 1) The receiving earth station may be operating to any satellite in the geostationary orbit above a minimum elevation angle, (ε_s) contained in Table 3 to Annex VII. The maximum difference in longitude (δ_b in degrees) between the receiving earth station and its associated space station occurs at this minimum elevation angle (ε_s) and is given by:

$$\delta_b = \arccos \left(\frac{\sin \left(\varepsilon_s + \arcsin \left(\frac{\cos(\varepsilon_s)}{K} \right) \right)}{\cos(\zeta)} \right) \quad (\text{V-1})$$

where

ζ : is the latitude of the receiving earth station, which is assumed to be the same as the transmitting earth station, and

K : is the ratio of the radius of the satellite orbit to the radius of the earth and equals 6.62.

2) For each azimuth (α) at the transmitting earth station:

a) determine the azimuth α_r from the receiving earth station to the transmitting earth station:

$$\alpha_r = \alpha + 180^\circ \quad \text{for } \alpha < 180$$

$$\alpha_r = \alpha - 180^\circ \quad \text{for } \alpha \geq 180$$

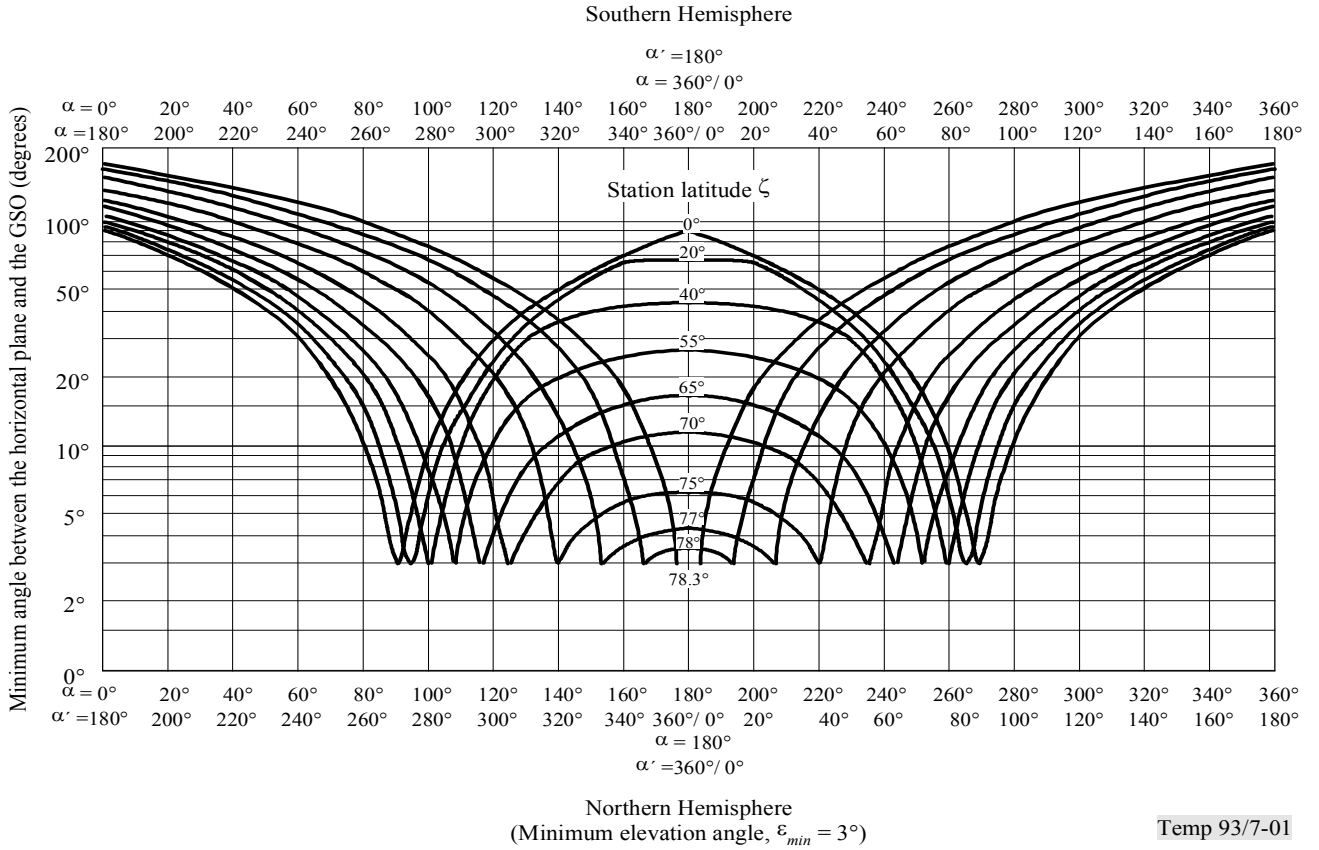
b) for each azimuth, α_r determine the minimum angular separation, $\varphi(\alpha_r)$ between the receiving earth station main beam axis and the horizon at this azimuth using Case 1 in § 2 of Annex III. For this evaluation $\varphi(\alpha_r)$ is the minimum value of $\varphi(\alpha_r, 0, \delta_0)$ where the values of δ_0 are between $-\delta_b$ and $+\delta_b$ in steps of 1 degree or less making sure to include the end points.

The minimum angular separation, $\varphi(\alpha_r)$, may be used with the gain pattern in § 3 of Annex III to determine the horizon gain for this azimuth (α), unless a different gain pattern is referenced in Table 3 of Annex VII.

Figure V-1 shows plots of the minimum angular separation between the horizon at zero degrees elevation on an azimuth α_r and a satellite on the geostationary orbit at an elevation above 3 degrees. Plots are shown for a set of values of the station latitude (ζ), which is assumed to be the same for both transmitting and receiving earth stations. Figure V-1 also provides a scale showing the corresponding azimuth (α) of the transmitting earth station.

Figure V-1

Illustration of minimum angular distance between points on the geostationary-satellite orbit (GSO) and the horizontal plane



Further information and an example are contained in Recommendation ITU-R SM.1448.

3 Determination of the bidirectional rain scatter contour

The procedure for the determination of the bidirectional rain scatter area, as described in § 3.1.2 of the main body of this Appendix, is as follows:

The horizontal distance d_s (km) from the coordinating earth station to the point at which the main beam axis attains the rain height h_R is calculated by:

$$d_t = 8\,500 \left(\sqrt{\tan^2 \varepsilon_s + h_R / 4\,250} - \tan \varepsilon_s \right) \text{ km} \quad (\text{V-2})$$

where the rain height, h_R , can be determined from equations (II-13) or (II-14) in Annex II.

The maximum calculation distance, d_{emax} , to be used in the determination of the propagation mode (2) contour, for the case of a coordinating earth station operating in bidirectionally allocated frequency bands, is dependent on the rain height. It is the greater distance determined from:

$$d_{emax} = 130.4 \sqrt{h_R} \text{ km or } d_{min}$$

where the minimum coordination distance, d_{min} , is given in § 4.2 of the main body of this Appendix.

The point, at the distance d_s from the earth station, on the azimuth α_s of the coordinating earth station's main beam axis, is the geographic point immediately below the main beam axis intersection with the rain height, and is the reference point from which the maximum calculation distance d_{emax} is measured (see Figure V-2).

If the maximum calculation distance, d_{emax} , is greater than the minimum coordination distance, d_{min} , then, calculate the maximum latitude at which a receiving earth station may operate to a geostationary satellite with a minimum elevation angle ε_s :

$$\zeta_{max} = \arccos \left[\frac{\cos(\varepsilon_s)}{K} \right] - \varepsilon_s \quad (V-3)$$

where

ε_s : is given in Table 3 of Annex VII and

K : is the ratio of the radius of the satellite orbit to the radius of the earth and equals 6.62.

If the coordinating earth station latitude in the northern hemisphere is greater than ζ_{max} , or if the coordinating earth station latitude in the southern hemisphere is less than $-\zeta_{max}$ or -71° , then the rain scatter contour is a circle of radius d_{min} , centred on the transmitting earth station.

For all other cases, the coordination area is developed by the following procedure:

Step 1: The unknown receiving earth station is assumed to be operating to a satellite at the minimum elevation angle ε_s . It is also assumed that the receiving earth station is relatively close to the coordinating earth station in geometric terms hence, a plane geometry approximation can be applied within the coordination area. If the receiving earth station's main beam axis passes through the intersection of the coordinating earth station's main beam axis with the rain height, the azimuths from the point on the ground, immediately below this intersection, to the possible locations of a receiving earth station are given by:

$$\alpha_{w1} = \arccos \left[\frac{\tan \zeta}{\tan \zeta_{max}} \right]$$

and

$$\alpha_{w2} = 360 - \alpha_{w1}$$

where

ζ : is the latitude of the transmitting earth station.

Step 2: Mark on a map of an appropriate scale the coordinating earth station's location and draw from this location a line of distance, d_s , along the azimuth, α_s , to the point below the coordinating earth station's main beam axis intersection with the rain height.

Step 3: From the main beam axis intersection point in step 2, mark on the map the distance, d_{emax} , along the two azimuths, α_{w2} and α_{w1} , and on each azimuth at the distance, d_{emax} , draw two equal distance arcs of width 3° clockwise and counter-clockwise. The two arcs, each having a total width of 6° , are the first boundary elements of the bidirectional rain scatter area.

Step 4: Mark a circle of radius equal to the minimum coordination distance, d_{min} , around the coordinating earth station's location, and then draw straight lines from the northern edges of the two arc segments tangential to the northern rim of the circle, and from the southern edges of the two arc segments tangential to the southern rim of the circle.

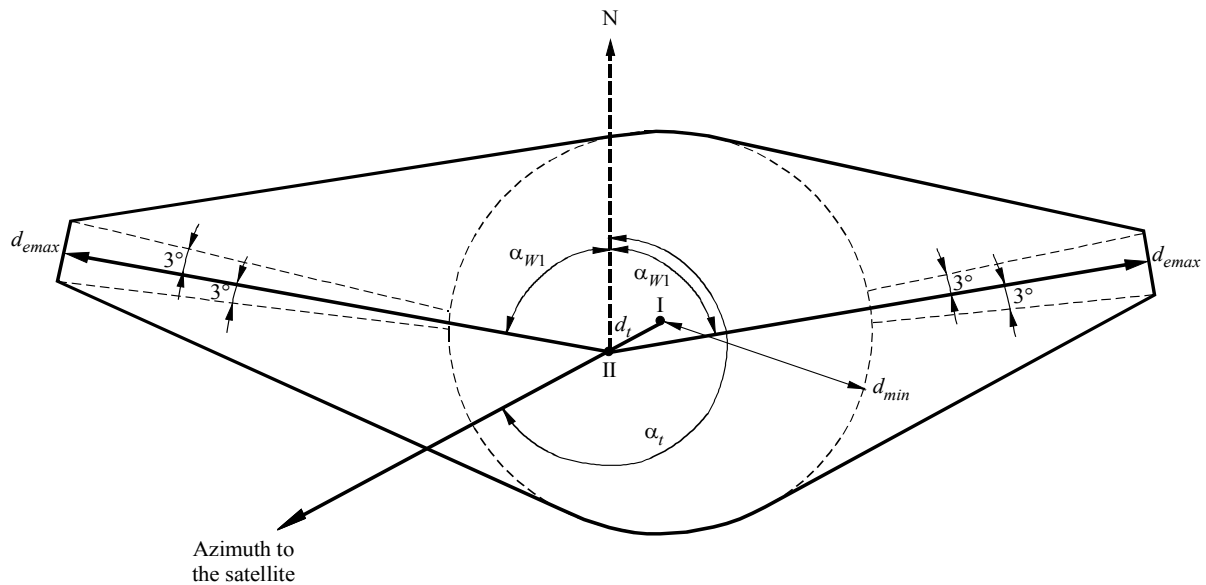
The area bounded by the two 6° wide arcs, the four straight lines, and the circular sections (of which there is always at least one) between the two northern and the two southern tangent points with the straight lines, constitutes the bidirectional rain scatter area.

Figure V-2 illustrates the construction of the bidirectional rain scatter area for a coordinating earth station. (The resulting rain scatter area contains the possible loci of all receiving earth station locations from which a beam path towards the geostationary-satellite orbit will intersect the main beam of the transmitting earth station antenna.)

FIGURE V-2

Example of the bidirectional rain scatter area

(Not to scale)



I: location of the transmitting earth station

II: point where the earth station antenna main-beam axis reaches the altitude h_R

Assumptions:

$$\zeta = 40^\circ \text{ N}$$

$$\epsilon_s = 10^\circ$$

$$\alpha_s = 254^\circ$$

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ANNEX VI

Supplementary and auxiliary contours

1 Introduction

The material found in this Annex is intended to assist administrations in bilateral discussions.

2 Supplementary contours

The coordination area is determined with respect to the type of terrestrial station (or in a frequency band with a bidirectional space allocation, an earth station operating in the opposite direction of transmission) that would yield the largest coordination distances. Therefore, in the case of terrestrial services, fixed stations using tropospheric scatter have been assumed to be operating in frequency bands that may typically be used by such radiocommunication systems; and fixed stations operating in line-of-sight configurations and using analogue modulation have been assumed to be operating in other frequency bands. However, other radiocommunication systems (e.g. other terrestrial stations), that have typically lower antenna gains, or otherwise less stringent system parameters, than those on which the coordination area is based, may also operate in the same frequency range. Therefore it is possible for the coordinating administration to identify a supplementary contour using either the methods in § 2 or § 3 of the main body of this Appendix, where they are applicable, or other agreed methods. Subject to bilateral agreement between administrations, these supplementary contours can assume the role of the coordination contour for an alternative type of radio system in the same services, or another radiocommunication service.

When a supplementary contour is to be developed for other types of systems, for example digital fixed systems, the necessary system parameters may be found in one of the adjacent columns in Tables 1, 2 and 3 of Annex VII. If no suitable system parameters are available then the value of the permissible interference power ($P_{r(p)}$) may be calculated using equation (1) of § 2 in Annex VII.

In addition, supplementary contours may be prepared by the administration seeking coordination to define smaller areas, based on more detailed methods, for consideration when agreed bilaterally between the concerned administrations. These contours can be a useful aid to the rapid exclusion of terrestrial stations or earth stations from further consideration. For earth stations operating to non-geostationary space stations, supplementary contours may be generated using the method in § 4 of this Annex.

Supplementary contours may be comprised of propagation mode (1) interference paths and, depending on the sharing scenario, propagation mode (2) interference paths. In addition, the propagation mode (1) element of a supplementary contour may, if appropriate for the radiocommunication service, utilize the same level of correction factor (see § 4.4 of the main body of this Appendix) that was applied in the determination of the coordination contour. However, all parts of each supplementary contour must fall on or between the contour defined by the minimum coordination distance and the corresponding propagation mode (1) or propagation mode (2) main contour.

3 Auxiliary contours

Practical experience has shown that, in many cases, the separation distance required for the coordinating earth station, on any azimuth, can be substantially less than the coordination distance since the worst case assumptions do not apply to every terrestrial station or earth station. There are two main mechanisms that contribute to the difference between the separation distance in this context and the coordination distance:

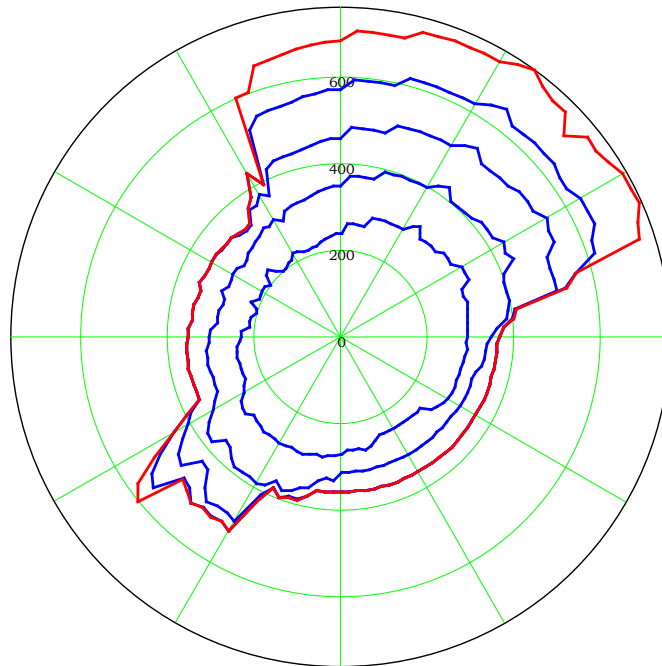
- the terrestrial station antenna gain (or e.i.r.p.), or receiving earth station antenna gain, in the direction of the coordinating earth station is less than that assumed in calculating the coordination contour;
- appropriate allowance can be made, for example, for the effects of site shielding not included in the coordination distance calculations.

Auxiliary contours must use the same method as that used to determine the corresponding main or supplementary contour. In addition all parts of each auxiliary contour must fall on or between the contour defined by the minimum coordination distance and the corresponding main or supplementary contour. Auxiliary contours may assist in the elimination from detailed coordination of terrestrial stations or earth stations that are located in the coordination area and hence have been identified as potentially affected by the coordinating earth station. Any terrestrial station or earth station that lies outside an auxiliary contour and has an antenna gain towards the coordinating earth station that is less than the gain represented by the relevant auxiliary contour need not be considered further as a significant source, or subject, of interference.

3.1 Auxiliary contours for propagation mode (1)

Propagation mode (1) auxiliary contours are calculated with values for the propagation mode (1) minimum required loss, in equation (22) in § 4.4 of the main body of this Appendix, that are progressively reduced by 5, 10, 15, 20 dB, etc., below the value derived from the parameters assumed in Tables 1, 2 and 3 of Annex VII for the corresponding main or supplementary propagation mode (1) contour, until the minimum coordination distance is reached. Propagation mode (1) auxiliary contour distances are calculated without the correction factor (see § 4.4 of the main body of this Appendix), and hence could be larger, on any azimuth, than the corresponding main, or supplementary, propagation mode (1) distance. To prevent this happening, in those cases where a correction factor applies to the main or supplementary contour, the maximum propagation mode (1) auxiliary contour distances on any azimuth is limited to the corresponding main or supplementary propagation mode (1) distance. In effect this means that the correction factor will limit the possible range of auxiliary contour values so that only those auxiliary contours with values greater than the applied correction factor will be shown within the main or supplementary contour (see Figure VI-1). For example, if the value of correction factor applicable to the propagation mode (1) main or supplementary contour is 10 dB, then the first auxiliary contour drawn would be for a reduction in minimum required loss of 5 dB and hence the auxiliary contour value would be –15 dB (by convention, auxiliary contours are shown as negative quantities as they represent a reduction in the terrestrial, or receiving earth station, antenna gain, or the terrestrial station e.i.r.p.).

Propagation mode (2) interference effects may still need to be considered even if propagation mode (1) interference effects have been eliminated from detailed coordination, as the propagation models are based on different interference mechanisms.



The propagation mode (1) auxiliary contours are shown for -10, -20, -30 and -40 dB adjustments in the minimum required loss.

FIGURE VI-1

Propagation mode (1) main contour and auxiliary contours

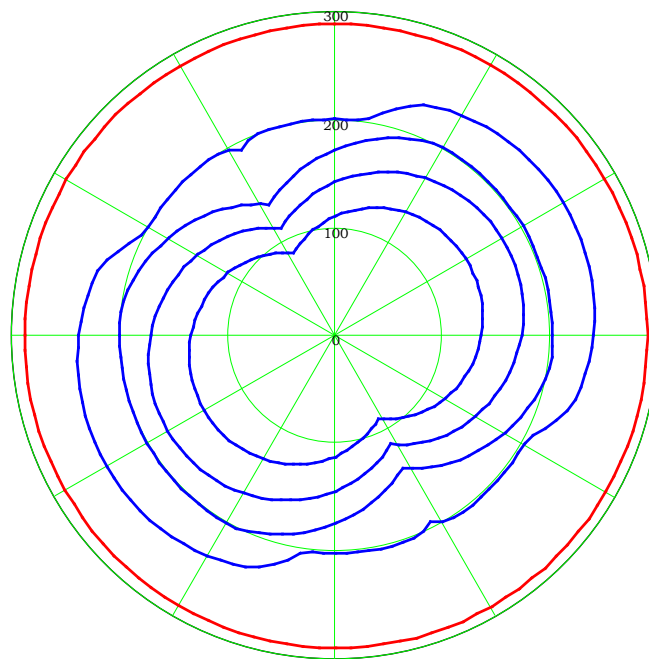
3.2 Auxiliary contours for propagation mode (2)

The propagation mode (2) contour around an earth station is calculated assuming the main beams of the coordinating earth station and the terrestrial station intersect exactly (see § 1.3 of the main body of this Appendix). However, it is unlikely that these antenna main beams will intersect exactly. It is therefore possible to generate propagation mode (2) auxiliary contours that take account of any offset in the pointing of the terrestrial station antenna beam from the direction of the coordinating earth station. This offset would result in partial beam intersections and hence a reduced interference potential. These propagation mode (2) auxiliary contours are calculated according to the method described in § 3.2.1 of this Annex.

Propagation mode (2) auxiliary contours are not generated for different values of antenna gain or e.i.r.p. but for different values of beam avoidance angle. Hence, if there is a need to consider both a lower value of antenna gain, or e.i.r.p., for the terrestrial station and propagation mode (2) auxiliary contours, it is first essential to consider the impact of the reduction in antenna gain, or e.i.r.p., on the propagation mode (2) contour. This is achieved by generating a supplementary contour (see § 2) corresponding to the lower value of antenna gain or e.i.r.p. for the terrestrial station, which is drawn on a separate map. Auxiliary mode (2) contours can then be generated inside this propagation mode (2) supplementary contour for different values of the beam avoidance angle. Hence, propagation mode (2) auxiliary contours may be most frequently applied in conjunction with a supplementary contour rather than with the coordination contour.

The correction factor discussed in § 1.3 of the main body of this Appendix does not apply to propagation mode (2) interference paths and hence is also not applicable to propagation mode (2) auxiliary contours. In addition propagation mode (2) auxiliary contours cannot be developed for the bidirectional case.

Propagation mode (2) auxiliary contours are prepared for appropriate values of terrestrial station main beam avoidance angle (see Figure VI-2). When the antenna characteristics of the terrestrial stations are known, the appropriate antenna pattern⁸ should be used when determining the propagation mode (2) auxiliary contours. If this not available, the reference antenna pattern given in § 3.2.3 may be used.



The propagation mode (2) auxiliary contours are shown for terrestrial station main beam avoidance angles of 2.0, 2.7, 3.2 and 4.0 degrees respectively.

FIGURE VI-2

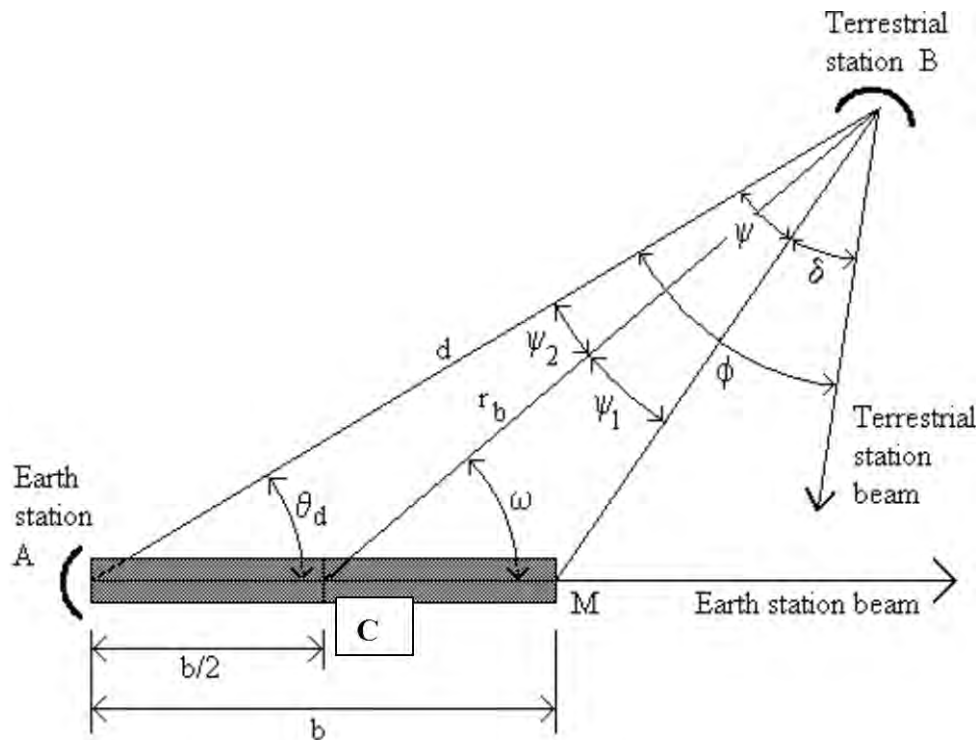
Propagation mode (2) main contour and auxiliary contours

3.2.1 Determination of auxiliary contours for propagation mode (2)

Propagation mode (2) auxiliary contours allow the azimuthal offset of a terrestrial station antenna beam from the coordinating earth station's location to be taken into consideration. Figure VI-1 shows the hydrometeor scatter region projected on to the horizontal plane. In this figure the earth station and the terrestrial station are located at the points A and B respectively, where the terrestrial station is on a radial defined by the angle ω from the point C at the centre of the propagation mode (2) main, or supplementary, contour. Point C is also the centre of the auxiliary contour.

⁸ The method requires the antenna pattern to be monotonic in terms of the reduction in gain either side of the main beam axis.

FIGURE VI-3
Propagation geometry in the horizontal plane



The shaded area in Figure VI-3 represents the critical region, along the earth station's main beam axis, between the earth station and the rain height. Within this critical region a common volume can be formed between the earth station beam and the beam of any terrestrial stations within the propagation mode (2) main, or supplementary, contour. This critical region's length is b and its maximum horizontal extent is at point M. Intersection of this critical region by the terrestrial station main beam axis, would result in significant hydrometeor scatter interference via main lobe to main lobe coupling.

For a given point within the propagation mode (2) main, or supplementary, contour, the angle subtended by the critical region is termed the critical angle, ψ . The protection angle, υ , represents the angle of the terrestrial station main beam axis away from the critical region. The beam avoidance angle between the terrestrial station's main beam axis and the earth station's location is ϕ . It is the sum of the two angles ψ and υ and it is this quantity that has a fixed value for a specific auxiliary contour. Each auxiliary contour is generated by varying the angle, ω , and deriving the distance (r_b) from point C to the auxiliary contour. As the angle ω increases from 0° to 360° , the angles ψ and υ change, but their sum remains the same.

The algorithm in § 3.2.2 of this Annex can be used to calculate the auxiliary propagation mode (2) contour for a given value of beam avoidance angle ϕ .

The method is based on iteratively decrementing the distance, r_b , between terrestrial station and the centre of the common volume, and starting at the main contour distance d_r , until either the shortest value of r_b is found for which the required minimum loss is achieved, or the minimum coordination

distance is reached. For each value of r_b the critical angle ψ is determined and then the protection angle υ is calculated. The terrestrial station antenna gain corresponding to υ and the current distance r_b are used to obtain the propagation mode (2) path loss in equation (II-21).

The above process is repeated for each angle ω , to generate a complete auxiliary contour for a given value of beam avoidance angle ϕ . For some combinations of beam avoidance angle and angle ω an auxiliary contour may coincide with the main, or supplementary, propagation mode (2) contour.

3.2.2 The step-by-step algorithm

Auxiliary propagation mode (2) contours are constructed by calculating distances along radials from the centre of the circular mode (2) main, or supplementary, contour, which is the point C, at the distance $b/2$ from the earth station along the azimuth of its main beam axis. The distance $b/2$ is equal to Δd , where Δd is given by equation (II-23), see Annex II.

For the selected value of beam avoidance angle ϕ , generate the auxiliary contour for values of angle, ω , ranging from 0° to 180° in steps of 1° as follows:

- a) Set r_b to the main, or supplementary, mode (2) contour distance d_r calculated as described in § 3.1 of Annex II.
- b) Compute ψ from:

$$\psi_1 = \arctan \left(\frac{b \sin \omega}{2r_b - b \cos \omega} \right) \quad (\text{VI-1})$$

$$\psi_2 = \arctan \left(\frac{b \sin \omega}{2r_b + b \cos \omega} \right) \quad (\text{VI-2})$$

$$\psi = \psi_1 + \psi_2 \quad (\text{VI-3})$$

- c) If $\psi > \phi$ then the auxiliary mode (2) contour coincides with the main or supplementary mode (2) contour for the current value of ω , and the calculation for that value of ω is completed, and go to step J. Otherwise proceed through the following steps d) to i) until one of the terminating conditions described in step f) and step i) are satisfied.
- d) Decrement r_b by subtracting 0.2 km from its value.
- e) Recalculate the critical angle ψ using equations (VI-1), (VI-2) and (VI-3).
- f) If $(0.5 b \sin \omega / \sin \psi_2) < d_{\min}$ the auxiliary mode (2) contour coincides with the minimum coordination distance d_{\min} and the calculation for the current value of ω is completed and go to step J. Otherwise proceed to step g).
- g) Compute the protection angle $\upsilon = \phi - \psi$.
- h) Calculate $G(\upsilon)$ the terrestrial station antenna gain at the angle υ relative to the beam axis using the reference antenna pattern given in this Annex.
- i) In equation (II-21) use the gain calculated in step h) in place of G_x and the current value of r_b in place of r_i and calculate the corresponding propagation mode (2) path loss L_r . If $L_r < L(p)$ then increment r_b by adding 0.2 km to its value and take this as the distance for the current radial. Otherwise repeat from step d).

- j) Once the value of r_b has been found for the current value of angle ω , calculate the angle θ_d from the location of the earth station, and if appropriate the distance, d , to that contour point using:

$$d = 0.5 b \sin \omega / \sin \psi_2 \quad (\text{VI-4})$$

$$\theta_d = \omega - \psi_2 \quad (\text{VI-5})$$

An auxiliary propagation mode (2) contour is symmetrical about the earth station main beam axis. Thus values of d and θ_d corresponding to the values of ω from 181° to 359° can be found by noting that results for a given value of ω are the same as for $(-\omega)$ or $(360^\circ - \omega)$.

The step size for incrementing r_b used above, 0.2 km, is suitable for most situations. It controls the granularity of the result when viewed as a set of r_b values. For low values of earth station beam elevation the granularity becomes more noticeable in the values of d and θ_d , and a smaller step size may be used.

3.2.3 Reference radiation patterns for line-of-sight radio-relay system antennas

The reference radiation pattern for line-of-sight radio-relay system antennas in this section is used for the unknown terrestrial station antenna in the propagation mode (2) contour calculations when the actual antenna pattern is not available.

- a) In cases where the ratio between the antenna diameter and the wavelength is greater than 100, the following equation is used:

$$G(\varphi) = G_{amax} - 2.5 \times 10^{-3} \left(\frac{D}{\lambda} \varphi \right)^2 \quad \text{for} \quad 0 < \varphi < \varphi_m \quad (\text{VI-6})$$

$$G(\varphi) = G_1 \quad \text{for} \quad \varphi_m \leq \varphi < \varphi_r \quad (\text{VI-7})$$

$$G(\varphi) = 32 - 25 \log \varphi \quad \text{for} \quad \varphi_r \leq \varphi < 48^\circ \quad (\text{VI-8})$$

$$G(\varphi) = -10 \quad \text{for} \quad 48^\circ \leq \varphi \leq 180^\circ \quad (\text{VI-9})$$

$$G_1 = 2 + 15 \log \frac{D}{\lambda} \quad (\text{VI-10})$$

$$\varphi_m = \frac{20\lambda}{D} \sqrt{G_{amax} - G_1} \quad (\text{VI-11})$$

$$\varphi_r = 15.85 \left(\frac{D}{\lambda} \right)^{-0.6} \quad (\text{VI-12})$$

- b) In cases where the ratio between the antenna diameter and the wavelength is less than or equal to 100, the following equation should be used:

$$G(\varphi) = G_{amax} - 2.5 \times 10^{-3} \left(\frac{D}{\lambda} \varphi \right)^2 \quad \text{for} \quad 0 < \varphi < \varphi_m \quad (\text{VI-13})$$

$$G(\varphi) = G_1 \quad \text{for} \quad \varphi_m \leq \varphi < 100 \frac{\lambda}{D} \quad (\text{VI-14})$$

$$G(\varphi) = 52 - 10 \log \frac{D}{\lambda} - 25 \log \varphi \quad \text{for} \quad 100 \frac{\lambda}{D} \leq \varphi < 48^\circ \quad (\text{VI-15})$$

$$G(\varphi) = 10 - 10 \log \frac{D}{\lambda} \quad \text{for} \quad 48^\circ \leq \varphi \leq 180^\circ \quad (\text{VI-16})$$

- c) In cases where only the maximum antenna gain is known, D/λ can be estimated from the following expression:

$$20 \log \frac{D}{\lambda} \approx G_{a \max} - 7.7 \quad (\text{VI-17})$$

where

$G_{a \max}$: is the main beam axis antenna gain (dBi).

D: is the antenna diameter and λ is the wavelength: both expressed in metres.

G_1 : is the gain of the first side lobe.

4 Determination of a supplementary contour using the time variant gain (TVG) method

The TVG method requires the cumulative distribution of the time-varying horizon antenna gain of an earth station operating to a non-geostationary space station. In comparison to the TIG method, the TVG method usually produces smaller distances, but requires greater effort in determining the cumulative distribution of the horizon gain of the earth station antenna for each azimuth to be considered.

The TVG method closely approximates the convolution of the distribution of the horizon gain of the earth station antenna and the propagation mode (1) path loss. This method may produce slightly smaller distances than those obtained by an ideal convolution. An ideal convolution cannot be implemented due to the limitations of the current model for propagation mode (1). The propagation mode (1) required distance, at the azimuth under consideration, is taken as the largest distance developed from a set of calculations, each of which is based on equation (4) of the main body of this Appendix. For convenience, in these calculations, this equation may be rewritten for the n th calculation in the following form:

$$L_b(p_v) - G_e(p_n) = P_t + G_x - P_r(p) \text{ dB} \quad (\text{VI-18})$$

with the constraint

$$p_v = \begin{cases} 100 p / p_n & \text{for } p_n \geq 2 p \\ 50 & \text{for } p_n < 2 p \end{cases} \text{ percent}$$

where

$P_t, P_r(p)$: are as defined in equations in § 1.3 of the main body of this Appendix where p is the percentage of time associated with permissible interference power $P_r(p)$;

G_x : the maximum antenna gain assumed for the terrestrial station (dBi). Tables 1 and 2 of Annex 2 give values for G_x for the various frequency bands;

$G_e(p_n)$: the horizon gain of the coordinating earth station antenna (dBi) that is exceeded for $p_n\%$ of the time on the azimuth under consideration;

$L_b(p_v)$: the propagation mode (1) minimum required loss (dB) for $p_v\%$ of the time; this loss must be exceeded by the propagation mode (1) predicted path loss for all but $p_v\%$ of the time.

The values of the percentages of time, p_n , to be used in equation (VI-18) are determined in the context of the cumulative distribution of the horizon gain. This distribution needs to be developed for a predetermined set of values of horizon gain spanning the range from the minimum to the maximum values for the azimuth under consideration. The notation $G_e(p_n)$ denotes the value of horizon gain for which the complement of the cumulative distribution of the horizon gain has the value corresponding to the percentage of time p_n . The p_n value is the percentage of time that the horizon gain exceeds the n th horizon gain value. The procedure in § 4.1 may be used to develop this distribution.

For each value of p_n , the value of horizon antenna gain for this time percentage, $G_e(p_n)$, is used in equation (VI-18) to determine a propagation mode (1) minimum required loss. The propagation mode (1) predicted path loss is to exceed this propagation mode (1) required loss for no more than p_v percent of the time, as specified by the constraint to equation (VI-18). A series of propagation mode (1) distances are then determined using the procedures described in § 4 of the main body of this Appendix.

The propagation mode (1) required distance is then the maximum distance in the series of propagation mode (1) distances that are obtained for any value of p_n subject to the constraint applied to equation (VI-18). A detailed description of the method for using equation (VI-18) to determine the propagation mode (1) required distance is provided in § 4.2. Further information, including an example, are contained in Recommendation ITU-R SM.1448.

4.1 Determination of the horizon antenna gain distribution for the TVG method

The time variant gain (TVG) method for the determination of an earth station's supplementary contour requires the determination of the horizon antenna gain statistics for all azimuths (in suitable increments, e.g. 5°) around the earth station. In considering the horizon gain of the antenna for either a transmitting or a receiving earth station, only the horizon gain values during the operational time are to be considered. In developing the cumulative distributions of horizon gain, the percentages of time are percentages of operational time. Thus, there may be periods of time for which no horizon gain is specified.

The determination of the horizon gain distribution requires both earth station and orbital information including whether, or not, station keeping is used to maintain a single orbital path (repeating/non-repeating ground track system). The cumulative distribution of the time-varying horizon gain of a transmitting or a receiving earth station antenna operating to non-geostationary space stations is calculated as follows:

- 1) Simulate the constellation of the non-geostationary space station over a sufficiently long period, with a time step appropriate for the orbit altitude, to obtain a valid representation of the antenna gain variations. For repeating ground track constellations, simulate the orbital path for each satellite visible from the earth station over a period of the ground track. For non-repeating ground track constellations, simulate the orbit of a each satellite in the constellation over a period long enough to get a stable representation of the distribution.

- 2) At each time step, determine the azimuth and elevation angle of each satellite that is both visible at the earth station and above the minimum elevation angle at which the earth station operates. In addition to the minimum elevation angle, other criteria could be used to avoid certain geometric configurations, e.g., geostationary orbit arc avoidance (no transmission between an earth station and a non-geostationary satellite that is within $\pm X$ degrees from the geostationary orbit arc);
- 3) At each step, and for each satellite in communication with the earth station, use the actual earth station antenna pattern, or a formula giving a good approximation of it, to calculate the gain towards the horizon at each azimuth and elevation angle around the earth station;
- 4) The horizon antenna gain varies over the range G_{\min} to G_{\max} . These values may be obtained by the methods in § 1 of the main body of this Appendix. Then choose a gain increment g (dB) and partition the gain range by a number of gain levels between G_{\min} and G_{\max} ,

$$\text{i.e., } G = \{G_{\min}, G_{\min} + g, G_{\min} + 2g, \dots, G_{\max}\}.$$

These gain levels determine a set of gain intervals so that the n th gain interval ($n = 1, 2, 3, \dots$) includes gain values equal to, or greater than, $G_{\min} + (n - 2)g$ and less than $G_{\min} + (n - 1)g$.

A value of $g = 0.1$ to 0.5 dB is recommended.

For each azimuth on the horizon around the earth station, accumulate the time that the horizon gain takes a value in each gain interval of width g (dB).

- 5) The probability density function (pdf) on each azimuth is determined by dividing the time in each gain interval by the total simulation time.

Determine the cumulative distribution function (cdf) of horizon gain at each azimuth by accumulating the gain density function at that azimuth. The value of the required cdf at any specific gain value is the percentage of time that the gain is less than, or equal to, that gain value.

4.2 Determination of the supplementary contour distance using the TVG method

This calculation is based on a cumulative distribution of the horizon gain of the earth station antenna for each azimuth to be considered (in suitable angular increments e.g., 5°). Appropriate distributions for this purpose may be developed by the method in § 4.1. The process for calculating the supplementary contour distance for each azimuth is described in the following procedure.

- 1) From the complementary cumulative distribution of the horizon antenna gain, for the azimuth under consideration, determine the percentage of time p_n that the horizon gain exceeds the level G_{en} , where

$$G_{en} = G_{\min} + (n - 1)g \quad (n = 1, 2, 3, \dots) \quad (\text{VI-19})$$

with

G_{\min} : the minimum value of horizon gain, and
 g is a gain increment

- 2) For each percentage p_n that is equal to or greater than $2p$ percent, the percentage of time to be used in determining the propagation mode (1) path loss is p_v .

$$p_v = 100 p/p_n \% \text{ for } p_n \geq 2p \% \quad (\text{VI-20})$$

For each percentage of time, determine the distance, d_n (km), for which the propagation mode (1) predicted path loss is equal to the propagation mode (1) minimum required loss using the propagation model in accordance with § 4 of the main body of this Appendix and the equation

$$L_{bn}(p_v) = P_t + G_{en} + G_x - P_r(p) \quad \text{dB} \quad (\text{VI-21})$$

The values of p_v must be within the range of percentage of time of the propagation mode (1) model (see §1.5.1 of the main body of this Appendix).

- 3) The propagation mode (1) required distance for the azimuth under consideration is the largest of the distances, d_n (km), calculated in step 2, except when this largest distance is attained for the smallest value of p_n that is equal to or greater than $2p$ in accordance with equation (VI-20). In such cases, the propagation mode (1) required distance for the azimuth under consideration is the distance determined from equation (VI-21) with $G_{en} = G_{\max}$ and $p_v = 50\%$ where G_{\max} is the maximum value of horizon gain.
- 4) The propagation mode (1) supplementary contour distance for the azimuth under consideration is the required distance as determined in step 3, except that the distance must be between the minimum coordination distance (d_{\min}) and the maximum coordination distance ($d_{\max I}$). These limits are given in § 4.2 and § 4.3 of the main body of this Appendix respectively.

ANNEX VII

System parameters and predetermined coordination distances for determination of the coordination area around an earth station

1 System parameters introduction

Tables 1-3 contain the system parameter values required by the methods in the main body of this Appendix to determine the coordination area around a coordinating earth station in the space services when the band is shared with terrestrial radiocommunication services or other earth stations operating in the opposite direction of transmission.

Table 1 is limited to those system parameter values required for the case of a transmitting earth station sharing with terrestrial services; Table 2 is limited to those parameter values required for the case of a receiving earth station sharing with terrestrial services; Table 3 is limited to those parameter values required for the case of a coordinating transmitting earth station which is sharing in a bidirectionally allocated band with other earth stations operating in the opposite direction of transmission.

These system parameter Tables include primary allocations to the space and terrestrial services in Article S5 of the Radio Regulations in all bands between 100 MHz and 105 GHz. Some of the columns have incomplete information. In some cases, this is because there is no requirement to calculate coordination distances as pre-determined coordination distances apply. In other cases, the service allocations are new and the systems may not be introduced for some years. Hence, the system parameters are the subject of ongoing development within the ITU-R Study Groups.

Parameters specific to the coordinating earth station, are provided to the BR in the format specified in RR Appendix S4 as part of the notification and coordination processes.

The row in each Table entitled “method to be used” directs the user to the appropriate section of the main body of this Appendix which describes the methods to be followed for the determination of the coordination area.

Note that the earth station for which the coordination area is to be determined is identified by the service designation given in the first row of each Table.

When a supplementary contour is to be developed, for example for digital fixed systems, the necessary system parameters may be found in one of the adjacent columns in Tables 1, 2 and 3 of this annex. If no suitable system parameters are available then the value of the permissible interference power ($P_r(p)$) may be calculated using equation (1) of § 2.

2 Calculation of the permissible interference power of an interfering emission

Tables 1, 2 and 3 contain values for the parameters which are required for the calculation of the permissible interference power of the interfering emission (dBW), in the reference bandwidth, to be exceeded for no more than $p\%$ of the time at the receiving antenna terminal of a station subject to interference, from a single source of interference, using the general formula:

$$P_r(p) = 10 \log(k T_e B) + N_L + 10 \log(10^{M_S} / 10 - 1) - W \quad \text{dBW} \quad (1)$$

where

- k : Boltzmann's constant, 1.38×10^{-23} J/K
- T_e : the thermal noise temperature of the receiving system (K), at the terminal of the receiving antenna (see § 2.1 of this annex)
- N_L : link noise contribution (see § 2.2 of this annex)
- B : the reference bandwidth (Hz), i.e., the bandwidth in the receiving station that is subject to the interference and over which the power of the interfering emission can be averaged
- p : the percentage of the time during which the interference from one source may exceed the permissible interference power value; since the entries of interference are not likely to occur simultaneously: $p = p_0/n$
- p_0 : the percentage of the time during which the interference from all sources may exceed the threshold value
- n : the number of equivalent equal level, equal probability entries of interference, assumed to be uncorrelated for small percentages of the time
- M_s : link performance margin (dB) (see § 2.3 of this annex)
- W : a thermal noise equivalence factor (dB) for interfering emissions in the reference bandwidth. It is positive when the interfering emissions would cause more degradation than thermal noise (see § 2.4 of this annex).

In certain cases, an administration may have reason to believe that, for its receiving earth station, a departure from the values associated with the earth station, as listed in Table 2, may be justified. Attention is drawn to the fact that for specific systems the bandwidths B or, for example in the case of demand assignment systems, the percentages of the time p and p_0 may have to be changed from the values given in Table 2.

2.1 Calculation of the noise temperature of the receiving system

The noise temperature, in Kelvin, of the receiving system, referred to the output terminals of the receiving antenna, may be determined (unless specifically given in Table 1) from:

$$T_e = T_a + (\ell_{tl} - 1)290 + \ell_{tl}T_r \quad (K) \quad (2)$$

where

- T_a : noise temperature contributed by the receiving antenna
- ℓ_{tl} : numerical loss in the transmission line (e.g. a waveguide) between the antenna terminal and the receiver front end
- T_r : noise temperature of the receiver front end, including all successive stages at the front end input.

For radio-relay receivers and where the waveguide loss of a receiving earth station is not known, a value of $\ell_{tl} = 1.0$ is used.

In case of determination of the coordination contours between two earth stations operating in the opposite direction of transmission, the following earth station receiving system noise temperatures should be used if the value is not provided in Table 3. This assumption is necessary because the receiving earth station takes the place of a receiving terrestrial station in the calculations.

Frequency range (GHz)	T _e (K)
$f < 10$	75
$10 < f < 17$	150
$f > 17$	300

2.2 Determination of the factor N_L

The factor N_L is the noise contribution to the link. In the case of a satellite transponder, it includes the up-link noise, intermodulation, etc. In the absence of table entries, it is assumed:

$$N_L = 1 \text{ dB for fixed-satellite links}$$

$$N_L = 0 \text{ dB for terrestrial links.}$$

2.3 Determination of the factor M_s

The factor M_s is the factor by which the link noise under clear-sky conditions would have to be raised to equal the permissible interference power.

2.4 Determination of the factor W

The factor W (dB) is the level of the radio-frequency thermal noise power relative to the received power of an interfering emission which, in the place of the former and contained in the same (reference) bandwidth, would produce the same interference (e.g., an increase in the voice or video channel noise power, or in the bit error ratio). The factor W generally depends on the characteristics of both the wanted and the interfering signals.

When the wanted signal is digital, W is usually equal to or less than 0 dB, regardless of the characteristics of the interfering signal.

3 Horizon antenna gain for a receiving earth station with respect to a transmitting earth station

For the determination of the coordination area of a transmitting earth station with respect to a receiving earth station in a bidirectionally allocated band, it is necessary to calculate the horizon antenna gain of the unknown earth station. In cases where the unknown receiving earth stations operate to geostationary satellites, Table 3 provides the necessary receiving earth station parameters for the calculation procedure, which is described in § 1.1 of Annex V.

In the case where the unknown receiving earth station operates to non-geostationary satellites, the horizon antenna gain to be used for all azimuths is provided in Table 3. The tabulated values were determined by using the method described in § 2.2 of the main body of this Appendix, which uses the maximum and minimum values of antenna horizon gain. For this purpose the maximum antenna horizon gain is the gain of the antenna for an off-axis angle equal to the minimum operating elevation angle. The minimum horizon gain is the gain at large off-axis angles, usually more than 36 or 48 degrees.

In determining the TIG horizon gain entries in Table 3, the difference between the maximum and minimum horizon gain did not exceed 30 dB. Consequently, the TIG horizon gain was taken as the lesser of the maximum horizon gain or 20 dB more than the minimum horizon gain. For the purpose of determining the TIG horizon gain, the reference antenna pattern of § 3 of Annex III was used, except in cases noted in the Tables where a different pattern was deemed to be more appropriate.

TABLE 1a

Parameters required for the determination of coordination distance for a transmitting earth station

Transmitting space radiocommunication service designation		Mobile- satellite		Mobile- satellite, space operation	Earth exploration- satellite, meteorological satellite		Space operation	Space research, Space operation	Mobile-satellite	Space operation	Mobile-satellite, radio- determination satellite	Mobile- satellite	Mobile -satellite	Space operation, Space research		Mobile-satellite	Space research, Space operation, Earth exploration- satellite		
Frequency bands (MHz)		121.45- 121.55		148.0- 149.9	401-403		433.75- 434.25	449.75- 450.25	806-840	1 427-1 429	1 610-1 626.5	1 675- 1 700	1 675-1 710	1 750-1 850		1 980-2 025	2 025-2 110 2 110-2 120 (Deep space)		
Receiving terrestrial service designations		Aeronautical mobile		Fixed, mobile	Fixed, mobile, meteorological aids		Amateur, radio- location fixed, mobile	Fixed, mobile, radio- location	Fixed, mobile broadcasting, aeronautical radionavigation	Fixed, mobile	Aeronautical, radionavigation	Meteoro- logical aids	Fixed, mobile	Fixed, mobile		Fixed, mobile	Fixed, mobile		
Method to be used		§ 1.4.7		§ 2.1, § 2.2		§ 2.1, § 2.2		§ 2.1, § 2.2	§ 1.4.6	§ 2.1, § 2.2		§ 1.4.6	§ 1.4.6	§ 1.4.6		§ 2.1, § 2.2	§ 1.4.6		
Modulation at terrestrial station ⁽¹⁾		A	N	A	A	N		A&N	A&N	A	N		A	N	A	N	A	N	A
Terrestrial station interference parameters and criteria	P_0 (%)			1.0				0.01	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.01
	N			1				2	2	2	2				2	2	2	2	2
	P (%)			1.0				0.005	0.005	0.005	0.005				0.005	0.005	0.005	0.005	0.005
	N_L (dB)			-				0	0	0	0				0	0	0	0	0
	M_S (dB)			-				20	20	33	33				33	33	33	33	26(2)
Terrestrial station parameters	W (dB)			-				0	0	0	0				0	0	0	0	0
	G_x (dBi) ⁽³⁾			8				16	16	33	33				35	35	35	35	49(2)
Reference bandwidth	T_r (K)			-				750	750	750	750				750	750	750	750	500(2)
	B (Hz)			14×10 ³				12.5×10 ³	12.5×10 ³	4×10 ³	10 ⁶				4×10 ³	10 ⁶	4×10 ³	10 ⁶	4×10 ³
Permissible interference power	$P_r(p)$ (dBW) in B			−153				−139	−139	−131	−107				−131	−107	−131	−107	−140

NOTES to Table 1a:

- (1) A: analogue modulation; N: digital modulation.
- (2) The parameters for the terrestrial station associated with transhorizon systems have been used. Line-of-sight radio-relay parameters associated with the frequency band 1 675-1 710 MHz may also be used to determine a supplementary contour.
- (3) Feeder losses are not included.

TABLE 1b

Parameters required for the determination of coordination distance for a transmitting earth station

Transmitting space radiocommunication service designation		Fixed-satellite, mobile-satellite	Fixed-satellite	Fixed-satellite	Fixed-satellite	Space operation, space research		Fixed-satellite, mobile-satellite, meteorological-satellite		Fixed-satellite		Fixed-satellite		Fixed-satellite	Fixed-satellite (3)	Fixed-satellite	Fixed-satellite (3)	
Frequency bands (GHz)		2.655-2.690	5.091-5.150	5.725-5.850	5.850-7.075		7.100-7.235 (5)		7.900-8.400		10.7-11.7		12.5-13.25		13.75-14.8		15.43-15.65	
Receiving terrestrial service designations		Fixed, mobile	Aeronautical radio-navigation	Radio-location	Fixed, mobile		Fixed, mobile		Fixed, mobile		Fixed, mobile		Fixed, mobile		Radiolocation radio-navigation	Aeronautical radionavigation	Fixed, mobile	Fixed, mobile
Method to be used		§ 2.1		§ 2.1	§ 2.1		§ 2.1, § 2.2		§ 2.1		§ 2.1		§ 2.1, § 2.2				§ 2.1, § 2.2	§ 2.2
Modulation at terrestrial station (1)		A			A	N	A	N	A	N	A	N	A	N			N	N
Terrestrial Station interference	$p_0(\%)$	0.01			0.01	0.005	0.01	0.005	0.01	0.005	0.01	0.005	0.01	0.005			0.005	0.005
	n	2			2	2	2	2	2	2	2	2	2	2			2	2
	$p(\%)$	0.005			0.005	0.0025	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.005	0.0025			0.0025	0.0025
Parameters And Criteria	N_L (dB)	0			0	0	0	0	0	0	0	0	0	0			0	0
	M_s (dB)	26 (2)			33	37	33	37	33	37	33	40	33	40			25	25
	W (dB)	0			0	0	0	0	0	0	0	0	0	0			0	0
Terrestrial station	G_x (dBi) (4)	49 (2)	6		46	46	46	46	46	46	50	50	52	52			48	48
Parameters	T_r (K)	500 (2)			750	750	750	750	750	750	1 500	1 100	1 500	1 100			1 100	1 100
Reference bandwidth	B (Hz)	4×10 ³	150×10 ³		4×10 ³	10 ⁶	4×10 ³	10 ⁶	4×10 ³	10 ⁶	4×10 ³	10 ⁶	4×10 ³	10 ⁶			10 ⁶	10 ⁶
Permissible interference power	P_r (p) (dBW) in B	−140	−160		−131	−103	−131	−103	−131	−103	−128	−98	−128	−98			−113	−113

NOTES to Table 1b:

- (1) A: analogue modulation; N: digital modulation.
- (2) The parameters for the terrestrial station associated with transhorizon systems have been used. Line-of-sight radio-relay parameters associated with the frequency band 5 725-7 075 MHz may also be used to determine a supplementary contour with the exception that $G_X = 37$ dBi.
- (3) Feeder links of non-geostationary satellite systems in the mobile-satellite service.
- (4) Feeder losses are not included.
- (5) Actual frequency bands are 7 100-7 155 MHz and 7 190-7 235 MHz for space operation service and 7 145-7 235 MHz for the space research service.

TABLE 1c

Parameters required for the determination of coordination distance for a transmitting earth station

Transmitting space radiocommunication service designation	Fixed-satellite	Fixed-satellite (2)	Fixed-satellite (3)	Space research	Earth exploration-satellite, space research	Fixed-satellite, mobile-satellite, radionavigation satellite	Fixed-satellite	Fixed-satellite, mobile-satellite	Fixed-satellite	Fixed-satellite
Frequency bands (GHz)	24.75-25.25 27.0-29.5	28.6-29.1	29.1-29.5	34.2-34.7	40.0-40.5	42.5-51.4	47.2-50.2	71.0-75.5	92.0-94.0	94.1-95.0
Receiving terrestrial service designations	Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile, radiolocation	Fixed, mobile	Fixed, mobile, radionavigation	Fixed, mobile	Fixed, mobile	Fixed, mobile, radiolocation	Fixed, mobile, radiolocation
Method to be used	§ 2.1	§ 2.2	§ 2.2		§ 2.1, § 2.2	§ 2.1	§ 2.1, § 2.2	§ 2.1, § 2.2	§ 2.1, § 2.2	§ 2.1, § 2.2
Modulation at terrestrial station (1)	N	N	N		N	N	N	N	N	N
Terrestrial station interference parameters and criteria	$p_0(\%)$	0.005	0.005	0.005		0.005	0.005	0.001	0.002	0.002
	n	1	2	1		1	1	1	2	2
	$p(\%)$	0.005	0.0025	0.005		0.005	0.005	0.001	0.001	0.001
	N_L (dB)	0	0	0		0	0	0	0	0
	M_S (dB)	25	25	25		25	25	25	25	25
Terrestrial station parameters	W (dB)	0	0	0		0	0	0	0	0
	G_x (dBi)	50	50	50		42	42	46	45	45
Reference bandwidth	T_r (K)	2 000	2 000	2 000		2 600	2 600	2 000	2 000	2 000
	B (Hz)	10^6	10^6	10^6		10^6	10^6	10^6	10^6	10^6
Permissible interference power	$P_f(p)$ (dBW) in B	-111	-111	-111		-110	-110	-111	-111	-111

NOTES to Table 1c:

- (1) A: analogue modulation; N: digital modulation.
- (2) Non-geostationary satellites in the fixed-satellite service.
- (3) Feeder links to non-geostationary-satellite systems in the mobile-satellite service.
- (4) Feeder losses are not included.

TABLE 2a
Parameters required for the determination of coordination distance for a receiving earth station

Receiving space radiocommunication service designation	Space operation, space research	Meteorological satellite, mobile satellite	Space research	Space research, space operation	Space operation	Mobile satellite	Meteorological satellite	Mobile-satellite	Space research space operation	Space operation	Meteorological satellite Earth exploration-satellite	Space operation	Broad-casting satellite	Mobile satellite	Broad-casting satellite (DAB)	Mobile satellite, land-mobile satellite, maritime mobile satellite
Frequency band (MHz)	137-138	137-138	143.6-143.65	174-184	163-167 272-273 ⁽⁵⁾	335.4-399.9	400.15-401	400.15-401	400.15-401	401-402	460-470	549.75-550.25	620-790	856-890	1 452-1 492	1 492-1 530 1 555-1 559 2 160-2 200 (1)
Transmitting terrestrial service designations	Fixed, mobile	Fixed, mobile	Fixed, mobile, radio-location	Fixed, mobile, broad-casting	Fixed, mobile	Fixed, mobile	Meteorological aids	Meteorological aids	Meteorological aids	Meteorological aids, fixed, mobile	Fixed, mobile	Fixed, mobile, broad-casting	Fixed, mobile, broad-casting	Fixed, mobile, broad-casting	Fixed, mobile, broad-casting	Fixed, mobile
Method to be used	§ 2.1	§ 2.1	§ 2.1	§ 2.1	§ 2.1	§ 1.4.6	§ 1.4.6	§ 1.4.6	-	§ 2.1	§ 2.1	§ 2.1	§ 1.4.5	§ 1.4.6	§ 1.4.5	§ 1.4.6
Modulation at earth station (2)	N		N		N				N	N					N	N
Earth station Interference Parameters and criteria	p_0 (%)	0.1	0.1		1.0		0.012		0.1	0.1	0.012					10
	n	2	2		1		1		2	2	1					1
	p (%)	0.05	0.05		1.0		0.012		0.05	0.05	0.012					10
	N_L (dB)	0	0		0		0		0	0						0
	M_s (dB)	1	1		1		4.3		1	1						1
	W (dB)	0	0		0		0		0	0						0
Terrestrial Station Parameters	E (dBW) in B (3)	A - N -	- -		15 15				- -	- -	5 5				38 38	37 ⁽⁴⁾ 37
	P_f (dBW) in B	A - N -	- -		-1 -1				- -	- -	-11 -11				3 3	0 0
	G_x (dBi)	-	-		16				-	-	16				35	37
	Reference bandwidth	B (Hz)	1	1	10^3		177.5×10^3		1	1	85				25×10^3	4×10^3
	Permissible interference power	$P_f(p)$ (dBW) in B	-199	-199	-173		-148		-208	-208	-178					-176

NOTES to Table 2a:

- (1) In these bands the terrestrial station parameters of line-of-sight radio-relay systems have been used. If an administration believes that, in the bands 2 160-2 200 MHz and 24 835-25 200 MHz, transhorizon systems need to be considered, the parameters associated with the frequency band 2 500-2 690 MHz may be used to determine the coordination area.
- (2) A: analogue modulation; N: digital modulation.
- (3) E is defined as the equivalent isotropically radiated power of the interfering terrestrial station in the reference bandwidth.
- (4) This value is reduced from the nominal value of 50 dBW for the purposes of determination of coordination area, recognizing the low probability of high power emissions falling fully within the relatively narrow bandwidth of the earth station.
- (5) The fixed-service parameters provided in the column for 163-167 MHz and 272-273 MHz are only applicable to the band 163-167 MHz.

TABLE 2b

Parameters required for the determination of coordination distance for a receiving earth station

Receiving space radiocommunication service designation		Space operation (GSO and non-GSO)	Radio-navigation satellite	Meteorological satellite (non-GSO)	Meteorological satellite (GSO)	Space research near Earth (non-GSO & GSO)		Space research deep space (non-GSO)	Space operation (non-GSO and GSO)	Earth exploration-satellite (GSO)	Broadcasting satellite	Mobile satellite, radio-determination satellite	Fixed satellite, broadcasting satellite		Fixed satellite	
						Unmanned	Manned									
Frequency band (GHz)		1525-1535	1.559-1.610	1.670-1.710	1.670-1.710	1.700-1.710 2.200-2.290		2.290-2.300	2.200-2.290	2.200-2.290	2.310-2.360	2.4835-2.500	2.500-2.690		3.400-4.200	
Transmitting terrestrial service designations		Fixed	Fixed	Fixed, mobile, meteorological aids	Fixed, mobile, meteorological aids	Fixed, mobile		Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile, radiolocation	Fixed, mobile, radiolocation	Fixed, mobile radiolocation		Fixed, mobile	
Method to be used		§ 2.1, § 2.2	§ 2.1	§ 2.2 and (1)	§ 2.1 and (1)	§ 2.1, § 2.2		§ 2.2	§ 2.1, § 2.2	§ 2.1	§ 1.4.5	§ 1.4.6	§ 1.4.5 and § 2.1		§ 2.1	
Modulation at earth station (2)		N		N	N	N		N	N	N		N	A	N	A	N
Earth station Interference Parameters and criteria	p_0 (%)	1.0		0.006	0.011	0.1	0.001	0.001	1.0	1.0		10	0.03	0.003	0.03	0.005
	n	1		3	2	2	1	1	2	2		1	3	3	3	3
	p (%)	1.0		0.002	0.0055	0.05	0.001	0.001	0.5	0.5		10	0.01	0.001	0.01	0.0017
	N_L (dB)	0		0	0	0		0	0			0	1	1	1	1
	M_S (dB)	1		2.8	0.9	1		0.5	1			1	7	2	7	2
	W (dB)	0		0	0	0		0	0			0	4	0	4	0
Terrestrial Station Parameters	E (dBW) in B (3)	A 50		92(4)	92(4)	-27(4,5)		-27(5)	72(0)	72(4)		37	72(4)	72(4)	55	55
	P_t (dBW) in B	A 13		40(4)	40(4)	-71(4,5)		-71(5)	28(0)	28(4)		0	28(4)	28(4)	13	13
	G_x (dBi)	N 0		-	-	-71		-71	32	32		0	32	32	0	0
	B (Hz)	37		52	52	44		44	44	44		37	44	44	42	42
	$P_r(p)$ (dBW) in B	10 ³		10 ⁶	4×10 ³	1		1	10 ⁶	10 ⁶		4×10 ³	10 ⁶	10 ⁶	10 ⁶	10 ⁶
Reference bandwidth	B (Hz)	10 ³		10 ⁶	4×10 ³	1		1	10 ⁶	10 ⁶		4×10 ³	10 ⁶	10 ⁶	10 ⁶	10 ⁶
Permissible interference power	$P_r(p)$ (dBW) in B	-184		-142	-177	-216		-222	-154	-154		-176				

NOTES to Table 2b:

- (1) In the band 1 670-1 700 MHz an additional contour for coordination with the meteorological aids service is required:
The coordination distance, d (km), for fixed earth stations in the meteorological-satellite service *vis-à-vis* stations in the meteorological aids service assumes a radiosonde altitude of 20 km and is determined as a function of the physical horizon elevation angle θ (degrees) for each azimuth, as follows:

$$\begin{aligned} d &= 582 \left(\sqrt{1 + (0.254 \theta)^2} - 0.254 \theta \right) && \text{for } \theta > 0 \\ d &= 582 && \text{for } \theta > 0 \end{aligned}$$

The minimum and maximum coordination distances are $(100 - f(\text{GHz})/2)$ km and 582 km, and occur at physical horizon angles greater than 11° and less than 0° .

- (2) A: analogue modulation; N: digital modulation.
- (3) E is defined as the equivalent isotropically radiated power of the interfering terrestrial station in the reference bandwidth.
- (4) In this band, the parameters for the terrestrial stations associated with transhorizon systems have been used. If an administration believes that transhorizon systems do not need to be considered, the line-of-sight radio-relay parameters associated with the frequency band 3.4-4.2 GHz may be used to determine the coordination area, with the exception that $E = 50$ dBW for analogue terrestrial stations; and $G_x = 37$ dBi. However, for the space research service only, noting footnote⁽⁵⁾ when transhorizon systems are not considered, $E = 20$ dBW and $P_t = -17$ dBW for analogue terrestrial stations, $E = -23$ dBW and $P_t = -60$ dBW for digital terrestrial stations; and $G_x = 37$ dBi.
- (5) These values are estimated for 1 Hz bandwidth and are 30 dB below the total power assumed for emission.

TABLE 2c

Parameters required for the determination of coordination distance for a receiving earth station

Receiving space radiocommunication service designation		Fixed satellite		Fixed satellite radio-determination satellite	Fixed satellite	Fixed satellite		Meteoro-logical satellite (7,8)	Meteoro-logical satellite (9)	Earth exploration-satellite (7)	Earth exploration-satellite (9)	Space research (10)		Fixed satellite		Broadcasting-satellite		Fixed satellite (9)	Broad-casting satellite	Fixed satellite (7)
												Deep space								
Frequency band (GHz)		4.500-4.800		5.150-5.216	6.700-7.075	7.250-7.750		7.450-7.550	7.750-7.850	8.025-8.400	8.025-8.400	8.400-8.450	8.450-8.500	10.7-12.75		12.5-12.75 (12)		15.4-15.7	17.7-17.8	17.7-18.8 19.3-19.7
Transmitting terrestrial service designations		Fixed, mobile		Aeronautical radio-navigation	Fixed, mobile	Fixed, mobile		Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile		Fixed, mobile		Fixed, mobile		Aeronautical radio-navigation	Fixed	Fixed, mobile
Method to be used		§ 2.1		§ 2.1	§ 2.2	§ 2.1		§ 2.1, § 2.2	§ 2.2	§ 2.1	§ 2.2	§ 2.2		§ 2.1, § 2.2		§ 1.4.5			§ 1.4.5	§ 2.1
Modulation at earth station (1)		A	N		N	A	N	N	N	N	N	N	N	A	N	A	N	-		N
Earth station interference parameters and criteria	p_0 (%)	0.03	0.005		0.005	0.03	0.005	0.002	0.001	0.083	0.011	0.001	0.1	0.03	0.003	0.03	0.003	0.003		0.003
	n	3	3		3	3	3	2	2	2	2	1	2	2	2	1	1	2		2
	p (%)	0.01	0.0017		0.0017	0.01	0.0017	0.001	0.0005	0.0415	0.0055	0.001	0.05	0.015	0.0015	0.03	0.003	0.0015		0.0015
	N_L (dB)	1	1		1	1	1	-	-	1	0	0	0	1	1	1	1	1		1
	M_s (dB)	7	2		2	7	2	-	-	2	4.7	0.5	1	7	4	7	4	4		6
Terrestrial station parameters	W (dB)	4	0		0	4	0	-	-	0	0	0	0	4	0	4	0	0		0
	E (dBW) in B (2)	A 92(3)	92(3)		55	55	55	55	55	55	55	25(5)	25(5)	40	40	55	55			35
	P_t (dBW) in B	N 42(4)	42(4)		42	42	42	42	42	42	42	-18	-18	[43]	[43]	42	42		40	40
	G_x (dBi)	A 40(3)	40(3)		13	13	13	13	13	13	13	-17(5)	-17(5)	-5	-5	10	10			-10
		N 0	0		0	0	0	0	0	0	0	-60	-60	-2	-2	-3	-3		-7	-5
Reference band-width(6)	B (Hz)	10 ⁶	10 ⁶		10 ⁶	10 ⁶	10 ⁶	10 ⁷	10 ⁷	10 ⁶	10 ⁶	1	1	10 ⁶	10 ⁶	27 10 ⁶	27 10 ⁶			10 ⁶
Permissible interference power	P_r (p) (dBW) in B				-151.2			-125	-125	-154 (11)	-142	-220	-216			-131	-131			

NOTES to Table 2c:

- (1) A: analogue modulation; N: digital modulation.
- (2) E is defined as the equivalent isotropically radiated power of the interfering terrestrial station in the reference bandwidth.
- (3) In this band, the parameters for the terrestrial stations associated with transhorizon systems have been used. If an administration believes that transhorizon systems do not need to be considered, the line-of-sight radio-relay parameters associated with the frequency band 3.4-4.2 GHz may be used to determine the coordination area.
- (4) Digital systems assumed to be non-transhorizon. Therefore $G_x = 42.0$ dBi. For digital transhorizon systems, parameters for analogue transhorizon systems above have been used.
- (5) These values are estimated for 1 Hz bandwidth and are 30 dB below the total power assumed for emission.
- (6) In certain systems in the fixed-satellite service it may be desirable to choose a greater reference bandwidth B . However, a greater bandwidth will result in smaller coordination distances and a later decision to reduce the reference bandwidth may require recoordination of the earth station.
- (7) Geostationary satellite systems.
- (8) Non-geostationary satellites in the meteorological-satellite service notified in accordance with Radio Regulations **S5.461A** may use the same coordination parameters.
- (9) Non-geostationary-satellite systems.
- (10) Space research earth stations in the band 8.4-8.5 GHz operate with non-geostationary satellites.
- (11) For large earth stations: $\text{Pr}(p) = (G - 180)$ dBW
For small earth stations: $\text{Pr}(20\%) = 2(G - 26) - 140$ dBW for $26 < G \leq 29$ dBi
 $\text{Pr}(20\%) = G - 163$ dBW for $G > 29$ dBi
 $\text{Pr}(p)\% = G - 163$ dBW for $G \leq 26$ dBi
- (12) Applies to the broadcasting-satellite service in unplanned bands in Region 3.

TABLE 2d
Parameters required for the determination of coordination distance for a receiving earth station

Receiving space radiocommunication service designation	Meteoro-logical satellite	Fixed satellite	Fixed satellite (3)	Broad-casting satellite	Earth exploration-satellite (4)	Earth exploration-satellite (5)	Space research (Deep Space)	Space research		Fixed satellite (6)	Fixed satellite (5)	Mobile satellite	Broadcasting satellite, Fixed satellite	Mobile satellite	Radio-navigation	Broadcasting satellite
								Un-manned	Manned							
Frequency band (GHz)	18.1-18.3	18.8-19.3	19.3-19.7	21.4-22.0	25.5-27.0	25.5-27.0	31.8-32.3	37.0-38.0		37.5-40.5	37.5-40.5	39.5-40.5	40.5-42.5	43.5-47.0	43.5-47.0	84-86
Transmitting terrestrial service designations	Fixed, mobile	Fixed, Mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, mobile	Fixed, radio-navigation	Fixed, mobile		Fixed, mobile	Fixed, mobile	Fixed, mobile	Broadcasting, fixed	Mobile	Mobile	Fixed, mobile, broadcasting
Method to be used	§ 2.1, § 2.2	§ 2.1, § 2.2	§ 2.2	§ 1.4.5	§ 2.2	§ 2.1	§ 2.1, § 2.2	§ 2.1, § 2.2		§ 2.2	§ 2.1	§ 1.4.6	§ 1.4.5 and § 2.1	§ 1.4.6	-	§ 1.4.5
Modulation at earth station (1)	N	N	N		N	N	N	N		N	N	N	-	N		
Earth station interference parameters and criteria	p_0 (%)		0.003	0.01		0.25	0.25	0.001	0.1	0.001	0.02	0.003				
	n		2	1		2	2	1	1	1		2				
	p (%)		0.0015	0.01		0.125	0.125	0.001	0.1	0.001		0.0015				
	N_L (dB)		0	0		0	0	0	0		1	1				
	M_s (dB)		5	5		11.4	14	1	1		6.8	6				
Terrestrial station parameters	W (dB)		0	0		0	0	0	0		0	0				
	E (dBW) in B (2)	A	-	-		-	-	-	-		-	-	-	-	-	-
		N	40	40	40	40	42	42	-28		35	35	35	44	40	40
	P_t (dBW) in B	A	-	-		-	-	-	-		-	-	-	-	-	-
		N	-7	-7	-7	-7	-3	-3	-81		-10	-10	-10	-1	-7	-7
	G_x (dBi)		47	47	47	47	45	45	53		45	45	45	45	47	47
Reference bandwidth	B (Hz)		10^6	10^6		10^7	10^7	1	1		10^6	10^6	10^6			
Permissible interference power	$P_r(p)$ (dBW) in B		-140	-137		-120	-116	-216	-217		-140					

NOTES to Table 2d:

- (1) A: analogue modulation; N: digital modulation.
- (2) E is defined as the equivalent isotropically radiated power of the interfering terrestrial station in the reference bandwidth.
- (3) Non-geostationary mobile-satellite service feeder links.
- (4) Non-geostationary-satellite systems.
- (5) Geostationary-satellite systems.
- (6) Non-geostationary fixed-satellite systems.

TABLE 3a
Parameters required for the determination of coordination distance for a transmitting earth station in bands shared
bidirectionally with receiving earth stations

Space service designation in which the transmitting earth station operates		Land mobile-satellite	Mobile-satellite	Land mobile-satellite	Earth exploration-satellite, meteorological satellite	Mobile-satellite		Mobile-satellite	Fixed satellite, mobile satellite	Fixed satellite (3)		Fixed satellite	Fixed satellite, meteorological satellite	Fixed satellite		
Frequency bands (GHz)		0.1499-0.15005	0.272-0.273	0.3999-0.40005	0.401-0.402	1.675-1.710		1.700-1.710		2.655-2.690		5.150-5.216		6.700-7.075	8.025-8.400	8.025-8.400
Space service designation in which the <i>receiving</i> earth station operates		Radio-navigation satellite	Space operation	Radio-navigation satellite	Space operation	Meteorological satellite		Space research near Earth		Fixed satellite, broadcasting satellite	Fixed satellite	Radio-determination satellite	Fixed satellite	Earth exploration-satellite	Earth exploration-satellite	
								Un-Manned (10)	Manned							
Orbit ⁽⁶⁾			Non-GSO		Non-GSO	Non-GSO	GSO	Non-GSO			Non-GSO		Non-GSO	Non-GSO	GSO	
Modulation at receiving earth station ⁽¹⁾			N		N	N	N	N	N				N	N	N	
Receiving earth station interference parameters and criteria	P_o (%)		1.0		0.1	0.006	0.011	0.1	0.001				0.005	0.011	0.083	
	N		1		2	3	2	2	1				3	2	2	
	p (%)		1.0		0.05	0.002	0.0055	0.05	0.001				0.0017	0.0055	0.0415	
	N_L (dB)	0	0	0	0	0	0	0	0				1	0	1	
	M_S (dB)	2	1	2	1	2.8	0.9	1	1	2	2	2	2	4.7	2	
	W (dB)	0	0	0	0	0	0	0	0				0	0	0	
Receiving earth station parameters	G_m (dBi) ⁽²⁾	0	20	0	20	30	45				48.5		50.7			
	G_r (dBi) ⁽⁴⁾	0	19	0	19	19 ⁽⁹⁾	See note ⁽⁸⁾	10	10		10		10	10	See note ⁽⁸⁾	
	ϵ_{\min} ⁽⁵⁾	3 °	10°	3 °	10°	5°	3°	5°	5°	3°	3°	3°	3°	5°	3°	
	T_e (K) ⁽⁷⁾	200	500	200	500	370	118			75	75	75	75			
Reference bandwidth	B (Hz)	4×10^3	10^3	4×10^3	1	10^6	4×10^3	1	1				10^6	10^6	10^6	
Permissible interference power	P_r (p) (dBW) in B	−172	−177	−172	−208	−145	−178	−216	−216				−151	−142	−154	

NOTES to Table 3a:

- (1) A: analogue modulation; N: digital modulation.
- (2) On-axis gain of the receive earth station antenna.
- (3) Feeder links of non-geostationary-satellite systems in the mobile-satellite service.
- (4) Horizon antenna gain for the receive earth station (refer to § 3 of the main body of this Appendix).
- (5) Minimum elevation angle of operation in degrees (non-geostationary or geostationary).
- (6) Orbit of the space service in which the receiving earth station operates (non-geostationary or geostationary).
- (7) The thermal noise temperature of the receiving system at the terminal of the receiving antenna (under clear-sky conditions). Refer to § 1.1 of this Annex for missing values.
- (8) Horizon gain is calculated using the procedure of Annex V. Where no value of G_m is specified, a value of 42 dBi is to be used.
- (9) Non-geostationary horizon gain, $G_e = G_{\min} + 20$ dB (see §2.2), with $G_{\min} = 10 - 10 \log(D/\lambda)$, $D/\lambda = 13$ (refer to Annex III for definition of symbols)
- (10) Unmanned space research is not a separate radiocommunication service and the system parameters are only to be used for the generation of supplementary contours.

TABLE 3b
Parameters required for the determination of coordination distance for a transmitting earth station in bands shared bidirectionally with receiving earth stations

Space service designation in which the transmitting earth station operates	Fixed satellite			Fixed satellite			Fixed satellite (3)	Fixed satellite	Fixed satellite	Fixed satellite (3)	Fixed satellite (3)	Earth exploration-satellite, space research		
Frequency bands (GHz)	10.7-11.7			12.5-12.75			15.43-15.65	17.3-17.8	17.7-18.4	19.3-19.6	19.3-19.6	40.0-40.5		
Space service designation in which the <i>receiving</i> earth station operates	Fixed satellite			Fixed satellite			Fixed satellite (3)	Broadcasting satellite	Fixed satellite, meteorological satellite	Fixed satellite (3)	Fixed satellite (4)	Fixed satellite, mobile satellite		
Orbit ⁽⁷⁾	GSO		Non-GSO	GSO		Non-GSO	Non-GSO		GSO	Non-GSO	GSO	GSO	Non-GSO	
Modulation at receiving earth station (1)	A	N	N	A	N				N	N				
Receiving earth station Interference Parameters and criteria	$p_0(\%)$	0.03	0.003	0.03	0.003	0.003			0.003	0.01	0.003	0.003		
	N	2	2	2	2	2			2	1	2	2		
	$p(\%)$	0.015	0.0015	0.015	0.0015	0.0015			0.0015	0.01	0.0015	0.0015		
	N_L (dB)	1	1	1	1	1			1	0	1	1		
	M_s (dB)	7	4	7	4	4			6	5	6	6		
Receiving earth station parameters	W (dB)	4	0	4	0	0			0	0	0	0		
	G_m (dBi) ⁽²⁾		51.9			31.2	48.4		58.6	53.2	49.5	50.8	54.4	
	G_e ⁽⁵⁾	See note ⁽⁹⁾	See note ⁽⁹⁾	10	See note ⁽⁹⁾	See note ⁽⁹⁾	11 ⁽¹¹⁾	10	See note ⁽⁹⁾	10	See note ⁽¹⁰⁾	See note ⁽⁹⁾	7 ⁽¹²⁾	
	θ_{min} ⁽⁶⁾	5°	5°	6°	5°	5°	10°	5°	5°	5°	10°	10°	10°	
	T_e (K) ⁽⁸⁾	150	150	150	150	150			300	300	300	300		
Reference bandwidth	B (Hz)	10 ⁶	10 ⁶	10 ⁶	10 ⁶	2×10 ⁶			10 ⁶	10 ⁶				
Permissible interference power	$P_f(p)$ (dBW) in B	-144	-144	-144	-144	-144	-144	-141	-138	-141				

NOTES to Table 3b:

- (1) A: analogue modulation; N: digital modulation.
- (2) On-axis gain of the receive earth station antenna.
- (3) Feeder links of non-geostationary satellite systems in the mobile-satellite service.
- (4) Geostationary-satellite systems.
- (5) Horizon antenna gain for the receive earth station (refer to § 3 of the main body of the Appendix).
- (6) Minimum elevation angle of operation in degrees (non-GSO or GSO).
- (7) Orbit of the space service in which the receiving earth station operates (GSO or non-GSO).
- (8) The thermal noise temperature of the receiving system at the terminal of the receiving antenna (under clear-sky conditions). Refer to § 1.1 of this Annex for missing values.
- (9) Horizon antenna gain is calculated using the procedure of Annex III. Where no value of G_m is specified, a value of 42 dBi is to be used.
- (10) Horizon gain is calculated using the procedure of Annex III, except that the following antenna pattern may be used in place of that given in § 3 of that Annex: $G = 32 - 25 \log \phi$ for $1 \leq \phi < 48$; and $G = -10$ for $48 \leq \phi < 180$ (refer to Annex III for definition of symbols).
- (11) Non-geostationary horizon gain, $G_e = G_{\max}$ (see § 2.2.1) for $G = 36 - 25 \log(\phi) > -6$ (refer to Annex III for definition of symbols).
- (12) Non-geostationary horizon gain, $G_e = G_{\max}$ (see § 2.2.1) for $G = 32 - 25 \log(\phi) > -10$ (refer to Annex III for definition of symbols).

4 Predetermined coordination distances

The predetermined coordination distances specified in Table 4 are used for transmitting and receiving earth stations, respectively, in cases defined by the corresponding frequency sharing situation.

TABLE 4

Frequency sharing situation		Coordination distance(in sharing situations involving services allocated with equal rights) (km)
Earth station for which coordination area is determined	Station in terrestrial service	
Ground-based in the bands below 1 GHz to which S9.11A applies. Ground-based mobile in the bands within the range 1-3 GHz to which S9.11A applies	Mobile (aircraft)	500
Aircraft (mobile)	Ground-based	500
Aircraft (mobile)	Mobile (aircraft)	1 000
Ground-based in the bands: 400.15-401 MHz 1 675-1 700 MHz	Station in the meteorological aids service (radiosonde)	580
Aircraft (mobile) in the bands: 400.15-401 MHz 1 675-1 700 MHz	Station in the meteorological aids service (radiosonde)	1 080
Ground-based in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	100
Airborne earth station in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	400
Receiving earth stations in the meteorological-satellite service	Station in the meteorological aids service	The coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming 4/3 Earth radius (see NOTE 1)

[Transmit non-GSO MSS feeder-link earth station in the band 15.4-15.7 GHz	Aeronautical radionavigation	600]
[Receive non-GSO MSS feeder-link earth station in the band 15.4-15.7 GHz	Aeronautical radionavigation	600]
All bands and earth stations	Terrestrial mobile (aircraft)	500

NOTE 1 - The coordination distance, d (km), for fixed earth stations in the meteorological-satellite service vis-à-vis stations in the meteorological aids service assumes a radiosonde altitude of 20 km and is determined as a function of the physical horizon elevation angle θ (degrees) for each azimuth, as follows:

$$d = 100 \quad \text{for } \theta \geq 11$$

$$d = 582 \left(\sqrt{1 + (0.254\theta)^2} - 0.254\theta \right) \\ \text{for } 0 < \theta < 11,$$

$$d = 582 \quad \text{for } \theta \leq 0$$

The minimum and maximum coordination distances are 100 km and 582 km, and correspond with physical horizon angles greater than 11° and less than 0° .

SUP

TABLE 5

**Chairperson of Sub-Working Group 4A-6****REFINEMENT OF COORDINATION PROCEDURE****REPORT TO WORKING GROUP 4A**

Sub-Working Group 4A-6 met two times to address all items in its terms of reference (TOR). The terms of reference in Document WRC2000/DT/43 were modified to include regulatory matters on Article S9, referred by Working Group 4A from the first report of Sub-Working Group 4A-1. The list of attributed documents in Document WRC2000/DT/43, was also modified to remove the editorial editions to Appendices 30/30A, and to add text from Document WRC2000/DT/41 to TOR 7 and the new TOR 8.

Outcomes for each term of reference**1 Inclination of orbit**

There was agreement to incorporate a more precise definition of orbital inclination in Article S1 as follows:

MOD

S1.185 *inclination of an orbit* (of an earth satellite): The angle determined by the plane containing the *orbit* and the plane of the Earth's equator measured in degrees between 0 and 180 and in counter-clockwise direction from the Earth's equatorial plane at the ascending node of the orbit.

2 Deadline for notification

The group had extensive discussion on this topic and sought counsel from the RRB on interpretation of the rule of procedure (ROP) for Article S11.44. As a result, the group agreed that there was a deficiency in the Radio Regulations that needed to be fixed; the proposals shown below were agreed as being suitable to fix this problem.

It was also noted that the existing ROP for Article S11.44 needs to be clarified to align with the changes proposed below.

MOD

S11.44 The notified date¹⁶ of bringing into use of any assignment to a space station of a satellite network shall be no later than five years following the date of receipt by the Bureau of the relevant information under No. **S9.1**. The notified date of bringing into use may be extended at the request of the notifying administration by not more than two years, only under the conditions specified under Nos. **S11.44B** to **S11.44I**. Any frequency assignment not brought into use within the required period shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.

ADD

¹⁶ **S11.44.1** In the case of satellite frequencies that are brought into use prior to the completion of the coordination process and for which the Resolution **49 (WRC-97)** data has been submitted to the Bureau, the network frequencies shall continue to be taken into consideration for a maximum period of seven years from the date of receipt of the relevant information under No. **S9.1**. If the frequencies have not been notified by the end of this seven-year period, the relevant frequencies shall be cancelled by the Bureau.

3 S5.43 - Categories of services

The group decided that there was a need to clarify the meaning of Article S5.43 so that footnotes that describe the relative priority of allocations, allocated to the same band, are clear on their relative protection status.

The group noted that the proposal described below needs to be communicated to Committee 5 so that any allocations they make, consider the implications proposed by the modifications and the new Article:

MOD

S5.43 1) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that ~~this~~the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by this other services or other stations in the same service ~~to which the band is allocated under Chapter SII of these Regulations~~.

ADD

S5.43A 1bis) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection cannot cause harmful interference to this other service or other stations in the same service.

4 Definition of frequency assignment

There was agreement to modify Article S8 to make reference to assignments of earth stations as follows:

MOD

¹ **S8.1.1** The expression “frequency assignment”, wherever it appears in this Chapter, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master Register. Additionally, wherever the expression relates to a space station in the geostationary-satellite orbit or in a non-geostationary-satellite orbit, it shall be associated with § A.4 of Annex 2A to Appendix S4, as relevant and moreover wherever the expression relates to an earth station for the geostationary-satellite orbit or in non-geostationary orbit, it shall be associated with § A.4 c) of Annex 2A to Appendix S4, as relevant.

5 Impact on delay of publication by BR

After lengthy debate it was agreed not to make any changes to Article S11.44G to take care of any delays in satellite processing caused by BR. This was on the understanding that the current provisions of the Radio Regulations make allowance for delays caused by BR.

6 Old circulars and Special Sections in CD-ROM

The group agreed that ITU should consider the publication, as a cost recoverable publication, of all circulars and Special Sections of the past ten years. In view of the resource implications and the need to determine expected sales volumes, WG 4A may wish to seek expressions from members who may wish to purchase such a publication.

The group also sought inclusion in the SRS of any missing information and notes provided by administrations.

7 Possible modifications to Appendix S5

The group used Document WRC2000/DT/41 as a baseline document. It was noted that other groups should be advised of the decision by SWG 4A-6 regarding reference to those frequency bands (and regions) of the service for which a footnote refers. The group decided that reference should be made in a footnote to the Article, rather than referring to Table S5-2.

For consistency in the Radio Regulations, other groups proposing modifications to Appendix S5 are invited to follow the same approach.

MOD

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.15 Non-GSO/ terrestrial	A specific earth station or a typical earth station in respect of terrestrial stations in frequency bands for which a footnote refers to No. S9.11A allocated with equal rights to space and terrestrial services, where the coordination area of the earth station includes the territory of another country	See Table S5-2 Frequency bands for which a footnote refers to No. S9.11A	The coordination area of the earth station covers the territory of another administration	See § 2 of Annex 1 of this Appendix Appendix S7	
No. S9.16 Terrestrial/ non-GSO	A transmitting station in a terrestrial service within the coordination area of an earth station in a non-GSO network in frequency bands for which a footnote refers to No. S9.11A	See Table S5-2 Frequency bands for which a footnote refers to No. S9.11A	Transmitting terrestrial station is situated within the coordination area of a receiving earth station	See § 2 of Annex 1 of this Appendix See Appendix S7	The coordination area of the affected earth station has already been determined using the calculation method of No. S9.15 Appendix S7

MOD

TABLE ~~S5-A2~~

MOD

TABLE AS5-2

SUP

2 Hard limits

8 Modifications to Article S9

The group decided that the items referred to SWG 4A-6 relating to Article S9 were outside of the competence of the group, as they dealt with BSS matters. Accordingly, WG 4A should consider referring the proposed modifications to Article S9 as contained in Document WRC2000/DT/41 to GT PLEN-1 for their consideration. SWG 4A-6 did propose changes to Article S9.17, relating to the lower frequency of applicability contained in S9.17, to bring it into alignment with the proposed revisions of Appendix S7. This proposal contains text in parentheses for the consideration by GT PLEN-1.

MOD

S9.17 *f*)¹³ for any specific earth station [ø] typical mobile earth station [or typical earth station in the broadcasting-satellite service] in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15** [and Article 4 of Appendix **S30A** and the coordination of earth stations in the broadcasting-satellite service which are subject to the Appendix **S30** Plans];



ISTANBUL, 8 MAY – 2 JUNE 2000

SUB-WORKING GROUP 5B-3

Chairperson, Sub-Working Group 5B-3

TERMS OF REFERENCE OF SUB-WORKING GROUP 5B-3

Terms of reference¹

- a) Identify ITU-R technical studies regarding potential sharing of MSS downlink in the band 1 518-1 525 MHz with other services identified in Article S5.
- b) Ascertain if there is a technical basis for sharing.
- c) If there is a technical basis for sharing, review Resolution 213.
- d) On the basis of consideration of items a), b) and c), consider proposals for amendments to Article S5.

Chairperson: Ms K. Moody (NZL) Box 598
Secretary: Mr A. Sion Box 2962

¹ These terms of reference are to be treated in the order listed.



Chairperson, Sub-Working Group 5B-3

TERMS OF REFERENCE OF SUB-WORKING GROUP 5B-3

Terms of Reference¹

- a) Identify ITU-R technical studies regarding potential sharing of MSS downlink in the band 1518-1525 MHz with other services identified in Article S5
- b) Ascertain if there is a technical basis for sharing
- c) If there is a technical basis for sharing, review Resolution 213.

Chairperson: Ms. K.Moody (NZL), Box 598

Secretary: Mr. A.Sion, Box 2962

¹ These terms of reference are to be treated in the order listed.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

**Corrigendum 1(Rev.1) to
Document DT/55-E
19 May 2000
Original: English**

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A

Chairperson, SWG 4A-1

THIRD REPORT FROM SWG 4A-1 TO WG 4A

Please find attached the text of a new resolution.

D. BRYANT
Acting Chairperson, Sub-Working Group 4A-1
Box 1191

ADD

RESOLUTION [COM4/1] (WRC-2000)

**The process to keep the technical bases
of Appendix S7 current**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that Appendix **S7** to the Radio Regulations provides the method for the determination of the coordination area of an earth station, and the assumed technical coordination parameters for the unknown terrestrial station or earth station;
- b)* that the technical coordination parameters are contained in Tables 1, 2 and 3 of Annex VII of Appendix **S7 (Rev.WRC-2000)**;
- c)* that the technical coordination parameter tables are based on Recommendation ITU-R SM.1448;
- d)* that ITU-R studies on methods for the determination of the coordination area of an earth station are continuing, and the conclusions of these studies could lead to the revision of Appendix **S7**. These methods under study are:
 - methods considering the cumulative impact in determining the coordination areas for high-density earth stations (fixed and mobile);
 - methods to address the modelling of VHF/UHF frequencies for percentages of time below 1%;
 - methods to address propagation mode(s) water vapour density for both radio climatic Zones B and C;
 - refinements to propagation mode(s) to address elevation angle dependency and the displacement of the centre of propagation mode(s) contour from the coordinating earth station;
- e)* that the technical coordination parameter tables may also need to be modified when changes are made to the Table of Frequency Allocations at future WRCs, or due to changes in technology, or due to changes in deployment of services;
- f)* that the technical coordination parameter tables do not include values for all the necessary parameters of certain space radiocommunication services and terrestrial radiocommunication services sharing frequency bands with equal rights,

recognizing

- a)* that Recommendation ITU-R SM.1448 was developed by ITU-R as a basis for the revision of Appendix **S7**;
- b)* that there is a need for future WRCs to keep Appendix **S7** current with the latest techniques and to ensure protection of other radiocommunication services sharing the same frequency bands with equal rights, particularly the revision of the tables of technical coordination parameters,

~~invites requests~~ ITU-R

to continue its study, as required, of the technical bases used for the determination of the coordination area for an earth station, including recommended values for the missing entries in the tables of technical coordination parameters (Annex VII of Appendix **S7**), ~~and~~ to maintain the relevant ITU-R texts in a format which would facilitate the future revision of Appendix **S7**, and to assess the significance of any changes to the technical bases,

resolves

1 that when ITU-R concluded~~s~~, based on its studies of the methods in *considering d*) for the determination of the coordination area for an earth station and/or the values of technical coordination parameters, that a revision of Appendix **S7** is warranted, the matter shall be brought to the attention of the Radiocommunication Assembly;

2 that, if the Radiocommunication Assembly confirms ~~significant~~ improvements of the methods in considering d) for the determination of the coordination area for an earth station and/or the values of technical coordination parameters have been presented by ITU-R, the Director, Radiocommunication Bureau, shall identify the matter in the Director's Report to the upcoming WRC,

~~requests~~invites

1 ~~that~~ any WRC, presented with ~~such~~any significant changes ~~by~~through the Director's Report, to consider the revision of Appendix **S7** in light of the recommendation of the Radiocommunication Assembly, pursuant to *resolves* 1 and 2 above; and

2 ~~that~~ each WRC, when modifying the Table of Frequency Allocations, to consider any consequential changes to the technical coordination parameters of Annex VII of Appendix **S7**, and if necessary request ITU-R to study the matter.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

**Corrigendum 1 to
Document DT/55-E
18 May 2000
Original: English**

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A

Chairperson, SWG 4A-1

THIRD REPORT FROM SWG 4A-1 TO WG 4A

Please find attached the text of a new Resolution.

J-C. PREVOTAT
Chairperson, Sub-Working Group 4A-1
Box 1306

ADD

RESOLUTION [COM 4/1] (WRC-2000)

**The process to keep the technical bases
of Appendix S7 current**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that Appendix **S7** to the Radio Regulations provides the method for the determination of the coordination area of an earth station, and the assumed technical coordination parameters for the unknown terrestrial station or earth station;
- b)* that the technical coordination parameters are contained in Tables 1, 2 and 3 of Annex VII of Appendix **S7 (Rev.WRC-2000)**;
- c)* that the technical coordination parameter tables are based on Recommendation ITU-R SM.1448;
- d)* that ITU-R studies on methods for the determination of the coordination area of an earth station are continuing, and the conclusions of these studies could lead to the revision of Appendix **S7**. These methods under study are:
 - methods considering the cumulative impact in determining the coordination areas for high-density earth stations (fixed and mobile);
 - methods to address the modelling of VHF/UHF frequencies for percentages of time below 1%;
 - methods to address propagation mode(s) water vapour density for both radio climatic Zones B and C;
 - refinements to propagation mode(s) to address elevation angle dependency and the displacement of the centre of propagation mode(s) contour from the coordinating earth station;
- e)* that the technical coordination parameter tables may also need to be modified when changes are made to the Table of Frequency Allocations at future WRCs, or due to changes in technology, or due to changes in deployment of services;
- f)* that the technical coordination parameter tables do not include values for all the necessary parameters of certain space radiocommunication services and terrestrial radiocommunication services sharing frequency bands with equal rights,

recognizing

- a)* that Recommendation ITU-R SM.1448 was developed by ITU-R as a basis for the revision of Appendix **S7**;
- b)* that there is a need for future WRCs to keep Appendix **S7** current with the latest techniques and to ensure protection of other radiocommunication services sharing the same frequency bands with equal rights, particularly the revision of the tables of technical coordination parameters,

invites ITU-R

to continue its study, as required, of the technical bases used for the determination of the coordination area for an earth station, including recommended values for the missing entries in the tables of technical coordination parameters (Annex VII of Appendix **S7**), and to maintain the relevant ITU-R texts in a format which would facilitate the future revision of Appendix **S7**,

resolves

1 that when ITU-R concluded, based on its studies of the methods in *considering d)* for the determination of the coordination area for an earth station and/or the values of technical coordination parameters that a revision of Appendix **S7** is warranted, the matter shall be brought to the attention of the Radiocommunication Assembly;

2 that, if the Radiocommunication Assembly confirms significant improvements of the methods for the determination of the coordination area for an earth station and/or the values of technical coordination parameters have been presented by ITU-R, the Director, Radiocommunication Bureau, shall identify the matter in the Director's Report to the upcoming WRC,

requests

1 that any WRC, presented with such significant changes by the Director, consider the revision of Appendix **S7** in light of the recommendation of the Radiocommunication Assembly, pursuant to *resolves* 1 and 2 above; and

2 that each WRC, when modifying the Table of Frequency Allocations, consider any consequential changes to the technical coordination parameters of Annex VII of Appendix **S7**, and if necessary request ITU-R to study the matter.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/55-E
17 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A

Chairperson, SWG 4A-1

THIRD REPORT FROM SWG 4A-1 TO WG 4A

Please find attached the text of a new Resolution.

J-C. PREVOTAT
Chairperson, Sub-Working Group 4A-1
Box 1306

ADD

RESOLUTION [COM 4/1] (WRC-2000)

**The process to keep the technical bases
of Appendix S7 current**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that Appendix **S7** to the Radio Regulations provides the method for the determination of the coordination area of an earth station, and the assumed technical coordination parameters for the unknown terrestrial station or earth station;
- b)* that the technical coordination parameters are contained in Tables 1, 2 and 3 of Annex VII of Appendix **S7 (Rev.WRC-2000)**;
- c)* that the technical coordination parameter tables are based on Recommendation ITU-R SM.1448;
- d)* that ITU-R studies on methods for the determination of the coordination area of an earth station are continuing, and the conclusions of these studies could lead to the revision of Appendix **S7**;
- e)* that the methods under study for the determination of the coordination area of an earth station include:
 - methods considering the cumulative impact in determining the coordination areas for high-density earth stations (fixed and mobile);
 - methods to address the modelling of VHF/UHF frequencies for percentages of time below 1%;
 - methods to address propagation mode(s) water vapour density for both radio climatic Zones B and C;
 - refinements to propagation mode(s) to address elevation angle dependency and the displacement of the centre of propagation mode(s) contour from the coordinating earth station;
- f)* that the technical coordination parameter tables may also need to be modified when changes are made to the Table of Frequency Allocations at future WRCs or due to changes in technology or deployment of services;
- g)* that the technical coordination parameter tables do not include values for all the necessary parameters of certain space radiocommunication services and terrestrial radiocommunication services sharing frequency bands with equal rights,

recognizing

- a)* that Recommendation ITU-R SM.1448 was developed by ITU-R as a basis for the revision of Appendix **S7**;

b) that there is a need for future WRCs to keep Appendix **S7** current with the latest techniques and to ensure protection of other radiocommunication services sharing the same frequency bands with equal rights, particularly the revision of the tables of technical coordination parameters,

invites ITU-R

to continue its study, as required, of the technical bases used for the determination of the coordination area for an earth station, including recommended values for the missing entries in the tables of technical coordination parameters (Annex VII of Appendix **S7**), and to maintain the relevant ITU-R texts in a format which would facilitate the future revision of Appendix **S7**,

resolves

1 that when ITU-R concluded, based on its studies of the methods for the determination of the coordination area for an earth station and/or the values of technical coordination parameters that a revision of Appendix **S7** is warranted, the matter shall be brought to the attention of the Radiocommunication Assembly;

2 that, if the Radiocommunication Assembly confirms significant improvements of the methods for the determination of the coordination area for an earth station and/or the values of technical coordination parameters have been presented by ITU-R, the Director, Radiocommunication Bureau, shall identify the matter in the Director's Report to the upcoming WRC,

requests

1 that any WRC, presented with such significant changes by the Director, consider the revision of Appendix **S7** in light of the recommendation of the Radiocommunication Assembly, pursuant to *resolves* 1 and 2 above; and

2 that each WRC, when modifying the Table of Frequency Allocations, consider any consequential changes to the technical coordination parameters of Annex VII of Appendix **S7**, and if necessary request ITU-R to study the matter.



Chairperson, Drafting Group 5A1b

IDENTIFICATION OF SPECTRUM FOR IMT-2000 SATELLITE COMPONENT
(Agenda item 1.6.1)

The following bands, including those previously identified, are identified for the satellite component of IMT-2000:

- [1 525-1 559 MHz/1 626.5-1 660.5 MHz]
[1 525-1 544, 1 545-1 559 MHz/1 626.5-1 645.5, 1 646.5-1 660.5 MHz]
- 1 610-1 626.5/ 2 483.5-2 500 MHz
- 1 980-2 010/2 170-2 200 MHz
- 2 010-2 025/2 160-2 170 MHz (in Region 2)
- [2 500-2 520/2 670-2 690 MHz]
- 2 520-2 535/2 655-2 670 MHz

Kyu-Jin WEE
Chairperson, Drafting Group 5A1b



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/57-E
May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

Working Group 4A

Chairman, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUP 4A9

Sub-Working Group 4A9 (SWG 4A9) –Resolution 80(WRC-97)

Terms of reference

- a) Prepare proposed modification to Resolution 80 (WRC-97) taking account of the input documents as well as the discussion taken place during WG4A.
- b) Other relevant issues.

Document: 13(Add.2 to Add7), 29

Chairman: Mr.N.A. Calderon

Box 2557

Secretary: Mr. M. Sakamoto

Box 2976

N. KISRAWI
Chairman of Working Group 4A



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/58-E
May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

Working Group 4A

Chairman, Working Group 4A

TERMS OF REFERENCE OF SUB-WORKING GROUP 4A10

Sub-Working Group 4A10 (SWG 4A10) –P.P. Resolution 80

Terms of reference

- a) Prepare proposed modification to Resolution 72 (WRC-97) taking account of the discussion taken place during WG4A.
- b) Other relevant issues.

Document: 40

Chairman: Mr.N. Kisrawi

Box 50

Secretary: Mr. M. Sakamoto

Box 2976

N. KISRAWI
Chairman of Working Group 4A



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 5A

Chairperson, Drafting Group 5A-1

**IDENTIFICATION OF ADDITIONAL SPECTRUM BELOW 1 GHz
FOR IMT-2000 (TERRESTRIAL COMPONENT)**

Text for the footnote:

S5.XXX Those parts of the band 806-960 MHz, where allocated to mobile service on a primary basis and when used or planned to be used for cellular mobile systems, [could be made available] for use by Administrations wishing to implement [IMT-2000] [IMT-2000 and other advanced [mobile] communication applications] (see Resolution **XXX (WRC-2000)**).

List of elements to be included in the Resolution :

- More details on the frequency band which are used for cellular applications.
- The fact that some countries are planning to use also part of the band 698-806 MHz for IMT-2000.
- A *noting* explaining that there are some bands allocated to mobile service on a primary basis through footnotes.
- Explanation of the different views on evolution of second generation systems towards IMT-2000 (evolutionary path/long term)
- Flexibility for administrations to make any decision regarding implementation of IMT-2000 based on their requirements and current usage.
- Ability of administrations to deploy other technologies.
- Indication that it does not affect the regulatory priority of allocated services.
- To recognize the need for administrations to carry out sharing studies before introducing IMT-2000.

Sabah TOWAIJ
Chairperson, Drafting Group 5A-1



Sub-Working Group 4B-4

DRAFT NOTE
BY THE CHAIRPERSON OF WORKING GROUP 4B
TO THE CHAIRPERSON OF WORKING GROUP 1 OF THE PLENARY

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

Pursuant to WRC-2000 agenda item 4, Working Group 4B has been reviewing the Resolutions and Recommendations which are not explicitly included in the WRC-2000 agenda. Although the following texts are not explicitly included in the agenda, Working Group 4B invites Working Group 1 of the Plenary to review them and to take appropriate action:

Resolution 507 (Doc.15 suggests SUP and J/133/56 proposes SUP)

Resolution 518 (Orb-88) (Doc.15 suggests SUP and ASP/20/319 proposes SUP)

Resolution 519 (Orb-88) (Doc.15 suggests NOC)

Resolution 524 (WARC-92) (Doc.15 suggests SUP and ASP/20/320 proposes SUP)

Resolution 531 (WRC-95) (Doc.15 suggests SUP)

Resolution 532 (WRC-97)

Resolution 534 (WRC-97) (Doc.15 suggests SUP and ASP/20/321 proposes SUP)

Resolution 535 (WRC-97) (Doc.15 suggests MOD)

Resolution 536 (WRC-97) (Doc.15 suggests NOC)

Recommendation 521 (WRC-95) (Doc.15 suggests SUP and ASP/20/327 proposes SUP)



Sub-Working Group 4B-4

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

SUP	RESOLUTION 8 (Rev. Mob-87)
SUP	RESOLUTION 14
SUP	RESOLUTION 23 (WRC-95)
SUP	RESOLUTION 24 (WRC-95)
NOC	RESOLUTION 44 (Mob-87)
SUP	RESOLUTION 50 (WRC-97)
SUP	RESOLUTION 52 (WRC-97)
SUP	RESOLUTION 54 (WRC-97)
SUP	RESOLUTION 63
SUP	RESOLUTION 70 (WARC-92)
NOC	RESOLUTION 132 (WRC-97)
NOC	RESOLUTION 209 (Mob-87)
SUP	RESOLUTION 406
SUP	RESOLUTION 411 (WARC-92)
SUP	RESOLUTION 412 (WARC-92)
SUP	RESOLUTION 500
SUP	RESOLUTION 703 (Rev. WARC-92)
SUP	RESOLUTION 721 (WRC-97)
SUP	RECOMMENDATION 32 (Orb-88)
SUP	RECOMMENDATION 61
SUP	RECOMMENDATION 405
SUP	RECOMMENDATION 518 (HFBC-87)
NOC	RECOMMENDATION 606 (Mob-87)
SUP	RECOMMENDATION 720 (WRC-95)



Sub-Working Group 4B-4

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

SUP	RESOLUTION 8 (Rev. Mob-87)
SUP	RESOLUTION 14
SUP	RESOLUTION 23 (WRC-95)
SUP	RESOLUTION 24 (WRC-95)
NOC	RESOLUTION 44 (Mob-87)
SUP	RESOLUTION 50 (WRC-97)
SUP	RESOLUTION 52 (WRC-97)
SUP	RESOLUTION 54 (WRC-97)
SUP	RESOLUTION 63
SUP	RESOLUTION 70 (WARC-92)
NOC	RESOLUTION 132 (WRC-97)
NOC	RESOLUTION 209 (Mob-87)
SUP	RESOLUTION 406
SUP	RESOLUTION 411 (WARC-92)
SUP	RESOLUTION 412 (WARC-92)
SUP	RESOLUTION 500
SUP	RESOLUTION 703 (Rev. WARC-92)
SUP	RECOMMENDATION 32 (Orb-88)
SUP	RECOMMENDATION 61
SUP	RECOMMENDATION 405
SUP	RECOMMENDATION 518 (HFBC-87)
NOC	RECOMMENDATION 606 (Mob-87)
SUP	RECOMMENDATION 720 (WRC-95)



Sub-Working Group 4B-4

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

SUP	RESOLUTION 8 (Rev. Mob-87)
SUP	RESOLUTION 14
SUP	RESOLUTION 23 (WRC-95)
SUP	RESOLUTION 24 (WRC-95)
NOC	RESOLUTION 44 (Mob-87)
SUP	RESOLUTION 50 (WRC-97)
SUP	RESOLUTION 52 (WRC-97)
SUP	RESOLUTION 54 (WRC-97)
SUP	RESOLUTION 63
SUP	RESOLUTION 70 (WARC-92)
NOC	RESOLUTION 132 (WRC-97)
NOC	RESOLUTION 209 (Mob-87)
SUP	RESOLUTION 406
SUP	RESOLUTION 411 (WARC-92)
SUP	RESOLUTION 412 (WARC-92)
[SUP]	RESOLUTION 703 (Rev. WARC-92)
SUP	RECOMMENDATION 32 (Orb-88)
SUP	RECOMMENDATION 61
SUP	RECOMMENDATION 405
SUP	RECOMMENDATION 518 (HFBC-87)
SUP	RECOMMENDATION 720 (WRC-95)



Sub-Working Group 4B-4

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

Add an editorial footnote against the title of Resolution 46 (Rev.WRC-97) and retain the title and text unchanged.

MOD

RESOLUTION 46 (Rev.WRC-97)

Interim procedures for the coordination and notification of frequency assignments of satellite networks in certain space services and the other services to which certain bands are allocated^{1*}

* WRC-2000 reviewed this Resolution and decided to maintain it with no change, as it is applicable to satellite networks whose frequency assignments were received by the Bureau prior to 1 January 1999.

MOD

RESOLUTION 216 (Rev.WRC-972000)

Possible broadening of the secondary allocation to the mobile-satellite service (Earth-to-space) in the band 14-14.5 GHz to cover aeronautical applications

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the band 14-14.5 GHz was allocated to the land mobile-satellite service (Earth-to-space) on a secondary basis prior to ~~this Conference~~WRC-97;
- b) that ~~this Conference WRC-97~~ replaced this by an allocation to the mobile-satellite service (Earth-to-space) except aeronautical mobile-satellite, on a secondary basis;
- c) that the band 14-14.5 GHz is also allocated to the fixed-satellite (Earth-to-space), radionavigation, fixed and mobile, except aeronautical mobile, services;
- d) that the services in considering c) need to be protected consistent with their allocation status;
- ~~de)~~ that there is a demand for use on board aircraft, of aeronautical mobile-satellite service capabilities in order to provide location and two-way messaging two-way communication and data transmission functions, of the same type of terminals now used for land and maritime applications;
- ef) that such demand justifies the consideration of possible broadening of the allocation to include aeronautical applications on a secondary basis at a future competent conference;
- fg) that studies on the feasibility of such a broadening of the allocation must be completed before the aforementioned competent conference, with the participation of relevant entities and organizations;
- ~~gh)~~ that Recommendation **34 (WRC-95)** states that future world radiocommunication conferences, whenever possible, should allocate frequency bands to the most broadly defined services with a view to providing maximum flexibility in spectrum use,

resolves

that [~~WRC-99~~03] should examine the possibility of broadening the secondary allocation to the mobile-satellite service (Earth-to-space) except aeronautical mobile-satellite in the 14-14.5 GHz band to include aeronautical use, subject to ~~the satisfactory outcome of technical compatibility studies~~results of ITU-R studies demonstrating compliance with the requirements of a secondary allocation,

invites ITU-R

to complete in time for [~~WRC-99~~03] the technical and operational studies on the feasibility of sharing of the band 14-14.5 GHz between the services referred to in *considering c)* above and the aeronautical mobile-satellite service, with the latter service on a secondary basis,

instructs the Director of the Radiocommunication Bureau

to invite relevant entities and organizations to participate in these studies.

MOD

RECOMMENDATION 503 (Rev.WRC-972000)

High-frequency broadcasting

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) the congestion in the HF broadcasting bands;
- b) the extent of on channel and adjacent channel interference;

noting

the possibility of improving the situation by implementing pertinent ITU R Recommendations,

~~recommends that administrations~~

~~1 ——— pay special attention to the provisions for “out-of-band spectrum” contained in Recommendation ITU R SM.328-9;~~

~~2 ——— encourage, to the maximum extent possible, manufacturers to design and build HF broadcasting receivers that conform to Recommendation ITU R SM.332-4 concerning the selectivity of receivers,~~

~~invites administrations~~

~~to take advantage, to the maximum extent practicable, of synchronized frequency transmitter operation, taking into account Recommendation ITU R BS.702-1,~~

~~invites ITU-R~~

~~to carry out further studies in relation to the Recommendations mentioned above, taking into account the requirements of HF broadcasting, with a view to updating these three Recommendations whenever necessary.~~

- c) that AM reception quality is relatively poor compared with FM broadcast or CD quality;
- d) that new digital techniques have enabled significant improvements in reception quality to be obtained in other broadcasting bands;
- e) that the introduction of digital modulation systems in the broadcasting bands below 30 MHz has been shown to be feasible by using low bit-rate coding;
- f) that Resolution **517 (Rev.WRC-97)** invites ITU-R to continue its studies on digital techniques in HF broadcasting as a matter of urgency,
- g) that urgent studies on this subject are currently carried out by ITU-R in the framework of Question ITU-R 217/10 with a view to issue a relevant Recommendation in a very short time period.

recognizing

a) that the implementation of an ITU recommended worldwide system for digital sound in the HF bands would be extremely beneficial, particularly for developing countries, since it allows for:

- mass scale production resulting in receivers as economical as possible;
- more economical analogue to digital conversion of existing transmitting infrastructures;

b) that the above system would result in digital receivers having a number of advanced features such as assisted tuning, improved audio quality and robustness to on-channel and adjacent channel interference, which would greatly contribute to a better spectrum utilization,

recommends administrations

1 to draw the attention of manufacturers to this matter, to ensure that future digital receivers make full advantage of the advanced technology while maintaining low cost;

2 to encourage manufacturers to closely monitor the development of the studies carried out by ITU-R with a view to starting mass production of new low-cost digital receivers as soon as possible after the approval of relevant ITU-R Recommendation(s).

**WORKING GROUP 1
OF THE PLENARY****Ad hoc Group 1 of the Plenary****POSSIBLE MEASURES TO RESOLVE BSS-BSS INCOMPATIBILITIES
IN THE REPLANNING PROCESS FOR REGIONS 1 AND 3**

In addition to the measures described in Document CMR2000/34 and its Corrigendum 1, the following may be applied in the replanning action undertaken by the Radiocommunication Bureau during WRC-2000, if necessary to resolve BSS-BSS incompatibilities in order to achieve successful replanning:

- 1 Those existing systems which entered in the process with a peak e.i.r.p. above 58.9 dBW and protection ratios of 31 dB (co-channel downlink at WARC-77) and 40 dB (co-channel feeder link at Orb-88) may be requested to align themselves to have standard e.i.r.p. of 58.9 dBW or lower (down to 56 dBW) and protection ratios of 24 dB (co-channel downlink at WRC-97) and 30 dB (co-channel feeder link at WRC-97).
- 2 The above systems may be requested to further reduce their protection ratio of co-channel downlink down to 21 dB.
- 3 Existing systems may be requested to accept and Part B systems may need to accept additional EPM degradation of about 1 dB greater than that referred to in paragraph 6.2 in Document 34.
- 4 If a significantly high number of beams remain not included in the Plan at the end of Step 4, it is proposed to repeat the implementation of both Step 3 and Step 4 with:
 - a) co-channel and adjacent channels downlink and feeder-link protection ratios may be reduced by about 1 dB;
 - b) EPM degradation threshold may be increased beyond 0.45 dB;
 - c) the orbital separation arc limit beyond which interference will not be taken into account, currently 15 and 9 degrees may be reduced to 9 degrees.
- 5 In case of national assignments, if the preferred orbital position could not be accommodated after 3 runs, another orbital position may be allocated, in consultation with the administration.
- 6 There are cases in which two or more sets of channels and beams were used with different characteristics in order to meet requirements of coordination with a given country (or given countries). This situation may create difficulties with regard to accommodating national assignments of certain other (either the same or neighbouring) countries. To resolve the issue, the beam characteristics can be aligned with those which are less interfering or less sensitive.

**AD HOC GROUP 1
OF THE PLENARY****Chairperson, ad hoc Group 1 of the Plenary****POSSIBLE MEASURES TO RESOLVE BSS-BSS INCOMPATIBILITIES IN THE
REPLANNING PROCESS FOR REGIONS 1 AND 3**

In addition to the measures described in Document CMR2000/34 and its Corrigendum 1, the following may be applied in the replanning action undertaken by the Radiocommunication Bureau during WRC-2000, if necessary to resolve BSS-BSS incompatibilities in order to achieve successful replanning:

- 1 Those existing systems which entered in the process with an e.i.r.p. above 58.9 dBW and protection ratios of 31 dB (co-channel downlink at WARC-77) and 40 dB (co-channel feeder link at ORB-88) may be requested to align themselves to have standard e.i.r.p. of 58.9 dBW or lower (down to 56 dBW) and protection ratios of 24 dB (co-channel downlink at WRC-97) and 30 dB (co-channel feeder link at WRC-97), subject to agreement of the concerned administration.
- 2 The above systems may be requested to further reduce their protection ratio of co-channel downlink down to 21 dB.
- 3 Existing and/or Part B systems may need to accept additional EPM degradation than that referred to in paragraph 6.2 in Document 34.
- 4 Existing and/or Part B systems causing interference to national assignments may be entered in the Plan or the List, as appropriate, under the condition specified in S11.41 in conjunction with S11.42.
- 5 If a significantly high number of beams remain not included in the Plan at the end of Step 4, it is proposed to repeat the implementation of both Step 3 and Step 4 with:
 - a) a reduced number of channels;
 - b) co-channel and adjacent channels downlink and feeder-link protection ratios may be reduced by 1 dB;
 - c) EPM degradation threshold may be reduced to 0.5 dB;
 - d) the orbital separation arc limit beyond which interference will not be taken into account, currently 15 and 9 degrees may be reduced to 9 degrees.
- 6 In case of national assignments, if the preferred orbital position could not be accommodated after 3 runs, another orbital position may be allocated.

7 There are cases in which two or more sets of channels and beams were used with different characteristics in order to meet requirements of coordination with a given country (or given countries). This situation may create difficulties with regard to accommodating national assignments of certain other (either the same or neighbouring) countries. To resolve the issue, the beam characteristics can be aligned with those which are less interfering or less sensitive.



Note by Chairperson of Sub-Working Group 4A-4

BSS(S), FOOTNOTE S5.393

The Sub-Working Group considered the proposal contained in Addendum 4 to Document 12 relating to this matter and submits the attached proposed changes to Article S5.

S. KALTENMARK
Chairperson of Sub-Working Group 4A-4

MOD

S5.393 *Additional allocation:* in the United States, India and Mexico, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)** with the exception of *resolves* 3.



Note by the Chairperson of Sub-Working Group 4A-4

NON-GSO BSS(S) IN THE 2 535-2 655 MHz BAND

The Sub-Working Group considered the proposal contained in Document 20 relating to this matter and submits the attached proposed changes to Article S5, Article S9, and Appendix S5 along with a new Resolution.

It should be noted that changes to Appendix S5 are being discussed in other groups and the proposed changes in this document may need to be brought into conformity with the approach agreed. It should also be noted that the proposed changes to Article S9 in this document are being discussed in a Sub-Working Group of 5D.

S. KALTENMARK
Chairperson of Sub-Working Group 4A-4

ADD

RESOLUTION EEE (WRC-2000)

**Coordination procedures relating to non-GSO satellite systems
in the broadcasting-satellite service (sound)
~~in the 2 535-2 655 MHz band in Region 3, and other non-GSO systems and~~
geostationary networks in the 2 535-2 655 MHz band**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that the band 2 535-2 655 MHz is allocated to the broadcasting-satellite service (sound) in certain Region 3 countries (WARC-92), subject to the provisions of Resolution 528;
- b) that, prior to WRC-2000, there were no coordination procedures applicable to non-GSO broadcasting-satellite (sound) systems in this band in relation to other non-GSO or GSO satellite networks;
- c) that satellite technology has now advanced to the stage where non-GSO systems in the broadcasting-satellite service(s) are technically and economically feasible when operated with high elevation angles using particular types of non-GSO orbits where the operational are is restricted to small windows of the sky by operational means, thereby ensuring that service is provided to countries in medium to high latitudes using elevation angles that are higher than would be provided from the geostationary orbit;
- ~~d) that the types of systems described in considering c) are particularly well suited to the provision of national and subregional broadcasting-satellite (sound) services for medium to high-latitude countries;~~
- ~~ed) that for medium to high-latitude countries, satellite systems in the broadcasting-satellite service in the types of orbits as described in considering c) can be used for the delivery of high-quality, spectrally efficient broadcasting-satellite (sound) service to portable and mobile terminals;~~
- ~~fe) that non-GSO systems in the broadcasting-satellite service (sound) in the 2 535-2 655 MHz band in Region 3 using the orbit type described in considering c) have been communicated to ITU and are expected to be brought into use in the near future;~~
- ~~g) that, in general, interference between non-GSO satellites using the type of orbit described in considering c) and terrestrial services is reduced as the elevation angle from the service area to the satellite is increased;~~
- ~~h) that there are other co-primary allocations in this frequency band for which no coordination criteria and methodologies have been established;~~

resolves

- 1 that any broadcasting-satellite service (sound) using non-GSO orbits brought into operation in the 2 535-2 655 MHz band in Region 3 shall be ~~limited to those which employ a limited constellation of satellites that provide services only at high elevation angles over the entire service area~~ operated such that the minimum elevation angle over the service area is not less than 40° for sharing with terrestrial services;

2 that, in the band 2 535-2 655 MHz, the provisions of No. **S22.2** shall continue to apply between non-geostationary systems and geostationary networks for which complete Appendix **S4** coordination information, or notification information, is considered as having been received by the Bureau by the end of WRC-2000;

3 that, taking into account *resolves* 3 of Resolution **528**, the use of the band 2 535-2 655 MHz by non-GSO satellite ~~networks-systems~~ operating in the broadcasting-satellite service (sound) for which complete Appendix **S4** coordination information, or notification information, has been received after the end of WRC-2000 is subject to the application of the provisions of No. ~~[S9.12 and/or S9.12A]~~, and No. **S22.2** does not apply except in the cases identified in *resolves* 2;

3bis that, taking into account *resolves* 3 of Resolution **528**, the use of the band 2 535-2 655 MHz by non-GSO satellite systems for which complete Appendix **S4** coordination information, or notification information, has been received after the end of WRC-2000 is subject to the application of the provisions of No. **S9.12**;

4 that, taking into account *resolves* 3 of Resolution **528**, the use of the band 2 535-2 655 MHz by geostationary satellite networks for which complete Appendix **S4** coordination information, or notification information, has been received after the end of WRC-2000 is subject to the application of the provisions of No. **S9.13**, and No. **S22.2** does not apply except in the cases identified in *resolves* 2;

5 that, in order to minimize interference to terrestrial services, an administration using non-GSO orbits for the provision of ~~national and subregional~~ broadcasting-satellite (sound) service ~~to medium and high latitude countries~~ that cannot successfully complete coordination (under Article **S9**) with another administration, shall not include the territories of that administration in its service area.

6 that the calculation methodology and interference criteria to be employed in evaluating the interference shall be based upon the Radio Regulations, relevant ITU-R Recommendations or as agreed to by concerned administrations,

invites ITU-R

to conduct the necessary studies, taking into account~~in~~ *resolves* 6, and report the results to the next conference.

MOD

APPENDIX S5

**Identification of administrations with which coordination is to be effected or
agreement sought under the provisions of Article S9**

TABLE S5-1

Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.11 GSO ₂ <u>non-GSO/</u> terrestrial	A-For a space station in the BSS <u>broadcasting-satellite service</u> in any band shared on an equal primary basis with terrestrial services and where the BSS <u>broadcasting-satellite service</u> is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz 2 520-2 655 MHz 2 655-2 670 MHz 12.5-12.75 GHz (Region 3) 17.7-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 40.5-42.5 GHz 84-86 GHz	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	

No. S9.12 1) Non-GSO/ non-GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.XXX1]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.12 2) Non-GSO/ GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.13 GSO/non-GSO	A station in a satellite network using the GSO in the frequency bands for which a footnote refers to No. S9.11A or S9.13 in respect of any other satellite network using a non-GSO, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.19 Terrestrial/ GSO, <u>non-GSO</u>	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30	Bands listed in No. S9.11	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	

MOD

2 520-2 700 MHz

Allocation to services		
Region 1	Region 2	Region 3
2 520-2 655 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418	2 520-2 655 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403	2 520-2 535 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403 S5.415A
		2 535-2 655 FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418 <u>ADD S5.[XXX1]</u>

ADD

S5.[XXX1] Use of the band 2 535-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) shall be in accordance with the provisions of Resolution **EEE (WRC-2000)**.

ARTICLE S9

[MOD

S9.12

- i) in a satellite network using a non-geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit, and in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission;^{12bis}

ADD

^{12bis} **S9.12.1** This provision also applies for the coordination between non-geostationary-satellite systems as well as for the coordination of non-geostationary-satellite systems with geostationary-satellite systems when the requirement for such coordination is included in a footnote to the Table of Frequency Allocations or in a resolution referring to this provision.

MOD

S9.13

- ii) in a satellite network using the geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission;^{12ter}

ADD

^{12ter} **S9.13.1** This provision also applies for the coordination of geostationary-satellite systems with non-geostationary-satellite systems when the requirement for such coordination is included in a footnote to the Table of Frequency Allocations or in a resolution referring to this provision.]

[NOTE - These provisions are being addressed in a Sub-Working Group of Working Group 5D and may not be necessary here if the changes adopted reflect the changes here.]



Note by the Chairperson of Sub-Working Group 4A-4

NON-GSO BSS(S) IN THE 2 535-2 655 MHz BAND

The Sub-Working Group considered the proposal contained in Document 20 relating to this matter and submits the attached proposed changes to Article S5, Article S9, and Appendix S5 along with a new Resolution.

It should be noted that changes to Appendix S5 are being discussed in other groups and the proposed changes in this document may need to be brought into conformity with the approach agreed. It should also be noted that the proposed changes to Article S9 in this document are being discussed in a Sub-Working Group of 5D.

S. KALTENMARK
Chairperson of Sub-Working Group 4A-4

ADD

RESOLUTION EEE (WRC-2000)

**Coordination procedures relating to non-GSO satellite systems
in the broadcasting-satellite service (sound)
in the 2 535-2 655 MHz band in Region 3**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that the band 2 535-2 655 MHz is allocated to the broadcasting-satellite service (sound) in certain Region 3 countries (WARC-92), subject to the provisions of Resolution 528;
- b)* that, prior to WRC-2000, there were no coordination procedures applicable to non-GSO broadcasting-satellite (sound) systems in this band in relation to other non-GSO or GSO satellite networks;
- c)* that satellite technology has now advanced to the stage where systems are technically and economically feasible using particular types of non-GSO orbits where the operational arc is restricted to small windows of the sky by operational means, thereby ensuring that service is provided to countries in medium to high latitudes using elevation angles that are higher than would be provided from the geostationary orbit;
- d)* that the types of systems described in *considering c)* are particularly well suited to the provision of national and subregional broadcasting-satellite (sound) services for medium to high-latitude countries;
- e)* that for medium to high-latitude countries, satellite systems in the broadcasting-satellite service in the types of orbits described in *considering c)* can be used for the delivery of high-quality, spectrally efficient broadcasting-satellite (sound) service to portable and mobile terminals;
- f)* that systems in the broadcasting-satellite service (sound) in the 2 535-2 655 MHz band in Region 3 using the orbit type described in *considering c)* have been communicated to ITU and are expected to be brought into use in the near future;
- g)* that, in general, interference between non-GSO satellites using the type of orbit described in *considering c)* and terrestrial services is reduced as the elevation angle from the service area to the satellite is increased;
- h)* that there are other co-primary allocations in this frequency band for which no coordination criteria and methodologies have been established,

resolves

- 1 that any broadcasting-satellite service (sound) using non-GSO orbits brought into operation in the 2 535-2 655 MHz band in Region 3 shall be limited to those which employ a limited constellation of satellites that provide services only at high elevation angles over the entire service area;
- 2 that, in the band 2 535-2 655 MHz, the provisions of No. **S22.2** shall continue to apply between non-geostationary systems and geostationary networks for which complete Appendix **S4** coordination information, or notification information, is considered as having been received by the Bureau by the end of WRC-2000;

3 that the use of the band 2 535-2 655 MHz by non-GSO satellite networks operating in the broadcasting-satellite service (sound) for which complete Appendix **S4** coordination information, or notification information, has been received after the end of WRC-2000 is subject to the application of the provisions of No. **S9.12 [and S9.12A]**, and No. **S22.2** does not apply except in the cases identified in *resolves 2*;

4 that the use of the band 2 535-2 655 MHz by geostationary satellite networks for which complete Appendix **S4** coordination information, or notification information, has been received after the end of WRC-2000 is subject to the application of the provisions of No. **S9.13**, and No. **S22.2** does not apply except in the cases identified in *resolves 2*;

5 that, in order to minimize interference to terrestrial services, an administration using non-GSO orbits for the provision of national and subregional broadcasting-satellite (sound) service to medium and high-latitude countries that cannot successfully complete coordination (under Article **S9**) with another administration, shall not include the territories of that administration in its service area.

6 that the calculation methodology and interference criteria to be employed in evaluating the interference shall be based upon relevant ITU-R Recommendations or as agreed to by concerned administrations,

invites ITU-R

to conduct the necessary studies in *resolves 6* and report the results to the next conference.

MOD

APPENDIX S5

**Identification of administrations with which coordination is to be effected or
agreement sought under the provisions of Article S9**

TABLE S5-1

Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.11 GSO ₂ <u>non-GSO/</u> terrestrial	A-For a space station in the BSS <u>broadcasting-satellite service</u> in any band shared on an equal primary basis with terrestrial services and where the BSS <u>broadcasting-satellite service</u> is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz 2 520-2 655 MHz 2 655-2 670 MHz 12.5-12.75 GHz (Region 3) 17.7-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 40.5-42.5 GHz 84-86 GHz	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	

No. S9.12 1) Non-GSO/ non-GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.XXX1]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.12 2) Non-GSO/ GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.13 GSO/non-GSO	A station in a satellite network using the GSO in the frequency bands for which a footnote refers to No. S9.11A or S9.13 in respect of any other satellite network using a non-GSO, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 535-2 655 MHz</u> <u>2 310-2 360 MHz</u> See <u>also</u> Table S5-2 [S5.393] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.19 Terrestrial/ GSO, <u>non-GSO</u>	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30	Bands listed in No. S9.11	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	

MOD

2 520-2 700 MHz

Allocation to services		
Region 1	Region 2	Region 3
2 520-2 655 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418	2 520-2 655 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403	2 520-2 535 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403 S5.415A
		2 535-2 655 FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418 <u>ADD S5.[XXX1]</u>

ADD

S5.[XXX1] Use of the band 2 535-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) shall be in accordance with the provisions of Resolution **EEE (WRC-2000)**.

ARTICLE S9

MOD

S9.12 i) in a satellite network using a non-geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit, and in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission;^{12bis}

MOD

S9.13 ii) in a satellite network using the geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission;^{12ter}

ADD

^{12bis} **S9.12.1** This provision also applies for the coordination between non-geostationary-satellite systems as well as for the coordination of non-geostationary-satellite systems with geostationary-satellite systems when the requirement for such coordination is included in a footnote to the Table of Frequency Allocations or in a resolution referring to this provision.

ADD

^{12ter} **S9.13.1** This provision also applies for the coordination of geostationary-satellite systems with non-geostationary-satellite systems when the requirement for such coordination is included in a footnote to the Table of Frequency Allocations or in a resolution referring to this provision.]

[NOTE - These provisions are being addressed in a Sub-Working Group of Working Group 5D and may not be necessary here if the changes adopted reflect the changes here.]



Chairperson, Drafting Group 5B-2B

**SPACE-TO-SPACE ALLOCATION FOR THE RADIONAVIGATION-
SATELLITE SERVICE**

(AGENDA ITEM 1.15.2)

Drafting Group 5B-2B has prepared the attached text concerning space-to-space allocation to the radionavigation-satellite service and is submitting it to Sub-Working Group 5B-2 for consideration and approval.

Drafting Group 5B-2B has completed its task related to WRC-2000 agenda item 1.15.2 and with its previous submission concerning WRC-2000 agenda item 1.15.3, it has completed the work assigned to it.

Daniel BRANDEL
Chairperson, Drafting Group 5B-2B
Box 357

MOD

890-1 350 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 215-1 240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) <u>(space-to-space)</u> S5.329 <u>ADD S5.329A</u> SPACE RESEARCH (active) S5.330 S5.331 S5.332	
1 240-1 260	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) <u>(space-to-space)</u> S5.329 <u>ADD S5.329A</u> SPACE RESEARCH (active) Amateur S5.330 S5.331 S5.332 S5.334 S5.335	

MOD

1 525-1 610 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 559-1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) <u>(space-to-space)</u> <u>ADD S5.329A</u> S5.341 S5.355 S5.359 S5.363	

ADD

S5.329A [The radionavigation-satellite service (space-to-space) in frequency bands 1 215-1 260 MHz and 1 559-1 610 MHz is not considered a safety service as defined in No. **S9.59** and the provisions of No. **S5.10** do not apply.] Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 260 MHz and 1 559-1 610 MHz shall not impose any additional constraints on other systems or services operating in accordance with the Table of Frequency Allocations.



Chairperson, Sub-Working Group 4A-3

Replace *resolves* 3 of Resolution 49 (Rev. WRC-972000) with the following:

3 that for a satellite network or satellite system within the scope of § 1, 2 or 3 of Annex 1 to this Resolution recorded in the MIFR by 22 November 1997, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 21 November 2000, or before the notified date of bringing the satellite network into use (including any extension period), whichever date comes later;

A. FREDERICH
Chairperson, Sub-Working Group 4A-3
Box 268

**WORKING GROUP 4A****Report by the Chairperson of Sub-Working Group 4A-3****FIRST REPORT FROM SUB-WORKING GROUP 4A-3
TO WORKING GROUP 4A****(RESOLUTION 49 (WRC-97) AND RESOLUTION 85 (MINNEAPOLIS, 1998))**

Sub-Working Group 4A-3 held two meetings to review Resolution 49 (WRC-97). The agreed revision is submitted to Working Group 4A for consideration.

The group considered the possible ambiguity in the application of *resolves* 3 based on Document 32 and Corrigendum 1 to Document 32.

The group concluded that the intention by WRC-97 was that *resolves* 3 shall apply to all satellite systems or networks within the scope of § 1, 2 or 3 of Annex 1 to the Resolution, i.e. also for systems already brought into use and where the date of bringing into use has been confirmed to the Radiocommunication Bureau. The group concluded that there was no need to revise the Resolution to clarify the issue, but that the conclusion should be reflected in the minutes of this conference.

One administration was of the opinion that *resolves* 3 only applies to satellite systems and networks not yet brought into use and stated that they may come back to the issue in Working Group 4A.

The group proposes that *resolves* 2 and 3 be amended to reflect that the Resolution was adopted by WRC-97 and that *resolves* 2 and 3 applies to systems *not yet recorded* respectively *recorded* in the MIFR by 22 November 1997.

Resolves 3 is also proposed to be amended to reflect that systems already recorded in the MIFR may be granted an extension period pursuant to the application of No. 1550 of the Radio Regulations or the dates specified in the relevant provisions of Appendix 30 (§ 4.3.5), Appendix 30A (§§ 4.2.5 and 4.2.6) or Appendix 30B (§ 6.57).

The group discussed further improvements to Resolution 49 (WRC-97) based on Document 205. It was agreed that only proposals 3 and 4 were within the terms of reference of SWG 4A-3. Proposals 1, 2 and 5 have to be discussed in WG 4A before any changes to Resolution 49 are discussed in SWG 4A-3.

With regard to proposal 3 the group concluded that there may be advantages in requesting that the due diligence information is submitted at an early stage of the process, but that it is premature to change the Resolution at this conference due to the limited experience of the administrative due diligence process.

There was no support for the proposal to introduce interim due diligence “milestones”. The group was of the view that the proposed milestones may be applied on a national basis but that they should not be introduced in the administrative due diligence procedure in Resolution 49.

The group noted the work in WG 4A and GT PLEN-1 with regard to Articles S9 and S11, Resolution 80 (WRC-97) and Appendices S30 and S30A and concluded that changes to these provisions may result in a need to further update Resolution 49.

Anders FREDERICH
Chairperson, Sub-Working Group 4A-3
Box 268

RESOLUTION 49 (~~WRC-97~~Rev.WRC-2000)

**Administrative due diligence applicable to some satellite
communication services**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that Resolution 18 of the ITU Plenipotentiary Conference (Kyoto, 1994) instructed the Director of the Radiocommunication Bureau to initiate a review of some important issues concerning international satellite network coordination and make a preliminary report to WRC-95 and a final report to ~~this Conference~~WRC-97;
- b) that the Director of the Radiocommunication Bureau provided a comprehensive report to ~~this Conference~~WRC-97 including a number of recommendations for action as soon as possible and identifying areas requiring further study;
- c) that one of the recommendations in the Director's Report to WRC-97 was that administrative due diligence should be adopted as a means of addressing the problem of reservation of orbit and spectrum capacity without actual use;
- d) that experience may need to be gained in the application of the administrative due diligence procedures adopted by ~~this Conference~~WRC-97, and that several years may be needed to see whether administrative due diligence measures produce satisfactory results;
- e) that new regulatory approaches may need to be carefully considered in order to avoid adverse effects on networks already going through the different phases of the procedures;
- f) that Article 44 of the Constitution (~~Geneva, 1992~~) sets out the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite and other satellite orbits, taking into account the needs of developing countries,

considering further

- g) that ~~this Conference~~WRC-97 has decided to reduce the regulatory time-frame for bringing a satellite network into use;
- h) that this Conference has considered the results of the implementation of the administrative due diligence procedures and prepared a report to 2002 Plenipotentiary Conference in response to Resolution 85 (Minneapolis, 1998).

resolves

1 that the administrative due diligence procedure contained in Annex 1 to this Resolution shall be applied as from 22 November 1997 for a satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service for which the advance publication information under No. **S9.2B**, or for which the request for modifications of the Plans under Article 4, § 4.1 b) of Appendices **S30** and **S30A** that involve the addition of new frequencies or orbit positions, or for which the request for modifications of the Plans under Article 4, § 4.1 a) of Appendices **S30** and **S30A** that extends the service area to another country or countries in addition to the existing service area, or for which the submission of information of Annex 2 of Appendix **S30B** under supplementary provisions applicable to additional uses in the planned bands as defined in Article 2 of that Appendix (Section III of Article 6 of Appendix **S30B**) has been received by the Bureau from 22 November 1997;

2 that for a satellite network or satellite system within the scope of § 1, 2 or 3 of Annex 1 to this Resolution not yet recorded in the Master International Frequency Register (MIFR) by 22 November 1997, for which the advance publication information under No. **1042** of the Radio Regulations or the request for a modification to the Plans of Appendices **30** and **30A** or for the application of Section III of Article 6 of Appendix **30B** has been received by the Bureau before 22 November 1997, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 21 November 2003, or before the expiry of the notified period for bringing the satellite network into use, plus any extension period which shall not exceed three years pursuant to the application of No. **1550** of the Radio Regulations or the dates specified in the relevant provisions of Appendix **30** (§ 4.3.5), Appendix **30A** (§ 4.2.5 and 4.2.6) or Appendix **30B** (§ 6.57), whichever date comes earlier. If the date of bringing into use, including extension specified above, is before 1 July 1998, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 1 July 1998;

3 that for a satellite network or satellite system within the scope of § 1, 2 or 3 of Annex 1 to this Resolution recorded in the MIFR by 22 November 1997, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 21 November 2000, or before the notified date of bringing the satellite network into use, whichever date comes later;

4 that six months before the expiry date specified in *resolves* 2 or 3 above, if the responsible administration has not submitted the due diligence information, the Bureau shall send a reminder to that administration;

5 that if the due diligence information is found to be incomplete, the Bureau shall immediately request the administration to submit the missing information. In any case, the complete due diligence information shall be received by the Bureau before the expiry date specified in *resolves* 2 or 3 above, as appropriate, and shall be published by the Bureau in the Weekly Circular;

6 that if the complete due diligence information is not received by the Bureau before the expiry date specified in *resolves* 2 or 3 above, the request for coordination or request for a modification to the Plans of Appendices **S30/30** and **S30A/30A** or for application of Section III of Article 6 of Appendix **S30B/30B** as covered by *resolves* 1 above submitted to the Bureau shall be cancelled. Any modifications of the Plans (Appendices **S30/30** and **S30A/30A**) shall lapse and any recording in the MIFR as well as recordings in the Appendix **S30B/30B** List shall be deleted by the Bureau after it has informed the concerned administration. The Bureau shall publish this information in the Weekly Circular,

further resolves

that the procedures in this Resolution are in addition to the provisions under Article **S9** or **S11** of the Radio Regulations or Appendices **S30/30**, **S30A/30A** or **S30B/30B**, as applicable, and, in particular, do not affect the requirement to coordinate under those provisions (Appendices **S30/30**, **S30A/30A**) in respect of extending the service area to another country or countries in addition to the existing service area,

instructs the Director of the Radiocommunication Bureau

to report to WRC-~~99~~03 and future competent world radiocommunication conferences on the results of the implementation of the administrative due diligence procedure,

instructs the Secretary-General

to bring this Resolution to the attention of the ~~1998~~2002 Plenipotentiary Conference.

ANNEX 1 TO RESOLUTION 49 (~~WRC-97~~Rev.WRC-2000)

1 Any satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service with frequency assignments that are subject to coordination under Nos. **S9.7, S9.8, S9.9, S9.11, S9.12** and **S9.13**, Resolution **33 (Rev.WRC-97)**, and Resolution **46 (Rev.WRC-97)** shall be subject to these procedures.

2 Any modifications of the Plans under Article 4, § 4.1 *b*) of Appendices **S30/30** and **S30A/30A** that involve the addition of new frequencies or orbit positions or modifications of the Plans under Article 4, § 4.1 *a*) of Appendices **S30/30** and **S30A/30A** that extend the service area to another country or countries in addition to the existing service area shall be subject to these procedures.

3 Any submission of information under Annex 2 of Appendix **S30B/30B** under supplementary provisions applicable to additional uses in the planned bands as defined in Article 2 of that Appendix (Section III of Article 6 of Appendix **S30B/30B**) shall be subject to these procedures.

4 An administration requesting coordination for a satellite network under § 1 above shall send to the Bureau as early as possible before bringing into use, but in any case to be received before the end of the 5-year period established as a limit to bringing into use in No. **S9.1**, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

5 An administration requesting a modification of the Plans of Appendices **S30/30** and **S30A/30A** under § 2 above shall send to the Bureau as early as possible before bringing into use, but in any case to be received before the end of the period established as a limit to bringing into use in accordance with Appendix **S30/30**, § 4.3.5, and with Appendix **S30A/30A**, § 4.2.5 and 4.2.6, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

6 An administration applying Section III of Article 6 of Appendix **S30B/30B** relating to additional uses under § 3. above shall send to the Bureau as early as possible before the bringing into use, but in any case so as to be received before the bringing into use, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

7 The information to be submitted in accordance with § 4, 5 or 6 above shall be signed by an authorized official of the notifying administration or of an administration that is acting on behalf of a group of named administrations.

8 On receipt of the due diligence information under § 4, 5 or 6 above, the Bureau shall promptly examine that information for completeness. If the information is found to be complete, the Bureau shall publish the complete information in a special section of the Weekly Circular within 30 days.

9 If the information is found to be incomplete, the Bureau shall immediately request the administration to submit the missing information. In all cases, the complete due diligence information shall be received by the Bureau within the appropriate time period specified in § 4, 5 or 6. above, as the case may be, relating to the date of bringing the satellite network into use.

10 Six months before expiry of the period specified in § 4, 5 or 6 above and if the administration responsible for the satellite network has not submitted the due diligence information under § 4, 5 or 6 above, the Bureau shall send a reminder to the responsible administration.

11 If the complete due diligence information is not received by the Bureau within the time limits specified in this Resolution, the networks covered by § 1, 2 or 3 above shall no longer be taken into account and shall not be recorded in the MIFR. The provisional recording in the MIFR shall be deleted by the Bureau after it has informed the concerned administration. The Bureau shall publish this information in the Weekly Circular.

With respect to the request for modification of the Plans of Appendices **S30/30** and **S30A/30A** under § 2 above, the modification shall lapse if the due diligence information is not submitted in accordance with this Resolution.

With respect to the request for application of Section III of Article 6 of Appendix **S30B/30B** under § 3 above, the network shall also be deleted from the Appendix **S30B/30B** List, if applicable.

12 Before the Bureau extends the date of bringing into use under No. **S11.44**, the complete due diligence information under § 4 above shall have been submitted by the responsible administration.

13 An administration notifying a satellite network under § 1, 2 or 3 above for recording in the MIFR shall send to the Bureau as early as possible before bringing into use, but in any case before the date of bringing into use, the due diligence information relating to the identity of the satellite network and the launch services provider specified in Annex 2 to this Resolution.

14 When an administration has completely fulfilled the due diligence procedure but has not completed coordination, this does not preclude the application of No. **S11.41** by that administration.

ANNEX 2 TO RESOLUTION 49 (~~WRC-97~~Rev.WRC-2000)

A Identity of the satellite network

- a)* Identity of the satellite network
- b)* Name of the administration
- c)* Country symbol
- d)* Reference to the advance publication information or to the request for modification of the Plans in Appendices **S30/30** and **S30A/30A**
- e)* Reference to the request for coordination (not applicable for Appendices **S30/30** and **S30A/30A**)
- f)* Frequency band(s)
- g)* Name of the operator
- h)* Name of the satellite
- i)* Orbital characteristics.

B Spacecraft manufacturer*

- a)* Name of the spacecraft manufacturer
- b)* Date of execution of the contract
- c)* Contractual “delivery window”
- d)* Number of satellites procured.

C Launch services provider

- a)* Name of the launch vehicle provider
 - b)* Date of execution of the contract
 - c)* Anticipated launch or in-orbit delivery window
 - d)* Name of the launch vehicle
 - e)* Name and location of the launch facility.
-

* NOTE – In cases where a contract for satellite procurement covers more than one satellite, the relevant information shall be submitted for each satellite.



**Draft note by the Chairperson of Committee 4 to the
Chairpersons of Committee 5 and GT PLEN-1**

**ITU-R RECOMMENDATIONS INCORPORATED BY REFERENCE IN
THE RADIO REGULATIONS**

**DRAFT TABLE OF CONTENTS OF VOLUME 4 OF THE
RADIO REGULATIONS (EDITION, 2000)**

Attached is the draft table of contents of Volume 4 of the Radio Regulations (edition, 2000), which contains the provisional list of the ITU-R Recommendations, incorporated by reference in the Radio Regulations.

The list will be completed on the basis of the decisions that may be taken in this regard by this conference.

Committee 5 and Working Group of the Plenary GT PLEN-1 are requested to inform Committee 4 on any decision which may lead to a change of the status of the ITU-R Recommendations incorporated by reference that are included in the attached list, as well as on the possible addition of new ITU-R Recommendations to this list. In accordance with the procedure under consideration in Document 201, the new ITU-R Recommendations that are proposed for incorporation by reference will be available for consultation in office 0/13 of the Rumeli building, level 0, opposite to Rumeli A Room (Mr W. Frank, Mrs L. Trarieux).

Following the conference, the Radiocommunication Bureau and the General Secretariat shall review the decisions taken by this conference with a view to completing the list in accordance with Resolution 27 (Rev.WRC-2000) and to publishing Volume 4 of the Radio Regulations accordingly.

A. ALLISON
Chairperson, Working Group 4B, Box 68

VOLUME 4

ITU-R Recommendations incorporated by reference

Recommendation	Title	Provision No. ¹
ITU-R M.257-3	Sequential single frequency selective-calling system for use in the maritime mobile service	S19.38 , S19.83, S19.92 , S19.96A , S52.188, S52.222.1 , S52.235 , S54.2, AP S13, Part A5, § 11
ITU-R TF.460-5	Standard-frequency and time-signal emissions	S1.14
ITU-R M.476-5	Direct-printing telegraph equipment in the maritime mobile service	S19.83 , S19.96A , S51.41
ITU-R M.489-2	Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz	S51.77 , S52.231 , AP S13 , Part A2 , § 10 1) AP S18, Note e)
ITU-R M.492-6	Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service	S52.27 , S56.2
ITU-R M.541-8	Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service	S51.35 , S52.148, S52.149, S52.152, S52.153, S52.159 , S54.2
ITU-R M.625-3	Direct-printing telegraph equipment employing automatic identification in the maritime mobile service	S19.83, S51.41
ITU-R M.627-1	Technical characteristics for HF maritime radio equipment using narrow-band phase-shift keying (NBPSK) telegraphy	S19.83, S51.41
ITU-R M.690-1	Technical characteristics of emergency position-indicating radio beacons (EPIRBs) operating on the carrier frequencies of 121.5 MHz and 243 MHz	AP S13 , Part A5 , § 1 b) and 4 2) AP S15, Table S15-2, 121.5 MHz
[ITU-R RA.769-1 ²	Protection criteria used for radioastronomical measurements	S5.208A, S5.511A , S29.12]
ITU-R SM.1138	Determination of necessary bandwidths including examples for their calculation and associated examples for the designation of emissions	AP S1, § 1 2) and 2 3.1)
ITU-R SA.1154 ³	Provisions to protect the space research (SR), space operations (SO), and Earth-exploration satellite services (EES) and to facilitate sharing with the mobile service in the 2 025-2 110 MHz and 2 200-2 290 MHz bands	S5.391
ITU-R M.1169	Hours of service of ship stations	S47.26 , S47.27 , S47.28 , S47.29 , S50.9

¹ This column is provided only for convenience to delegates so that they may trace the process of incorporation by reference and will not appear in Volume 4.

² Committee 5 has indicated in Document 229 that this reference will be suppressed.

³ This ITU-R Recommendation was erroneously omitted from Volume 4 (edition, 1998); see Document 196.

ITU-R M.1170	Morse telegraphy procedures in the maritime mobile service	S51.71, S52.23 , S52.25 , S52.31 , S52.32, S52.63, S52.69 , S55.1
ITU-R M.1171	Radiotelephony procedures in the maritime mobile service	S51.71, S52.192, S52.195 , S52.213, S52.224 , S52.234, S52.240 , S57.1 , AP S13, Part A2, § 14A 1)
ITU-R M.1172	Miscellaneous abbreviations and signals to be used for radiocommunications in the maritime mobile service	S19.48 , S32.7, AP S13, Part A1, § 5
ITU-R M.1173	Technical characteristics of single-sideband transmitters used in the maritime mobile service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz Region 2) and 4 000 kHz and between 4 000 kHz and 27 500 kHz	S52.181 , S52.229 , AP S17, Part B, Section I, § 2, 6 a) and b)
ITU-R M.1174-1 ⁴	Characteristics of equipment used for on-board communications in the bands between 450 and 470 MHz	S5.287 , S5.288
ITU-R M.1175	Automatic receiving equipment for radiotelegraph and radiotelephone alarm signals	AP S13, Part A5, § 9
ITU-R M.1185-1	Method for determining coordination distance between ground based mobile earth stations and terrestrial stations operating in the 148.0-149.9 MHz band	AP S5, Annex 1, § 3.2, Table 1 Resolution 46 (Rev.WRC-97), Annex 2, Table 1
ITU-R M.1187	A method for the calculation of the potentially affected region for a mobile-satellite service (MSS) network in the 1-3 GHz range using circular orbits	AP S4, § C.11 d)
ITU-R BO.1213	Reference receiving earth station antenna patterns for replanning purposes to be used in the revision of the WARC BS-77 broadcasting-satellite service plans for Regions 1 and 3	AP S30, § 11.1 AP S30, Annex 5, § 3.7.2
ITU-R S.1256 ⁵	Methodology for determining the maximum aggregate power flux-density at the geostationary-satellite orbit in the band 6 700-7 075 MHz from feeder links of non-geostationary satellite systems in the mobile-satellite service in the space-to-Earth direction	S22.5A
ITU-R BO.1293[-1] ⁶	Protection masks and associated calculation methods for interference into broadcast satellite systems involving digital emissions	AP S30, Annex 5, § 3.4 AP S30A, Annex 3, § 3.3

⁴ Committee 5 has indicated in Document 229 that the updated version of the subject ITU-R Recommendation should be included.

⁵ This ITU-R Recommendation was erroneously omitted from Volume 4 (edition, 1998); see Document 196.

⁶ The updated version of this Recommendation is under consideration in GT PLEN-1; see Document 198.

ITU-R BO.1295	Reference transmit earth station antenna off-axis e.i.r.p. patterns for planning purposes to be used in the revision of the Appendix 30A (Orb-88) Plans of the Radio Regulations at 14 GHz and 17 GHz in Regions 1 and 3	AP S30A, § 9A.1 AP S30A, Annex 3, § 3.5.3
ITU-R BO.1296	Reference receive space station antenna patterns for planning purposes to be used for elliptical beams in the revision of the Appendix 30A (Orb-88) Plans of the Radio Regulations at 14 GHz and 17 GHz in Regions 1 and 3	AP S30A, § 9A.1 AP S30A, Annex 3, § 3.7.3
ITU-R BO.1297	Protection ratios to be used for planning purposes in the revision of the Appendices 30 (Orb-85) and 30A (Orb-88) Plans of the Radio Regulations in Regions 1 and 3	AP S30, Annex 5, § 3.4 AP S30A, Annex 3, § 3.3
ITU-R S.1340 ⁷	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the Earth-to-space direction in the band 15.4-15.7 GHz	S5.511C
ITU-R S.1341 ⁸	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the space-to-Earth direction in the band 15.4-15.7 GHz and the protection of the radio astronomy service in the band 15.35-15.4 GHz	S5.511A

⁷ This ITU-R Recommendation was erroneously omitted from Volume 4 (edition, 1998); see Document 196.

⁸ This ITU-R Recommendation was erroneously omitted from Volume 4 (edition, 1998); see Document 196.



ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY**

Note by the Chairperson

Please find attached a list of the topics identified by administrations for items to be included in the agenda of the next but one WRC.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for the next but one WRC**

	1	to review the operational procedures of the global maritime distress and safety system (GMDSS) taking into account the experience since its introduction and the needs of all classes of shipping;
USA/12/312 ASP/20/333	2	to review studies related to allocations to the non-GSO MSS below 1 GHz in the 470-862 MHz band (Resolution 728 (WRC-97));
USA/12/312	3	to review studies and consider allocations if appropriate to the non-GSO MSS below 1 GHz in the 405-406 MHz band (Resolution 219 (WRC-97));
USA/12/313	4	to review studies and consider allocations in the frequency bands above 275 GHz;
EUR/13/385	5	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
EUR/13/385	6	to consider the development of appropriate arrangements in order to facilitate global circulation for carriage and use of radiocommunication terminals;
EUR/13/385	7	to review the allocations for the HF services taking account of the impact of new modulation and adaptive control techniques and any recommendations by WRC-[03] on the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz and on the future use and requirements of the aeronautical mobile (R) and maritime-mobile services;
CVA/HOL/G/ 135/4	8	to review the allocations for the HF services taking account of the impact of new modulation and adaptive control techniques and any recommendations by WRC-[03] on the adequacy of the frequency allocations for HF broadcasting and the fixed and mobile services, from about 4 MHz to 10 MHz, and on the future use and requirements of the aeronautical mobile (R) and maritime-mobile services;
EUR/13/385	9	consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998);
ASP/20/333	10	Resolution 528 (WARC-92) ;
ASP/20/333	11	potential for sharing around 4 300 MHz between radio altimeters and space-based passive earth sensors;
ASP/20/333	12	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 728 (WRC-97) ;
ASP/20/333	13	use of frequency adaptive systems in the MF/HF bands in accordance with Resolution 729 (WRC-97) ;
ASP/20/333	14	use of frequency adaptive systems in the MF/HF bands in accordance with Resolution 729 (WRC-97) ;
NZL/121/1	15	to review the possibility for additional allocations for the fixed services in the bands above 3 GHz;
	16	to consider spectrum requirements for wideband aeronautical telemetry in the band between 3 GHz and 30 GHz; (item 3 of DT/20(Rev.1)).



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/70(Rev.4)-E
27 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY**

Note by the Chairperson

Please find attached a list of the items for possible inclusion in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2
Box 2908

E. GEORGE
Chairperson, GT PLEN-2
Box 134

List of the topics which may be considered for inclusion in the draft agenda for WRC-03

No.	DT/112 (Rev.1)	Title
1	1.1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
2 + 8 + 16 + 25 + 20	1.12	to consider allocations and regulatory issues related to the space science services in accordance with Resolution 723 (Rev.WRC-2000) and to review all EESS and SRS allocations between 35 and 38 GHz taking into account Resolution [COM5/1] (WRC-2000) ;
3		examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
4		to review and take action as required on Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (Rev.WRC-2000) and 519 (WARC-92) , Appendix S11 and No.S5.134 , in the light of the studies and actions set out therein, having particular regard to the advancement of new modulation techniques, including digital techniques, capable of providing an optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
5	1.22	to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
6		[to consider] possible allocations in the frequency bands above 275 GHz;
7		to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
9	1.11	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz to permit the aeronautical mobile-satellite service as stipulated in Resolution 216 (Rev.WRC-2000) ;
10	1.7	issues concerning the amateur and amateur-satellite services: ----- to consider the possible revision of Article S25 , ----- to consider the possible revision of Article S1 with respect to any associated terms and definitions, ----- to consider the possible revision of Article S19 with respect to the identification of stations of the amateur and amateur-satellite services;
11	1.8	issues related to unwanted emissions: ----- to consider the results of studies regarding the boundary between spurious and out-of-band emissions with a view to include the boundary in Appendix S3 ; ----- to consider the results of studies and to propose any regulatory measure regarding the protection of passive services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 5 and 6 of Recommendation 66 (Rev.WRC-2000) ;
12	1.15	to consider measures to address interference in the bands allocated to the maritime mobile service and the aeronautical mobile (R) service, taking into account Resolutions 207 (Rev.WRC-2000) and [COM5/12] (WRC-2000) and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution 347 (WRC-97) ;
13	1.9	to consider Appendix S13 and Resolution 331 (Rev.WRC-2000) with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);

14	1.10	to consider the results of studies, and take necessary actions relating to: the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97)); shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
15	1.18	to consider primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 taking into account the primary allocations to various services in all three Regions;
17		to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (Rev.WRC-2000) ;
19	1.16	to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) provided that full protection is given to RA and other passive services (Recommendation ITU-R RA.769-1 can be used as guidance);
21	2006 (1.2)	to consider results of ITU-R studies in accordance with Resolution [COM5/22] (WRC-2000) to ensure spectrum availability and protection for AMS(R) and GMDSS and take appropriate action on this subject keeping generic allocation for the mobile-satellite service;
22	1.3	to consider identification of globally/regionally harmonized bands, to the extent practicable, to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief and to make regulatory adjustments, as necessary;
23		to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
24+18	1.21	to consider, with the view to facilitating global harmonization, technical and regulatory requirements of: systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution [GT PLEN-2/3] (WRC-2000) ; terrestrial wireless interactive multimedia applications, in accordance with Resolution [GT PLEN-2/2] (WRC-2000) ;
26	1.4	to consider the results of studies related to Resolution 114 (WRC-95) , dealing with the use of the band 5 091-5 150 MHz by the fixed satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocations to the aeronautical radionavigation service and the fixed satellite service in the frequency band 5 091-5 150 MHz;
27	1.5	to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth-exploration satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (WRC-2000) ;
28	1.6	to consider regulatory measures to protect feeder uplinks for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
29	1.17	to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary;
30		to examine the spectrum requirements in the FSS bands below 17 GHz for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
31	1.24	to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;

32	1.20	to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 214 (Rev.WRC-2000) ;
33	1.23	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [COM5/10] (WRC-2000) , with a view to addressing sharing conditions;
34	1.13	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [COM5/14] (WRC-2000) and No. S5.5RRR [ref. Doc. 337] of the Radio Regulations;
35	1.19	to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article S22 based on the results of ITU-R studies carried out in accordance with Resolution [COM5/2] (WRC-2000) ;
36	1.14	to review the results of studies concerning the RNSS in accordance with Resolutions [COM5/16] (WRC-2000) , [COM5/19] (WRC-2000) and [COM5/20] (WRC-2000) ;
37		to consider the results of studies related to Resolutions [COM5/3] and [COM5/23] dealing with sharing between non-GSO and GSO systems;
38		to consider the provisions under which earth stations located on board vessels operate in fixed-satellite service networks, taking into account the ITU-R studies in response to Resolution [COM4/3] (WRC-2000) ;
39		to review the ITU-R studies requested in Resolution [GT PLEN-1/1] [WRC-2000] and modify as appropriate the regulatory procedures and associated sharing criteria contained in Appendices S30 and S30A and in the associated provisions of Articles S9 and S11
40		to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
Items not yet agreed		
ASP/20/332 UAE/142/1	61	to consider the additional allocations to MSS in the 1-3 GHz band;
Outstanding items from WRC-2000		
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
Proposed for WRC-06		
	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY**

Note by the Chairperson

Please find attached a list of the items for possible inclusion in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2
Box 2908

E. GEORGE
Chairperson, GT PLEN-2
Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for WRC-03**

No.	DT/20 (Rev.1)	Title
1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
2+8+16+25		to consider allocations and regulatory issues related to the space science services in accordance with Resolution 723 (Rev.WRC-2000) ;
3	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
4	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (Rev.WRC-2000) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the advancement of new modulation techniques capable of providing an optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
5	9	to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
6	10	[to consider] possible allocations in the frequency bands above 275 GHz;
7	13	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
9	15	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in Resolution 216 (Rev.WRC-2000) ;
10	17	issues concerning the amateur and amateur-satellite services:
		to consider the possible revision of Article S25 ,
		to consider the possible revision of Article S1 with respect to any associated terms and definitions,
		to consider the possible revision of Article S19 with respect to the identification of stations of the amateur and amateur-satellite services;
11	19	issues related to Appendix S3 :
	20	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
	22	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 5 and 6 of Recommendation 66 (Rev.WRC-2000) ;
12	25 + 69	to consider measures to address interference in the bands allocated to the maritime mobile service and the aeronautical mobile (R) service, taking into account Resolutions 207 (Rev.WRC-2000) and [COM5/12] (WRC-2000) and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution 347 (WRC-97) ;
13	27	to consider Appendix S13 and Resolution 331 (Rev.WRC-2000) with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);

14	29	to consider the results of studies, and take necessary actions relating to:
	30	the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97));
	31	shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
15	34	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
17	52	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (Rev.WRC-2000) ;
19	54	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
20	59	to review all EESS and SRS allocations between 35-38 GHz taking into account Resolution [COM5/1] (WRC-2000) ;
21	60	to consider results of ITU-R studies in accordance with Resolution [COM5/22] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject [keeping generic allocation for the mobile-satellite service];
22	73	based on ITU-R studies, consider identification of globally/regionally harmonized bands, to the extent practicable, for use by administrations intending to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief, etc. and to make regulatory adjustments, as necessary;
23	81	to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
24+18	33+53	to consider, with the view to facilitating global harmonization, technical and regulatory requirements of: systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution [GT PLEN-2/3] (WRC-2000) ; terrestrial wireless interactive multimedia applications, in accordance with Resolution [GT PLEN-2/2] (WRC-2000) ;
26	DT/76	to consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5 091-5 150 MHz by the fixed satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed satellite service in the frequency band 5 091-5 150 MHz;
27	DT/76	to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth-exploration satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (WRC-2000) ;
28	DT/76	to consider regulatory measures to protect feeder uplinks for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
29	DT/76	to consider the upgrade to primary of the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz;
30	16	to examine the spectrum requirements in the FSS bands below 17 GHz for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
31		to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;

32	66	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 214 (Rev.WRC-2000) ;
33	38	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [COM5/10] (WRC-2000) , with a view to addressing sharing conditions;
34	57 + 49	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [COM5/14] (WRC-2000) and No. S5.5RRR [ref. Doc. 337] of the Radio Regulations;
35	Doc. 275	to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article S22 based on the results of ITU-R studies carried out in accordance with Resolution [COM5/2] (WRC-2000) ;
36	Doc. 367	to review the results of studies concerning the RNSS in accordance with Resolutions [COM5/16] (WRC-2000) , [COM5/19] (WRC-2000) and [COM5/20] (WRC-2000) ;
39	Doc. 423, Doc. 424	[Resolution [GT PLEN-1/1] , text to be provided]
40	41	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
Items not yet agreed		
Proposed for WRC-06	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
ASP/20/332 UAE/142/1	61	to consider the additional allocations to MSS in the 1-3 GHz band;
Proposed for WRC-06	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
37	Doc. 374	[Resolution [COM5/7] , [COM5/3] , [COM5/23]];
38	Doc. 425	to consider the provisions under which earth stations located on board vessels operate in fixed-satellite service networks, taking into account the ITU-R studies in response to Resolution [COM4/3] (WRC-2000) ;
Outstanding items from WRC-2000		
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;



WRC-2000

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 2
OF THE PLENARY

Note by the Chairperson

Please find attached a list of the items for possible inclusion in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

List of the topics which may be considered for inclusion in the draft agenda for WRC-03

No.	DT/20 (Rev.1)	Title
1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
2		to consider, in accordance with Resolution 723 (Rev.WRC-2000) , moving the existing additional allocation of the 7 145-7 235 MHz band on a primary basis pursuant to No. S5.460 to within the frame of the Table of Frequency Allocations;
3	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
4	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (Rev.WRC-2000) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the need to achieve the optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service; (+ Document 163);
5	9	[to consider realignment of] [consideration of the need to realign] the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
6	10	[to consider] possible allocations in the frequency bands above 275 GHz;
7	13	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
8	14	review, in accordance with Resolution 723 (Rev.WRC-2000) , allocations to the space-research service (deep space) (space-to-Earth) and the inter-satellite service in the frequency range 32-32.3 GHz with a view to improving the sharing conditions between these services;
9	15	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in Resolution 216 (Rev.WRC-2000) ;
10	17	issues concerning the amateur and amateur-satellite services:
		to consider the possible revision of Article S25 ,
		to consider the possible revision of Article S1 with respect to any associated terms and definitions,
		to consider the possible revision of Article S19 with respect to the identification of stations of the amateur and amateur-satellite services;
11	19	issues related to Appendix S3 :
	20	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
	22	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 5 and 6 of Recommendation 66 (Rev.WRC-2000) ;
12	25 + 69	to consider measures to address interference in the bands allocated to the maritime mobile service and the aeronautical mobile (R) service, taking into account Resolutions 207 (Rev.WRC-2000) and [COM5/12] (WRC-2000) and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution 347 (WRC-97) ;

13	27	to consider Appendix S13 and Resolution 331 (Rev.WRC-2000) with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);
14	29 30 31	to consider the results of studies, and take necessary actions relating to: ----- the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97)); ----- shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
15	34	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
16	51	to consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz, taking into account Resolution 723 (Rev.WRC-2000) ;
17	52	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (Rev.WRC-2000) ;
18	53	to consider the preferred frequency bands and allocation for future mobile communication systems beyond IMT-2000, [e.g. the fourth generation system] [taking into account Resolution [UUU] (WRC-2000)];
19	54	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
20	59	to review all EESS and SRS allocations between 35-38 GHz taking into account Resolution [COM5-1] (WRC-2000) ;
21	60	to consider results of ITU-R studies in accordance with Resolution [COM5-22] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject [keeping generic allocation for the mobile-satellite service];
22	73	based on ITU-R studies, consider identification of globally/regionally harmonized bands, to the extent practicable, for use by administrations intending to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief, etc. and to make regulatory adjustments, as necessary;
23	81	to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
24	33	review of spectrum and regulatory requirements to facilitate emerging terrestrial wireless interactive multimedia applications in accordance with Resolution [EUR/13/12] (WRC-2000) ;
25		to review existing allocations to space science services near 15 GHz and 26 GHz with a view to accommodating wideband space-to-Earth space research applications, taking into account Resolution 723 (Rev.WRC-2000) ;
26	DT/76	to consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5 091-5 150 MHz by the fixed satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed satellite service in the frequency band 5 091-5 150 MHz;
27	DT/76	to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth-exploration satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (WRC-2000) ;

28	DT/76	to consider regulatory measures to protect feeder uplinks for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
29	DT/76	to consider the upgrade to primary of the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz;
30	16	to examine the spectrum requirements in the FSS bands below 17 GHz for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
31		to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;
32	66	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 214 (Rev.WRC-2000) ;
33	38	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [COM 5/10] (WRC-2000) , with a view to addressing sharing conditions;
34	57 + 49	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [COM5/14] (WRC-2000) and No. S5.5RRR of the Radio Regulations; [ref. Doc. 337]
35	Doc. 275	to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article S22 based on the results of ITU-R studies carried out in accordance with Resolution [COM 5/2] (WRC-2000) ;
36	Doc. 367	to review the provisional pfd limits for the RNSS in accordance with Resolutions [COM5/16] (WRC-2000) , [COM5/19] (WRC-2000) and [COM5/20] (WRC-2000) ;
37	Doc. 374	[Resolution [COM5/7], text to be provided]
Items not yet agreed		
Proposed for WRC-06	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
ASP/20/332 UAE/142/1	61	to consider the additional allocations to MSS in the 1-3 GHz band;
Proposed for WRC-06	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
UAE/142/1	77	to review the technical and regulatory provisions for enabling the earth station on board vessels (ESV) to operate in the fixed-satellite service (FSS) bands 3 700-4 200 MHz and 5 925-6 425 MHz;
EUR/13/384	50	to consider whether earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz taking into account the results of the regulatory, technical and operational studies conducted in accordance with Resolution [COM5/10] (WRC-2000) ;

Items awaiting decisions of COMMITTEE 4		
EUR/13/384	41	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
Outstanding items from WRC-2000		
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
EUR/13/384	45	on the basis of the results of the technical, operational and regulatory studies conducted in accordance with Resolution [EUR/13/5] (WRC-2000) ;
EUR/13/384	46	to review and, if appropriate, revise the provisional pfd limits concerning the operation of RNSS (space-to-Earth) systems in the frequency band 1 151-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the aeronautical radionavigation, the radionavigation and the radiolocation services;
EUR/13/384	47	to consider compatibility between RNSS and ARNS in the band 960-1 215 MHz;
EUR/13/384	48	to consider, on the basis of the results of the studies in accordance with Resolution 130 (Rev.WRC-2000) , the inclusion of power limits or other frequency sharing mechanisms among GSO, non-GSO and terrestrial systems;



WRC-2000

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WORKING GROUP 2
OF THE PLENARY

Note by the Chairperson

Please find attached a list of the items for possible inclusion in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for WRC-03**

No.	DT/20 (Rev.1)	Title
1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
2		to consider moving the existing additional allocation of the 7 145-7 235 MHz band on a primary basis pursuant to No. S5.460 to within the frame of the Table of Frequency Allocations;
3	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
4	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (Rev.WRC-2000) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the need to achieve the optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service; (+ Document 163)
5	9	[to consider realignment of] [consideration of the need to realign] the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
6	10	[to consider] possible allocations in the frequency bands above 275 GHz;
7	13	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
8	14	review [of] allocations to the space-research service (deep space) (space-to-Earth) and the inter-satellite service in the frequency range 32-32.3 GHz with a view to improving the sharing conditions between these services;
9	15	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in Resolution 216 (Rev.WRC-2000) ;
10	17	issues concerning the amateur and amateur-satellite services:
		to consider the possible revision of Article S25 ,
		to consider the possible revision of Article S1 with respect to any associated terms and definitions,
		to consider the possible revision of Article S19 with respect to the identification of stations of the amateur and amateur-satellite services;
11	19	issues related to Appendix S3 :
	20	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
	22	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 5 and 6 of Recommendation 66 (Rev.WRC-2000) ;
12	25	review of the frequency and channel arrangements in the MF and HF bands allocated on a primary basis to the maritime mobile service, taking into account the use of new digital technology, in accordance with Resolution 347 (WRC-97) [and taking also into account Resolution [COM5-12]]; review the use of the HF bands by the aeronautical mobile (R) service with a view to meeting the changing needs of this service;

13	27	to consider Appendix S13 and Resolution 331 (Rev.WRC-2000) with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);
14	29 30 31	to consider the results of studies, and take necessary actions relating to: ----- the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97)); ----- shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
15	34	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
16	51	to consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz, taking into account Resolution 723 (Rev.WRC-2000) ;
17	52	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (Rev.WRC-2000) ;
18	53	to consider the preferred frequency bands and allocation for future mobile communication systems beyond IMT-2000, [e.g. the fourth generation system] [taking into account Resolution [UUU] (WRC-2000)];
19	54	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
20	59	to review all EESS and SRS allocations between 35-38 GHz taking into account Resolution [COM5-1] (WRC-2000) ;
21	60	to consider results of ITU-R studies in accordance with Resolution [COM5-22] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject [keeping generic allocation for the mobile-satellite service];
22	73	based on ITU-R studies, consider identification of globally/regionally harmonized bands, to the extent practicable, for use by administrations intending to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief, etc. and to make regulatory adjustments, as necessary;
23	81	to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
24	33	review of spectrum and regulatory requirements to facilitate emerging terrestrial wireless interactive multimedia applications in accordance with Resolution [EUR/13/12] (WRC-2000) ;
25		to consider primary allocations between 10 and 30 GHz for the space research service (space-to-Earth) to accommodate wideband downlink requirements;
26	DT/76	to consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5 091-5 150 MHz by the fixed satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed satellite service in the frequency band 5091-5150 MHz;
27	DT/76	to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth-exploration satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (WRC-2000) ;

28	DT/76	to consider regulatory measures to protect feeder uplinks for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
29	DT/76	to consider the upgrade to primary of the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz;
30	16	to examine the spectrum requirements in the FSS bands below 17 GHz for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
31		to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;
32	66	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 214 (Rev.WRC-2000) ;
Items not yet agreed		
Proposed for WRC-06	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
ASP/20/332	61	to consider the additional allocations to MSS in the 1-3 GHz band;
AUS/58/1	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
AUS/58/2	69	to consider results of the ITU-R studies conducted in accordance with Resolution 207 (Rev.WRC-2000) [to mitigate HF interference in the bands allocated to the maritime mobile and aeronautical mobile (R) service];
UAE/142/1	77	to review the technical and regulatory provisions for enabling the earth station on board vessels (ESV) to operate in the fixed-satellite service (FSS) bands 3 700-4 200 MHz and 5 925-6 425 MHz;
EUR/13/384	50	to consider whether earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz taking into account the results of the regulatory, technical and operational studies conducted in accordance with Resolution [EUR/13/8] (WRC-2000) ;
Items awaiting decisions of COMMITTEE 4		
EUR/13/384	41	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
Items awaiting decisions of COMMITTEE 5		
EUR/13/384 UAE/142/1	38	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [EUR/13/13] (WRC-2000) , with a view to improve sharing conditions for FSS;
Outstanding items from WRC-2000		
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
EUR/13/384	44	to consider any additional changes to Appendix S18 to enable the use of digital communications by the maritime-mobile service, taking into account Resolution 342 (Rev.WRC-2000) ;
EUR/13/384	45	on the basis of the results of the technical, operational and regulatory studies conducted in accordance with Resolution [EUR/13/5] (WRC-2000) ;
EUR/13/384	46	to review and, if appropriate, revise the provisional pfd limits concerning the operation of RNSS (space-to-Earth) systems in the frequency band 1 151-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the aeronautical radionavigation, the radionavigation and the radiolocation services;

EUR/13/384	47	to consider compatibility between RNSS and ARNS in the band 960-1 215 MHz;
EUR/13/384	48	to consider, on the basis of the results of the studies in accordance with Resolution 130 (Rev.WRC-2000) , the inclusion of power limits or other frequency sharing mechanisms among GSO, non-GSO and terrestrial systems;
EUR/13/384	49	to consider regulatory provisions for high altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and possible additional frequency allocations for such high altitude platform stations in the fixed service in the range 18-32 GHz taking into account the results of ITU-R studies conducted in accordance with Resolution 122 (Rev.WRC-2000) ;
ASP/20/332 J/133/63	57	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [XXX] (WRC-2000) relating to frequency bands above 3 GHz allocated exclusively for terrestrial radiocommunications;



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 2
OF THE PLENARY

Note by the Chairperson

Please find attached a list of the items to be included in the agenda of the next WRC.

A. NALBANDIAN
Secretary, GT PLEN-2, Box 2908

E. GEORGE
Chairperson, GT PLEN-2, Box 134

**List of the topics which may be considered for inclusion
in the draft agenda for WRC-03**

No.	DT/20 (Rev.1)	Title
1	1	requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev.WRC-97) ;
2		to consider moving the existing additional allocation of the 7 145-7 235 MHz band on a primary basis pursuant to No. S5.460 to within the frame of the Table of Frequency Allocations;
3	7	examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;
4	8	to review Resolution 517 (Rev.WRC-97) , the related Resolution 537 (WRC-97) , Recommendations 515 (Rev.WRC-97) , 517 (HFBC-87) , 518 (HFBC-87) and 519 (WARC-92) and Appendix S11 , in the light of the studies and actions set out therein, having particular regard to the need to achieve the optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
5	9	[to consider realignment of] [consideration of the need to realign] the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92) ;
6	10	[to consider] possible allocations in the frequency bands above 275 GHz, [taking into account Resolution [AAA] (WRC-2000)];
7	13	to consider the regulatory and technical provisions for [the quasi-geostationary] satellite networks [using highly elliptical orbits];
8	14	review [of] allocations to the space-research service (deep space) (space-to-Earth) and the inter-satellite service in the frequency range 32-32.3 GHz with a view to improving the sharing conditions between these services;
9	15	to consider possible extension of the allocation to the MSS (Earth-to-space) on a secondary basis in the band 14-14.5 GHz [to cover] to permit the aeronautical mobile-satellite service [applications] as stipulated in MOD Resolution 216 (WRC-97) ;
10	17	issues concerning the amateur and amateur-satellite services:
		to consider the possible revision of Article S25 ,
		to consider the possible revision of Article S1 with respect to any associated terms and definitions,
		to consider the possible revision of Article S19 with respect to the identification of stations of the amateur and amateur-satellite services;
11	19	issues related to Appendix S3 :
	20	to consider the results of studies regarding the boundary between spurious and out-of-band emissions;
	22	to consider the results of studies and to propose any regulatory measure regarding the protection of passive services and safety services from unwanted emissions, in particular from space services transmissions, in response to <i>recommends</i> 5 and 6 of Recommendation 66 (Rev.WRC-2000) ;
12	25	review of the frequency and channel arrangements in the MF and HF bands allocated on a primary basis to the maritime mobile service, taking into account the use of new digital technology, in accordance with Resolution 347 (WRC-97) ; review the use of the HF bands by the aeronautical mobile (R) service with a view to meeting the changing needs of this service;

13	27	to consider Appendix S13 and Resolution 331 (Rev.WRC-97) with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);
14	29	to consider the results of studies, and take necessary actions relating to:
	30	the exhaustion of the maritime mobile service identity numbering resource (Resolution 344 (WRC-97));
	31	shore-to-ship distress communication priorities (Resolution 348 (WRC-97));
15	34	add a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 in Article S5 of the Radio Regulations;
16	51	to consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz, taking into account Resolution 723 (WRC-97) ;
17	52	to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (WRC-97) ;
18	53	to consider the preferred frequency bands and allocation for future mobile communication systems beyond IMT-2000, [e.g. the fourth generation system] [taking into account Resolution [UUU] (WRC-2000)];
19	54	[to consider] allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97) ;
20	59	to review all EESS and SRS allocations between 35-38 GHz in accordance with Resolutions [CCC] (WRC-2000) , [DDD] (WRC-2000) and [EEE] (WRC-2000) ;
21	60	to consider results of ITU-R studies in accordance with Resolution [ZZZ] (WRC-2000) [to ensure spectrum availability and protection for AMS(R) and GMDSS] and take appropriate action on this subject [keeping generic allocation for the mobile-satellite service];
22	73	based on ITU-R studies, consider identification of globally/regionally harmonized bands, to the extent practicable, for use by administrations intending to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief, etc. and to make regulatory adjustments, as necessary;
23	81	to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
Items not yet agreed		
USA/12/1 EUR/13/384	2	to consider the upgrade [the status] of allocations to the radiolocation service in the bands around [2 900-3 100 MHz] and around 5.5 GHz [the date of a conference is under discussion];
USA/12/1	5	to consider inclusion in the Radio Regulations of power flux-density limits, in accordance with Recommendation ITU-R S.[Doc. 4/54], to protect the feeder uplinks of non-geostationary mobile-satellite service systems operating in the fixed-satellite service at 5 GHz pursuant to No. S5.447A ;
USA/12/1	12	to consider an extension to the upper end of the current allocations to the EESS (active) and space research (active) from 5 460 MHz up to 5 570 MHz for the purpose of providing additional spectrum for spaceborne radio-altimetry and synthetic aperture radar imaging;
EUR/13/384	32	consider the allocation of frequencies to the mobile service in the frequency ranges 5 150-5 350 MHz and 5 470-5 725 MHz;

EUR/13/384	39	to consider the results of studies related to Resolution 114 (WRC-95) , dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;
CAN/24/110	63	to consider allocation of additional spectrum for the Earth exploration-satellite service (EESS) around 5 GHz;
AUS/58/3	70	to consider an additional allocation on a worldwide basis for EESS active radio altimeters in the band 5 460-5 570 MHz;
J/133/68		to consider the allocations of frequencies to the mobile service in the range 5 150-5 350 MHz and to the fixed service in the range 5 250-5 350 MHz;
USA/12/1 ASP/20/332	16	to examine the spectrum requirements for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz;
EUR/13/384	35	to consider regulatory provisions and possible identification of spectrum above about 19.7 GHz for high-density systems in the fixed-satellite service;
B/35/95	36	to consider regulatory provisions and possibly identify additional spectrum allocation in bands above 17.8 GHz for high-density systems in the fixed-satellite service (HDFSS), taking full account of its future requirements;
E/127	37	to consider regulatory provisions and possible identification of spectrum above about 18 GHz for high-density systems in the fixed-satellite service;
ASP/20/332 J/133/64	58	to review footnote S5.332 in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
ASP/20/332	61	to consider the additional allocations to MSS in the 1-3 GHz band;
USA/12/311	66	additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 214 (WRC-97) ;
AUS/58/1	68	to take into account ITU-R studies in accordance with Resolution 342 (WRC-97) and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix S18 ;
AUS/58/2	69	to consider results of the ITU-R studies conducted in accordance with Resolution 207 (Rev.WRC-2000) [to mitigate HF interference in the bands allocated to the maritime mobile and aeronautical mobile (R) service];
UAE/142/1	77	to review the technical and regulatory provisions for enabling the earth station on board vessels (ESV) to operate in the fixed-satellite service (FSS) bands 3 700-4 200 MHz and 5 925-6 425 MHz;
Items awaiting decisions of COMMITTEE 4		
EUR/13/384	41	to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998) ;
Items awaiting decisions of COMMITTEE 5		
EUR/13/384 UAE/142/1	38	review of the usage of the band 13.75-14 GHz for all services, in accordance with Resolution [EUR/13/13] (WRC-2000) , with a view to improve sharing conditions for FSS;
ASP/20/332 INS/60/5	56	to consider the additional allocations on a worldwide basis for downlinks in the 401-406 MHz to the non-GSO MSS, taking into account the results of ITU-R studies conducted in response to Resolution 219 (WRC-97) ;

Outstanding items from WRC-2000		
EUR/13/384	43	to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service carried out in accordance with Resolution [EUR/13/1] (WRC-2000) and take appropriate action on this subject;
EUR/13/384	44	to consider any additional changes to Appendix S18 to enable the use of digital communications by the maritime-mobile service, taking into account Resolution 342 (Rev.WRC-2000) ;
EUR/13/384	45	on the basis of the results of the technical, operational and regulatory studies conducted in accordance with Resolution [EUR/13/5] (WRC-2000):
EUR/13/384	46	to review and, if appropriate, revise the provisional pfd limits concerning the operation of RNSS (space-to-Earth) systems in the frequency band 1 151-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the aeronautical radionavigation, the radionavigation and the radiolocation services;
EUR/13/384	47	to consider compatibility between RNSS and ARNS in the band 960-1 215 MHz;
EUR/13/384	48	to consider, on the basis of the results of the studies in accordance with Resolution 130 (Rev.WRC-2000) , the inclusion of power limits or other frequency sharing mechanisms among GSO, non-GSO and terrestrial systems;
EUR/13/384	49	to consider regulatory provisions for high altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and possible additional frequency allocations for such high altitude platform stations in the fixed service in the range 18-32 GHz taking into account the results of ITU-R studies conducted in accordance with Resolution 122 (Rev.WRC-2000) ;
ASP/20/332 J/133/63	57	to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account the results of ITU-R studies conducted in response to Resolution 122 (Rev.WRC-2000) and Resolution [XXX] (WRC-2000) relating to frequency bands above 3 GHz allocated exclusively for terrestrial radiocommunications;
EUR/13/384	50	to consider whether earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz taking into account the results of the regulatory, technical and operational studies conducted in accordance with Resolution [EUR/13/8] (WRC-2000);

**Chairperson, Sub-Working Group 4A-8****REPORT OF SUB-WORKING GROUP 4A-8 TO WORKING GROUP 4A**

With respect to satellite network cost recovery, the Sub-Working Group (SWG) considered proposals in Documents 12(Add.1), 13(Add.7), 84, 107, and 126 and considered section 2.10 of the report of the Director, Radiocommunication Bureau contained in Document 41. The SWG also considered Circular Letter (CL) CR/139 dated 24 March 2000 concerning implementation of cost recovery for satellite network filings and administrative procedures.

The SWG agreed that there should be a consequence in the Radio Regulations (RR) for failure to pay the cost-recovery fees set forth in Council Decision 482. The United States, European-common, and AUS/KOR/INS/J/NZL proposals all contain provisions for implementation of a consequence for failure to pay the cost-recovery fees. The consequence takes the form of cancellation of the publication, and the network specified in the publication is no longer taken into account by the Bureau and other administrations. Although there was support for principles regarding implementation in the United States proposal, the SWG believed that most of these provisions were not needed in the RR and should be implemented through changes to the Financial Regulations or other suitable procedures within ITU's Finance Department. It was agreed to use the European-common proposals (ECP) as a baseline for modifications to the RR and to make one modification to the ECP from the United States proposals. The ECP would be modified to require that the Bureau send a reminder to administrations and operators not later than 60 days prior to the due date if the payment has not been received by that date. The proposals agreed by the SWG are as follows:

MOD

S9.2B On receipt of the complete information sent under Nos. **S9.1** and **S9.2**, the Bureau shall publish^{6A} it in a Special Section of its Weekly Circular within three months. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefore.

ADD

^{6A} **S9.2B.1** If the payments are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite network filings, the Bureau shall cancel the publication after the concerned administration has been informed. The Bureau shall inform all administrations of such action and that the network specified in this publication no longer has to be taken into consideration by the Bureau and other administrations. The Bureau shall send a reminder to the notifying administration, with a copy to the operating entity as appropriate, not later than 60 days prior to due date of the payment if payment has not been received by that point.

MOD

S9.38 d) publish^{14A}, as appropriate, the complete information in the Weekly Circular within four months. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefore.

ADD

^{14A} **S9.38.1** If the payments are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite network filings, the Bureau shall cancel the publication after the concerned administration has been informed. The Bureau shall inform all administrations of such action and that the network specified in this publication no longer has to be taken into consideration by the Bureau and other administrations. The Bureau shall send a reminder to the notifying administration, with a copy to the operating entity as appropriate, not later than 60 days prior to due date of the payment if payment has not been received by that point.

Modification to Appendix S30

MOD

4.3.6 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.3.1 or § 4.3.3. The Bureau shall include the names of those administrations with the information received under § 4.3.5.2 and shall publish^{3A} the complete information in a special section of its Weekly Circular. The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the appropriate Regional Plan.

ADD

^{3A} If the payments are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite network filings, the Bureau shall cancel the publication after the concerned administration has been informed. The Bureau shall inform all administrations of such action and that the network specified in this publication no longer has to be taken into consideration by the Bureau and other administrations. The Bureau shall send a reminder to the notifying administration, with a copy to the operating entity as appropriate, not later than 60 days prior to due date of the payment if payment has not been received by that point.

Modification to Appendix S30A

MOD

4.2.7 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.2.1 and 4.2.3. The Bureau shall include the names of those administrations with the information received under § 4.2.6.2 and shall publish^{3A} the complete information in a special section of its Weekly Circular. The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the Plan.

ADD

^{3A} If the payments are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite network filings, the Bureau shall cancel the publication after the concerned administration has been informed. The Bureau shall inform all administrations of such action and that the network specified in this publication no longer has to be taken into consideration by the Bureau and other administrations. The Bureau shall send a reminder to the notifying administration, with a copy to the operating entity as appropriate, not later than 60 days prior to due date of the payment if payment has not been received by that point.

Modification to Appendix S30B

MOD

ARTICLE 6

Procedures for implementation of the Plan and regulation of the fixed-satellite service in the planned bands^{1A}

ADD

^{1A} If the payments are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite network filings, the Bureau shall cancel the publication specified in Nos. 6.26, 6.33, 6.49 or cancel the entry in the list under No. 6.44 as appropriate after the concerned administration has been informed. The Bureau shall inform all administrations of such action and that the network specified in this publication no longer has to be taken into consideration by the Bureau and other administrations. The Bureau shall send a reminder to the notifying administration, with a copy to the operating entity as appropriate, not later than 60 days prior to due date of the payment if payment has not been received by that point.

WG 4A should note that “Weekly Circular” has been retained in the above proposals. The SWG assumes that within the appropriate SWG, “Weekly Circular” will be modified to International Frequency Information Circular” (IFIC) throughout the RR.

With respect to certain provisions in the United States proposal, the SWG agreed that transparency of the cost-recovery process was important to administrations and operators. The principles established in the United States proposals, i.e. posting invoice information on ITU’s website and confirming there are no bookkeeping mistakes if payment is not received within six months of

the date of the invoice, should be implemented in the Financial Regulations or internal procedures of ITU's Finance Department. These issues should be reported to the Plenary with a view to including them in the Plenary minutes as guidance for the Secretary-General regarding how to implement transparency at the upcoming Council meeting.

There were proposals from two administrations, Korea and Iran (Islamic Republic of), that addressed the free entitlement of publications for one satellite network per year under Council Decision 482. Iran (Islamic Republic of) proposed that a provision on this issue be included in the RR. After discussion, it was agreed that the provisions of Council Decision 482 were sufficient to guarantee the free entitlement and citing Decision 482 in the RR would be sufficient. Korea's proposal addressed the determination of the free entitlement but did not specifically address a modification to the RR. Since CL CR/139 addresses the determination of the free entitlement, the SWG agreed that it should consider Korea's proposal in the context of a possible modification to CL CR/139. There were views that CL CR/139 was prepared for the convenience of the BR and not the convenience of administrations and satellite-network operators. The view of the SWG was that the determination of the "free" network as set forth in the Korean proposal was in the best interests of administrations/operators and that it would be appropriate to instruct the Bureau to modify CL CR/139 to implement the Korean proposal: each administration may decide which of its satellite networks will be the "free" network at any point within the calendar year. If the "free" network is not identified prior to payment of the cost-recovery invoice, the administration/operator shall pay the cost-recovery fee. If the cost-recovery fee has been paid for a network that is later identified by the administration as the "free" network, the fee shall be refunded immediately to the administration/operator after identification of the "free" network. It is noted, however, that because of the processing of the "backlog" the need for a refund is only likely to arise occasionally as publication and invoice will usually occur some time after the decision on the "free" entitlement.

Douglas R. SPALT
Chairperson, Sub-Working Group 4A-8
Box 344



ISTANBUL, 8 MAY – 2 JUNE 2000

Working Group 4A-5

Chairperson, Sub-Working Group 4A-5 (SWG 4A-5)

SIMPLIFICATION OF COORDINATION PROCEDURE

ORGANIZATION OF WORK

Drafting Group 4A-5a (DG 4A-5a)

Topics	-	Bringing into use satellite frequency assignments (definition)
Chairman	-	Mr. G. Brooks Box 166

Drafting Group 4A-5b (DG 4A-5b)

Topics	Seperation of Up and Down-Links
Chairman	Mr. A. Vipond Box 1268

Drafting Group 4A-5c (DG 4A-5c)

Topics	- Coordination Arc (general concept; treatment of networks outside the arc; entry into force; frequency bands and angles) - Identification of Networks (in addition to Administrations) - Identification of Administrations by the BR
Chairman	Mr. D. Leive Box 1548

Drafting Group 4A-5d (DG 4A-5d)

Topics	- Electronic Filing - Possible Elimination of API
Chairman	Mr. G. Rappoport Box 396

Mr. J.P. Albuquerque
Chairperson, Sub-Working Group 4A-5
Box 887



Sub-Working Group 4B-4

**DRAFT NOTE BY THE CHAIRPERSON OF WORKING GROUP 4B
TO THE CHAIRPERSON OF COMMITTEE 5**

REVIEW OF RESOLUTIONS AND RECOMMENDATIONS

Pursuant to WRC-2000 agenda item 4, Working Group 4B has been reviewing the Resolutions and Recommendations which are not explicitly included in the WRC-2000 agenda. Although the following texts are not explicitly included in the agenda, Working Group 4B invites Committee 5 to review them and to take appropriate action:

Resolution 207 [WG 5B]

Resolution 212 [WG 5A]

Resolution 312 (Document 15 suggests MOD) [WG 5B]

Resolution 331 (Document 15 suggests NOC/(MOD)) [WG 5B]

Resolution 347 (Document 15 suggests NOC/(MOD)) [WG 5B]

Resolution 602 (Document 15 suggests MOD) [WG 5B]

Resolution 712 (Document 15 suggests MOD) [WG 5C]

Recommendation 14 (Document 15 suggests MOD) [WG 5B]

Recommendation 316 (Document 15 suggests SUP/(MOD) and ASP/20/324 proposes SUP) [WG 5B]

Recommendation 706 [WG 5C]

NOTE 1 - The attention of WG 5B is drawn to the fact that WG 4B has proposed the deletion of Resolution 500.

NOTE 2 - WG 4B considered Resolution 209 (Mob-87) and it was agreed that there should be no change (NOC). Because this text is of a maritime nature, WG 4B invites Committee 5 to review it and, if necessary, to submit a comment at the Plenary.



Sub-Working Group 4B-4

Replace the text of Resolution 25 in Document DT/74 by the following:

RESOLUTION 25 (~~WRC-95~~Rev.WRC-2000)

Operation of global satellite systems for personal communications

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a)* that, in accordance with No. 6 of its Constitution (Geneva, 1992), one of the purposes of the Union is “to promote the extension of the benefits of the new telecommunication technologies to all the world’s inhabitants”;
- b)* that, to this end, the Union is fostering the use of new technologies in telecommunications and is studying questions relating to this use in the Radiocommunication and the Telecommunication Standardization Sectors;
- c)* that the Telecommunication Development Sector is studying questions aimed at identifying the benefits that developing countries may derive from using new technologies;
- d)* that, among these new technologies, constellations of low-Earth orbit satellites may provide global coverage and facilitate low-cost communications;
- e)* that ~~the Council, at its 1995 session, resolved in its Resolution 1083 that the theme “global mobile personal communications by satellite” be~~(GMPCS) was discussed at the first World Telecommunication Policy Forum established by Resolution 2 of the Plenipotentiary Conference (Kyoto, 1994);
- f)* that the Council, at its 1998 Session, adopted Resolution 1116, which facilitates the global circulation of GMPCS terminals in accordance with the Memorandum of Understanding to Facilitate Arrangements for Global Mobile Personal Communications by Satellite, including Regional Systems (GMPCS-MoU) and its Arrangements;

g) that Council Resolution 1116 instructs the Secretary-General to act as depositary of the GMPCS-MoU and its Arrangements, to act as the registry for type-approval procedures and terminal types and to authorize the use of the abbreviation “ ITU” as part of the GMPCS-MoU mark;

h) Recommendations ITU-R M.1343 and ITU-R M.1480 on the essential technical requirements of GMPCS earth stations that should be used by administrations as a common technical basis for facilitating the global circulation and use of GMPCS terminals,

recognizing

a) that the spectrum available to global satellite systems for personal communications is limited;

b) that successful coordination does not in any way imply licensing authorization to provide a service within the territory of a Member State[‡],

considering further

that other countries intending to use these systems should be guaranteed that they will be operated in accordance with the Constitution, the Convention and the Administrative Regulations,

noting

a) that the Constitution recognizes the sovereign right of each State to regulate its telecommunications;

b) that the International Telecommunication Regulations “recognize the right of any Member, subject to national law and should it decide to do so, to require that administrations and private operating agencies, which operate in its territory and provide an international telecommunication service to the public, be authorized by that Member”, and specifies that “within the framework of the present Regulations, the provision and operation of international telecommunication services in each relation is pursuant to mutual agreement between administrations”;

c) that Article **S18** specifies the authorities for licensing the operation of stations within any given territory;

d) the right of each Member State[‡] to decide on its participation in these systems, and the obligations for entities and organizations providing international or national telecommunication services by means of these systems to comply with the legal, financial and regulatory requirements of the administrations in whose territory these services are authorized,

resolves

that administrations licensing global satellite systems and stations intended to provide public personal communications by means of fixed, mobile or transportable terminals shall ensure, when licensing these systems and stations, that they can be operated only from the territory or territories of administrations having authorized such service and stations in compliance with Articles **S17** and **S18**, in particular No. **S18.1**,

~~*urges administrations and other Members of the Sectors*~~

~~to participate in the first World Telecommunication Policy Forum dealing with global satellite systems for personal communications,~~

invites administrations

1 _____ to ~~cooperate~~ continue cooperating with worldwide satellite system operators in ~~establishing mutually beneficial~~ improving the established arrangements for the provision of service within their territories, ~~and with the Secretary-General in implementing the GMPCS-MoU Arrangements;~~

2 _____ to participate actively in the ITU-R studies to develop and improve the technical basis for facilitating global circulation and use of GMPCS terminals.

reminds operators of such systems

to take account, when contracting agreements on the operation of their systems from the territory of a country, of any potential loss of revenue that the country may suffer from a possible reduction of its international traffic existing at the time such agreements are executed.



Sub-Working Group 4B-4

RESOLUTION 25 (~~WRC-95~~Rev.WRC-2000)

Operation of global satellite systems for personal communications

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a)* that, in accordance with No. 6 of its Constitution (Geneva, 1992), one of the purposes of the Union is “to promote the extension of the benefits of the new telecommunication technologies to all the world’s inhabitants”;
- b)* that, to this end, the Union is fostering the use of new technologies in telecommunications and is studying questions relating to this use in the Radiocommunication and the Telecommunication Standardization Sectors;
- c)* that the Telecommunication Development Sector is studying questions aimed at identifying the benefits that developing countries may derive from using new technologies;
- d)* that, among these new technologies, constellations of low-Earth orbit satellites may provide global coverage and facilitate low-cost communications;
- e)* that ~~the Council, at its 1995 session, resolved in its Resolution 1083 that the theme “global mobile personal communications by satellite” be~~was discussed at the first World Telecommunication Policy Forum established by Resolution 2 of the Plenipotentiary Conference (Kyoto, 1994),

recognizing

- a)* that the spectrum available to global satellite systems for personal communications is limited;
- b)* that successful coordination does not in any way imply licensing authorization to provide a service within the territory of a Member State[‡],

considering further

that other countries intending to use these systems should be guaranteed that they will be operated in accordance with the Constitution, the Convention and the Administrative Regulations,

noting

- a) that the Constitution recognizes the sovereign right of each State to regulate its telecommunications;
- b) that the International Telecommunication Regulations “recognize the right of any Member, subject to national law and should it decide to do so, to require that administrations and private operating agencies, which operate in its territory and provide an international telecommunication service to the public, be authorized by that Member”, and specifies that “within the framework of the present Regulations, the provision and operation of international telecommunication services in each relation is pursuant to mutual agreement between administrations”;
- c) that Article **S18** specifies the authorities for licensing the operation of stations within any given territory;
- d) the right of each Member State[‡] to decide on its participation in these systems, and the obligations for entities and organizations providing international or national telecommunication services by means of these systems to comply with the legal, financial and regulatory requirements of the administrations in whose territory these services are authorized,

resolves

that administrations licensing global satellite systems and stations intended to provide public personal communications by means of fixed, mobile or transportable terminals shall ensure, when licensing these systems and stations, that they can be operated only from the territory or territories of administrations having authorized such service and stations in compliance with Articles **S17** and **S18**, in particular No. **S18.1**,

~~*urges administrations and other Members of the Sectors*~~

~~to participate in the first World Telecommunication Policy Forum dealing with global satellite systems for personal communications,~~

invites administrations

~~to cooperate~~continue cooperating with worldwide satellite system operators in ~~establishing mutually beneficial~~improving the established arrangements for the provision of service within their territories,

reminds operators of such systems

to take account, when contracting agreements on the operation of their systems from the territory of a country, of any potential loss of revenue that the country may suffer from a possible reduction of its international traffic existing at the time such agreements are executed.

RESOLUTION 706 (~~Mob-87~~Rev.WRC-2000)

Operation of the fixed and maritime mobile services in the band 90-110 kHz

~~The World Administrative Radio Conference for the Mobile Services, Geneva, 1987, The World Radiocommunication Conference (Istanbul, 2000),~~

considering

- a) the need to protect phased pulse hyperbolic radionavigation systems (Loran-C) operating in the band 90-110 kHz used as a safety service for both maritime and aeronautical services;
- b) the studies made by the ITU-R in this band;
- c) that harmful interference affecting safety of flight and ship navigation may be caused to this service by the operation of the fixed and maritime mobile services having a secondary allocation in this band;
- d) that, ~~notwithstanding No. S5.63⁺ of the Radio Regulations, this Conference has~~the 1987 World Administrative Radio Conference for the Mobile Services (Mob-87) removed the allocation for the maritime mobile service from this band,

noting

that ~~this Conference is~~Mob-87 was not competent to affect significantly the allocation of the fixed service,

resolves

to invite the next competent conference to review the fixed service allocation in this band, ~~and No. S5.63⁺~~, with a view to their possible deletion,

invites the Council

to place this matter on the agenda of ~~the next~~a future competent world radiocommunication conference.

⁺ ~~Note by the Secretariat: WRC-97 suppressed No. S5.63.~~

RESOLUTION 716 (~~WRC-95~~Rev.WRC-2000)

Use of the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the fixed and mobile-satellite services and associated transition arrangements

The World Radiocommunication Conference (~~Geneva, 1995~~Istanbul, 2000),

considering

- a) that WARC-92 allocated the bands 1 980-2 010 MHz and 2 170-2 200 MHz for the mobile-satellite service with a date of entry into force of 1 January 2005, these allocations being co-primary with fixed and mobile service allocations;
- b) that the use of the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service (MSS) is subject to a date of entry into force of 1 January 2000, 1 January 2002 (for Region 2) or 1 January 2005, in accordance with the provisions of Nos. **S5.389A**, **S5.389C**⁺ and **S5.389D** of the Radio Regulations, as adopted by ~~this Conference~~WRC-95;
- c) that these bands are shared with the fixed and mobile²¹ services on a primary basis and that they are widely used by the fixed service in many countries;
- d) that the studies made have shown that, while sharing of the MSS with the fixed service in the short to medium term would be generally feasible, in the long term sharing will be complex and difficult in both bands, so that it would be advisable to transfer the fixed service stations operating in the bands in question to other segments of the spectrum;
- e) that for many developing countries, the use of the 2 GHz band offers a substantial advantage for their radiocommunication networks and that it is not attractive to transfer these systems to higher frequency bands because of the economic consequences that this would entail;
- f) that ~~in response to Resolution 113 (WARC-92)~~^{*} the ITU-R has developed a new frequency plan for the fixed service in the 2 GHz band, set out in Recommendation ITU-R F.1098 which will facilitate the introduction of new fixed service systems in band segments that do not overlap with the above-mentioned MSS allocations at 2 GHz;
- g) that sharing between fixed service systems using tropospheric scatter and Earth-to-space links in the MSS in the same frequency band segments is generally not feasible;
- h) that some countries utilize these bands in application of Article 48 of the Constitution (Geneva, 1992),

⁺ ~~Note by the Secretariat: WRC-97 modified the date referred to in No. S5.389C.~~

²¹ This Resolution does not apply to the mobile service. In this respect, the use of these bands by the mobile-satellite service is subject to coordination with the mobile service under the provisions of Resolution **46 (Rev.WRC-97)/No. S9.11A**.

^{*} ~~This Resolution was abrogated by WRC-97.~~

recognizing

a) that WARC-92 identified the bands 1 885-2 025 MHz and 2 110-2 200 MHz for worldwide use by ~~FPLMTS~~³ the International Mobile Telecommunication-2000 (IMT-2000), the satellite component being limited to the frequencies 1 980-2 010 MHz and 2 170-2 200 MHz, and that the development of ~~FPLMTS~~³ IMT-2000 can offer great potential in helping the developing countries develop more rapidly their telecommunications infrastructure;

b) ~~that in Resolution 22 (WARC-92)*, "Assistance to the Developing Countries to Facilitate the Implementation of Changes in Frequency Band Allocations Which Necessitate the Transfer of Existing Assignments",~~ WARC-92 resolved to request the Telecommunication Development Bureau (BDT), when formulating its immediate plans for assistance to the developing countries, to consider the introduction of specific modifications in the radiocommunication networks of the developing countries and that a future world development conference should examine the needs of developing countries and should assist them with the resources needed to implement the required modifications to their radiocommunication networks,

resolves

1 to request administrations to notify to the Radiocommunication Bureau the basic characteristics of frequency assignments to existing or planned fixed stations requiring protection, or those typical⁴² of existing and planned fixed stations brought into use before 1 January 2000 in the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2;

2 that administrations proposing to bring an MSS system into service must take account of the fact that, when coordinating their system with administrations having terrestrial services, such administrations may have existing or planned installations covered by Article 48 of the Constitution;

3 that in respect of stations of the fixed service taken into account in the application of Resolution **46 (Rev.WRC-97)/S9.11A**, administrations responsible for MSS networks operating in the bands 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 shall ensure that unacceptable interference is not caused to fixed service stations notified and brought into use before 1 January 2000;

4 that to facilitate the introduction and future use of the 2 GHz bands by the MSS:

4.1 administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after 1 January 2000, do not overlap with the 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 MSS allocations, for example by using the channel plans of Recommendation ITU-R F.1098;

³ ~~ITU-R replaced this term by the term "International Mobile Telecommunication-2000 (IMT-2000)".~~

⁴² With respect to the notification of frequency assignments to stations in the fixed and mobile services, it was possible to notify the characteristics of typical stations ~~may be notified in~~ accordance with No. **S11.17/1223** without restriction up until 1 January 2000.

^{*} ~~This Resolution was abrogated by WRC-97.~~

4.2 administrations are urged to take all practicable steps to phase out troposcatter systems operating in the band 1 980-2 010 MHz in all three Regions and 2 010-2 025 MHz in Region 2 by 1 January 2000. New troposcatter systems shall not be brought into operation in these bands;

4.3 administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the bands 1 980-2 010 MHz and 2 170-2 200 MHz in all three Regions and 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 to non-overlapping bands, giving priority to the transfer of their frequency assignments in the band 1 980-2 010 MHz in all three Regions and 2 010-2 025 MHz in Region 2, considering the technical, operational and economical aspects;

5 that administrations responsible for the introduction of mobile-satellite systems should take into account and address the concerns of affected countries, especially developing countries, to minimize the possible economic impact of transition measures in respect to existing systems;

6 to invite the Bureau to provide assistance to developing countries requesting it for the introduction of specific modifications to their radiocommunication networks that will facilitate their access to the new technologies being developed in the 2 GHz band as well as in all coordination activities;

7 that administrations responsible for the introduction of mobile-satellite systems urge their mobile-satellite system operators to participate in the protection of terrestrial fixed services especially in the least developed countries,

requests

1 the ITU-R to conduct, as a matter of urgency, further studies, as required, in conjunction with the Bureau, to:

1.1 develop and provide to administrations the necessary tools in a timely manner and not later than WRC-02/03 to assess the impact of interference in the detailed coordination of mobile-satellite systems;

1.1.1 refine and complete the necessary tools in a timely manner to facilitate their access to these administrations requesting assistance, in the assessment of the impact of interference in the detailed coordination of mobile-satellite systems not later than WRC-03;

1.2 develop the necessary planning tools as soon as possible to assist those administrations considering a replanning of their terrestrial fixed networks in the 2 GHz range not later than WRC-02/03;

2 the Telecommunication Development Sector to evaluate, as a matter of urgency, the financial and economic impact on the developing countries of the transfer of fixed services, and to present its results to a future competent world radiocommunication conference and/or world telecommunication development conference,

invites

the Director of the Telecommunication Development Bureau to implement requests 2 by encouraging joint activities between the relevant study groups of both ITU-D and ITU-R,

instructs the Director of the Radiocommunication Bureau

to submit a report on the implementation of this Resolution to world radiocommunication conferences.

RESOLUTION 727 (~~WRC-97~~Rev.WRC-2000)

**Use of the frequency band 420-470 MHz by the
earth exploration-satellite (active) service**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the United Nations Conference on Environment and Development (UNCED) (Rio de Janeiro, 1992) identified an urgent need for assessment and systematic observations of forest cover and rate of forest degradation in tropical and temperate regions;
- b) that, during ~~this Conference~~WRC-97, many countries agreed to the principle that ITU should take action in response to the need identified by UNCED;
- c) that frequencies around 450 MHz have been identified as having the unique capability to penetrate the canopy of forests and to determine the ground-trunk interaction;
- d) that a bandwidth of about 6 MHz is considered necessary to provide the required resolution,

recognizing

- a) that ~~this Conference~~WRC-97 considered a proposal for a secondary allocation for the earth exploration-satellite (active) service within the frequency band 432-438 MHz;
- ~~b) that the Report of the 1997 Conference Preparatory Meeting (CPM-97) stated that this Conference may deem it appropriate to defer consideration of this agenda item to WRC-99, by which time all relevant studies should be completed;~~
- ~~e~~b) that CPM-97 concluded that spaceborne sensors cannot be considered technically compatible with terrestrial tracking radars without restriction on the spaceborne sensors;
- ~~d~~c) that measures may be needed to minimize interference to fixed, mobile, mobile-satellite, amateur, amateur-satellite and space operation services,

resolves

- 1 to invite ITU-R to study, as a matter of urgency, emission criteria, specific sharing criteria and operational characteristics for spaceborne sensors in the frequency band 420-470 MHz, and develop a relevant Recommendation;
- 2 to invite ITU-R to develop an ITU-R Report by the date of ~~the 1999~~a future Conference Preparatory Meeting (CPM-99) on the specific emission and operational characteristics used by the Earth exploration-satellite (active) service in order to minimize the potential interference to existing services, and in order to support the selection of a frequency band having the optimal sharing scenarios;
- 3 that, on the basis of proposals from administrations, and taking into account the results of the ITU-R studies, the ITU-R Report mentioned in *resolves* 2, and ~~the a future~~CPM-99 Report, WRC-99a future competent world radiocommunication conference should consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite (active) service in the frequency band 420-470 MHz.



Chairperson, Sub-Working Group 4A-10

**REPORT FROM SUB-WORKING GROUP 4A-10
TO WORKING GROUP 4A**

RESOLUTION 72 (Rev. WRC-97/2000)

Regional preparations for World Radiocommunication Conferences

The World Radiocommunication Conference (Geneva/Istanbul, 1997/2000),

considering

- a) that many regional telecommunication organizations have coordinated their preparations for WRC-97/2000;
- b) that ~~a number of~~ many common proposals have been submitted to this Conference from administrations participating in the preparations of regional telecommunication organizations;
- c) that this consolidation of views at regional level, together with the opportunity for interregional discussions prior to the Conference, has eased the task of reaching a consensus during the Conference;
- d) that the burden of preparation for future conferences is likely to increase;
- e) that there is consequently great benefit to the Member States[‡] of coordination of preparations at regional level;
- f) that the success of future conferences will depend on greater efficiency of regional coordination and interaction at interregional level prior to future conferences;
- g) that some regional organizations lack the necessary resources to adequately organize and to participate in such preparations;
- h) that there is a need for overall coordination of the interregional consultations,

recognizing

- a) resolves 2 of Resolution 80 (Minneapolis, 1998)

“to support the regional harmonization of common proposals, as stated in Resolution 72 (WRC-97), for submission to world radiocommunication conferences”;

b) resolves 3 of Resolution 80 (Minneapolis, 1998)

“to encourage both formal and informal collaboration in the interval between conferences with a view to resolving differences on new, or conference agenda issues”,

noting

a) that at the World Telecommunication Development Conference (~~Buenos Aires~~ Valletta, 1994~~8~~) many regional telecommunication organizations expressed the need for the Union to cooperate more closely with regional telecommunication organizations;

b) that consequently the Plenipotentiary Conference (~~Kyoto~~ Minneapolis, 1994~~8~~) resolved that the Union should develop stronger relations with regional telecommunication organizations,

further noting

that in some regions the relationship with the ITU-~~R~~D regional offices has proved to be of great benefit,

resolves to instruct the Director of the Radiocommunication Bureau

a) to continue consulting the regional telecommunication organizations on the means by which assistance can be given to their preparations for future world radiocommunication conferences in the following areas:

- organization of regional preparatory meetings;
- information sessions preferably before and after the second conference preparatory meeting;
- development of coordination methods;
- identification of major issues to be resolved by the future world radiocommunication conference;
- facilitation of regional and interregional informal and formal meetings, with the objective of reaching a
- convergence of interregional views on major issues;

b) to, pursuant to ITU Radiocommunication Assembly resolution on the CPM [Resolution ITU-R 2-3], ensure that overview presentations by the CPM management of the chapters will be made at the early stages of the meeting as part of the regularly scheduled sessions, in order to facilitate the understanding by all participants of the contents of the next CPM Report;

~~b~~c) to submit a report on the results of the such consultations to both the next Plenipotentiary Conference and the next world radiocommunication conference for consideration,

invites ~~the Plenipotentiary Conference~~ the Director of the Telecommunication Development Bureau (BDT)

~~to consider the report submitted by the Directors of the Radiocommunication Bureau (BR) and the Telecommunications Development Bureau (BDT) and take appropriate measures to provide the necessary resources for BR and BDT to provide the necessary assistance to regional telecommunication organizations in the preparations for world radiocommunication conferences collaborate with the Director of the Radiocommunication Bureau (BR) in implementing this Resolution.~~



Note by the Chairperson of GT PL-2/A
to the Chairperson of GT PLEN-2

GT PL-2/A has considered proposals from Document DT/20 (Rev. 1) related to items dealing with the 5 GHz band referred to the sub group by GT Plen-2. These proposals included items 2, 5, 12, 32, 39, 63 and 70 found in Doc DT/20 (Rev. 1) as well as Addendum 1 to Document 133. The group reached several conclusions regarding the proposed disposition of these items. A large degree of interdependency was found between items 2, 12, 32, 63, 70 and Add.1 to Doc. 133. It was therefore decided to group these items under a single agenda topic that refers to a Draft Resolution [GT Plen-2] (WRC-2000) attached.

The remaining two items 5 and 39 from Doc. DT/20 (Rev. 1) were determined to be more suitably treated on an individual basis. Agreement could not be reached, however, on the exact wording of an agenda item related to item 5 from DT/20 (Rev. 1). GT PL-2/A therefore offers the following in regard to suggested agenda items to be included in the list of WRC-2003 topics for further consideration by your Working Group.

[to consider inclusion in the Radio Regulations of power flux-density limits to protect the feeder uplinks of NGSO mobile-satellite service systems operating in the fixed satellite service in the 5150 – 5250 MHz band;] [to consider regulatory measures to protect feeder uplinks for the mobile-satellite service which operate in the band 5150 – 5250 MHz;]

to consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5091 – 5150 MHz by the fixed satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed satellite service in the frequency band 5091 – 5150 MHz;

to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile,[fixed], Earth-exploration satellite and space research services, as well as an upgrade of the status of the radiolocation service, in the frequency range 5150 – 5725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GTPLEN] (WRC-2000).

GT PL-2/A also notes that the 3 GHz portion of item 2 in DT/20 (Rev. 1) was not addressed by the group and would therefore recommend that GT Plen-2 consider including the following revised agenda item to address this aspect of proposals USA/12/1 and EUR/13/384:

to consider the upgrade to primary of the allocation to the radiolocation service in the frequency range 2900 – 3100 MHz;

DRAFT RESOLUTION [GTPLEN] (WRC-2000)

Consideration by a future competent World Radiocommunication Conference of issues dealing with new and upgraded allocations to the mobile, [fixed], radiolocation, Earth exploration-satellite (active), and space research (active) services in the frequency range 5150 – 5725 MHz

The World Radiocommunication Conference (Istanbul, 2000)

considering

- a) that there is a need to provide up to 455 MHz of globally harmonized frequencies for the mobile service for nomadic wireless access systems including radio local area networks (RLANs) within certain bands in the frequency range 5150 – 5725 MHz;
- b) [that there is a need for frequencies for fixed wireless access applications in the fixed service in the band 5250 – 5350 MHz;]
- c) that there is a need for additional spectrum for the Earth exploration-satellite service (active) and space research service (active) in the frequency range 5460 – 5570 MHz;
- d) that on-going studies in the ITU-R indicate that sharing in the band 5150 – 5350 MHz between RLANs and space services is feasible under specified conditions;
- e) that there is a need to upgrade the status of frequency allocations to the radiolocation service in the frequency range 5350 – 5650 MHz;

recognizing

- a) that sharing compatibility between existing services and the proposed new allocations should be established;
- b) that it is important to protect the existing primary services allocated in the frequency range 5150 – 5725 MHz;
- c) that the existing and new allocations are interdependent, particularly with respect to the relationship between the terrestrial and the space services;

resolves

that based on proposals from administrations and taking into account the results of studies in the ITU-R and the [2003] Conference Preparatory Meeting, WRC-2003 should consider:

- 1) allocation of frequencies to the mobile service in the frequency range 5150 – 5350 MHz and 5470 – 5725 MHz for the implementation of RLANs;
- 2) [a possible allocation to the fixed service in the band 5250 – 5350 MHz;]
- 3) additional primary allocations for the Earth exploration-satellite service (active) and space research service (active) in the frequency range 5460 – 5570 MHz;
- 4) upgrading the status of frequency allocations to the radiolocation service in the frequency range 5350 – 5650 MHz;

invites ITU-R

to conduct, and complete in time for WRC-2003, the appropriate studies leading to technical and operational recommendations to facilitate sharing between the services stated in the resolves and the existing services.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

SPACE OPERATION IN THE GUARDBANDS OF S30 AND S30A

SWG 1 of GT PLEN-1 has decided to follow the approach proposed in the CPM Report and to begin the drafting work by using Approach A.

Texts from section 5.2.1 of Chapter 5 of the CPM Report (Document 3) are therefore proposed to be used and modified accordingly.

Jean CHARTIER
Chairperson,
Sub-Working Group 1 of GT PLEN-1
Box 2688

APPENDIX S30

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30**, as defined in section 3.9 of Annex 5 to this Appendix, to provide space operations functions in accordance with No. **S1.23** in support of GSO BSS networks operation, shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications ~~to the Plans to the Region 2, or assignments to be included in the Regions 1 and 3 List~~, with assignments intended to provide these functions shall be effected using paragraph ~~4.3.1.5 or 4.3.3.5, 4.1.1 e), 4.2.3 e) or 4.2.3 f)~~ as appropriate, of Article 4 of Appendix **S30**, ~~considering, for this purpose, that space operations functions are operating in the fixed-satellite service.~~

APPENDIX S30A

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30A**, as defined in sections 3.1 and 4.1 of Annex 3 to this Appendix, to provide space operations functions in accordance with No. **S1.23** in support of GSO BSS networks operation, shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications ~~to the Plans to the Region 2, or assignments to be included in the Regions 1 and 3 List~~, with assignments intended to provide these functions shall be effected using paragraphs [4.2.1.4, 4.2.1.x or 4.2.3.4], as appropriate, of Article 4 of Appendix **S30A**, ~~considering, for this purpose, that space operations functions are operating in the fixed-satellite service.~~



**SUB-WORKING GROUP 1 OF
WORKING GROUP 1 OF THE
PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

SPACE OPERATION IN THE GUARDBANDS OF S30 AND S30A

SWG 1 of GT PLEN-1 has decided to follow the approach proposed in the CPM Report and to begin the drafting work by using Approach A.

Texts from section 5.2.1 of Chapter 5 of the CPM Report (Document 3) are therefore proposed to be used and modified accordingly.

Jean CHARTIER
Chairperson,
Sub-Working Group 1 of GT PLEN-1
Box 2688

APPENDIX S30

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30**, as defined in section 3.9 of Annex 5 to this Appendix, to provide space operations functions in accordance with No. **S1.23** shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Plans with assignments intended to provide these functions shall be effected using paragraph 4.3.1.5 or 4.3.3.5, as appropriate, of Article 4 of Appendix **S30**, considering, for this purpose, that space operations functions are operating in the fixed-satellite service.

APPENDIX S30A

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30A**, as defined in sections 3.1 and 4.1 of Annex 3 to this Appendix, to provide space operations functions in accordance with No. **S1.23** shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Plans with assignments intended to provide these functions shall be effected using paragraphs 4.2.1.4, 4.2.1.x or 4.2.3.4, as appropriate, of Article 4 of Appendix **S30A**, considering, for this purpose, that space operations functions are operating in the fixed-satellite service.

Editorial note - Paragraph 4.2.1.x of Article 4 of Appendix S30A will be the one (still to be drafted) to protect non-planned feeder links in Region 2 and the space operations functions in Region 2.



Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

**COORDINATION BETWEEN EARTH STATIONS AND TERRESTRIAL
STATIONS OR BETWEEN EARTH STATIONS OPERATING IN THE
OPPOSITE DIRECTION OF TRANSMISSION**

1 Coordination of receiving earth stations

SWG 1 of GT PLEN-1 has decided to follow the approach proposed in Document 126 (IRN/126/47) in the way that No. S23.13 would be used to define the service area of a BSS space station and to identify administrations with which the coordination of the BSS receiving earth stations is sought.

The CITEL proposals (IAP/14/315 to 323) are also used to cover the coordination of FSS transmitting earth stations.

Article 6 is also modified to include the coordination with the modifications to the Plans which have been initiated.

2 Coordination with transmitting feeder-link earth stations

SWG 1 of GT PLEN-1 has decided to follow the CPM conclusions (sections 5.2.3.2.3 and 5.2.3.2.4) i.e. to limit the coordination to specific earth stations only. Therefore the following approach is proposed for adoption:

- Articles 6 and 7 of Appendix S30A would be retained and used for the coordination of receiving terrestrial and FSS earth stations.
- Paragraphs 4.2.1.3 and 4.2.3.3 of Article 4 of Appendix S30A would be replaced by S9.17.
- Paragraphs 4.2.1.2 and 4.2.3.2 of Article 4 of Appendix S30A would be replaced by S9.17A.

Jean CHARTIER
Chairperson, Sub-Working Group 1
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APPENDIX S30

ARTICLE 6

Coordination, notification and recording in the Master International Frequency Register of frequency assignments to terrestrial stations or to earth stations in the fixed-satellite service (Earth-to-space) affecting broadcasting-satellite frequency assignments in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)⁵

Section I – Coordination procedure to be applied

6.1.1 Before notifying to the Bureau a frequency assignment to a terrestrial transmitting station or to a transmitting earth station in the fixed-satellite service, an administration shall initiate coordination with any other administration having a frequency assignment to a broadcasting-satellite station in conformity with the appropriate Regional Plan or for which the corresponding Plan modification procedure has been initiated [*Editorial Note - It will be necessary to make a distinction between Region 2 and Regions 1/3 because of the new concept of the List - still to be defined - applying to the later Regions*], and administrations that agreed to include their territory in the service area of such an assignment through application of No. **S23.13**, if:

- the necessary bandwidths of the two transmissions overlap; *and*
- the power flux-density which would be produced by the proposed terrestrial transmitting station or by the transmitting earth station in the fixed-satellite service exceeds the value derived in accordance with Annex 3 at one or more points on the edge of the service area which is within the coverage area of the broadcasting-satellite station of that administration.

6.1.2 For the purpose of effecting coordination, the administration responsible for the terrestrial station or for the earth station in the fixed-satellite service shall send to the administrations concerned, by the fastest possible means, a diagram drawn to an appropriate scale indicating the location of the terrestrial station or the earth station in the fixed-satellite service and all other data of the proposed frequency assignment and the approximate date on which it is planned to bring the station into use.

6.1.3 An administration with which coordination is sought shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within fifteen days of dispatch, the administration seeking coordination may dispatch a telegram requesting acknowledgement of receipt of the coordination data, to which the receiving administration shall reply. Upon receipt of the coordination data, an administration with which coordination is sought shall promptly examine the matter with regard to interference⁶ which would be caused to its

⁵ These procedures do not replace the procedures prescribed for terrestrial stations in Articles **S9** and **S11**.

⁶ The criteria to be employed in evaluating interference levels shall be based on the relevant ITU-R Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned.

frequency assignments in conformity with the appropriate Regional Plan or for which the corresponding Plan modification procedure has been initiated and shall, within an overall period of two months from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is impossible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

6.1.10 Where an administration fails to reply within one month of dispatch of the Bureau's telegram sent under § 6.1.7 requesting an acknowledgement or fails to give a decision on the matter within two months of dispatch of the Bureau's telegram of request sent under § 6.1.8, the administration with which coordination was sought shall be considered to have undertaken that no complaint will be made in respect of any harmful interference which may be caused by the terrestrial station or by the earth station in the fixed-satellite service being coordinated to the service rendered or to be rendered by its satellite-broadcasting station.

Section II – Notification procedure for frequency assignments

6.2.1 Any frequency assignment to a fixed, land or broadcasting station or to an earth station in the fixed-satellite service shall be notified to the Bureau if the use of the frequency concerned is capable of causing harmful interference to the service rendered or to be rendered by a broadcasting-satellite station of any other administration, or if it is desired to obtain international recognition of the use of the frequency⁷.

6.2.2 For this notification, an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix S4, Annexes 1A and 1B, or Annexes 2A and 2B, as appropriate, which specifies the basic characteristics to be furnished as required. It is recommended that the notifying administration should also supply the additional data called for in that Appendix, together with such further data as it may consider appropriate.

Section III – Procedure for the examination of notices and the recording of frequency assignments in the Master Register

6.3.1 Whatever the means of communication, including telegram, by which a notice is transmitted to the Bureau, it shall be considered complete if it contains at least the appropriate basic characteristics specified in Appendix S4, Annexes 1A and 1B or Annexes 2A and 2B, as appropriate.

6.3.10 – where appropriate, with respect to the probability of harmful interference to a broadcasting-satellite station whose frequency assignment is in conformity with the appropriate Regional Plan or for which the corresponding Plan modification procedure has been initiated.

⁷ The attention of administrations is specifically drawn to the provisions of Section I of this Article.

6.3.33 Change in the basic characteristics of assignments already recorded in the Master Register

6.3.34 Any notice of a change in the basic characteristics of an assignment already recorded in the Master Register, as specified in Appendix **S4**, Annexes 1A and 1B or Annexes 2A and 2B, as appropriate (except those entered in Columns 2c, 3 and 4a of the Master Register), shall be examined by the Bureau in accordance with the provisions of § 6.3.8 and 6.3.9 and, where appropriate, § 6.3.10 and the provisions of § 6.3.12 to 6.3.32 inclusive shall be applied. Where the change should be recorded, the original assignment shall be amended according to the notice.

APPENDIX S30A

ARTICLE 4

Procedure for modifications to the Plans

4.2 Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or proposed inclusion in that Plan of a new frequency assignment

For Regions 1 and 3

SUP

4.2.1.2

SUP

4.2.1.3

For Region 2

SUP

4.2.3.2

SUP

4.2.3.3

ARTICLE S9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3, 4, 5}

Section II – Procedure for effecting coordination^{8, 9}

Sub-Section IIA – Requirement and request for coordination

S9.17 f)¹³ for any specific earth station or typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15**;

S9.17A g) for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the frequency bands subject to the ~~Appendix S30A Plans~~ coordination under section 7.2 of Article 7 of Appendix S30A;



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Document 15

WORKING GROUP 4B

Chairperson, Sub-Working Group 4B-4

GENERAL REVIEW OF RESOLUTIONS AND RECOMMENDATIONS OF WARC/WRC

FINAL REPORT

Working Group 4B is responsible for WRC-2000 agenda item 4 in general. However, other groups should be responsible for the following Resolutions and Recommendations:

- those which are explicitly on the agenda of WRC-2000;
- those which are not explicitly on the agenda of WRC-2000, but are appropriate for consideration by groups other than Working Group 4B.

Annex 1 lists the possible follow-up actions suggested in Document 15 and all proposals from Member States. Responsible groups are indicated for Resolutions and Recommendations for which proposals have been submitted from Member States or the possible follow-up actions including SUP or MOD. Responsible groups are not shown for the texts which are explicitly on the WRC-2000 agenda.

The proposals of Sub-Working Group 4B-4 are given in the last column of the table.

Sub-Working Group 4B-4 prepared the following documents:

- draft revisions of 16 Resolutions and one Recommendation;
- a list of 15 Resolutions and five Recommendations to be abrogated;
- draft notes to Committee 5 and Working Groups 1 and 2 of the Plenary.

The Chairperson of Sub-Working Group 4B-4 would like express sincere appreciation for active participation and the good cooperation of many delegates. It is believed that this work has made some contribution to the success of WRC-2000. This kind of updating work should be continued in the future.

M. MUROTANI
Chairperson, Sub-Working Group 4B-4

ANNEX 1

Res. No.	Subject	Possible follow-up (Doc. 15)	Proposal from Member States	WRC-2000 agenda	Responsible group	SWG 4B-4 proposal
1	Notification of frequency assignments	NOC				
2	Equitable use of GSO and frequency bands for space services	NOC				
4	Period of validity of GSO space systems	NOC				
5	Technical cooperation - propagation in tropical areas	SUP	SUP ASP/20/306		WG 4B	MOD
7	National radio-frequency management	MOD			WG 4B	
8	Transfer procedures/changes in HF-FX	SUP	SUP ASP/20/307		WG 4B	SUP
10	Frequencies for Red Cross	MOD	MOD SUI/28/1		WG 4B	MOD
13	Formation of call signs	NOC				
14	Transfer of technology	SUP	SUP ASP/20/308		WG 4B	SUP
15	Cooperation in space radiocommunications	MOD/ SUP			WG 4B	
18	Identification/non-parties in an armed conflict	NOC				
20	Technical cooperation - aeronautical service	SUP	SUP J/133/51		WG 4B	MOD
21	Transfer of HF-FX in 2007	MOD			WG 4B	
23	Suspension of provisions for TEX in HF	SUP	SUP ASP/20/309		WG 4B	SUP
24	Review of Constitution/provisional application	SUP	SUP ASP/20/310		WG 4B	SUP
25	Operation of global satellite systems	MOD			WG 4B	MOD
26	Review of footnotes	NOC		1.1		
27	Incorporation by reference/principles	MOD		2	SWG 4B-2	
28	Revision of references to ITU-R Recommendations	NOC		2	SWG 4B-2	
29	Occupancy by FX/MO of the HF bands allocated to the BC in 1992	NOC				
30	WIC on CD-ROM	MOD/ SUP			WG 4B	
33	Procedure for BSS (pre-planned)	NOC				
34	Planning the band 12.5-12.75 GHz in R3	NOC				
42	Interim systems in R2 (BSS and FSS) in AP30/30A bands	NOC				
44	Compatibility of equipment in MSS	SUP	SUP J/133/52		WG 4B	NOC

46	Coordination/notification procedures in non-GSO bands	SUP	SUP ASP/20/311		WG 4B	(MOD)
49	Due diligence	MOD			WG 4A	
50	Interval between WRCs	SUP	SUP ASP/20/312		WG 4B	SUP
51	Transitional arrangements concerning coordination and notification	NOC	MOD B/35/91-94 MOD CAN/24/102		WG 4B	MOD
52	Provisional application of some provisions of Article S11	SUP	SUP ASP/20/313		WG 4B	SUP
53	Updating of the remarks of Appendices S30 and S30A	-		1.21	GT PLEN-1	
54	Provisional application of RS46 procedures in some bands	SUP	SUP ASP/20/314		WG 4B	SUP
60	Revision of APS7/28	-		(1.3)	WG 4A	
63	Protection from ISM equipment	SUP	SUP USA/12/145 SUP IAP/14/234 SUP ASP/20/315 SUP CAN/24/73		WG 4B	SUP
70	Standards for LEO	SUP	SUP ASP/20/316		WG 4B	SUP
72	Regional preparations	SUP			WG 4A	
73	Compatibility BSS-R1/FSS-R3 in 12 GHz	NOC				
80	Principles of the Constitution, to be taken into consideration	-				
95	Review of Resolution/Recommendation	NOC		4	WG 4B	MOD
105	Improvements in APS30B	NOC				
111	FSS in 18/20/30 GHz	NOC				
114	FSS (feeder links for MSS) in 5 GHz	NOC				
121	Coordination criteria feeder links in 19/29 GHz	-		1.12		
122	HAP in 47/48 GHz	-		1.5		
123	Feeder links to non-GSO MSS in 15 GHz	-		1.14		
124	Sharing FX/EESS in 8 GHz	MOD	SUP J/133/53		WG 4B	MOD
125	Sharing MSS/RA in 1.6 GHz	NOC				
126	HD systems (FX) in 31-33 GHz	-		1.4		
127	New allocations for feeder links to GSO MSS in 1.4 GHz	NOC	MOD USA/12/287-302		WG 4B	MOD
128	Allocation to FSS in 42 GHz	-		1.4		
129	Sharing FSS/other than in 41 GHz	-		1.4		
130	Use of non-GSO FSS in certain bands	-		1.13		
131	pdf limits for non-GSO FSS in 11/18 GHz	-		1.13		
132	FSS in 18/28 GHz	MOD	NOC ASP/20/317		WG 4B	NOC

133	Sharing FX/other in 40 GHz	-		1.4		
134	FSS in 40.5-42.5 GHz	-		1.4		
205	Protection of MSS in 406-406.1 MHz	NOC				
207	Monitor MMS/AM(R)S	-		(1.7)	COM5 (WG 5B)	
209	Enlarging the scope of GMDSS	SUP			WG 4B	NOC
212	Implementation of IMT-2000	-		(1.6)	COM5 (WG 5A)	
213	Use of 1.7 GHz by MSS	-		1.9		
214	Use of bands below 1 GHz by MSS	-		1.11		
215	Coordination among non-GSO MSS	NOC				
216	Broadening the allocation to the MSS in 14-14.5 GHz	(MOD)	MOD USA/222/1		WG 4B	MOD
217	Wind profiler radars	NOC				
218	MSS in 1.5/1.6 GHz	-		1.10		
219	Allocation to MSS in 405-406 MHz	-		1.11		
220	Allocation to MSS in portion of the band 1 559-1 567 MHz	-		1.9		
300	Paired frequencies for NBDPT in HF/MMS	MOD	[Doc. 16, Attach. 1]		WG 4B	MOD
310	Ship movement telemetry	NOC				
312	Group channels for Morse telegraphy	MOD			COM5 (WG 5B)	
331	Transition arrangements for the GMDSS	NOC/ (MOD)			COM5 (WG 5B)	
339	Coordination of NAVTEX	NOC				
340	Additional SAR information	NOC				
341	On-board communications in UHF	NOC				
342	Revision of APS18	-		1.18		
343	Certificates (vessels using GMDSS equipment on a non-compulsory basis)	NOC				
344	Exhaustion of MMSI	NOC				
345	Operation of GMDSS equipment on non-compulsory fitted vessels	NOC				
346	Protection of distress and safety frequencies in 12/16 MHz	-		1.7		
347	Digital modulation in the MMS at MF/HF	NOC/ (MOD)			COM5 (WG 5B)	
348	Priority of distress and safety communications	NOC				
349	False alerts in GMDSS	NOC				
405	Frequencies for AM(R)	NOC				

406	Use of bands other than HF for AM(R) and AMS(R)	SUP	SUP J/133/54		WG 4B	SUP
411	Implementation of new provisions for AM(OR)	SUP	SUP ASP/20/318		WG 4B	SUP
412	Transfer arrangements for AM(OR)	SUP	SUP J/133/55		WG 4B	SUP
500	New carrier for LFBC in R1	MOD/ SUP			WG 4B	SUP
506	GSO only, in BSS bands (12 GHz)	NOC				
507	Agreements/Plans for BSS	SUP	SUP J/133/56		GT PLEN-1	
517	Transition from DSB to SSB in HFBC	NOC				
518	Area/country symbols in APS30/S30A	SUP	SUP ASP/20/319		GT PLEN-1	
519	Provisions for interim systems	NOC			GT PLEN-1	
524	Revision of AP30/30A	SUP	SUP ASP/20/320		GT PLEN-1	
525	Introduction of HDTV in 22 GHz	NOC				
526	Additional provisions for HDTV	NOC				
527	Terrestrial VHF DAB	NOC				
528	BSS (sound) in 1.5 GHz	NOC				
531	Review of APS30/S30A	SUP			GT PLEN-1	
532	Review of APS30/S30A	-		(1.19)	GT PLEN-1	
533	Implementation of certain provisions relating to APS30/S30A	-		(1.19)	GT PLEN-1	
534	Implementation of certain provisions relating to APS30/S30A	SUP	SUP ASP/20/321		GT PLEN-1	
535	Application of S12	MOD			GT PLEN-1	
536	BSS satellites serving other countries	NOC			GT PLEN-1	
537	Statistics on HFBC equipment	NOC				
538	Non-GSO FSS in the bands of Appendices S30 and S30A	-		1.13		
602	Differential data correction on maritime radiobeacons	MOD			COM5 (WG 5B)	
641	Use of the band 7 000-7 100 kHz	NOC				
642	Earth stations in the amateur sat. service	NOC				
644	Disaster communications	MOD	MOD CAN/24/103		WG 4B	MOD
703	Interference criteria for the shared bands	MOD/ SUP	SUP J/133/57		WG 4B	SUP
705	Protection of services in 70-130 kHz	MOD			WG 4B	
706	Operation of FX/MOB in 90-110 kHz	MOD			WG 4B	MOD
712	Allocation to space services	MOD			COM5 (WG 5C)	

715	Sharing in 150 MHz and 400 MHz	NOC				
716	Use of bands around 2 GHz	MOD	MOD IND/138/4		WG 4B	MOD
721	Agenda for WRC-2000	SUP			WG 4B	SUP
722	Preliminary agenda for WRC-01	-		(7.2)	GT PLEN-2	
723	Allocations to space services	-		1.16		
724	Use of the band 5 250-5 350 MHz by spaceborne active sensors	NOC				
725	Use of the band 5 350-5 460 MHz by spaceborne active sensors	NOC				
726	Allocations for high-density FX above 30 GHz	-		1.4		
727	Use of 420-470 MHz by EESS (active)	NOC/ (MOD)			WG 4B	MOD
728	Non-GSO MSS in 470-862 MHz	NOC	MOD USA/12/253-256		WG 4B	MOD
729	Adaptive systems at MF/HF	NOC				

Rec. No.	Subject	Possible follow-up (Doc. 15)	Proposal from Member States	WRC-2000 agenda	Responsible group	SWG 4B-4 proposal
7	Standard forms for licences	NOC				
8	Automatic identification	NOC				
9	Operation of BC stations on board ships/aircraft	NOC				
14	Identification of special vessels	MOD			COM5 (WG 5B)	
32	Space monitoring	MOD	SUP ASP/20/322		WG 4B	SUP
34	Principles for allocation of frequency bands	NOC				
35	Procedure for modification of a Plan	-		1.20		
36	International monitoring of emissions from space stations	MOD			WG 4B	
61	Interference assessment above 28 MHz, standards	SUP/ MOD	SUP ASP/20/323		WG 4B	SUP
63	Calculation of necessary bandwidth	MOD			WG 4B	
64	Protection ratios and E_{min}	MOD			WG 4B	
66	Max. level of unwanted emissions	-		1.2		
71	Type approval	NOC				
100	Bands for troposcatter	MOD			WG 4B	
104	pfd and e.i.r.p. limits	(MOD)			WG 4B	
105	Coordination area	-		(1.3)	WG 4A	
316	Use of SES within harbours	SUP/ MOD	SUP ASP/20/324		COM5 (WG 5B)	

318	Improved APS18	-		(1.18)		
319	Adjacent channel interference in HF-MMS	NOC				
401	Use of worldwide frequencies in AP27	NOC/ MOD			WG 4B	
402	Coordinated use of WW frequencies in AP27	MOD/ SUP			WG 4B	
405	Utilization of AMSS(R)	SUP	SUP J/133/58		WG 4B	SUP
503	HFBC	SUP	SUP ASP/20/325		WG 4B	MOD
506	Harmonics in BSS	NOC				
507	Spurious emissions in BSS	-	[SUP]	(1.2)	SWG 4B-1	
515	Other modulation in HFBC	NOC				
517	SSB PR in HFBC	MOD			WG 4B	
518	HFBC receivers	SUP	SUP ASP/20/326		WG 4B	SUP
519	Introduction of SSB, cessation of DSB	NOC				
520	Elimination of out-of-band HFBC emissions	NOC				
521	Technical parameters for revision of AP30/30A	SUP	SUP ASP/20/327		GT PLEN-1	
522	Coordination of HFBC schedules	NOC				
604	Characteristics of EPIRBs	NOC				
605	Shipborne transponders	NOC				
606	Radionav. in 4 200-4 400 MHz	NOC	SUP ASP/20/328		WG 4B	NOC
622	Sharing of bands 2 025-2 110 MHz and 2 200-2 290 MHz	-				
700	Sharing of bands allocated to space services	MOD/ SUP			WG 4B	
701	Use of 1.3 GHz by radio astronomy	NOC				
702	Intentional emissions of extraterrestrial origin	NOC				
705	Sharing BC/BSS in 700 MHz	MOD			WG 4B	
706	Passive sensors in 18 GHz	-		(1.17)	COM5 (WG 5C)	
707	Sharing in 32-33 GHz	NOC				
709	Sharing AMS and inter-satellite above 54 GHz	MOD			WG 4B	
710	Use of airborne radars in shared bands	MOD			WG 4B	
711	Coordination of earth stations	-		(1.3)	WG 4A	
715	Multiservice satellites in GSO	NOC				
718	Alignment of allocations in 7 MHz	NOC				
719	Multiservice satellites in GSO	NOC				
720	Adaptive systems at MF/HF	SUP	SUP ASP/20/329		WG 4B	SUP



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Chairperson, Sub-Working Group 4B-4

MOD

RESOLUTION 95 (Rev.WRC-972000)

**General review of the Resolutions and Recommendations of
world administrative radio conferences and world
radiocommunication conferences**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that it is important to keep the Resolutions and Recommendations of the past world administrative radio conferences and world radiocommunication conferences under constant review, in order to keep them up to date;
- b) that the Reports of the Director of the Radiocommunication Bureau submitted to ~~this previous Conference~~ provided a useful basis for a general review of the Resolutions and Recommendations of past conferences ~~which was conducted by this Conference;~~
- c) that some guidelines are necessary for future conferences to treat the Resolutions and Recommendations of previous conferences which are not related to the agenda of the Conference.

resolves to invite future competent world radiocommunication conferences

1 to review the Resolutions and Recommendations of previous conferences that are related to the agenda of the Conference with a view to their possible revision, replacement or abrogation and to take appropriate action;

2 to review the Resolutions and Recommendations of previous conferences that are not related to any agenda item of the Conference with a view to:

- abrogating those Resolutions and Recommendations that have served their purpose or have become no longer necessary, and updating those Resolutions and Recommendations, or parts thereof, that have become out of date;
- modifying Resolutions and Recommendations, or parts thereof, to correct obvious omissions, inconsistencies, consequential alignment, ambiguities or editorial errors;

3 _____ at the beginning of the Conference, to determine which group within the Conference has the primary responsibility to review each of the Resolutions and Recommendations referred to in resolves 1 and 2 above,

invites

the Conference Preparatory Meeting to include, in its Report, the result of a general review of the Resolutions and Recommendations of previous conferences,

instructs the Director of the Radiocommunication Bureau

1 _____ to conduct a general review of the Resolutions and Recommendations of previous conferences and, if necessary after consultation with the Radiocommunication Advisory Group and the Chairmen of the relevant Radiocommunication Study Groups, and the Conference Preparatory Meeting, to submit a Report to future competent world radiocommunication conferences which indicates their current status, and what follow-up action may be advised;

2 _____ if practicable, to include, in the above Report, an indication of the agenda item if appropriate, and possible responsible group within the Conference for each text, based on the available information as to the possible structure of the Conference.



ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4B

Chairperson, Sub-Working Group 4B-4

RESOLUTION 95 (~~WRC-97~~Rev.WRC-2000)

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- c) that some guidelines are necessary for future conferences to treat the Resolutions and Recommendations of previous conferences which are not related to the agenda of the Conference.

resolves to invites future competent world radiocommunication conferences

1 to review the Resolutions and Recommendations of previous conferences that are not related to any agenda item of the Conference with a view to:

- deleting those Resolutions and Recommendations that have served their purpose, and updating those Resolutions and Recommendations, or parts thereof, that have become out of date;
- modifying Resolutions and Recommendations, or parts thereof, to correct obvious omissions, inconsistencies, consequential alignment, ambiguities or editorial errors;
- ~~their possible revision, replacement or abrogation and to take appropriate action;~~

2 at the beginning of the Conference, to determine which group within the Conference has the primary responsibility to review each of the Resolutions and Recommendations referred to in resolves 1 above, as well as those Resolutions and Recommendations that are related to the agenda of the Conference.

invites

the Conference Preparatory Meeting to include, in its Report, the result of a general review of the Resolutions and Recommendations of previous conferences,

instructs the Director of the Radiocommunication Bureau

1 _____ to conduct a general review of the Resolutions and Recommendations of previous conferences and, ~~if necessary~~ after consultation with ~~the Radiocommunication Advisory Group and~~ the Chairmen of the relevant Radiocommunication Study Groups, and the Conference Preparatory Meeting, to submit a Report to future competent world radiocommunication conferences which indicates their current status, and what follow-up action may be advised;

2 _____ if practicable, to include, in the above Report, an indication of the agenda item if appropriate, and possible responsible group within the Conference for each text, based on the available information as to the possible structure of the Conference.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A

Report by the Chairperson of Sub-Working Group 4A-3

**SECOND REPORT FROM SUB-WORKING GROUP 4A-3
TO WORKING GROUP 4A**

(RESOLUTION 49 (WRC-97) AND RESOLUTION 85 (MINNEAPOLIS, 1998))

Please find attached a new resolution in response to Resolution 85 (Minneapolis, 1998).

Anders FREDERICH
Chairperson, Sub-Working Group 4A-3
Box 268

RESOLUTION [COM4/2] (WRC-2000)

Evaluation of the administrative due diligence procedure for satellite networks

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that the World Radiocommunication Conference (Geneva, 1997) (WRC-97) adopted Resolution **49** establishing administrative due diligence procedures applicable to some satellite communication services with effect from 22 November 1997;
- b)* that the Plenipotentiary Conference (Minneapolis, 1998) adopted Resolution **85** on the evaluation of the administrative due diligence procedure for satellite networks;
- c)* that Resolution **85** (Minneapolis, 1998) instructs the Director of the Radiocommunication Bureau to inform WRC-2000 about the effectiveness of the administrative due diligence procedure, in accordance with Resolution **49** (WRC-97);
- d)* that Resolution **85** (Minneapolis, 1998) resolves that WRC-2000 shall evaluate the results of the implementation of administrative due diligence and shall inform the following Plenipotentiary Conference, in 2002, of its conclusions in that regard;
- e)* that WRC-2000 has reviewed the report of the Director of the Radiocommunication Bureau on administrative due diligence applicable to some satellite networks and considered proposals from administrations to amend the administrative due diligence procedure and to implement financial due diligence,

noting

- a)* that the Bureau has not encountered any administrative difficulty in applying the provisions and in gathering and publishing information;
- b)* that the Bureau has taken action pursuant to “*resolves 6*” of Resolution **49** to cancel and publish accordingly, the related Special Sections in respect of 37 satellite networks;
- c)* that all of these cancellations had reached the maximum (nine year) period for bringing into use pursuant to the application of “*resolves 1 and 2*” of Resolution **51** (WRC-97) and **S11.44** of the Radio Regulations and hence would have been cancelled in any event;
- d)* that when requested to provide due diligence information (triggered by the original date of bringing into use of their satellite networks), administrations have generally requested, wherever it is possible, extension of the regulatory period for bringing their satellites into use up to the maximum limit authorized by the Radio Regulations;
- e)* that the effect of administrative due diligence may not, therefore, be fully apparent until at least 21 November 2003,

recognizing

that the administrative due diligence has not yet had any impact on the problem of reservation of orbit and spectrum capacity without actual use,

resolves

1 that further experience is needed in the application of the administrative due diligence procedures adopted by WRC-97, and that several years may be needed to see whether the procedure produces satisfactory results;

2 that it is premature to consider the adoption of any financial due diligence procedures,

instructs the Director of the Radiocommunication Bureau

to report to the 2002 Plenipotentiary Conference on the results of the implementation of the administrative due diligence procedure,

instructs the Secretary-General

to bring this resolution to the attention of the 2002 Plenipotentiary Conference.



Sub-Working Group 4B-2

DRAFT NEW RESOLUTION

RESOLUTION [COM4/3] (WRC-2000)

**Provisions relating to earth stations located on board vessels
which operate in fixed-satellite service networks in the
bands 3 700-4 200 MHz and 5 925-6 425 MHz**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that there is a demand for global wideband satellite communication services on vessels;
- b)* that the technology exists that permits the use of fixed-satellite service (FSS) networks by earth stations on board vessels (ESVs) operating in the 3 700-4 200 MHz and 5 925-6 425 MHz bands;
- c)* that ESVs have the potential to cause unacceptable interference to the fixed service (FS) systems only in the band 5 925-6 425 MHz;
- d)* that FS systems have the potential to cause interference to ESVs in the 3 700-4 200 MHz band;
- e)* that ESVs operating in these bands require considerably less than the full bandwidth in this FSS allocation and only a portion of the visible geostationary arc;
- f)* that there are a limited number of geostationary FSS systems that have global coverage;
- g)* that in order to ensure the protection and future growth of the FS, the ESV shall operate with certain technical and operational constraints;
- h)* that administrations may authorize radiocommunication stations on off-shore structures and platforms for which they are responsible;

i) that based on appropriate assumptions a minimum distance can be calculated beyond which the ESV will not have the potential to cause unacceptable interference to the other services in this band,

noting

- a) that earth stations on board vessels will continue to operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz under **S4.4** of the Radio Regulations and shall not claim protection from nor cause interference to other services allocated in the band;
- b) that operation within the territorial sea is at the discretion of the administration with territorial authority, in which case the relevant procedures of that administration will apply;
- c) that operation of earth stations on board vessels from specified fixed points at locations outside the territorial sea but for which an administration has jurisdiction is fully within the FSS,

recognizing

- a) that progress has been made within ITU-R in determining the technical and operational provisions under which ESVs could operate;
- b) that further studies are needed,

resolves

1 to request ITU-R to continue to study, as a matter of urgency, the regulatory, technical and operational constraints to be applied to ESV operations, considering the provisional guidelines for ESV use in Annex 1 and the provisional technical guidelines given in Annex 2 and, in particular, to determine the appropriate value for the minimum distance from the coast of an administration beyond which ESVs are assumed not to have the potential to cause unacceptable interference to fixed service stations of that administration and beyond which no coordination would be required;

2 to request ITU-R, as a matter of urgency:

- to develop recommendations on methods for coordination between terrestrial stations in the fixed service and ESVs;
- to study the feasibility of mitigation techniques such as various frequency arrangements or dual-band systems as a way to avoid the need for detailed coordination of ESVs without constraining existing services;
- to study, as a complement to the 3 700-4 200 MHz and 5 925-6 425 MHz bands, the use of other FSS allocations for ESV operations in the 4/6 GHz band and in the 12/14 GHz band;

3 to invite WRC-03 to assess, in the light of these studies, the provisions under which earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, without causing unacceptable interference to radiocommunication services operating in accordance with the Radio Regulations;

4 that until a decision is adopted for ESVs by WRC-03, agreement between the administrations licensing ESVs and affected administrations could be made on a bilateral or multilateral basis (see Annexes 1 and 2);

5 that until a decision is adopted for ESVs by WRC-03, administrations that enter into bilateral or multilateral agreements to license ESVs under *resolves* 4 should ensure that as part of the licensing process ESVs operate in compliance with such agreements,

encourages affected administrations

to cooperate with administrations which license ESVs while seeking agreement under *resolves* 4,

encourages ESV licensing administrations

to consider registering their ESV frequency assignments in the Master International Frequency Register, for information purposes,

urges all administrations

to participate actively in the above-mentioned studies by submitting contributions,

instructs the Secretary-General

to bring this Resolution to the attention of the Secretary-General of the International Maritime Organization and to invite this organization to participate in the work on this issue.

ANNEX 1 TO RESOLUTION [COM4/3]

Guidelines for ESV use

- 1 The administration that issues the radio license for the use of ESVs in these bands (licensing administration) shall ensure that such stations do not cause unacceptable interference to stations in the fixed service of the affected administration;
- 2 licensing administrations should ensure that ESVs operate in compliance with the requirements of these guidelines;
- 3 operators of ESVs shall comply with the technical guidelines listed in Annex 2 and/or those agreed by the licensing and affected administrations;
- 4 ESVs shall not claim protection from fixed service station transmissions operating in accordance with the Radio Regulations;
- 5 any transmissions from ESVs within an agreed distance* of any given coast shall be based upon the prior agreement of the affected administration;
- 6 ESV operators are encouraged to provide assistance to the affected administration in order to facilitate the agreement;
- 7 coastal administrations, in determining the distance referred to in item 5 above, are encouraged to exclude those parts of their territory, such as remote small islands, where FS systems in the band 5 925-6 425 MHz are neither operating nor planned;

* The distance is a minimum distance from the coast of an administration beyond which ESVs are assumed not to have the potential to cause unacceptable interference to fixed service stations of that administration and beyond which no coordination is required (see section 6.3.2 of the CPM-99 Report).

- 8 if an administration changes its actual or planned deployment of FS stations, it may require revision of the agreement with the ESV licensing administration(s);
- 9 the ESV system should include means of identification and automatic mechanisms to terminate transmissions whenever the station operates outside its pre-authorized geographic (see item 5 above) or operational limits;
- 10 ESVs should be equipped so as to enable the licensing administration under the provisions of Article **S18** to verify earth station performance and to terminate ESV transmission immediately upon request by an administration whose services may be affected;
- 11 when ESVs operating beyond the territorial sea but within the distance (as referred to in item 5 above) of the coast of an administration fail to comply with the terms required by that administration pursuant to items 3 and 5, then that administration may:
- request the ESV to comply with such terms or cease operation immediately; or
 - request the licensing administration to require such compliance or immediate cessation of the operation;
- 12 any licensing authority that licenses ESVs should maintain at all times a point of contact, that may be contacted by an affected administration.

ANNEX 2 TO RESOLUTION [COM4/3]

Technical guidelines applicable to ESVs operating in the bands 3 700-4 200 MHz and 5 925-6 425 MHz

Minimum diameter of ESV antenna:	2.4 m
Maximum half-power beamwidth of ESV antenna:	1.5 degrees
Minimum elevation angle of ESV antenna:	10°
Maximum necessary bandwidth per vessel:	2.346 MHz
Maximum necessary bandwidth in a single operating area:	36 MHz (see Note)
Maximum ESV transmitter power spectral density at the input to the antenna:	17 dB(W/MHz)
Tracking accuracy of ESV antenna:	0.2 degrees

NOTE - The actual bandwidth required in an operating area will depend on the number of ESVs that would be present simultaneously in that area, and in many areas the required bandwidth will be less than 36 MHz. In addition, because ESV stations are frequency agile, the necessary bandwidth per vessel (2.346 MHz) can be generally identified anywhere within the 4/6 GHz bands and does not have to be contiguous with bandwidth of other ESV stations.



Sub-Working Group 4B-2

DRAFT NEW RESOLUTION

RESOLUTION [COM4/3] (WRC-2000)

**Provisions relating to earth stations located on board vessels
which operate in fixed-satellite service networks in the
bands 3 700-4 200 MHz and 5 925-6 425 MHz**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that there is a demand for global wideband satellite communication services on vessels;
- b)* that the technology exists that permits the use of fixed-satellite service (FSS) networks by earth stations on board vessels (ESVs) operating in the 3 700-4 200 MHz and 5 925-6 425 MHz bands;
- c)* that ESVs have the potential to cause unacceptable interference to the fixed service (FS) systems only in the band 5 925-6 425 MHz;
- d)* that FS systems have the potential to cause interference to ESVs in the 3 700-4 200 MHz band;
- e)* that ESVs operating in these bands require considerably less than the full bandwidth in this FSS allocation and only a portion of the visible geostationary arc;
- f)* that there are a limited number of geostationary FSS systems that have global coverage;
- g)* that in order to ensure the protection and future growth of the FS, the ESV shall operate with certain technical and operational constraints;
- h)* that administrations may authorize radiocommunication stations on off-shore structures and platforms for which they are responsible;

i) that based on appropriate assumptions a minimum distance can be calculated beyond which the ESV will not have the potential to cause unacceptable interference to the fixed service in this band,

noting

a) that earth stations on board vessels will continue to operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz under **S4.4** of the Radio Regulations and shall not claim protection from fixed service station transmissions nor cause interference to stations in the fixed service;

b) that operation within the territorial sea is at the discretion of the administration with territorial authority, in which case the relevant procedures of that administration will apply;

c) that operation of earth stations on board vessels from specified fixed points at locations outside the territorial sea but for which an administration has jurisdiction is fully within the FSS,

recognizing

a) that progress has been made within ITU-R in determining the technical and operational provisions under which ESVs could operate;

b) that further studies are needed,

resolves

1 to request ITU-R to continue to study, as a matter of urgency, the regulatory, technical and operational constraints to be applied to ESV operations, considering the guidelines for ESV use in Annex 1 and the provisional technical parameters given in Annex 2 and, in particular, to determine the appropriate value for the minimum distance from the coast of an administration beyond which ESVs are assumed not to have the potential to cause unacceptable interference to fixed service stations of that administration and beyond which no coordination would be required;

2 to request ITU-R, as a matter of urgency:

- to develop recommendations on methods for coordination between terrestrial stations in the fixed service and ESVs;
- to study the feasibility of mitigation techniques such as various frequency arrangements or dual-band systems as a way to avoid the need for detailed coordination without constraining existing services;
- to study, as a complement, the use of the entire 4/6 GHz band and the 12/14 GHz band;

3 to invite WRC-03 to assess, in the light of these studies, the provisions under which earth stations located on board vessels could operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, without causing unacceptable interference to radiocommunication services operating in accordance with the Radio Regulations;

4 that until a decision is adopted for ESVs by WRC-03, agreement between the administrations licensing ESVs and affected administrations could be made on a bilateral or multilateral basis (see Annexes 1 and 2);

5 that until a decision is adopted for ESVs by WRC-03, administrations that enter into bilateral or multilateral agreements to license ESVs under *resolves* 4 should ensure that as part of the licensing process ESVs operate in compliance with such agreements,

encourages affected administrations

to cooperate with administrations which license ESVs while seeking agreement under *resolves* 4,

encourages ESV licensing administrations

to consider registering their ESV frequency assignments in the Master International Frequency Register,

urges all administrations

to participate actively in the above-mentioned studies by submitting contributions,

instructs the Secretary-General

to bring this Resolution to the attention of the Secretary-General of the International Maritime Organization and to invite this organization to participate in the work on this issue.

ANNEX 1 TO RESOLUTION [COM4/3]

Guidelines for ESV use

- 1 The administration that issues the radio license for the use of ESVs in these bands (licensing administration) shall ensure that such stations do not cause unacceptable interference to affected stations in the fixed service;
- 2 licensing administrations should ensure that ESVs operate in compliance with the requirements of these guidelines;
- 3 operators of ESVs shall comply with the technical guidelines listed in Annex 2 and/or those agreed by the licensing and affected administrations;
- 4 ESVs shall not claim protection from fixed service station transmissions;
- 5 any transmissions from ESVs within an agreed distance* of any given coast shall be based upon the prior agreement of the affected administration;
- 6 ESV operators are encouraged to provide assistance to the affected administration in order to facilitate the agreement;
- 7 coastal administrations, in determining the distance referred to in item 5 above, are encouraged to exclude those parts of their territory, such as remote small islands, where FS systems in the band 5 925-6 425 MHz are neither operating nor planned;

* The distance is a minimum distance from the coast of an administration beyond which ESVs are assumed not to have the potential to cause unacceptable interference to fixed service stations of that administration and beyond which no coordination is required (see section 6.3.2 of the CPM-99 Report).

- 8 if an administration changes its actual or planned deployment of FS stations, it may require revision of the agreement with the ESV licensing administration(s);
- 9 the ESV system should include means of identification and automatic mechanisms to terminate transmissions whenever the station operates outside its pre-authorized geographic (see item 5 above) or operational limits;
- 10 ESVs should be equipped so as to enable the licensing administration under the provisions of Article **S18** to verify earth station performance and to terminate ESV transmission immediately upon request by an administration whose services may be affected;
- 11 when ESVs operating beyond the territorial sea but within the distance (as referred to in item 5 above) of the coast of an administration fail to comply with the terms required by that administration pursuant to items 3 and 5, then that administration may:
- request the ESV to comply with such terms or cease operation immediately; or
 - request the licensing administration to require such compliance or immediate cessation of the operation;
- 12 any licensing authority that licenses ESVs should maintain at all times a point of contact, that may be contacted by an affected administration.

ANNEX 2 TO RESOLUTION [COM4/3]

Technical guidelines applicable to ESVs operating in the bands 3 700-4 200 MHz and 5 925-6 425 MHz

Minimum diameter of ESV antenna:	2.4 m
Maximum half-power beamwidth of ESV antenna:	1.5 degrees
Minimum elevation angle of ESV antenna:	10°
Maximum necessary bandwidth per vessel:	2.346 MHz
Maximum necessary bandwidth in a single operating area:	36 MHz (see Note)
Maximum ESV transmitter power spectral density at the input to the antenna:	17 dB(W/MHz)
Tracking accuracy of ESV antenna:	0.2 degrees

NOTE - The actual bandwidth required in an operating area will depend on the number of ESVs that would be present simultaneously in that area, and in many areas the required bandwidth will be less than 36 MHz. In addition, because ESV stations are frequency agile, the necessary bandwidth per vessel (2.346 MHz) can be generally identified anywhere within the 4/6 GHz bands and does not have to be contiguous with bandwidth for ESV stations.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

ARTICLES 6 AND 7 OF APPENDICES S30 AND S30A

As currently implemented in Article 7 of Appendix S30A, an alternative way to draft Articles 6 and 7 consists in making reference to provisions under Articles S9 and S11, thus avoiding any duplication of existing regulatory texts. It also presents the advantage of preventing all the necessary alignments of Articles 6 and 7 with Articles S9 and S11, due to the updating of coordination and notification procedures applicable to frequency assignments in the unplanned fixed-satellite service or in the fixed service.

Jean CHARTIER
Chairperson, Sub-Working Group 1 of
GT PLEN-1
Box 2688

APPENDIX S30

MOD

ARTICLE 6

Coordination, notification and recording in the Master International Frequency Register of frequency assignments to terrestrial stations or to earth stations in the fixed-satellite service (Earth-to-space) affecting broadcasting-satellite frequency assignments in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)⁵

SUP

6.1.1 to 6.3.41

ADD

6.1 The provisions of **S9.19** [as amended] and the associated provisions under Articles **S9** and **S11**, are applicable in respect of frequency assignments to broadcasting-satellite stations in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3, using the criteria given in Annex 3 to this Appendix:

- a) to transmitting terrestrial stations in the frequency band 11.7-12.7 GHz in all Regions;
- b) to transmitting earth stations in the fixed-satellite service in the band 12.5-12.7 GHz (in Region 1).

6.2 These provisions are to be applied in respect of administrations whose territory is included within the service area associated with:

- a) assignments in conformity with the appropriate Regional Plan in Appendix **S30**;
- b) assignments included in the Regions 1 and 3 List;
- c) assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete [Annex 2]/[Appendix **S4**] information under 4.1 or 4.2.

⁵ These procedures do not replace the procedures prescribed for terrestrial stations in Articles **S9** and **S11**.

MOD

ARTICLE 7

Procedures for coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in the frequency bands 11.7-12.2 GHz (in Region 2), 12.2-12.7 GHz (in Region 3) and 12.5-12.7 GHz (in Region 1), and to stations in the broadcasting-satellite service in the frequency band 12.5-12.7 GHz (in Region 3) when frequency assignments to broadcasting-satellite stations in conformity with the Regions 1 and 3 Plan, or the Region 2 Plan, respectively, in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3 are involved⁸

SUP

7.1.1 to 7.8.6

ADD

7.1 The provisions of **S9.7** and the associated provisions under Articles **S9** and **S11**, and the provisions of Resolution **33 (Rev.WRC-97)**, as appropriate, are applicable in respect of frequency assignments to broadcasting-satellite stations in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3, using the criteria given in Annex 4 to this Appendix:

- a) to transmitting space stations in the fixed-satellite service in the band 11.7-12.2 GHz (in Region 2), 12.2-12.7 GHz (in Region 3) and 12.5-12.7 GHz (in Region 1); and
- b) to transmitting space stations in the broadcasting-satellite service in the frequency band 12.5-12.7 GHz (in Region 3).

7.2 The frequency assignments to be taken into account are:

- a) the assignments in conformity with the appropriate Regional Plan in Appendix **S30**;
- b) the assignments included in the Regions 1 and 3 List;
- c) the assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete [Annex 2]/[Appendix **S4**] information under 4.1 or 4.2.

⁸ These provisions do not replace the procedures prescribed in Articles **S9** and **S11** when stations other than those of the broadcasting-satellite service are involved.

APPENDIX S30A

ARTICLE 6

Procedure concerning coordination, notification and recording in the Master International Frequency Register of frequency assignments to receiving terrestrial stations in Regions 1 and 3 in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, and in Region 2 in the band 17.7-17.8 GHz, when frequency assignments to feeder-link transmitting earth stations for the broadcasting-satellite service in conformity with the Regions 1 and 3 Plan or the Region 2 Plan are involved

MOD

6.1 Administrations planning to implement assignments for terrestrial stations in Regions 1 and 3 in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, and in Region 2 in the 17.7-17.8 GHz band should evaluate the level of interference assessed on the basis of coordination contours calculated in accordance with Appendix S7⁵, which might be caused by ~~the closest~~ a feeder-link earth station ~~which could be located on the border of~~ within the territory of another administration and within the service area of an assignment to a BSS feeder-link space station which is in conformity with the appropriate Regional Plan. Should the administration planning terrestrial stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth station to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

NOC

6.2 In the case of Region 2, when the entry in the Plan contains information on specific earth stations, this shall be used in the interference calculations mentioned in § 6.1 above. When such information is not contained in the Region 2 Plan, an administration which receives a request under § 6.1 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the terrestrial station, and to the Bureau in order to update the Plan.

MOD

6.3 In the case of Regions 1 and 3, an administration which receives a request under § 6.1 shall, within a period of ~~three~~four months, communicate the details of the feeder-link stations to the administration planning the terrestrial station, and to the Bureau for information.

MOD

6.4 If, at the end of a period of ~~three~~four months, the administration responsible for the terrestrial station does not receive a reply, it may request the assistance of the Bureau.

⁵ In the case of Regions 1 and 3, the feeder-link earth-station power to be taken into account is obtained by adding the values specified in columns 13 and 14 of the Plan.

MOD

6.5 If the administration responsible for the feeder-link earth station does not communicate to the Bureau, within a period of ~~three~~four months, the information requested under § 6.1, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the terrestrial station under consideration.

NOC

6.6 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, the administration responsible for the terrestrial station may notify this station under Article **S11** for recording in the Master Register. A remark shall be included indicating either that an agreement has been reached or that no comments have been received.

MOD

ARTICLE 7

Procedure concerning coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in Regions 1, 2 and 3 in the band 17.7-18.1 GHz and in Region 2 in the band 17.7-17.8 GHz, to stations in the fixed-satellite service (Earth-to-space) in Region 2 in the band 17.8-18.1 GHz and to stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz when frequency assignments to feeder-links for broadcasting-satellite stations appearing in the 17.3-18.1 GHz band in the Regions 1 and 3 Plan or in the band 17.3-17.8 GHz in Region 2 Plan are involved

ADD

Section I – Coordination of transmit space or earth stations in the fixed-satellite service or transmit space stations in the broadcasting-satellite service with assignments to BSS feeder links

MOD

7.1 The provisions of No. **S9.7** and the associated provisions under Articles **S9** and **S11** and ~~Appendices S5 and S8~~ are applicable to transmitting space stations in the fixed-satellite service in the band 17.7-18.1 GHz, to transmitting earth stations in the fixed-satellite service in Region 2 in the band 17.8-18.1 GHz and the provisions of Resolution **33 (Rev.WRC-97)** are applicable to transmitting space stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz together with the provisions of Annex 4, except that in relation to feeder-link stations, the relevant criteria mentioned in Appendix **S8** are replaced by those given in Section 1 of Annex 4.

ADD

The frequency assignments to be taken into account are:

- a) the assignments in conformity with the appropriate Regional Plan in Appendix **S30A**;
- b) the assignments included in the Regions 1 and 3 List;

- c) the assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete [Annex 2]/[Appendix S4] information under 4.1 or 4.2.

ADD

Section II – Coordination with assignments in conformity with the appropriate Regional Plan in Appendix S30A

MOD

7.2 Administrations planning to implement assignments for receiving earth stations in all Regions 1 and 3 in the 17.7-18.1 GHz band and in Region 2 in the 17.7-17.8 GHz band in the fixed-satellite service (space-to-Earth) or in the 17.3-17.8 GHz band in the broadcasting-satellite service should evaluate the level of interference, assessed on the basis of coordination contours calculated in accordance with Section 3 of Annex 4 Appendix S7, which might be caused by the closest a feeder-link earth station which could be located on the border of within the territory of another administration and within the service area of an assignment to a BSS feeder-link space station which is in conformity with the appropriate Regional Plan. Should the administration planning receiving earth stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth stations to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

MOD

7.3 In the case of Region 2, when the entry in the Plan contains information on specific earth stations this shall be used in the interference calculations mentioned in § 7.2 above. When such information is not contained in the Plan an administration which receives a request under § 7.2 shall, within a period of threefour months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Bureau in order to update the Plan.

MOD

7.4 In the case of Regions 1 and 3, an administration which receives a request under § 7.2 shall, within a period of threefour months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Bureau for information.

MOD

7.5 If, at the end of the period of threefour months, the administration responsible for the fixed-satellite or broadcasting-satellite receiving earth station(s) does not receive a reply, it may request the assistance of the Bureau.

MOD

7.6 If the administration responsible for the feeder-link earth stations does not communicate to the Bureau, within a period of threefour months, the information requested under § 7.2, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the fixed-satellite or broadcasting-satellite earth station(s) under consideration.

NOC

7.7 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, and when the station is recorded in the Master Register in accordance with Article **S11**, the Bureau shall enter a remark indicating either that an agreement has been reached or that no comments have been received.

ADD

Section III – Coordination with assignments in the Regions 1 and 3 List, or for which the procedure of Article 4 of Appendix S30A has been initiated

7.8 The provisions of **S9.17A** and the associated provisions under Articles **S9** and **S11** and Appendix **S5**, are applicable to FSS receiving earth stations in respect of frequency assignments to transmit BSS feeder-link earth stations in the fixed-satellite service in the bands 17.7-18.1 GHz in Regions 1 and 3 and 17.7-17.8 GHz in Region 2, which correspond to assignments to receiving BSS feeder-link space stations already included in the Regions 1 and 3 List, or for which the procedure of Article 4 of Appendix S30A has been initiated.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

ARTICLE 4 OF APPENDIX S30

Following the adoption by Sub-Working Group 1 of new Article 4 provisions applicable to Regions 1 and 3 (new § 4.1 in Article 4 of Appendix S30), consequential renumbering and amendments to provisions applicable to Region 2 are presented hereafter.

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ARTICLE 4

Procedure for modifications to the Plans

4.2 Provisions applicable to Region 2

4.2.1 When an administration intends to make a modification² to ~~one of the Regional 2 Plans,~~
i.e.:

- a) to modify the characteristics of any of its frequency assignments to a space station³ in the broadcasting-satellite service which are shown in the ~~appropriate~~Regional 2 Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; *or*
- b) to include in the ~~appropriate~~Regional 2 Plan a new frequency assignment to a space station in the broadcasting-satellite service; *or*
- c) to cancel a frequency assignment to a space station in the broadcasting-satellite service;

the following procedure shall be applied before any notification of the frequency assignment is made to the Radiocommunication Bureau (see Article 5 of this Appendix);

~~4.1.1 Before an administration proposes to include in the Plan, under the provisions of § 4.1 b), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should have been brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan.~~

4.2.2 The term “frequency assignment in conformity with the Plan” used in this and the following Articles is defined in Article 1.

~~4.3 Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or inclusion in that Plan of a new frequency assignment~~

~~For Regions 1 and 3:~~

~~4.3.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:~~

~~4.3.1.1 of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; *or*~~

² The intention not to employ energy dispersal in accordance with § 3.18 of Annex 5 shall be treated as a modification and thus subject to the appropriate provisions of this Article.

³ The expression “frequency assignment to a space station”, wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See also Annex 7 for the orbital limitations.

~~4.3.1.2 — of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.1.3 — (SUP-WRC 97)~~

~~4.3.1.4 — having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; or~~

~~4.3.1.5 — having a frequency assignment in the band 11.7-12.2 GHz in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master International Frequency Register (Master Register) or which has been coordinated or is being coordinated under the provisions of No. S9.7, or those of § 7.2.1 of this Appendix;~~

~~4.3.1.6 — whose services are considered to be affected.~~

~~4.3.2 — The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.~~

~~————— For Region 2:~~

~~4.3.2.3 — An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:~~

~~4.3.3.1 — of Region 2 having a frequency assignment in the Region 2 Plan to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with that Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.3.2a) — of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.3.3b) — (SUP-WRC 97) of Regions 1 and 3 having a frequency assignment included in the List or for which complete [Annex 2/Appendix S4] information has been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; or~~

~~c) — of Region 2 having a frequency assignment in the Region 2 Plan to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with that Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article; or~~

- 4.3.3.4d) having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; *or*
- 4.3.3.5e) having a frequency assignment in the band 12.5-12.7 GHz in Region 1 or 12.2-12.7 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master Register or for which has been coordinated or is being coordinated ~~complete coordination information has been received by the Bureau for coordination under the provisions of No. S9.7 or those of under § 7.2.1 of this Appendix;~~ *or*
- 4.3.3.6f) having a frequency assignment to a space station in the broadcasting-satellite service in the band 12.5-12.7 GHz in Region 3 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which
- ai)* is recorded in the Master Register, *or*
- bii)* ~~has been coordinated or is being coordinated~~ for which complete coordination information has been received by the Bureau for coordination under the provisions of Resolution 33 (Rev.WRC-97), or ~~or under No. S9.7 or under § 7.1 of this Appendix;~~
- e) ~~appears in a Region 3 Plan to be adopted at a future radiocommunication conference, taking account of modifications to that Plan which may be introduced in accordance with the Final Acts of the Conference;~~
- 4.3.3.72.4 whose services are considered to be affected.
- 4.3.42.5 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

~~For all Regions:~~

- 4.3.52.6 An administration intending to modify characteristics in ~~one of the Regional 2 Plans~~ shall send to the Bureau, not earlier than ~~five~~ eight years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2 ~~[Appendix S4]~~. Modifications to that Plan involving additions under § 4.2.1 b) shall lapse if the assignment is not brought into use by that date.
- 4.2.7 If the information received by the Bureau under § 4.2.6 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.
- 4.3.5.1 ~~Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Bureau the information required by § 4.3.5. The Bureau shall then publish this information in a special section of its Weekly Circular.~~
- 4.3.5.2 ~~In all other cases the administration shall notify the Bureau of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in § 4.3.1 or § 4.3.3, as well as of those with which agreement has already been reached.~~
- 4.3.62.8 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.3.1 ~~or § 4.3.34.2.3.~~ The Bureau shall ~~include the names of those administrations with the information received under § 4.3.5.2 and shall publish, in a special section of its IFIC, the complete information in a special~~

~~section of its Weekly Circular~~ received under § 4.2.6, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the ~~appropriate Regional 2~~ Plan.

4.3.72.9 The Bureau shall send a telegram to the administrations listed in the special section of the ~~Weekly Circular~~ IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

4.3.82.10 An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Bureau to include its name. The Bureau shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the ~~appropriate Regional 2~~ Plan.

4.3.92.11 Any modification to a frequency assignment which is in conformity with the ~~appropriate Regional 2~~ Plan or any inclusion in that Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all administrations whose services are considered to be affected.

4.3.102.12 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

4.3.112.13 Comments from administrations on the information published pursuant to § 4.3.6 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

4.3.122.14 An administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the ~~Weekly Circular~~ IFIC referred to in § 4.3.5.1 or § 4.3.64.2.8 shall be understood to have agreed to the proposed assignment. This time limit may be extended by up to three months for an administration that has requested additional information under § 4.3.104.2.12 or for an administration that has requested the assistance of the Bureau under § 4.3.204.2.22. In the latter case the Bureau shall inform the administrations concerned of this request.

4.3.132.15 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.3.54.2 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.3.142.16 If no comments have been received on the expiry of the periods specified in § 4.3.124.2.14, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.3.152.17 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.3.162.18 When the proposed modification to the ~~appropriate Regional 2~~ Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

~~4.3.172.19~~ 4.3.144.2.16 The Bureau shall publish in a special section of its ~~weekly circular~~ IFIC the information received under § ~~4.3.144.2.16~~ together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the ~~appropriate Regional 2~~ Plan and will be considered as a frequency assignment in conformity with the Plan.

~~4.3.182.20~~ When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

~~4.3.192.21~~ If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

~~4.3.202.22~~ An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau, ~~particularly in seeking the agreement of another administration.~~

~~4.3.212.23~~ The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Bureau.

4.2.24 Cancellation of frequency assignments

When a frequency assignment in conformity with ~~one of the Regional 2~~ Plans is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a special section of its ~~weekly circular~~ IFIC and delete the assignment from the ~~appropriate Regional 2~~ Plan.

4.2.25 Master copy of the Region 2 Plans

~~4.5.1 a) The Bureau shall maintain an up-to-date master copy of the Regions 1 and 3 Plan taking account of the application of the procedure specified in this Article. The Bureau shall publish a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.~~

~~b)~~ 4.2.25.1 The Bureau shall maintain an up-to-date master copy of the Region 2 Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure described in this Article. The Bureau shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure described in this Article.

~~4.5.22.25.2~~ The Secretary-General shall be informed by the Bureau of any modifications made to the ~~Regional 2~~ Plans and shall publish an up-to-date version of these Plans in an appropriate form when justified by the circumstances.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

ARTICLES 1, 2, 3 AND 4 OF APPENDIX S30

Articles 1, 3 and 4 of Appendix S30 have been amended to implement the approach proposed in Documents 25 and 154 (separation of the modifications to the Plan from the Plan in Regions 1 and 3).

The changes can be summarized as follow:

- a definition of the “List” of additional uses for Regions 1 and 3 has been included in Article 1 (new §§ 1.7 and 1.8);
- Article 3 has been updated with respect to the application of No. S5.492 (enlarged to three Regions by WRC-97);
- Article 4 has been restructured to separate provisions applicable to Regions 1 and 3 (§ 4.1) from those applicable to Region 2 (§ 4.2);
- new § 4.1 (provisions applicable to Regions 1 and 3) which implements the new approach would replace for Regions 1 and 3 the existing § 4.1, § 4.2, §§ 4.3.1 to 4.3.2, §§ 4.3.5 to 4.3.21, § 4.4 and § 4.5;
- new § 4.2 (provisions applicable to Region 2) will be presented in a separate DT document.

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ARTICLE 1

General definitions

1 For the purposes of this Appendix the following terms shall have the meanings defined below:

1.1 *1977 Conference*: World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), called in short World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

1.2 *1983 Conference*: Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz and Associated Feeder Links in the Frequency Band 17.3-17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983.

1.3 *1985 Conference*: First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85.

ADD

1.3A *2000 Conference*: World Radiocommunication Conference (Istanbul, 2000) called in short WRC-2000.

MOD

1.4 *Regions 1 and 3 Plan*: The Plan for the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1 contained in this Appendix, ~~together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.~~

1.5 *Region 2 Plan*: The Plan for the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz in Region 2 contained in this Appendix, together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.

1.6 *Frequency assignment in conformity with the Plan*: Any frequency assignment which appears in the Regions 1 and 3 Plan or any frequency assignment which appears in the Region 2 Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.

ADD

1.7 *Additional use in Regions 1 and 3*: For the application of the provisions of this Appendix, additional uses in Regions 1 and 3 are:

- a) use of assignments with characteristics different from those appearing in the Regions 1 and 3 Plan and which are capable of causing more interference [or require more protection from interference] than the corresponding entries in the Plan;
- b) use of assignments in addition to those appearing in the Plan.

ADD

1.8 *Regions 1 and 3 List of additional uses (hereafter called in short "the List")*: The list of assignments for additional uses in Regions 1 and 3 as established by WRC-2000, as updated following the successful application of the procedure of Section I of Article 4 of this Appendix.

NOC

ARTICLE 2

Frequency bands

2.1 The provisions of this Appendix apply to the broadcasting-satellite service in the frequency bands between 11.7 GHz and 12.2 GHz in Region 3, between 11.7 GHz and 12.5 GHz in Region 1 and between 12.2 GHz and 12.7 GHz in Region 2 and to the other services to which these bands are allocated in Regions 1, 2 and 3, insofar as their relationship to the broadcasting-satellite service in these bands is concerned.

MOD

ARTICLE 3

Execution of the provisions and associated Plans

3.1 The Member States in Regions 1, 2 and 3 shall adopt, for their broadcasting-satellite space stations¹ operating in the frequency bands referred to in this Appendix, the characteristics specified in the appropriate Regional Plan and the associated provisions.

3.2 The Member States shall not change the characteristics specified in the Region 1 and Region 3 Plans or in the Region 2 Plan, or bring into use assignments to broadcasting-satellite space stations or to stations in the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

¹ ~~In Region 2, s~~Such stations may also be used for transmissions in the fixed-satellite service (space-to-Earth) in accordance with No. ~~S5.492~~ of the Radio Regulations.

ARTICLE 4

MOD

Procedures for modifications to the Region 2 Plans or for additional uses in Regions 1 and 3

SUP

4.1

ADD

4.1 Provisions applicable to Regions 1 and 3

4.1.1 An administration proposing to include a new or modified assignment in the List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations¹:

- a) of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service, any portion of which falls within the necessary bandwidth of the proposed assignment, which is included in the Regions 1 and 3 Plan; *or*
- b) of Regions 1 and 3 having a frequency assignment included in the List or for which complete [Annex 2] [Appendix S4] information has already been received by the Bureau in accordance with the provisions of § XXX of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*
- c) of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § [4.3.5.1 or 4.3.6] of this Article; *or*
- d) having no frequency assignment in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed assignment or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the proposed assignment exceeds the prescribed limit as a result of the proposed modification; *or*
- e) having a frequency assignment in the band 11.7-12.2 GHz in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master International Frequency Register (Master Register) or for which complete coordination information has been received by the Bureau for coordination under No. S9.7, or under § 7.1 of this Appendix.

4.1.2 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

4.1.3 An administration intending to include a new or modified assignment in the List shall send to the Bureau, not earlier than eight years but preferably not later than two years before the date on which the assignment is to be brought into use, the relevant information listed in [Annex 2/Appendix S4]. An assignment in the List shall lapse if it is not brought into use by that date.²

4.1.4 If the information received by the Bureau under paragraph 4.1.3 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

¹ See Resolution MD1.

² See Resolution MD2.

4.1.5 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected. The Bureau shall publish, in a Special Section of its International Frequency Information Circular (IFIC), the complete information received under § 4.1.3, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the assignment.

4.1.6 The Bureau shall send a telegram/fax to the administrations listed in the Special Section of the IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

4.1.7 An administration which considers that it should have been identified in the publication referred to under paragraph 4.1.5 above shall, within four months of the date of publication of the relevant IFIC, and giving the technical reasons for so doing, request the Bureau to include its name in the publication. The Bureau shall study this information on the basis of Annex 1 and shall inform both administrations of its conclusions. Should the Bureau agree to the administration's request, it shall publish an addendum to the publication under paragraph 4.1.5.

4.1.8 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

4.1.9 Comments from administrations on the information published pursuant to § 4.1.5 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

4.1.10 An administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the IFIC referred to in § 4.1.5 shall be understood to have agreed to the proposed assignment. This time-limit may be extended by up to three months for an administration that has requested additional information under § 4.1.8 or for an administration that has requested the assistance of the Bureau under § 4.1.21. In the latter case the Bureau shall inform the administrations concerned of this request.

4.1.11 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.1 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.1.12 If no comments have been received on the expiry of the periods specified in § 4.1.10, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.1.13 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.1.14 When the proposed assignment involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

4.1.15 The Bureau shall publish in a Special Section of the IFIC the information received under § 4.1.12 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall be included in the List.

4.1.16 In case of disagreement from an administration whose agreement has been sought, the requesting administration should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.1.17 If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.1.18 If in spite of the application of paragraphs 4.14 and 4.15, there is still continuing disagreement and the notifying administration insists that the proposed assignment be included in the List, the Bureau shall enter the assignment provisionally in the List with an indication of those administrations whose assignments were the basis of the disagreement. The entry shall be changed from provisional to definitive recording in the List only if the Bureau is informed that the new assignment has been in use, together with the assignment which was the basis for the disagreement, for at least four months without any complaint of harmful interference being made.

4.1.19 Should the assignments that were the basis of the disagreement not be brought into use within the period specified in No. **S11.44** (for the non-planned services), or in paragraph 4.1.3 (for assignments in the List or having initiated the procedure under paragraph 4.1.3), as appropriate, then the status of the assignment in the List shall be reviewed accordingly.

4.1.20 Should harmful interference be caused by an assignment included in the List under paragraph 4.1.18 to any recorded assignment which was the basis of the disagreement, the administration using the frequency assignment included in the List under paragraph 4.1.18 shall, upon receipt of advice thereof, immediately eliminate this harmful interference.

4.1.21 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau, particularly in seeking the agreement of another administration.

4.1.22 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Bureau.

4.1.23 When a frequency assignment included in the List is no longer required, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a Special Section of its Weekly Circular and delete the assignment from the appropriate Regional Plan.

4.1.24 No assignment in the List shall have a period of operation exceeding [15] years, counted from the date of bringing into use, or 2 June 2000, whichever is later. Upon request by the responsible administration received by the Bureau at the latest three years before the expiry of this period, this period may be extended by up to [15] years, on the condition that all the characteristics of the assignment remain unchanged.

4.1.25 The provisions of Resolution **49 (WRC-2000)** apply.

4.1.26 When an administration (already having included in the List two assignments (not including those systems notified on behalf of a group of named administrations and included in the List by WRC-2000) in the same channel and covering the same service area) proposes to include in the List a new assignment in the same channel over this service area, it shall apply the following in respect of another administration which has no assignment in the List in the same channel and which proposes to include in the List a new assignment:

- a)* If the agreement of the former administration is required following the application of paragraph 4.1.3 by the latter administration, in order to protect the new assignment proposed by the former administration from interference caused by the assignment proposed by the latter administration, both administrations shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks;
- b)* in case of continuing disagreement, and if the former administration has not communicated to the Bureau the information specified in Annex 2 of Resolution **49 (WRC-2000)**, this administration shall be deemed to have given its agreement to the inclusion in the List of the assignment of the latter administration.

4.1.27 This procedure may be applied by the administration of a new ITU Member State in order to include new assignments in the List. Upon completion of the procedure, the next World Radiocommunication Conference may be requested to consider, among the assignments included in the List after the successful completion of this procedure, the inclusion in the Plan of up to 10 channels (for Region 1) and 12 channels (for Region 3), over the national territory of the new Member State.

4.1.28 The List as updated shall be published periodically by the Bureau.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

SUPPRESSION OF NOS. S9.8 AND S9.9

The adoption of Approach A would lead to the following changes in Article S9 and in the corresponding references to that Article in Appendix S5 (changes in S9.17, S9.17A, S9.18 and S9.19 are dealt with in a separate document).

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ARTICLE S9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3, 4, 5}

Sub-Section IIA – Requirement and request for coordination

SUP

S9.8

SUP

S9.9

MOD

S9.32 If the responsible administration concludes that coordination is not required under Nos. ~~S9.7 to S9.9~~, it shall send the relevant information pursuant to Appendix ~~S4~~ to the Bureau for action under No. ~~S9.34~~.

MOD

S9.41 Following receipt of the Weekly Circular referring to requests for coordination under Nos. ~~S9.7 to S9.9~~, an administration believing that it should have been included in the request shall, within four months of the date of publication of the relevant Weekly Circular, inform the initiating administration and the Bureau, giving its technical reasons for doing so, and shall request that its name be included.

Sub-Section IIC – Action upon a request for coordination

MOD

S9.51 Following its action under No. ~~S9.50~~, the administration with which coordination was sought under Nos. ~~S9.7 to S9.9~~ shall, within four months of the date of publication of the Weekly Circular under No. ~~S9.38~~, either inform the requesting administration and the Bureau of its agreement or act under No. ~~S9.52~~.

Sub-Section IID – Action in the event of no reply, no decision or disagreement on a request for coordination

MOD

S9.60 If, within the same four-month period specified in Nos. ~~S9.51~~ or ~~S9.51A~~, an administration with which coordination is sought under Nos. ~~S9.7 to S9.9~~ and ~~S9.15 to S9.19~~ fails to reply or to give a decision under Nos. ~~S9.51~~ or ~~S9.51A~~ or, following its disagreement under No. ~~S9.52~~, fails to provide information concerning its own assignments on which its disagreement is based, the requesting administration may seek the assistance of the Bureau.

MOD

TABLE S5-1

Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.8 GSO/GSO	A transmitting space station in the fixed satellite service (FSS) using the GSO in a frequency band shared with the broadcasting-satellite service (BSS) on an equal primary basis, in respect of space stations in the latter service which are subject to the Plans in Appendix S30	11.7-12.2 GHz (Region 2) 12.2-12.7 GHz (Region 3) 12.5-12.7 GHz (Region 1)	i) There is an overlap in the necessary bandwidths of the FSS and BSS space stations; and ii) the power flux density (pfd) of the FSS space station exceeds the value given in Annex 4 of Appendix S30 on the territory of another administration located in another Region	Check by using the assigned frequencies and bandwidths;	See also Article 7 of Appendix S30 . Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC 99 on the revision of these two Appendices.

- 4 -
CMR2000/DT/85-E
TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.9 GSO/GSO	A station of the FSS in a frequency band shared on an equal primary basis with the feeder links of the BSS, which are subject to the Plans in Appendix S30A	17.7-18.1 GHz (Region 1) 17.7-18.1 GHz (Region 3) 17.7-17.8 GHz (Region 2)	i) Value of $\Delta T_s/T_s$ exceeds 4% (see Section I of Annex 4 of Appendix S30A); and ii) geocentric inter-satellite angular separation is less than 3° or greater than 150°	i) Case II of Appendix S8 ii) Annex 1 of Appendix S8	The threshold/conditions do not apply when the geocentric angular separation, between an FSS transmitting space station and a receiving space station in the feeder link plan, exceeds 150° of arc and the free space pfd of the FSS transmitting space station does not exceed a value of -137 dB(W/m ² /MHz) on the surface of the Earth at the equatorial limb. Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices.



WORKING GROUP 4A

Chairperson, Sub-Working Group 4A-7

RESOLUTION 87

Role of the notifying administration

The Sub-Working Group considered the proposals from administrations and the information provided by the Director, Radiocommunication Bureau, in keeping with the terms of reference as given in Document DT/45.

In its consideration of the matter, the Sub-Working Group noted the *considerings* of Resolution 87, particularly *considering d)* which states “that, under the Radio Regulations, all communications and actions are in the name of an administration, and that the Radiocommunication Bureau needs one administration to be responsible for each satellite network of such agencies”.

However, in response to the concerns of some administrations, the Sub-Working Group felt that there was no intention to suggest that the notifying administration would be obliged to maintain regulatory overview in the day-to-day activities of the multinational organization. To ensure that this is clear, a statement to this effect should be included in the report of the Chairperson of WG 4A to Committee 4.

In light of the above, the Sub-Working Group proposes the attached new provision to Article S7.

R.G. AMERO
Chairperson, Sub-Working Group 4A-7

ADD

S7.9 When an administration acts as the notifying administration of a satellite network on behalf of a group of named administrations in accordance with Nos. **S9.1**, **S9.6.1** and **S11.15.1** and Appendix **30/30A**, that administration shall act on behalf of all members of the group of administrations in the application of the various procedures of Chapter SIII of the Radio Regulations with respect to that network. In these cases, it is desirable that the notifying administration be one of the members of the group on whose behalf the notification is being made.



Chairperson, Sub-Working Party 4A-6

REFINEMENT OF COORDINATION PROCEDURE

REPORT TO WORKING GROUP 4A

SWG 4A-6 met on Saturday to revisit the proposed changes to S11.44 (Terms of Reference 2), and to consider S9 changes related to coordination of BSS earth stations (Terms of reference 8).

1 Article S11.44 - Deadline for notification

The group had a further extensive discussion on this topic and sought advice from BR on their interpretation of the problem. As a result, the group agreed that there was a deficiency in the Radio Regulations that needed to be fixed. The proposals shown below were agreed as being suitable to fix this problem.

It was also noted that the existing ROP for Article S11.44 needs to be clarified to align with the changes proposed below. Further it was noted that Resolution 51 covers transitional arrangements for networks subject to the pre-WRC-97, nine-year rule. However, should Resolution 51 be modified, or another transitional Resolution be prepared, consideration should be made for transitional arrangements for filings that have a nine year life.

MOD

S11.44 The notified date¹⁶ of bringing into use of any assignment to a space station of a satellite network shall be no later than five years following the date of receipt by the Bureau of the relevant information under No. **S9.1**. The notified date of bringing into use may be extended at the request of the notifying administration by not more than two years, only under the conditions specified under Nos. **S11.44B** to **S11.44I**. Any frequency assignment not brought into use within the required period shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.

ADD

¹⁶ **S11.44.1** In the case of satellite assignments that are brought into use prior to the completion of the coordination process, and for which the Resolution **49 (WRC-97)** data has been submitted to the Bureau, the network assignment shall continue to be taken into consideration for a maximum period of seven years from the date of receipt of the relevant information under No. **S9.1**. If the assignments have not been notified by the end of this seven-year period, and the provisions of **S11.32A** and/or **S11.41** have not been sought, the relevant assignment shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.

2 Modifications to Article S9

The group decided that these items referred to SWG 4A-6 relating to Article S9, should be referred to GT PLEN for their advice, as they deal with BSS matters in general before final decision. Accordingly, WG 4A should consider referring the proposed modifications to Article S9 as contained in DT/41, to GT PLEN-1 for their advice. SWG 4A-6 did propose changes to Article S9.17, relating to the lower frequency of applicability contained in S9.17, to bring it into alignment with the proposed revisions of Appendix S7, and to note that a sharing scenario for broadcasting-satellite earth station and typical earth station parameters can be found in the new proposed Appendix S7.

It was stressed by two administrations, that the issue of coordination of BSS earth stations with FS services, was an extremely sensitive issue and required careful consideration before any regulatory changes are made.

Accordingly, all text in this proposal is in parentheses for the advice of GT PLEN-1.

MOD

S9.17 ^(f)¹³ for any specific earth station~~or~~, typical mobile earth station or typical earth station in the broadcasting-satellite service with parameters shown in Appendix S7, in frequency bands above 1 GHz~~100 MHz~~ allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15** [and Article 4 of Appendix S30A and the coordination of earth stations in the broadcasting-satellite service which are subject to the Appendix S30 Plans];



Drafting Group 5B-2A

MODIFICATIONS TO ARTICLE S5 OF THE RADIO REGULATIONS

(AGENDA ITEM 1.15.1)

Following the discussions that were held in Drafting Group 5B-2A dealing with new allocations to RNSS in agenda item 1.15.1, the following proposals to allocate the band 1 164-1 215 MHz (space-to-Earth), 1 260-1 300 MHz (space-to-Earth) and 1 300-1 350 MHz (Earth-to-space) to RNSS is conveyed to Sub-Working Group 5B-2 for consideration.

Note to the attention of the editorial committee:

In this proposed modification of Article S5, the No. **S5.329A** agreed under Agenda Item 1.15.2 in the bands 1 215-1 260 MHz and 1 559-1 610 MHz has been extended to the bands 1 164-1 215 MHz, 1 260-1 300 MHz and 5 010-5 030 MHz.

Necessary changes to the Table of Frequency Allocations have been inserted in the present document for the bands 1 164-1 215 MHz and 1 260- 1 300 MHz. Since the band 5 010-5 030 MHz has already been agreed within Working Group 5B, No. **S5.329A**, if agreed, needs to be inserted for the band 5 010-5 030 MHz in the relevant part of the Table of Frequency Allocations.

Vincent Meens
Chairperson, Drafting Group 5B-2A

ARTICLE S5

MOD

890-1 350 MHz

Allocation to services		
Region 1	Region 2	Region 3
960-1 215	AERONAUTICAL RADIONAVIGATION <u>MOD S5.328</u> S5.328 <u>ADD S5.328A</u> <u>ADD S5.329A</u>	

MOD

S5.328

The aeronautical radionavigation service in the band 960 - 1 215 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.

ADD

S5.328A *Additional allocation:* the band 1 164-1 215 MHz is also allocated to the radionavigation-satellite service (space-to-Earth) (space-to-space) on a primary basis. The aggregate power flux-density produced by all the space stations within all radionavigation-satellite systems at the Earth's surface shall not exceed the provisional value of $-115 \text{ dB(W/m}^2\text{)}$ in any 1 MHz band for all angles of arrival. Stations in the radionavigation-satellite service shall not cause harmful interference to nor claim protection from stations of the aeronautical-radionavigation service. The provisions of Resolution [COM 5/19] apply.

ADD

S5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 164-1 215 MHz, 1 215-1 260 MHz, 1 260-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz is not intended to provide safety service application, and shall not impose any additional constraints on other systems or services operating in accordance with the Table of Frequency Allocations.

RESOLUTION [COM 5/19] (WRC-2000)

**Use of the frequency band between 1 164 – 1 215 MHz
by systems of the radionavigation-satellite service (space-to-Earth)**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that in accordance with the Radio Regulations the band 960-1 215 MHz is allocated on a primary basis to the aeronautical-radionavigation service in all ITU regions;
- b) that this Conference has decided to introduce a new allocation for the radionavigation-satellite service (space-to-Earth) in the frequency band 1 164 – 1 215 MHz with a provisional limit to the aggregate power flux-density produced by all the space stations within all radionavigation-satellite systems at the Earth's surface of -115 dBW/m^2 in any 1 MHz band for all angles of arrival;
- c) that it is likely that no Radionavigation-Satellite Service systems will be fully operational in this band before the next WRC;
- d) that only a few Radionavigation-Satellite Service systems are expected to be deployed in this band;
- e) that it is unlikely that more than two systems will have overlapping frequencies,

noting

- a) that the studies conducted to date by ICAO to ensure protection of current operation of Distance Measuring Equipments (DME) indicate that a provisional power flux-density value for Radionavigation-Satellite Service allocation in this band should be in the range of -115 to -119 dBW/m^2 in any 1 MHz band for the aggregate interference from all Radionavigation-Satellite Service systems operating in the same band;
- b) that no methodology is available to derive an aggregate power flux-density for all Radionavigation-Satellite Service space stations of one system from the aggregate power flux-density for all systems in No. **S5.328A**,

resolves

- 1) that the provisional power flux-density limit stated in No. **S5.328A** shall be applied for Radionavigation-Satellite Service (space-to-Earth) systems as of 2 June 2000;
- 2) to request WRC-03 to review the results of the studies in *Request ITU-R 1*) and take appropriate action;
- 3) that the administrations planning to implement Radionavigation-Satellite Service systems in this band shall consult each other in order to ensure that the provisional aggregate power flux-density limit is not exceeded,

requests ITU-R

- 1) to conduct, as a matter of urgency and in time for consideration by WRC-03, the appropriate technical, operational and regulatory studies on the overall compatibility between the Radionavigation-Satellite Service and the Aeronautical Radionavigation Service in the band 960-1 215 MHz, including the assessment of the need for aggregate power flux-density limit, and the revision, if necessary, of the provisional limit included in No. **S5.328A** concerning the operation of Radionavigation-Satellite Service (space-to-Earth) systems in the frequency band 1 164-1 215 MHz;
- 2 to report to CPM before WRC-03 on the conclusions of these studies,

instruct the radiocommunication bureau

As of the end of WRC-03, to review and, if appropriate, revise any finding previously made on the compliance with the limit of a Radionavigation-Satellite Service (space-to-Earth) system for which notification information has been received before the end of WRC-03. This review shall be based on the values as revised, if appropriate, by WRC-03,

requests the Secretary-General

to communicate the contents of this Resolution to the ICAO for such actions as they may consider appropriate.

ARTICLE S5

MOD

890-1 350 MHz

1 215-1 240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) <u>MOD S5.329</u> <u>ADD S5.239A</u> SPACE RESEARCH (active) S5.330 S5.331 <u>MOD S5.332</u>
1 240-1 260	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) <u>MOD S5.329</u> <u>ADD S5.329A</u> SPACE RESEARCH (active) Amateur S5.330 S5.331 <u>MOD S5.332</u> S5.334 S5.335
1 260-1 300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION <u>RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) MOD S5.329</u> <u>ADD S5.329A</u> SPACE RESEARCH (active) Amateur S5.282 S5.330 S5.331 S5.332 <u>MOD S5.333</u> S5.334 S5.335

MOD

S5.329 Use of the radionavigation-satellite service in the band 1 215-~~1260~~1 300 MHz shall be subject to the condition that no harmful interference is caused to and no protection is claimed from the radionavigation service authorized under No. **S5.331**. See also Resolution [COM 5/20] (WRC-2000).

MOD

S5.332 In the band 1215 - ~~1260~~1300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis.

MOD

S5.333 (~~SUP-WRC-97~~) In the band 1260 -1300 MHz, active spaceborne sensors in the earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated on a primary basis.

RESOLUTION [COM 5/20] (WRC-2000)

**Use of the frequency band between 1 215-1 300 MHz
by systems of the radionavigation-satellite service (space-to-Earth)**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that this Conference has decided to introduce a new allocation for the radionavigation-satellite service (space-to-Earth) in the frequency band 1 260-1 300 MHz;
- b)* that in the band 1 215 – 1 260 MHz Radionavigation-Satellite Service (space-to-Earth) systems have been successfully operated for a considerable time in a band used by radars;
- c)* the importance of the radionavigation service authorized in certain countries in accordance with No. **S5.331** and the radiolocation service and the necessity for adequate protection and continued operation of these services throughout the band 1215 - 1300 MHz,

resolves

that no additional constraints shall be put on Radionavigation-Satellite Service (Space-to-Earth) systems operating in the band 1215 - 1260 MHz,

requests ITU-R

- 1) to conduct, as a matter of urgency and in time for consideration by WRC-03, the appropriate technical, operational and regulatory studies, including the assessment of the need for a power flux-density limit concerning the operation of Radionavigation-Satellite Service (space-to-Earth) systems in the frequency band 1 215-1 300 MHz in order to ensure that the RNSS (space-to-Earth) will not cause harmful interference to the radionavigation and the radiolocation services;
- 2) to report to CPM-03 on the conclusions of these studies,

requests the Secretary-General

to communicate the contents of this Resolution to the ICAO for such actions as they may consider appropriate.

ARTICLE S5

MOD

1 300-1 350 MHz

Allocation to services		
Region 1	Region 2	Region 3
1 300-1 350	AERONAUTICAL RADIONAVIGATION S5.337 <u>RADIONAVIGATION SATELLITE (Earth-to-space)</u> Radiolocation <u>RADIOLOCATION</u> S5.149 <u>ADD S5.337A</u>	

ADD

S5.337A The use of the band 1 300-1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to nor constrain the development of the aeronautical-radionavigation service.

RESOLUTION [COM 5/21] (WRC-2000)

**STUDIES ON COMPATIBILITY BETWEEN STATIONS OF THE
RADIONAVIGATION-SATELLITE SERVICE (RNSS) (Earth to Space)
AND THE RADIOLOCATION SERVICE OPERATING IN THE
FREQUENCY BAND 1300-1350 MHz**

The World Radiocommunications Conference (Istanbul, 2000),

considering

- a) that WRC-2000 added a primary allocation to the radionavigation satellite service (Earth-to-space) in the 1300-1350 MHz band;
- b) that WRC-2000 raised the status of the radiolocation service from secondary to primary in the 1300-1350 MHz band;
- c) that studies to determine the compatibility between airborne radar systems operating in the radiolocation service and the radionavigation-satellite service have not been carried out;
- d) that there is a potential for interference between ground based beacons of the radionavigation satellite service and airborne radiolocation systems;
- e) that airborne radiolocation systems can be protected with the implementation of adequate separation distances, if necessary;
- f) that a maximum of twenty ground-based beacons in the radionavigation satellite service are expected to be deployed globally,

requests the ITU-R

to conduct as a matter of urgency, the appropriate studies to ensure that stations of the radionavigation-satellite service (Earth-to-space) do not cause harmful interference to the operation of airborne radiolocation systems and to develop if needed appropriate recommendations,

urges administrations

to participate actively in these studies by submitting contributions to ITU-R.



Chairperson of Sub-Working Group 4A-9

REPORT OF SUB-WORKING GROUP 4A-9

Sub-Working Group 4A-9 met three times to carry out the task of producing an amended version of Resolution 80 (WRC-97). Two main problems arose: the irregular attendance of participants and problems of interpretation between Spanish and English.

At the first meeting a document was considered which reflected the discussions within Working Group 4. This was amended to adjust aspects of a somewhat technical nature concerning the relationship between the Board, the Radiocommunication Advisory Group and the Bureau.

At the second meeting a participant who had not been at the first meeting objected to a number of points, which resulted in some paragraphs being kept in square brackets so that they could be clarified at a third meeting.

At the third meeting it was observed that there were two opposing positions regarding the text of certain points of the resolution: one group which was in favour of the submitted text with the square brackets removed and the other which proposed other amendments. It was not possible to reconcile the two positions, although the balance appeared to be tilting in favour of removing the brackets from the text submitted as Resolution 80.

Consequently, the Chairperson decided that two texts should be prepared and brought to the attention of Working Group 4A.

N. CALDERON
Chairperson, Sub-Working Group 4A-9
Box 2557

RESOLUTION 80 (Rev.WRC-972000)

Due diligence in applying the principles embodied in the Constitution

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

a) that Articles 12 and 44 of the ITU Constitution (~~Geneva, 1992~~) lay down the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite and other satellite orbits;

b) that those principles have been ~~incorporated~~included in the Radio Regulations [through No. **S0.3**];

[b)bis that Article I of the Agreement between the United Nations and the International Telecommunication Union provides that “the United Nations recognizes the International Telecommunication Union (hereinafter called “the Union”) as the specialized agency responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes set forth therein”:]

c) that, in accordance with Nos. **S11.30**, **S11.31** and **S11.31.2**, notices shall be examined with respect to the provisions of the Radio Regulations, including the provision relating to the basic principles, appropriate rules of procedure being developed for the purpose;

d) that WRC-97 instructed the Radio Regulations Board to develop, with the framework of Nos. **S11.30**, **S11.31** and **S11.31.2**, Rules of Procedure to follow in compliance with the principles in No. **S0.3**;

d)bis that the Board, after examining the Radio Regulations, concluded that there are no provisions currently in the Radio Regulations that link the formal notification or coordination procedures with the principles stated in No. **S0.3** of the Preamble to the Regulations;

OPTION 1:

[e) that the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space of the United Nations General Assembly has drawn up the following recommendations in this respect:

“(a) Where coordination is required between countries with a view to the utilization of satellite orbits, including the geostationary satellite orbit, the countries concerned should take into account the fact that access to that orbit must take place, *inter alia*, in an equitable manner and according to the ITU Radio Regulations. Consequently, in the case of comparable requests for access to the spectrum/orbit resource by a country already having access to the orbit/spectrum resource and a developing country or another country seeking it, the country already having such access should take all practicable steps to enable the developing country or other country to have equitable access to the requested orbit/spectrum resource;

(b) Countries wishing to use frequencies and satellite orbits, including the geostationary satellite orbit, in the above-mentioned cases file such requests according to the relevant provisions of the ITU Radio Regulations, taking into account Resolution 18 of the ITU Plenipotentiary Conference (Kyoto, 1994) and Resolution 49 of the ITU World Radiocommunication Conference (Geneva, 1997) in order to guarantee effective use of the orbit/spectrum resource;”]

OPTION 2:

[e) that the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space of the United Nations General Assembly has drawn up recommendations in this respect,]

noting

a) that in accordance with the provisions of No. 127 of the Convention the Conference may give instructions to the Sectors of the Union;

b) that according to No. 160C of the Convention, the Radiocommunication Advisory Group shall review any matter as directed by a conference,

resolves

1 to instruct the Radio Regulations Board, as a matter of urgency and within the framework of Nos. ~~S11.30, S11.31 and S11.31.2~~, to develop the rules of procedure to be followed in examining due compliance with the principles reflected in No. ~~S0.3~~ in the process leading up to the recording of frequency assignments in the International Frequency Register. These rules shall be applied from a date to be decided by WRC 99;

OPTION 1:

[1 to instruct the Radiocommunication Advisory Group with a contribution from the Radio Regulations Board to carry out studies and consider possible draft provisions that link the formal notification, coordination and registration procedures related to frequency assignment and orbital positions of satellite services stated in No. ~~S0.3~~ of the Preamble to the Radio Regulations. The study should take into account the following:

- the “first come first served” concept restricts and sometimes prevents access and use of certain frequency bands and orbit positions;
- a relative disadvantage for developing countries in coordination negotiations due to various reasons such as a lack of resources and expertise;
- perceived differences in consistency of application of the Radio Regulations;
- the submitting of “paper” satellites that restricts access options;
- the growing use of the bands of the Plans of Appendices ~~S30~~ and ~~S30A~~ by regional, multichannel systems, which may modify the main purpose of these Plans to provide equitable access to all countries;
- the considerable processing delays in the Radiocommunication Bureau are due to the very complex procedures required and the large number of filings submitted. These delays contribute to a coordination backlog of 18 months which could extend to three years and creates uncertain regulatory situations, additional delay in the coordination process that cannot be overcome by administrations, and the possible loss of the assignment because the allotted time is exceeded;
- satellite systems may already be in orbit before completion of coordination;
- statutory time-frames, such as in ~~S11.48~~, may often be insufficient for developing countries to be able to complete the regulatory requirements as well as the design, construction and launch of satellite systems;
- no provisions for international monitoring to confirm the bringing into use of satellite networks (assignments and orbits).]

OPTION 2:

[1 to instruct the Radiocommunication Advisory Group to carry out studies and consider possible recommendations based on contributions of Sector Members to alleviate any differences in the application of Article 44 taking into account the recommendations of the Legal Subcommittee.]

invites

the Radio Regulations Board and the other organs of the Sector to make contributions to the Director of the Radiocommunication Bureau for inclusion in his report to WRC-03 under
instructs 2,

instructs

OPTION 1:

[21 ~~that the Board~~ Director of the Radiocommunication Bureau shall to draw the attention of circulate the draft of these rules of procedure to the Administrations to results of the consideration by the Radiocommunication Advisory Group by 31 October 1998 December 2001 with a view to receiving comments by 31 March 19992002;

23 ~~that the Board~~ Director of the Radiocommunication Bureau shall to submit to WRC-9903 a detailed report on the action taken on this Resolution;

3 the Radio Regulations Board to review the results of the RAG in order to consider if such results are in accordance with the application of No. S0.3 with regard to coordination procedures and notification of frequency assignments for the satellite services and if considered necessary, to propose additional modifications.]

OPTION 2:

[21 ~~that the Board~~ Director of the Radiocommunication Bureau shall to draw the attention of circulate the draft of these rules of procedure to the Administrations to results of the consideration by the Radiocommunication Advisory Group by 31 October 1998 December 2001 with a view to receiving comments by 31 March 19992002;

23 ~~that the Board~~ Director of the Radiocommunication Bureau shall to submit to WRC-9903 a detailed report on the action taken on this Resolution;]

4 the Radio Regulations Board to report to the next WRC with regard to this Resolution.

INTERNATIONAL TELECOMMUNICATION UNION



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Sub-Working Group 1 of GT PLEN-1

ARTICLES S9, S11 AND APPENDIX S5

At its ninth meeting, Sub-Working Group 1 of GT PLEN-1 agreed to the revisions which it would be appropriate to make to Articles S9 and S11, and to Appendix S5, following the adoption by the sub-working group of modifications to Articles 1, 2, 3, 4, 6 and 7 of Appendices S30 and S30A. The revisions, reproduced herein, are now submitted to GT PLEN-1 for consideration.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1

ARTICLE S9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3, 4, 5}

¹ **A.S9.1** For the application of the provisions of this Article with respect to stations in a space radiocommunication service using frequency bands covered by the fixed-satellite service allotment Plan, see also Appendix **S30B**.

² **A.S9.2** These procedures may be applicable to stations on board satellite launching vehicles.

³ **A.S9.3** See ~~also~~ Appendices **S30** and **S30A**, as appropriate, for the coordination of:

a) proposed modifications to the Appendix **S30** Plans for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2), or new or modified assignments proposed for inclusion in the Regions 1 and 3 List of additional uses, with respect to frequency assignments in the same service or in other services to which these bands are allocated;

b) frequency assignments in other services to which the frequency bands referred to in § *a*) above are allocated in the same Region or in another Region, with respect to assignments in the broadcasting-satellite service ~~which are subject to the Appendix S30 Plans in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2);~~

c) proposed modifications to the Appendix **S30A** Plans for feeder links to the broadcasting-satellite service in the frequency bands 17.3 -17.8 GHz (in Region 2) and 14.5-14.8 GHz and 17.3-18.1 GHz (in Regions 1 and 3), or new or modified assignments proposed for inclusion in the Regions 1 and 3 List of additional uses, with respect to frequency assignments in the same service or in other services to which these bands are allocated;

d) frequency assignments in other services to which the frequency bands referred to in § *c*) above are allocated in the same Region or in another Region, with respect to assignments in the fixed-satellite service (Earth-to-space) ~~which are subject to the Appendix S30A Plans in the frequency bands 17.3-17.8 GHz (in Region 2) and 14.5-14.8 GHz and 17.3-18.1 GHz (in Regions 1 and 3).~~

For the broadcasting-satellite service and for feeder links for the broadcasting-satellite service in the fixed-satellite service in Region 2, Resolution **42 (Rev.Orb-88)** is also applicable.

⁴ **A.S9.4** Resolution **49 (WRC-97)** shall also be applied with respect to those satellite networks and satellite systems that are subject to it.

⁵ **A.S9.5** See also Resolutions **51 (WRC-97)**, **130 (WRC-97)** and **538 (WRC-97)**.

Sub-Section IIA – Requirement and request for coordination

SUP

S9.8

SUP

S9.9

SUP

¹² **S9.8.1 and S9.9.1**

MOD

S9.17 *f)*¹³ for any specific earth station or typical mobile earth station in frequency bands above ~~1 GHz~~ 100 MHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15**;

¹³ ~~**S9.17.1** Application of this provision with respect to Articles 6 and 7 of Appendices **S30** and **S30A** is suspended pending a decision of WRC 99 on the revision of these two Appendices.~~

MOD

S9.17A *g)* for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the ~~frequency bands subject to the Appendix **S30A** Plans~~ coordination under **S9.19**;

MOD

S9.19 *i)* for any transmitting station of a terrestrial service or a transmitting earth station in the fixed-satellite service (Earth-to-space) in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to ~~an typical earth stations included in the service area of a space station in of the broadcasting-satellite service, except where this service is subject to the Appendix **S30** Plans;~~

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ARTICLE S11

Notification and recording of frequency assignments^{1, 2, 3}

¹ **A.S11.1** See also Appendices **S30** and **S30A** as appropriate, for the notification and recording of:

a) frequency assignments to stations in the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2);

b) frequency assignments to stations in other services to which the frequency bands referred to in § *a*) above are allocated in the same Region or in another Region, so far as their relationship to the broadcasting-satellite service, ~~which is subject to Appendix S30, is concerned in~~ the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2);

c) frequency assignments to feeder-link stations in the fixed-satellite service (Earth-to-space) in the frequency bands 14.5-14.8 GHz in Region 1 (see No. **S5.510**) and in Region 3, 17.3-18.1 GHz in Regions 1 and 3 and 17.3-17.8 GHz in Region 2, and to stations in other services in these bands;

d) frequency assignments to stations in the same service or other services to which the frequency bands referred to in § *c*) above are allocated in the same Region or in another Region, so far as their relationship to the fixed-satellite service (Earth-to-space) in these bands is concerned.

For the broadcasting-satellite service in Region 2 and for feeder links in the fixed-satellite service for the broadcasting-satellite service in Region 2, Resolution **42 (Rev.Orb-88)** is also applicable.

See also Appendix **S30B** for the notification and recording of assignments in the following frequency bands:

All Regions, fixed-satellite service only

4 500-4 800 MHz	(space-to-Earth)
6 725-7 025 MHz	(Earth-to-space)
10.7-10.95 GHz	(space-to-Earth)
11.2-11.45 GHz	(space-to-Earth)
12.75-13.25 GHz	(Earth-to-space).

² **A.S11.2** Resolution **49 (WRC-97)** shall also be applied with respect to those satellite networks and satellite systems that are subject to it.

³ **A.S11.3** See also Resolutions **51 (WRC-97)**, **130 (WRC-97)** and **538 (WRC-97)**.

APPENDIX S5

Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article S9

MOD

- g) for terrestrial radiocommunication stations or earth stations operating in the opposite direction of transmission⁴ and, in addition, operating in accordance with these Regulations, or to be so operated prior to the date of bringing the earth station assignment into service, or within the next three years from the date of dispatch of coordination data under No. **S9.29**, whichever is the longer, or from the date of the publication referred to in No. **S9.38**, as appropriate.

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⁴ The associated space network characteristics must have been communicated to the Bureau under No. ~~S9.2B~~ **S9.30** or under paragraph 4.1.3/4.2.6 of Appendix **S30** or 4.1.3/4.2.6 of Appendix **S30A**.

MOD

TABLE S5-1
Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.8 GSO/GSO	A transmitting space station in the fixed satellite service (FSS) using the GSO in a frequency band shared with the broadcasting satellite service (BSS) on an equal primary basis, in respect of space stations in the latter service which are subject to the Plans in Appendix S30	11.7-12.2 GHz (Region 2) 12.2-12.7 GHz (Region 3) 12.5-12.7 GHz (Region 1)	i) There is an overlap in the necessary bandwidths of the FSS and BSS space stations; and ii) the power flux density (pfd) of the FSS space station exceeds the value given in Annex 4 of Appendix S30 on the territory of another administration located in another Region	Check by using the assigned frequencies and bandwidths;	See also Article 7 of Appendix S30. Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices.

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.9 GSO/GSO	A station of the FSS in a frequency band shared on an equal primary basis with the feeder links of the BSS, which are subject to the Plans in Appendix S30A	17.7-18.1 GHz (Region 1) 17.7-18.1 GHz (Region 3) 17.7-17.8 GHz (Region 2)	i) Value of $\Delta T_s/T_s$ exceeds 4% (see Section I of Annex 4 of Appendix S30A); and ii) geocentric inter-satellite angular separation is less than 3° or greater than 150°	i) Case II of Appendix S8 ii) Annex I of Appendix S8	The threshold/conditions do not apply when the geocentric angular separation, between an FSS transmitting space station and a receiving space station in the feeder link plan, exceeds 150° of arc and the free-space pfd of the FSS transmitting space station does not exceed a value of -137 dB(W/m ² /MHz) on the surface of the Earth at the equatorial limb. Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC 99 on the revision of these two Appendices.

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. S9.15	Any frequency band allocated to a space service, except those mentioned in the Plans in Appendix S30A	The coordination area of the earth station covers the territory of another administration	Appendix S7 (for earth stations in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz, 2 483.5-2 500 MHz and 2 500-2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	NOTE – For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial (cont.)				2) For receiving earth stations in the meteorological-satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming 4/3 Earth radius	Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of the frequency bands subject to the Plans in Appendix S30A with the <u>exception of coordination under S9.19</u>	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	i) For bands in Table S5-2, see § 2 of Annex 1 of this Appendix ii) See Recommendations ITU R IS.847, ITU R IS.848 and ITU R IS.849 <u>Appendix S7</u>	

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.19 Terrestrial/ GSO	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30 <u>For any transmitting station of a terrestrial service or a transmitting earth station in the fixed-satellite service (Earth-to-space) in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to typical earth stations included in the service area of a space station in the broadcasting-satellite service</u>	Bands listed in No. S9.11 <u>and the band 11.7-12.7 GHz</u>	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial <u>interfering</u> station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	<u>See also Article 6 of Appendix S30</u>



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

**Addendum 1 to
Document DT/90-E
24 May 2000
Original: English**

ISTANBUL, 8 MAY – 2 JUNE 2000

**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

FOOTNOTES TO TITLES OF ARTICLES S9 AND S11

A proposal for modifications of footnotes to the title of Article S9 is proposed hereafter. It is also proposed to apply similar modifications to footnotes to the title of Article S11.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1
Box 2688

ARTICLE S9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3, 4, 5}

¹ **A.S9.1** For the application of the provisions of this Article with respect to stations in a space radiocommunication service using frequency bands covered by the fixed-satellite service allotment Plan, see also Appendix **S30B**.

² **A.S9.2** These procedures may be applicable to stations on board satellite launching vehicles.

³ **A.S9.3** See Appendices **S30** and **S30A**, as appropriate, for the coordination of:

a) proposed modifications to the Appendix **S30** Plans for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2), or new or modified assignments proposed for inclusion in the Regions 1 and 3 List of additional uses, with respect to frequency assignments in the same service or in other services to which these bands are allocated;

b) frequency assignments in other services to which the frequency bands referred to in § *a)* above are allocated in the same Region or in another Region, with respect to assignments in the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2);

c) proposed modifications to the Appendix **S30A** Plans for feeder links to the broadcasting-satellite service in the frequency bands 17.3 -17.8 GHz (in Region 2) and 14.5-14.8 GHz and 17.3-18.1 GHz (in Regions 1 and 3), or new or modified assignments proposed for inclusion in the Regions 1 and 3 List of additional uses, with respect to frequency assignments in the same service or in other services to which these bands are allocated;

d) frequency assignments in other services to which the frequency bands referred to in § *c)* above are allocated in the same Region or in another Region, with respect to assignments in the fixed-satellite service (Earth-to-space) in the frequency bands 17.3-17.8 GHz (in Region 2) and 14.5-14.8 GHz and 17.3-18.1 GHz (in Regions 1 and 3).

For the broadcasting-satellite service and for feeder links for the broadcasting-satellite service in the fixed-satellite service in Region 2, Resolution **42 (Rev.Orb-88)** is also applicable.

⁴ **A.S9.4** Resolution **49 (WRC-97)** shall also be applied with respect to those satellite networks and satellite systems that are subject to it.

⁵ **A.S9.5** See also Resolutions **51 (WRC-97)**, **130 (WRC-97)** and **538 (WRC-97)**.



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

ARTICLE S9 AND APPENDIX S5

Following the adoption by SWG 1 of new Articles 6 and 7 of Appendices S30 and S30A, the following texts are proposed to be used for revising Article S9 and Appendix S5.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1, Box 2688

ARTICLE S9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3, 4, 5}

Sub-Section IIA – Requirement and request for coordination

SUP

S9.8

SUP

S9.9

SUP

¹² S9.8.1 and S9.9.1

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S9.17 f)¹³ for any specific earth station or typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15**;

¹³ ~~S9.17.1 Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending a decision of WRC 99 on the revision of these two Appendices.~~

MOD

S9.17A g) for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the frequency bands subject to the Appendix S30A Plans coordination under S9.19;

MOD

S9.19 i) for any transmitting station of a terrestrial service or a transmitting earth station in the fixed-satellite service (Earth-to-space) in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to an typical earth stations included in the service area of a space station in of the broadcasting-satellite service, ~~except where this service is subject to the Appendix S30 Plans~~;

APPENDIX S5

Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article S9

MOD

- g) for terrestrial radiocommunication stations or earth stations operating in the opposite direction of transmission⁴ and, in addition, operating in accordance with these Regulations, or to be so operated prior to the date of bringing the earth station assignment into service, or within the next three years from the date of dispatch of coordination data under No. **S9.29**, whichever is the longer, or from the date of the publication referred to in No. **S9.38**, as appropriate.

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⁴ The associated space network characteristics must have been communicated to the Bureau under No. ~~S9.2B~~ **S9.30** or under paragraph 4.2/4X of Appendix **S30** or 4.2/4X of Appendix **S30A**.

MOD

TABLE S5-1
Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.8 GSO/GSO	A transmitting space station in the fixed-satellite service (FSS) using the GSO in a frequency band shared with the broadcasting-satellite service (BSS) on an equal primary basis, in respect of space stations in the latter service which are subject to the Plans in Appendix S30	11.7-12.2 GHz (Region 2) 12.2-12.7 GHz (Region 3) 12.5-12.7 GHz (Region 1)	i) There is an overlap in the necessary bandwidths of the FSS and BSS space stations; and ii) the power flux density (pfd) of the FSS space station exceeds the value given in Annex 4 of Appendix S30 on the territory of another administration located in another Region	Check by using the assigned frequencies and bandwidths;	See also Article 7 of Appendix S30 . Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices.

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.9 GSO/GSO	A station of the FSS in a frequency band shared on an equal primary basis with the feeder links of the BSS, which are subject to the Plans in Appendix S30A	17.7-18.1 GHz (Region 1) 17.7-18.1 GHz (Region 3) 17.7-17.8 GHz (Region 2)	i) Value of $\Delta T_s/T_s$ exceeds 4% (see Section I of Annex 4 of Appendix S30A); and ii) geocentric inter-satellite angular separation is less than 3° or greater than 150°	i) Case II of Appendix S8 ii) Annex 1 of Appendix S8	The threshold/conditions do not apply when the geocentric angular separation, between an FSS transmitting space station and a receiving space station in the feeder-link plan, exceeds 150° of arc and the free-space pfd of the FSS transmitting space station does not exceed a value of -137 dB(W/m²/MHz) on the surface of the Earth at the equatorial limb. Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC 99 on the revision of these two Appendices.

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. S9.15	Any frequency band allocated to a space service, except those mentioned in the Plans in Appendix S30A	The coordination area of the earth station covers the territory of another administration	Appendix S7 (for earth stations in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz, 2 483.5-2 500 MHz and 2 500-2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	NOTE – For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial (<i>cont.</i>)				2) For receiving earth stations in the meteorological-satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming $4/3$ Earth radius	Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of the frequency bands subject to the Plans in Appendix S30A <u>with the exception of coordination under S9.19</u>	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	i) For bands in Table S5-2, see § 2 of Annex 1 of this Appendix ii) See Recommendations ITU-R IS.847, ITU-R IS.848 and ITU-R IS.849 <u>Appendix S7</u>	

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TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.19 Terrestrial/ GSO	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30 <u>For any transmitting station of a terrestrial service or a transmitting earth station in the fixed-satellite service (Earth-to-space) in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to typical earth stations included in the service area of a space station in the broadcasting-satellite service</u>	Bands listed in No. S9.11 <u>and the band 11.7-12.7 GHz</u>	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial interfering station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths Method of Annex 3 of Appendix S30 <u>[to be updated]</u>	



RESOLUTION 533 (WRC-972000)

**Implementation of the decisions of the WRC-972000 relating to
Appendices S30 and S30A to the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a)* that WRC-97 has adopted values for various technical parameters relating to Appendices **S30** and **S30A**; that WRC-2000 revised the Appendix **S30** (downlink) Regions 1 and 3 Plan which, through decisions of WRC-2000, has been structured into a WRC-2000 Regions 1 and 3 **APS30**/Plan and a WRC-2000 Regions 1 and 3 **APS30**/List¹;
- b)* that these technical parameters were used for the establishment of the revised Plans for Regions 1 and 3; that similarly, WRC-2000 revised the 14.5-14.8 GHz and 17.3-18.1 GHz Appendix **S30A** Regions 1 and 3 (feeder-link) Plan and structured it into a R1/R3 feeder-link Plan and a R1/R3 feeder-link List;
- c)* that the R1/R3-downlink Plan and the initial R1/R3-downlink List (and the associated R1/R3-feeder-link Plan and initial R1/R3-feeder-link List) were analysed and were confirmed to be compatible with each other;
- d)* that compatibility between the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) and other services having primary allocations in the Plan bands in all three Regions and the Region 2 Plan must be ensured;
- e)* that WRC-2000 has adopted new sharing criteria and associated calculation methods which are included in, or referenced in, the Annexes to Appendices **S30/S30A**;

¹ Hereinafter within this Resolution the WRC-2000 Regions 1 and 3 Appendix **S30** Plan is indicated as the “R1/R3-downlink Plan” and the WRC-2000 Regions 1 and 3 List of additional uses associated with the Appendix **S30** Plan is indicated as the “R1/R3-downlink List”. Similar terminology has also been followed in relation to Appendix **S30A**.

f) that during WRC-2000 the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) were not analysed to identify any incompatibility with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan;

g) that since assignments in the initial R1/R3-downlink List (and the associated R1/R3-feeder-link List) have completed coordination with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan using the compatibility criteria in force at the time of WRC-2000 there will be no additional compatibility requirements associated with entries in the initial R1/R3-downlink List or the R1/R3-feeder-link List;

h) that proposed additional assignments would only enter the evolving R1/R3-downlink List after they have satisfied all compatibility requirements with the R1/R3-downlink Plan, with the existing R1/R3-downlink List, with other Appendix S30 Article 4 submissions with prior dates of receipt, and with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan;

i) that proposed additional assignments would only enter the evolving R1/R3-feeder-link List after they have satisfied all compatibility requirements with the R1/R3-feeder-link Plan, with the existing R1/R3-feeder-link List, with other Appendix S30A Article 4 submissions with prior dates of receipt, and with other services with primary allocations in the same band in all three Regions and with the Region 2 Plan,

recognizing

~~a) that the revised Regions 1 and 3 Plans must be compatible with the Region 2 Plan and with the other services which have primary allocations in the planned bands in all three Regions;~~

~~b) that, in revising the Regions 1 and 3 Plans, the orbital position of a number of administrations were changed;~~

~~c) that a large number of Appendices S30 and S30A Article 4 submissions that have either been processed or are currently being processed might affect the services mentioned in recognizing a) above;~~

~~d) that the Radiocommunication Bureau needs clear instructions from this Conference on how to deal with these submissions and how to protect the Region 2 Plan and other services the large number of Appendices S30 and S30A Article 4 submissions that have either been processed or are currently being processed which might affect: the Regions 1 and 3 downlink and feeder-link Plans and Lists; other Appendix S30/S30A Article 4 submissions with prior dates of receipt; other services having primary allocations in the Plan bands in all three Regions; and the Region 2 Plan,;~~

~~e) that the instructions to Bureau should take effect as of the close of this Conference (22 November 1997),~~

resolves

1 that following WRC-2000 the Bureau shall compute the reference situations of the R1/R3-downlink Plan and the R1/R3-downlink List and the R1/R3-feeder-link Plan and R1/R3-feeder-link List as of [3 June 2000] and publish this information in a [Circular Letter];

12 that as of 22 November 1997/[3 June 2000] the Bureau shall use the values of technical parameters, methodology and criteria adopted for planning at this Conference and included or referenced in the Annexes to Appendices S30/S30A in its subsequent examination of submissions for modification and notifications of assignments in the Regions 1 and 3 Plans/Lists received under Articles 4 and 5 of Appendices S30 and S30A. In particular, the following technical parameters shall be applied: and in its subsequent examination of submissions for notification of assignments in the Regions 1 and 3 Plans and Lists received under Article 5 of Appendices S30 and S30A.

- protection ratios used for the equivalent protection margin (EPM) analyses as defined in Recommendation ITU R BO.1297 instead of the protection ratios applied at WARC SAT-77 and WARC Orb-88;
 - new reference earth receiving antenna pattern (Recommendation ITU R BO.1213) instead of earth reference receiving antenna pattern applied at WARC SAT-77;
 - new reference feeder link antenna patterns (Earth and space stations) in accordance with Recommendations ITU R BO.1295 and ITU R BO.1296 instead of the feeder link (Earth and space stations) reference antenna patterns applied at WARC Orb-88;
- 2 — that the following revisions to the Regions 1 and 3 Plans:
- the replacement of the assignments to Australia at 128°E and 98°E by assignments at 152°E and 164°E, respectively;
 - the assignments successfully coordinated under Article 4 of Appendices **S30/30** and **S30A/30A** for satellite networks RST 1, 2, 3 and 5, at orbital positions 36°E, 56°E, 86°E and 140°E, respectively;
 - the replacement of assignments at 31°W by assignments at 30°W and 33.5°W*;
- shall not be considered as new or additional assignments under § 4.1 b) of Article 4 of Appendices **S30** and **S30A**. Therefore, these assignments shall not be subject to the provisions of § 4.3.5 of Appendix **S30** and § 4.2.5 of Appendix **S30A** and the associated Rules of Procedure. In particular, the associated orbital positions shall be treated as “orbital positions in the Plan”, and the assignments shall not lapse even if they are not brought into use within eight years from the adoption of the revised Plans;
- 3 — that the Bureau shall use EPM criteria to establish a new reference situation for the revised Regions 1 and 3 broadcasting satellite service and feeder link Plans. In creating the new reference situation, the Bureau shall convert the merged overall EPM file into separate feeder link and downlink EPM files by eliminating the redundant beams created for the purpose of overall EPM calculations using different “strapping” between feeder link and downlink channels. The resultant new reference situation, including the use of power control for the feeder link, shall be published in a Circular Letter for subsequent use in the application of the provisions of Appendices **S30** and **S30A**;
- 43 — that the Bureau shall review all sSpecial sSections in date of receipt order already published in order to determine the requirement for coordination with the revised Regions 1 and 3 Plans R1/R3-downlink Plan, the R1/R3-feeder-link Plan, and with the evolving R1/R3-downlink List and the initial R1/R3-feeder-link List and with other Article 4 submissions having prior dates of receipt as well as with the current Region 2 Plan and other services in all three Regions, and publish the results of its review in corrigenda to the concerned relevant sSpecial sSections (see Resolution 53 (WRC-972000));
- within four months from the date of the above-mentioned corrigenda publication, possibly affected administrations should provide comments to the Bureau and to the notifying administration; however, the notifying administration shall indicate any coordination agreements which have been obtained previously which are agreed to be maintained by the administrations involved and any new agreements;

* — The orbital position at 31°W shall no longer be considered as an orbital position in the Plan.

- ~~— the existing time period to bring the modifications into use of five years plus a possible extension of three years will continue to be counted as from the date of receipt of the modification by the Bureau of the complete Annex 2 information pertaining to the request for modification but shall be extended by a period equal to the time between [3 June 2000] and the date of publication of the relevant corrigenda to the Special Section;~~
- 5 ~~that in examining the requirement for coordination of other services in all three Regions with the revised Regions 1 and 3 Plans in the cases described in *resolves* 4, the following methodology shall be applied:~~
 - ~~— Protection from fixed satellite service assignments already published. The Bureau shall review all relevant special sections of the series, e.g. AP30/C previously published, and publish corrigenda where required.~~
 - ~~— Protection from fixed satellite service assignments not yet processed. The Bureau shall determine the requirement for coordination and publish the request in its Weekly Circular. The administrations responsible for the fixed satellite service assignments shall then initiate coordination with the affected assignments in the revised Plans.~~
 - ~~— Protection from terrestrial assignments already in process. The Bureau shall determine the requirement for coordination and publish the request in its Weekly Circular. The administration responsible for the terrestrial assignments shall then initiate coordination with the affected assignments in the revised Plans;~~
- 64 ~~that as of the end of the Conference the Bureau shall process the pending Article 4 modifications with respect to the revised reference situation described in *resolves* 3, submissions received prior to [3 June 2000] as follows:~~
 - ~~— the Bureau shall process all pending modifications to the Plans of Appendix S30 and Appendix S30A submissions (i.e. those ~~modifications~~submissions being treated under Article 4 that have not yet ~~completed the modification procedures~~been published) in the same date order of receipt by the Bureau of the complete information on the request for modification and, using the new technical planning methodology and criteria and reference situation adopted at this Conference and included or referenced in the Annexes to Appendices S30/S30A, identify for each pending modification the list of administrations whose agreement is required and publish this list of affected administrations;~~
 - ~~— within four months from the date of the above publication, possibly affected administrations should provide comments to the Bureau and to the notifying administration; however, the notifying administration shall indicate any coordination agreements which have been obtained previously which are agreed to be maintained by the administrations involved and any new agreements;~~
 - ~~— in those cases where the degradation of the equivalent protection margins caused by the proposed modification is no worse under the new situation arising from the revision of the Plans than under the original situation, any agreements previously obtained under the Article 4 procedures of Appendices ~~S30/30 or S30A/30A~~ should be confirmed by the respective administrations;~~
 - ~~— the existing time period to bring the modifications ~~or additions~~ into use of five years plus a possible extension of three years will continue to be counted as from the date of receipt of the modification ~~or additions~~ by the Bureau of the complete Annex 2 information pertaining to the request for modification but shall be extended by a period~~

equal to the time between [3 June 2000] and the date of publication of the last relevant corrigenda to the Special Sections described in *resolves* 3;

~~any modifications or additions involving new frequencies or orbit positions, or both, which have not been brought into service within this five + three year period shall be cancelled by the Bureau after it has informed the notifying administrations.~~

[5 that in examining the requirement for coordination of other services in all three Regions with the WRC-2000 Regions 1 and 3 Lists in the cases described in *resolves* 4, the following methodology shall be applied:

- ~~– protection from fixed-satellite service assignments already published. The Bureau shall review all relevant special sections of the series, e.g. **APS30/C** previously published, and publish corrigenda where required;~~
- ~~– protection from fixed-satellite service assignments not yet processed. The Bureau shall determine the requirement for coordination and publish the request in its IFIC. The administrations responsible for the fixed-satellite service assignments shall then initiate coordination with the affected assignments in the WRC-2000 Plans and Lists;~~
- ~~– protection from terrestrial assignments already in process. The Bureau shall determine the requirement for coordination and publish the request in its IFIC. The administration responsible for the terrestrial assignments shall then initiate coordination with the affected assignments in the WRC-2000 Plans and Lists.]~~

NOTE - Finalization of § 5 is dependent on the decisions of other groups of GT PLEN-1 concerning decisions about how inter-service sharing issues should be treated.



WORKING GROUP 5B

**Note by the Chairperson of Sub-Working Group 5B-3
to the Chairperson of Working Group 5B**

Sub-Working Group 5B-3, in accordance with item a) of the terms of reference contained in Document DT/54, has completed its work with respect to compiling a technical inventory of ITU-R recommendations and regulatory provision relating to band sharing between the mobile-satellite service (space-to-Earth) and other services identified in Article S5 in the band 1 518-1 525 MHz.

Sub-Working Group 5B-3, in accordance with item b) of the terms of reference contained in Document DT/54, has completed its work with respect to ascertaining if there is a technical basis for sharing.

The output of this work is presented as Annex 1 to this report.

In summary, it has been determined that sharing is feasible with respect to all services in the band 1 518-1 525 MHz, with the exception of the aeronautical mobile telemetry service where two opposing views are summarized within Annex 1.

Work is continuing with respect to items c) and d) of the terms reference contained in Document DT/54.

K. MOODY
Chairperson, Drafting Group 5B-3A
Box 598

MSS downlink in the band 1 518-1 525 MHz; Summary of relevant ITU-R Recommendations

Purpose

To identify ITU-R technical studies regarding the potential for sharing of MSS downlink in the band 1 518-1 525 MHz with other services identified in Article S5.

To ascertain if there is a technical basis for sharing.

Definition of technical basis

The technical basis should provide quantitative guidelines for feasibility of sharing, coordination and protection of relevant services.

The methodology for calculating the above should be based on:

- a) agreed frameworks contained within ITU-R recommendations;
- b) technical parameters of relevant services.

Region	Services (footnotes)	Relevant Recommendations	Technical basis	Comments
1	AERONAUTICAL MOBILE S5.342	Appendix S5 M.1459	View No. 1 No. Further studies are required in relation to sharing between the MSS and these services.	View No. 1: Recommendation ITU-R M.1459 provides criteria that could be used as a technical basis as part of a coordination between an administration operating aeronautical mobile telemetry and another proposing to operate a GSO mobile-satellite system. During coordination, specific systems are studied and the involved administrations arrive at agreed parameters and protection for the respective systems. However, the satellite downlink proposed for 1 518-1 525 MHz can potentially impact more than one Region and many administrations simultaneously. It is firmly believed that general studies of the feasibility of sharing between aeronautical mobile telemetry (operated worldwide by a number of widespread countries) and the mobile-satellite service must be completed in ITU-R before a conclusion can be reached as to the technical basis for an allocation for such a downlink.

Region	Services (footnotes)	Relevant Recommendations	Technical basis	Comments
			View No. 2 Sharing between the MSS and the aeronautical mobile service is feasible if the relevant ITU-R recommendations and coordination procedures are applied successfully.	View No. 2: ITU-R Recommendation M.1459 protection criteria leads to the conclusion that co-frequency, co-coverage operation of the mobile-satellite service (space-to-Earth) and aeronautical telemetry is not possible. However, the Recommendation also leads to the conclusion that co-frequency operation over sufficiently isolated areas would be possible with state-of-the-art mobile satellites, since the pfd over any given part of the Earth can be controlled as desired. The ability to allocate an identified sub-band to any spot beam of a satellite having a couple of hundred of such narrow beams already exists. Thus it is considered to be perfectly feasible to use these frequencies to provide mobile satellite services to areas sufficiently separated from aeronautical telemetry receiving sites. It is believed that ITU-R Recommendation M.1459 provides enough guidance to extend these mobile-satellite service allocations to Regions 1 and 3. To afford protection to the aeronautical telemetry systems of administrations in Regions 1 and 3 footnote S5.348 could be modified to include a reference to S5.342 as well as S5.343. A global MSS allocation thus can be made while ensuring protection of aeronautical telemetry receivers worldwide.
1,2,3	FIXED S5.343 S5.344	Appendix S5 F.758-1 F.755-2 F.759 F.1094-1 F.1107 F.1108 F.699(Rev.5) F.1245 F.1246 M.1141 M.1142 M.1471 M.1143	Sharing between the MSS and the fixed service is feasible if the relevant ITU-R recommendations and coordination procedures are applied successfully. A regulatory provision enabling administrations to initiate coordination at other appropriate pfd levels in these bands should be developed through a resolution	Recommendation ITU-R M.1141-1 provides coordination thresholds for stations in the fixed service with respect to non-GSO MSS. Recommendation ITU-R M.1142-1 provides coordination thresholds for stations in the fixed service with respect to GSO MSS. Recommendation ITU-R F.755-2 details examples of technical characteristics for point-to-multipoint systems in the fixed service. Recommendation ITU-R F.758-1 considers the development of criteria for sharing between the fixed service and other services. Article S9 and Appendix S5 Coordination methodology for mobile satellite service (space-to-Earth) transmissions with terrestrial fixed services has existed for a long time in the Radio Regulations and several ITU-R Recommendations address this issue. This methodology is based on coordination thresholds derived to protect the fixed service systems. These thresholds have been incorporated in the Radio Regulations (Appendix S5). If the coordination threshold is exceeded, coordination is carried out as per relevant provisions of Article S9. However, a regulatory provision enabling administrations to initiate coordination at other appropriate pfd levels in these bands should be developed through a resolution.

Region	Services (footnotes)	Relevant Recommendations	Technical basis	Comments
1	MOBILE except aeronautical mobile S5.341	Appendix S5 M.1388 M.1141 M.1142	Sharing between the MSS and the mobile service is feasible if the relevant coordination procedures are applied successfully.	<p>ITU-R M.1388 specifies a coordination threshold for protection of mobile services in the band 1 452-1 492 MHz. The same level is incorporated in footnote S5.348A, which relates to the band 1 492-1 525 MHz for protection of the mobile service in Japan and is also referred to in Appendix S5. This coordination threshold, which is based on the sensitivity parameters of the mobile service system in Japan, would be as much applicable for a Region 1 and 3 MSS allocation as for the existing Region 2 mobile-satellite service allocation.</p> <p>With respect to terrestrial service interference into mobile earth station terminals, administrations could choose to limit the use of these mobile-satellite service allocations to land mobile-satellite service, in order to afford regulatory protection to the mobile-satellite service.</p>
2	MOBILE aeronautical S5.343	Appendix S5 M.1459	View No. 1 No. Further studies are required in relation to sharing between the MSS and these services.	View No. 1: Recommendation ITU-R M.1459 provides criteria that could be used as a technical basis as part of a coordination between an administration operating aeronautical mobile telemetry and another proposing to operate a GSO mobile-satellite system. During coordination, specific systems are studied and the involved administrations arrive at agreed parameters and protection for the respective systems. However, the satellite downlink proposed for 1 518-1 525 MHz can potentially impact more than one Region and many administrations simultaneously. It is firmly believed that general studies of the feasibility of sharing between aeronautical mobile telemetry (operated worldwide by a number of widespread countries) and the mobile-satellite service must be completed in ITU-R before a conclusion can be reached as to the technical basis for an allocation for such a downlink.
			View No. 2 Sharing between the MSS and the aeronautical mobile service is feasible if the relevant ITU-R recommendations and coordination procedures are applied successfully	View No. 2: ITU-R Recommendation M.1459 protection criteria leads to the conclusion that co-frequency, co-coverage operation of the mobile-satellite service (space-to-Earth) and aeronautical telemetry is not possible. However, the Recommendation also leads to the conclusion that co-frequency operation over sufficiently isolated areas would be possible with state-of-the-art mobile satellites, since the pfd over any given part of the Earth can be controlled as desired. The ability to allocate an identified sub-band to any spot beam of a satellite having a couple of hundred of such narrow beams already exists. Thus it is considered to be perfectly feasible to use these frequencies to provide mobile satellite services to areas sufficiently separated from aeronautical telemetry receiving sites. It is believed that ITU-R Recommendation M.1459 provides enough guidance to extend these mobile satellite service allocations to Region 1 and 3. To afford protection to the aeronautical telemetry systems of administrations in Regions 1 and 3 footnote S5.348 could be modified to include a reference to S5.342 as well as S5.343. A global MSS allocation thus can be made while ensuring protection of aeronautical telemetry receivers worldwide.

Region	Services (footnotes)	Relevant Recommendations	Technical basis	Comments
2,3	MOBILE S5.344 S5.348A	Appendix S5 M.1388	<p>Sharing between the MSS and the mobile service is feasible if the relevant coordination procedures are applied successfully.</p> <p>The pfd level specified in footnote S5.384A should be decreased by several dB provisionally. It is recognized that further studies are required.</p>	<p>ITU-R M.1388 specifies a coordination threshold for protection of mobile services in the band 1 452-1 492 MHz. The same level is incorporated in footnote S5.348A, which relates to the band 1 492-1 525 MHz for protection of the mobile service in Japan and is also referred to in Appendix S5. This value is calculated as a single entry pfd value from Region 2. This single entry coordination threshold, which is based on the sensitivity parameters of the mobile service system in Japan, would be as much applicable for a Region 1 and 3 MSS allocation as for the existing Region 2 mobile-satellite service allocation.</p> <p>With respect to terrestrial service interference into mobile earth station terminals, administrations could choose to limit the use of these mobile-satellite service allocations to land mobile-satellite service, in order to afford regulatory protection to the mobile-satellite service.</p>
2, JPN	MOBILE SATELLITE (s-E) S5.348 S5.348A	Appendix S5 M.1183 M.1086 M.1089 M.1091 M.1038 M.1186 M.1184		
1,2,3	EXTRA- TERRESTRIAL S5.341	Appendix S5		

Footnotes

S5.341 In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

S5.342 *Additional allocation:* in Belarus, Russian Federation and Ukraine, the band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452-1 492 MHz is subject to agreement between the administrations concerned.

S5.343 In Region 2, the use of the band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

S5.344 *Alternative allocation:* in the United States, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **S5.343**).

S5.348 The use of the band 1 492-1 525 MHz by the mobile-satellite service is subject to coordination under No. **S9.11A**. However, no coordination threshold in Article **S21** for space stations of the mobile-satellite service with respect to terrestrial services shall apply to the situation referred to in No. **S5.343**. With respect to the situation referred to in No. **S5.343**, the requirement for coordination in the band 1 492-1 525 MHz will be determined by band overlap.

S5.348A In the band 1 492-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **S9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be $-150 \text{ dB(W/m}^2\text{)}$ in any 4 kHz band for all angles of arrival, instead of those given in Table **S5-2** of Appendix **S5**. The above threshold level of the power flux-density shall apply until it is changed by a competent world radiocommunication conference.

INTERNATIONAL TELECOMMUNICATION UNION



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

SWG 1 of GT PLEN-1

FOOTNOTES OF ARTICLE S5

If the new concept of the List were to be adopted for Regions 1 and 3, footnotes S5.487 and S5.492 would need to be amended. Such amendments are proposed hereafter for examination by GT PLEN-1

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1

Proposals for modification of footnote S5.487

MOD

S5.487 In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to or claim protection from broadcasting-satellite stations ~~operating in accordance with the provisions using a frequency assignment which is included in the Regions 1 and 3 Plan of Appendix S30, with the exception of cases mentioned in paragraphs 5 and 7 under~~ section 11.2 of Article 11 of Appendix **S30**.

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or

MOD

S5.487 In the band 11.7-12.5 GHz in Regions 1 and 3, frequency assignments of the Plan of Appendix S30 shall have a status derived from the application of the procedures relating to the coordination or associated with that Plan, ~~the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of~~ Appendix **S30**.

or

SUP

S5.487

or

NOC

S5.487

Proposals for modification of footnote S5.492

MOD

S5.492 Assignments to stations of the broadcasting-satellite service in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix S30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with this Plan. ~~With respect to the space services, this band shall be used principally for the broadcasting-satellite service or the List, as appropriate.~~



**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

FOOTNOTES OF ARTICLE S5

If the new concept of the List were to be adopted for Regions 1 and 3, footnotes S5.487 and S5.492 would need to be amended. Such amendments are proposed hereafter for your consideration.

Jean CHARTIER
Chairperson, Sub-Working Group 1 of GT PLEN-1
Box 2688

S5.487 In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to or claim protection from broadcasting-satellite stations ~~operating in accordance with the provisions having a frequency assignment which is included in the Regions 1 and 3 Plan of Appendix S30.~~

Reasons: Assignments in the Regions 1 and 3 List will have the same co-primary status as those in the fixed, fixed-satellite, mobile and broadcasting services. It is understood that, under Article 11 of Appendix S30, assignments in the Regions 1 and 3 Plan shall protect those of administrations that will be listed in Table 2 of Article 11, and shall not claim protection from those of administrations that will be listed in Table 3 of that Article.

S5.492 Assignments to stations of the broadcasting-satellite service in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix S30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with this Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.



Chairperson, Sub-Working Group 4A-5
Simplification of coordination procedure

DRAFT RESOLUTION [COM4/4] (WRC-2000)

**Temporary procedures for improving the satellite network
coordination and notification procedures**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* Resolution **86** of the Plenipotentiary Conference (Minneapolis, 1998);
- b)* that there now exists a large backlog of satellite network coordination requests pending with the Radiocommunication Bureau such that elimination of this backlog at current processing rates and with no new filings could take the Bureau more than three years to accomplish;
- c)* that 95 per cent of this backlog consists of coordination requests for geostationary-satellite networks,

recognizing

- a)* in view of the processing delay, a satellite operator may have to wait three years for the Bureau to publish the coordination request and, because of the five-year limit to place a network into operation, be faced with a reduced time window in which to accomplish coordination;
- b)* extraordinary measures are needed to enable the Bureau to eliminate the backlog in processing satellite network coordination requests;
- c)* that the current breakdown of ITU's satellite coordination process seriously compromises the ability of such networks to provide such services and compromises the role of ITU in this process;
- d)* that this Conference needs to take extraordinary measures to ensure the continued viability and credibility of the ITU satellite coordination process,

resolves

1 that for those networks whose complete coordination information is received by the Bureau on or after 3 June 2000, the Bureau and administrations shall apply the following provisions, as revised by this Conference:

- a) Nos. **S9.36**, **S9.36.2**, **S9.41** and **S9.42**;
- b) Section D of Annex 2A of Appendix **S4**;
- c) No. **S9.7** (GSO/GSO) of Table **S5-1** of Appendix **S5**;

2 that as of 3 June 2000 for those networks whose complete coordination information has been received by the Bureau prior to 3 June 2000 but not yet published in a Special Section of the International Frequency Information Circular (IFIC), the Bureau and administrations shall apply the following provisions, as revised by this Conference:

- a) Nos. **S9.36**, **S9.36.2**, **S9.41** and **S9.42**;
- b) Section D of Annex 2A of Appendix **S4**;
- c) No. **S9.7** (GSO/GSO) of Table **S5-1** of Appendix **S5**;

3 that when the Bureau, under No. **S11.32**, conducts its examination of notifications of satellite networks it shall base its findings on the requirements of coordination established by No. **S9.7** (GSO/GSO) of Table **S5-1** of Appendix **S5**, as revised by this Conference, only for those networks published and coordinated pursuant to the provisions of this Resolution for compliance with the coordination procedure;

4 that an administration in need of assistance may inform the Bureau that it has previously filed systems which might be affected by the proposed satellite network, and may request the assistance of the Bureau in application of No. **S9.41** to determine the need for coordination by applying the provisions of No. **S9.7** (GSO/GSO) of Table **S5-1** of Appendix **S5** (items 1, 2 and 3 of the frequency band column), as revised by this Conference. This request shall be considered as a disagreement, pending the results of the analysis by the Bureau of the need for coordination;

5 that starting from 3 June 2000 all notice forms (**APS4/II** and **III**), Radio Astronomy notification (**APS4/IV**) and API (**APS4/V** and **VI**) and Due Diligence Information (Resolution **49 (WRC-97)**) for satellite networks and earth stations submitted to the Radiocommunication Bureau pursuant to Articles **S9** and **S11** shall be submitted in electronic format which is compatible with the BR electronic notice form capture software (SpaceCap):

- a) all notice forms submitted between 3 June and 3 September 2000 may initially be submitted in paper format if administrations deem it necessary;
- b) these forms must be resubmitted in electronic format not later than 3 October 2000 without modification of the paper filing, in order to retain the date of receipt of the original filing. The Bureau will not compare the paper and electronic filing. However both filings will be made available to administrations who may report inconsistencies to the Bureau, until 1 March 2001;
- c) if these notice forms are not resubmitted in electronic format by 3 October 2000, they shall be considered incomplete and returned to the administration;
- d) all notice forms initially submitted after 3 September 2000 shall be submitted in electronic format. If the data for these notice forms is not received in electronic format the notice forms shall be considered incomplete and returned to the administration;

6 that starting from 3 June 2000 all graphical data associated with the submissions addressed in *resolves* 5 should be submitted in the graphics data format which is compatible with the BR data capture software (GIMS). Submission of graphics in paper form will, however, continue to be accepted,

instructs the BR

1 to keep Members periodically informed of the results of these measures and report them to the next competent conference;

2 and administrations to monitor, in the interval until WRC-03, whether assistance to administrations in applying the provisions of this Resolution have been effective, or whether any further actions are necessary;

3 to make available coordination requests and notifications “as received” in its International Frequency Information Circular (IFIC) CD within 30 days of receipt, and also on its website;

4 to provide administrations with the latest versions of the capture and validation software and any necessary technical means, training and manuals, along with any assistance requested by administrations to enable them to comply with *resolves* 5 and 6 above;

5 to integrate the validation software with the capture software to the extent practicable,

urges administrations

1 to resubmit in electronic format notices previously submitted in paper format after consultation with the Bureau;

2 to, as soon as practicable, submit the graphical relating to their notices in a format compatible with the BR graphic data capture software.

DRAFT RESOLUTION [COM4/5] (WRC-2000)
**Modification to the procedures and requirements
for advance publication**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) Resolution **86** of the Plenipotentiary Conference (Minneapolis 1998);
- b) that there is concern among a number of administrations that some of the current procedures and requirements of advance publication may cause inequities in the satellite filing and coordination process,

resolves

1 that as of 3 June 2000, the Bureau and administrations shall apply the provisions of Nos. **S9.2** and **S9.5B**, as revised by this Conference;

2 that any request for coordination or modifications to a previously submitted API received by the Bureau after 3 June 2000 shall be examined in accordance with the provisions of No. **S9.2** as revised by this Conference.

MOD

S9.2 Amendments to the information sent in accordance with the provisions of No. **S9.1** shall also be sent to the Bureau as soon as they become available. The use of an additional frequency band or modification of the orbital location by more than $\pm 12^\circ$ for a space station using the geostationary satellite orbit will require the application of the advance publication procedure for this band.

MOD

S9.5B If, upon receipt of the ~~Weekly Circular~~ International Frequency Information Circular (IFIC) containing information published under No. **S9.2B**, any administration considers its existing or planned satellite systems or networks or terrestrial stations⁷ to be affected, it may send its comments to the publishing administration, so that the latter may take those comments into consideration when initiating the coordination procedure. A copy of these comments ~~shall~~ may also be sent to the Bureau. Thereafter, both administrations shall endeavour to cooperate in joint efforts to resolve any difficulties, with the assistance of the Bureau, if so requested by either of the parties, and shall exchange any additional relevant information that may be available.

MOD

S9.36 b) identify in accordance with No. **S9.27** any administration with which coordination may need to be effected^{14, 14bis};

ADD

^{14bis} **S9.36.2** In the case of coordination under Nos. **S9.7**, [**S9.8** and **S9.9**], the Bureau shall also identify the specific satellite networks with which coordination may need to be effected. The list of the networks identified by the Bureau under No. **S9.27** is only for information purposes, to help administrations comply with this procedure.

MOD

S9.41 Following receipt of the ~~Weekly Circular~~International Frequency Information Circular (IFIC) referring to requests for coordination under Nos. **S9.7** to **S9.9**, an administration believing that it should have been included in the request or that an administration identified under **S9.36** should not have been included in the request, shall, within four months of the date of publication of the relevant ~~Weekly Circular~~International Frequency Information Circular (IFIC), inform the initiating administration or the identified administration, as appropriate, and the Bureau, giving its technical reasons for doing so, and shall request that its name be included or that the name of the identified administration be excluded, as appropriate.

MOD

S9.42 The Bureau shall study this information on the basis of Appendix **S5** and shall inform both administrations of its conclusions. Should the Bureau agree to include or exclude, as appropriate, the administration in the request, it shall publish an addendum to the publication under No. **S9.38**.

MOD

APPENDIX S5

TABLE S5-1

Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.7 GSO/GSO	A station in a satellite network using the geostationary-satellite orbit (GSO), in any space radiocommunication service, in a frequency band and in a Region where this service is not subject to a Plan, in respect of any other satellite network using that orbit, in any space radiocommunication service in a frequency band and in a Region where this service is not subject to a Plan, with the exception of the coordination between earth stations operating in the opposite direction of transmission	1) <u>3 400-4 200 MHz and 5 850-6 725 MHz</u>	i) <u>Bandwidth overlap; and</u> ii) <u>Any network in the fixed-satellite service with a space station within an orbital arc of ± 10 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		<u>With respect to FSS in the bands in (1), (2) and (3) an administration may request, pursuant to S9.41, to be included in requests for coordination, indicating the networks for which the value of $\Delta T/T$ calculated by the method in sections 2.2.1.2 and 3.2 of Appendix S8 exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to S9.42, the calculation method given in sections 2.2.1.2 and 3.2 of Appendix S8 shall be used.</u> <u>With respect to FSS in the bands in (1), (2) and (3) an administration may request, pursuant to S9.41, that an administration be excluded in requests for coordination.</u>
		2) <u>10.95-11.2, 11.45-11.7, 11.7-12.2 (Region 2) 12.5-12.75 (Regions 1 and 3) 12.7-12.75 (Region 2) and 13.75-14.5 GHz</u>	i) <u>Bandwidth overlap; and</u> ii) <u>Any network in the fixed-satellite service with a space station within an orbital arc of ± 9 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		

		3) <u>17.7-20.2 GHz and 27.5-30 GHz</u>	i) <u>Bandwidth overlap; and</u> ii) <u>Any network in the fixed-satellite service with a space station within an orbital arc of ± 8 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		<u>giving the reason that the network of this administration will not be affected because value of $\Delta T/T$ calculated by the method in sections 2.2.1.2 and 3.2 of Appendix S8 do not exceed 6%. When the Bureau, on request by an administration, studies this information pursuant to S9.42, the calculation method given in sections 2.2.1.2 and 3.2 of Appendix S8 shall be used.</u>
		4) <u>All Any frequency bands, other than those in items 1, 2 and 3, allocated to a space service, where this service is not subject to a Plan and the bands in items 1), 2) and 3) where the radio service of the proposed network or affected networks is other than the fixed-satellite service or in the case of coordination of space stations operating in the opposite direction of transmission.</u>	<u>Value of $\Delta T/T$ exceeds 6%</u>	4) <u>Appendix S8</u>	

MOD Appendix S4 Annex 2A, item A.2 a)

- a) The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation¹ to provide the published Radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau. Whenever the assignment is changed in any of its basic characteristics (except in the case of a change in § A.1 a), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

MOD Appendix S30B, Annex 2, item 1.4

- 1.4 *Dates* proposed for bringing into use. The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation to provide the published Radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau.

MOD Appendix S4, Annex 2A, Section D

To be provided only when simple frequency-changing transponders are used on the space station onboard a geostationary satellite.

In the case of FSS networks using the frequency bands specified in No. S9.7 (GSO/GSO) of Appendix S5, Table S5-1 (items 1, 2 and 3 of the frequency band column), the data specified in this section of the Appendix is not mandatory and should not be submitted to the Bureau.

The following proposed modifications should be forwarded to GT PLEN-1 for its consideration:

[MOD Appendix S30, Annex 2, item 5

- 5 Date of bringing into use. The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation to provide the published Radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau.

MOD Appendix S30A, Annex 2, item 1.4

- 1.4 Date of bringing into use. The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation to provide the published Radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau.]

¹ Pending further studies by ITU-R on the applicability of the term “regular operation” to non-GSO networks, the condition of regular operation shall be limited to GSO networks.



**SUB-WORKING GROUP 1 OF
WORKING GROUP 1 OF THE
PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

ARTICLES 1, 2, 3 AND 4 OF APPENDIX S30A

Following the adoption by SWG 1 of new provisions applicable to Regions 1 and 3 under Article 4 of Appendix S30, consequential changes in Article 4 of Appendix S30A are presented hereafter.

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Box 2688

APPENDIX S30A

ARTICLE 4

MOD

Procedure for modifications to the Region 2 Plans or for additional uses in Regions 1 and 3

ADD

4.1 Provisions applicable to Regions 1 and 3

4.1.1 An administration proposing to include a new or modified assignment in the List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations¹ ²:

- a) of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service, any portion of which falls within the necessary bandwidth of the proposed assignment, which is included in the Regions 1 and 3 Plan; *or*
- b) of Regions 1 and 3 having a feeder-link frequency assignment included in the List or for which complete [Annex 2] [Appendix **S4**] information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*
- c) of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 feeder-link Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § [4.2.6.1 or 4.2.7] of this Article.

EDITORIAL NOTE - From this paragraph, new paragraphs 4.1.2 to 4.1.28 proposed under the new § 4.1 of Article 4 of Appendix S30 (see Document DT/84) will also apply to the new § 4.1 of Article 4 of Appendix S30A.

¹ See Resolution MD1.

² Agreement with administrations having a frequency assignment in the bands 14.5-14.8 GHz or 17.7-18.1 GHz to a terrestrial station or having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth) shall be sought respectively under No. **S9.17** or No. **S9.17A**.

ADD

4.2 Provisions applicable to Region 2

MOD

4.14.2.1 When an administration intends to make a modification to ~~one of the Regional~~the Region 2 Plans, i.e. either:

- a) to modify the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the ~~appropriate Regional~~Region 2 Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; *or*
- b) to include in the Region 2 Plan a new frequency assignment in the fixed-satellite service; *or*
- c) to cancel a frequency assignment in the fixed-satellite service,

the following procedure shall be applied before any notification of the frequency assignment is made to the Radiocommunication Bureau (see Article 5 and Resolution **42 (Rev.Orb-88)**).

~~4.1.1 Before an administration proposes to include in the Plan, under the provisions of § 4.1 b), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should have been Brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan.~~

~~4.2 Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or proposed inclusion in that Plan of a new frequency assignment~~

~~For Regions 1 and 3~~

~~4.2.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations:~~

~~4.2.1.1 of Regions 1 and 3 having a feeder link frequency assignment in the fixed satellite service (Earth to space) in the same channel or an adjacent channel, in the same orbital position or an adjacent orbital position in the range $\pm 12.5^\circ$, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; *or*~~

~~4.2.1.2 having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed satellite service (space to Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. **S9.7** and which is located within the coordination area of the feeder link fixed satellite earth station; *or*~~

~~4.2.1.3 having a frequency assignment in the bands 14.5-14.8 GHz or 17.7-18.1 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder link modification into use, and which is located within the coordination area of the feeder link fixed satellite earth station; *or*~~

~~4.2.1.4 — having an assignment for feeder links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 feeder link Plan, or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article;~~

~~4.2.1.5 — which are considered affected.~~

~~4.2.1.6 — The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.~~

~~4.2.2 — The agreement referred to in § 4.2.1 is not required when an administration proposes to bring into use, with characteristics³ appearing in the Plan, a fixed feeder link earth station or a transportable feeder link earth station in the bands 14.5–14.8 GHz or 17.3–18.1 GHz.~~

For Region 2

4.2.32 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations³:

~~4.2.3.1 — of Region 2 having a feeder link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; or~~

~~4.2.3.2 — having a frequency assignment in the band 17.7–17.8 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. S9.7 and which is located within the coordination area of the feeder link fixed-satellite earth station; or~~

~~4.2.3.3 — having a frequency assignment in the band 17.7–17.8 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder link modification into use, and which is located within the coordination area of the feeder link fixed-satellite earth station; or~~

~~4.2.3.4a) having an assignment for feeder-links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 feeder-link Plan, or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; or~~

~~b) of Regions 1 and 3 having a feeder-link frequency assignment included in the List or for which complete [Annex 2][Appendix S4] information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; or~~

³ ~~The power to be taken into account is obtained by adding the values specified in columns 13 and 14 of the Plan.~~

³ Agreement with administrations having a frequency assignment in the bands 17.7–17.8 GHz to a terrestrial station or to an earth station in the fixed-satellite service (space-to-Earth) shall be sought respectively under No. S9.17 or No. S9.17A.

c) of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of §§ 4.2.6.1 and 4.2.7 of this Article;
or

4.2.3.5 which are considered affected.

4.2.3.64 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

4.2.45 The agreement referred to in § 4.2.32 is not required when an administration proposes to bring into use, with characteristics appearing in the Plan, a fixed feeder-link earth station in the band 17.3-17.8 GHz or a transportable feeder-link earth station in the band 17.3-17.7 GHz. Administrations may communicate to the Bureau the characteristics of such earth stations for inclusion in the Plan.

For all Regions

4.2.56 An administration intending to modify characteristics in ~~one of the Regional~~the Region 2 Plans shall send to the Bureau, not earlier than eight years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in [Annex 2]~~[Appendix S4] to this Appendix.~~

4.2.7 If the information received by the Bureau under paragraph 4.2.6 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

4.2.6 ~~If an administration wishes to modify its assignments in the Plans contained in Appendices S30 and S30A, the eight-year period of § 4.2.5 will be applicable in lieu of the five-year period specified in § 4.3.5 of Appendix S30.~~

4.2.6.1 ~~Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Bureau the information required by § 4.2.5. The Bureau shall then publish this information in a special section of its Weekly Circular.~~

4.2.6.2 ~~In all other cases the administration shall notify the Bureau of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in § 4.2.1 and 4.2.3 as well as of those with which agreement has already been reached.~~

4.2.78 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.2.1 ~~and 4.2.34.2.2.~~ The Bureau ~~shall include the names of those administrations with the information received under § 4.2.6.2 and shall publish, in a special section of its IFIC, the complete information in a special section of its Weekly Circular~~received under § 4.2.6, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the Region 2 Plan.

4.2.89 The Bureau shall send a telegram/fax to the administrations listed in the special section of the ~~weekly circular~~IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

4.2.910 An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Bureau to include its name. The Bureau shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Region 2 Plan.

4.2.101 Any modification to a frequency assignment which is in conformity with the Region 2 Plan or any inclusion in ~~the~~that Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all affected administrations.

4.2.142 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

4.2.123 Comments from administrations on the information published pursuant to § 4.2.76 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

4.2.134 An administration which has not notified its comments either to the administration seeking agreement or to the Bureau, within a period of four months following the date of the ~~Weekly Circular~~IFIC referred to in § 4.2.6.1 or § 4.2.74.2.8 shall be understood to have agreed to the proposed modification. This time-limit may be extended by up to three months for an administration which has requested additional information under § 4.2.142 or for an administration which has requested the assistance of the Bureau under § 4.2.242. In the latter case the Bureau shall inform the administrations concerned of this request.

4.2.145 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.2.5 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.2.156 If no comments have been received on the expiry of the periods specified in § 4.2.134, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.2.167 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.2.178 When the proposed modification to the Region 2 Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

4.2.189 The Bureau shall publish in a special section of its ~~Weekly Circular~~IFIC the information received under § 4.2.156 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the Region 2 Plan and will be considered as a frequency assignment in conformity with the Plan.

4.2.1920 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by

such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.2.20~~1~~ If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.2.21~~2~~ An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau, ~~particularly in seeking the agreement of another administration.~~

4.2.22 The relevant provisions of Article 5 shall be applied when frequency assignments are notified to the Bureau.

4.34.2.23 Cancellation of frequency assignments

When a frequency assignment in conformity with ~~one of the Regional~~ the Region 2 Plans is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a special section of its ~~weekly circular~~ IFIC and delete the assignment from the Region 2 Plan.

4.44.2.24 Master copies of the Plans

4.4.1~~1~~ ~~The Bureau shall maintain up-to-date master copies of the Plans as well as master copies of the margin reports, including for each assignment the overall equivalent protection margins in respect of Region 2 and the feeder link equivalent protection margins and the overall equivalent protection margins in respect of Regions 1 and 3, taking account of the application of the procedure specified in this Article. Each master copy of the margin reports shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference in the case of Region 2 and the feeder link equivalent protection margins and the overall equivalent protection margins for the 1988 Conference in the case of Regions 1 and 3 and those derived from all modifications to the Plans as a result of the successful completion of the modification procedure of this Article.~~

4.2.24.1 The Bureau shall maintain an up-to-date master copy of the Region 2 Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure described in this Article. The Bureau shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure described in this Article.

4.4.22.24.2 The Secretary-General shall be informed by the Bureau of any modifications made to the ~~Regional~~ Region 2 Plans and shall publish up-to-date versions of the Plans in an appropriate form when justified by the circumstances.



WORKING GROUP 4B

Chairperson, Working Group 4B

NOTE OF THE CHAIRPERSON OF WORKING GROUP 4B

(AGENDA ITEM 4)

According to its terms of reference Working Group 4B has reviewed a number of resolutions and recommendations of previous conferences. Following this revision, those provisions of the Radio Regulations that have references to the modified resolutions/recommendations should be amended consequentially, pursuant to agenda item 3 of the Conference.

It is proposed that the updates of the references to the revised resolutions/recommendations in the relevant provisions be done by the Secretariat, after the Conference, in accordance with the example given below.

Other consequential changes, which introduce substantial modifications in the relevant provisions, will be presented to the Conference separately.

Example:

MOD

S52.106 2) When assigning pairs of frequencies listed in Appendix **S17** for narrow-band direct-printing telegraphy, administrations shall apply the procedure described in Resolution **300 (Rev. ~~Mob-87~~ WRC-2000)**.

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INTERNATIONAL TELECOMMUNICATION UNION



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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**WORKING GROUP 1
OF THE PLENARY**

SWG 1 of GT PLEN-1

ARTICLE 5 OF APPENDICES S30 AND S30A

If the new concept of the List were to be adopted for Regions 1 and 3, Article 5 of Appendices S30 and S30A would need to be amended. Such amendments are proposed hereafter.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1

APPENDIX S30

MOD

ARTICLE 5

Notification, examination and recording in the Master International Frequency Register of frequency assignments to space stations in the broadcasting-satellite service

5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a space station in the broadcasting-satellite service, it shall notify this frequency assignment to the Bureau. For this purpose, the notifying administration shall apply the following provisions.

5.1.2 For any notification under § 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in ~~Annex 2~~ **Appendix S4**, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.

5.1.3 Each notice must reach the Bureau not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Bureau not later than three months before that date⁴.

5.1.4 Any frequency assignment the notice of which reaches the Bureau after the applicable period specified in § 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with § 5.1.3.

5.1.5 Any notice made under § 5.1.1 which does not contain the characteristics specified in ~~Annex 2~~ **Appendix S4** shall be returned by the Bureau immediately by airmail to the notifying administration with the relevant reasons.

5.1.6 Upon receipt of a complete notice, the Bureau shall include its particulars, with the date of receipt, in its International Frequency Information Circular (IFIC) ~~Weekly Circular~~, which shall contain the particulars of all such notices received since the publication of the previous Circular.

5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

5.1.8 Complete notices shall be considered by the Bureau in order of receipt. The Bureau shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Bureau shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Bureau until it has reached a finding with respect to such earlier notice.

⁴ Where appropriate, the notifying administration shall initiate the procedure for modifying the Plan concerned or to include the assignments in the Regions 1 and 3 List in sufficient time to ensure that this limit is observed. For Region 2, see also Resolution **42 (Rev.Orb-88)** and paragraph B of Annex 7.

5.2 Examination and recording

5.2.1 The Bureau shall examine each notice:

- a) with respect to its conformity with the Constitution, the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to § b), c), d) and ~~d~~ e) below);
- b) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, as appropriate; or
- c) with respect to the coordination requirements specified in the remarks column of Article 10 or Article 11 of this Appendix; or
- d) ~~e~~) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, however, having characteristics differing from those in the appropriate Regional Plan or in the Regions 1 and 3 List, in one or more of the following aspects:
 - use of a reduced e.i.r.p.,
 - use of a reduced coverage area entirely situated within the coverage area appearing in the appropriate Regional Plan or in the Regions 1 and 3 List,
 - use of other modulating signals in accordance with the provisions of § 3.1.3 of Annex 5,
 - in the case of Region 2, use of the assignment for transmission in the fixed-satellite service in accordance with No. **S5.492**,
 - use of an orbital position under the conditions specified in paragraph B of Annex 7; *or*

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d) ~~e~~) with respect to its conformity with the provisions of Resolution **42 (Rev.Orb-88)**.

5.2.2 Where the Bureau reaches a favourable finding with respect to § 5.2.1 a), ~~and 5.2.1 b) and 5.2.1 c)~~, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.2.1 Where the Bureau reaches a favourable finding with respect to § 5.2.1 a), ~~and 5.2.1 c) and 5.2.1 d)~~, the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Bureau shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the appropriate Regional Plan.

5.2.2.2 Where the Bureau reaches a favourable finding with respect to § 5.2.1 a) and 5.2.1 c), but an unfavourable finding with respect to § 5.2.1 b) and 5.2.1 d), it shall examine the notice with respect to the successful application of the provisions of Resolution **42 (Rev.Orb-88)**. A frequency assignment for which the provisions of Resolution **42 (Rev.Orb-88)** have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of

the provisions of Resolution **42 (Rev.Orb-88)** and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Bureau shall be indicated by a symbol in Column 13a.

5.2.4 Where the Bureau reaches an unfavourable finding with respect to ~~§ 5.2.1 a), 5.2.1 b) and 5.2.1 e);~~

~~– § 5.2.1 a), or~~

~~– § 5.2.1 c), or~~

~~– §§ 5.2.1 b) and 5.2.1 d) and 5.2.1 e) where applicable.~~

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the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Bureau for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 Where the notifying administration resubmits the notice and the finding of the Bureau becomes favourable with respect to the appropriate parts of § 5.2.1, the notice shall be treated as in § 5.2.2, 5.2.2.1 or 5.2.2.2, as appropriate.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Bureau's finding with respect to § 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with § 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in § 5.2.5 is fulfilled. For Regions 1, 2 and 3, in the event that the Bureau has been informed of agreement to modification of the Plan for a specified period of time in accordance with Article 4, the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently invoke this fact to justify the continued use of the frequency beyond the period specified unless it obtains the agreement of the administration(s) concerned.

5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with § 5.1.3 has received a favourable finding by the Bureau with respect to the provisions of § 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Bureau has received confirmation that the frequency assignment has been brought into use, the Bureau shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. ~~It is given for information only.~~

5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under § 5.2.8, the Bureau will make inquiries of the administration not earlier than six months after the expiry of the period specified in § 5.1.3. On receipt of the relevant information, the Bureau will either modify the date of coming into use or cancel the entry.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Bureau within three months, whereupon the entry shall be removed from the Master Register.

APPENDIX S30A

MOD

ARTICLE 5

Coordination, notification, examination and recording in the Master International Frequency Register of frequency assignments to feeder-link transmitting earth stations and receiving space stations in the fixed-satellite service^{3A}

5.1 Coordination and notification

5.1.1 When an administration wishes to determine whether it is possible to use, at a given location, an amount of power control which is in excess of that contained in column 14 of the Regions 1 and 3 feeder-link Plan, it shall request the Bureau to determine the amount of permissible power control (not to exceed 10 dB) from that given location using the procedure contained in § 3.11 of Annex 3 to this Appendix.

5.1.2 Whenever an administration intends to bring into use a frequency assignment to a transmitting earth station or receiving space station in the fixed-satellite service in the bands between 14.5 GHz and 14.8 GHz and between 17.3 GHz and 18.1 GHz in Regions 1 and 3, and between 17.3 GHz and 17.8 GHz in Region 2, it shall notify this frequency assignment to the Bureau. For this purpose, the notifying administration shall apply the following provisions.

5.1.3 Before an administration in Region 1 or 3 notifies to the Bureau or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz with an e.i.r.p. greater than the sum of the values specified in columns 13 and 14 of the Plan, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station using the method detailed in Appendix S7.

5.1.4 Before an administration in Region 1 or 3 notifies to the Bureau or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station, using the method detailed in Appendix S7, in respect of notices concerning stations of the mobile and fixed services in the bands 14.5-14.8 GHz and 17.7-18.1 GHz and of the fixed-satellite service (space-to-Earth) in the band 17.7-18.1 GHz received by the Bureau prior to 29 August 1988 for recording in the International Master Frequency Register (Master Register).

5.1.5 If an administration with which coordination is sought under § 5.1.4 does not respond within three months, the administration intending to bring into use a frequency assignment to a feeder-link earth station shall notify this frequency assignment in accordance with § 5.1.2 above.

^{3A} Notification of assignments to transmit feeder-link earth stations included in the Region 2 Plan, or included in the List, following successful application of Article 4 of this Appendix, shall be effected applying the provisions of Article S11.

5.1.6 For any notification under § 5.1.2, an individual notice for each frequency assignment shall be drawn up as prescribed in ~~Annex 2~~**Appendix S4**, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.

5.1.7 Each notice must reach the Bureau not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Bureau not later than three months before that date.

5.1.8 Any frequency assignment the notice of which reaches the Bureau after the applicable period specified in § 5.1.7 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with § 5.1.7.

5.1.9 Any notice made under § 5.1.2 which does not contain the characteristics specified in ~~Annex 2~~**Appendix S4** shall be returned by the Bureau immediately by airmail to the notifying administration with the relevant reasons.

5.1.10 Upon receipt of a complete notice, the Bureau shall include its particulars, with the date of receipt, in its ~~weekly circular~~ International Frequency Information Circular (IFIC) which shall contain the particulars of all such notices received since the publication of the previous circular.

5.1.11 The circular shall constitute the acknowledgements to the notifying administration of the receipt of a complete notice.

5.1.12 Complete notices shall be considered by the Bureau in order of receipt. The Bureau shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Bureau shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Bureau until it has reached a finding with respect to such earlier notice.

5.2 Examination and recording

5.2.1 The Bureau shall examine each notice:

- a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to § *b*), *c*), *d*), *e*) and ~~*f*~~) below); *and*
- b) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, as appropriate; or
- c) with respect to the coordination requirements specified in the remarks column of Article 9 or Article 9A of the Appendix; or
- ~~*e*~~/*d*) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, however, having characteristics differing from those in the Plan or in the Regions 1 and 3 List in one or more of the following aspects:
 - use of a reduced e.i.r.p.,
 - use of a reduced coverage area entirely situated within the coverage area appearing in the Plan or in the Regions 1 and 3 List,
 - use of other modulating signals in accordance with the provisions of § 3.1.3 to Annex 5 of Appendix **S30**,
 - in the case of Region 2, use of an orbital position under the conditions specified in paragraph B of Annex 7 to Appendix **S30**,

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- in the case of Regions 1 and 3, use of an orbital position under the conditions specified in § 3.15 of Annex 3⁴,

~~e)~~ for Region 2, with respect to its conformity with the provisions of Resolution **42 (Rev.Orb-88)**;

~~f)~~ for Regions 1 and 3, with respect to its conformity with the provisions of § 5.1.3 and also its conformity with § 5.1.4 or 5.1.5 relating to coordination.

5.2.2 When the Bureau reaches a favourable finding with respect to § 5.2.1 a), 5.2.1 b), 5.2.1 c) and 5.2.1 ~~e)~~, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

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5.2.2.1 When the Bureau reaches a favourable finding with respect to § 5.2.1 a), 5.2.1 c), 5.2.1 d) and 5.2.1 ~~e)~~, the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Bureau shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the Plan.

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5.2.2.2 In the case of Region 2, when the Bureau reaches a favourable finding with respect to § 5.2.1 a) and 5.2.1 c) but an unfavourable finding with respect to § 5.2.1 b) and 5.2.1 ~~e)~~, it shall examine the notice with respect to the successful application of the provisions of Resolution **42 (Rev.Orb-88)**. A frequency assignment for which the provisions of Resolution **42 (Rev.Orb-88)** have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of the provisions of Resolution **42 (Rev.Orb-88)** and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. If the finding with respect to § 5.2.1 ~~e)~~ where applicable is unfavourable, the notice shall be returned immediately by airmail to the notifying administration.

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5.2.2.3 In the case of Regions 1 and 3, when the Bureau reaches a favourable finding with respect to § 5.2.1 a) and 5.2.1 c) but an unfavourable finding with respect to § 5.2.1 b) and 5.2.1 ~~e)~~, the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.2.4 In the case of Regions 1 and 3, when the Bureau reaches a favourable finding with respect to § 5.2.1 a), 5.2.1 b), 5.2.1 c) and 5.2.1 ~~e)~~ but an unfavourable finding with respect to § 5.2.1 ~~e)~~, the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem. If the unfavourable finding under § 5.2.1 ~~e)~~

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⁴ The Bureau shall also apply this provision to paragraph 5.2.1 ~~e)~~ of Appendix **S30** for Regions 1 and 3.

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is due to the coordination under § 5.1.3 only not being effected, the administration shall undertake only to bring this assignment into use with an e.i.r.p. level not greater than the sum of the values specified in columns 13 and 14 of the Regions 1 and 3 Plan.

5.2.2.5 When an assignment is recorded as a result of a favourable finding with respect to § 5.2.1 ~~e/f~~, a remark shall be included indicating that coordination has been effected.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Bureau shall be indicated by a symbol in Column 13a.

5.2.4 When the Bureau reaches an unfavourable finding with respect to ~~§ 5.2.1 a), 5.2.1 b) and 5.2.1 e)~~;

– ~~§ 5.2.1 a), or~~

– ~~§ 5.2.1 c), or~~

– ~~§§ 5.2.1 b) and 5.2.1 d) and 5.2.1 e) where appropriate.~~

the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 When the notifying administration resubmits the notice and the finding of the Bureau becomes favourable with respect to the appropriate parts of § 5.2.1, the notice shall be treated as in § 5.2.2, 5.2.2.1 or 5.2.2.2 as appropriate.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Bureau's finding with respect to § 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with § 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in § 5.2.5 is fulfilled.

5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with § 5.1.3 has received a favourable finding by the Bureau with respect to the provisions of § 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Bureau has received confirmation that the frequency assignment has been brought into use, the Bureau shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. ~~It is given for information only.~~

5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under § 5.2.8, the Bureau will make inquiries of the administration not earlier than six months after the expiry of the period specified in § 5.1.3. On receipt of the relevant information, the Bureau will either modify the date of coming into use or cancel the entry.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Bureau within three months, whereupon the entry shall be removed from the Master Register.

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**SUB-WORKING GROUP 1
OF WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, SWG 1 of GT PLEN-1

ARTICLE 5 OF APPENDICES S30 AND S30A

If the new concept of the List were to be adopted for Regions 1 and 3, Article 5 of Appendices S30 and S30A would need to be amended. Such amendments are proposed hereafter.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1
Box 2688

APPENDIX S30

MOD

ARTICLE 5

Notification, examination and recording in the Master International Frequency Register of frequency assignments to space stations in the broadcasting-satellite service

5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a space station in the broadcasting-satellite service, it shall notify this frequency assignment to the Bureau. For this purpose, the notifying administration shall apply the following provisions.

5.1.2 For any notification under § 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in [Annex 2][Appendix S4], the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.

5.1.3 Each notice must reach the Bureau not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Bureau not later than three months before that date⁴.

5.1.4 Any frequency assignment the notice of which reaches the Bureau after the applicable period specified in § 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with § 5.1.3.

5.1.5 Any notice made under § 5.1.1 which does not contain the characteristics specified in [Annex 2][Appendix S4] shall be returned by the Bureau immediately by airmail to the notifying administration with the relevant reasons.

5.1.6 Upon receipt of a complete notice, the Bureau shall include its particulars, with the date of receipt, in its International Frequency Information Circular (IFIC) ~~Weekly Circular~~, which shall contain the particulars of all such notices received since the publication of the previous Circular.

5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

5.1.8 Complete notices shall be considered by the Bureau in order of receipt. The Bureau shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Bureau shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Bureau until it has reached a finding with respect to such earlier notice.

⁴ Where appropriate, the notifying administration shall initiate the procedure for modifying the Plan concerned or to include the assignments in the Regions 1 and 3 List in sufficient time to ensure that this limit is observed. For Region 2, see also Resolution **42 (Rev.Orb-88)** and paragraph B of Annex 7.

5.2 Examination and recording

5.2.1 The Bureau shall examine each notice:

- a) with respect to its conformity with the Constitution, the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to § *b*), *c*), *d*) and ~~*e*~~) below);
- b) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List; *or*
- c) with respect to the coordination requirements specified in the remarks column of Article 10 or Article 11 of this Appendix; *or*
- ~~*d*~~) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, however, having characteristics differing from those in the appropriate Regional Plan or in the Regions 1 and 3 List, in one or more of the following aspects:
 - use of a reduced e.i.r.p.,
 - use of a reduced coverage area entirely situated within the coverage area appearing in the appropriate Regional Plan or in the Regions 1 and 3 List,
 - use of other modulating signals in accordance with the provisions of § 3.1.3 of Annex 5,
 - use of the assignment for transmission in the fixed-satellite service in accordance with No. **S5.492**,
 - use of an orbital position under the conditions specified in paragraph B of Annex 7; *or*
- ~~*e*~~) with respect to its conformity with the provisions of Resolution **42 (Rev.Orb-88)**.

5.2.2 Where the Bureau reaches a favourable finding with respect to § 5.2.1 *a*), ~~and 5.2.1 *b*) and 5.2.1 *c*)~~, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.2.1 Where the Bureau reaches a favourable finding with respect to § 5.2.1 *a*), ~~and 5.2.1 *c*) and 5.2.1 *d*)~~, the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Bureau shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the appropriate Regional Plan.

5.2.2.2 Where the Bureau reaches a favourable finding with respect to § 5.2.1 *a*) and 5.2.1 *c*), but an unfavourable finding with respect to § 5.2.1 *b*) and 5.2.1 ~~*e*~~), it shall examine the notice with respect to the successful application of the provisions of Resolution **42 (Rev.Orb-88)**. A frequency assignment for which the provisions of Resolution **42 (Rev.Orb-88)** have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of the provisions of Resolution **42 (Rev.Orb-88)** and recorded in the Master Register shall be

considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Bureau shall be indicated by a symbol in Column 13a.

5.2.4 Where the Bureau reaches an unfavourable finding with respect to § 5.2.1 *a)*, or with respect to 5.2.1 *c)*, or with respect to 5.2.1 *b)* and 5.2.1 *ed)* and 5.2.1 *e)*, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Bureau for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 Where the notifying administration resubmits the notice and the finding of the Bureau becomes favourable with respect to the appropriate parts of § 5.2.1, the notice shall be treated as in § 5.2.2, 5.2.2.1 or 5.2.2.2, as appropriate.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Bureau's finding with respect to § 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with § 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in § 5.2.5 is fulfilled. For Regions 1, 2 and 3, in the event that the Bureau has been informed of agreement to modification of the Plan for a specified period of time in accordance with Article 4, the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently invoke this fact to justify the continued use of the frequency beyond the period specified unless it obtains the agreement of the administration(s) concerned.

5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with § 5.1.3 has received a favourable finding by the Bureau with respect to the provisions of § 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Bureau has received confirmation that the frequency assignment has been brought into use, the Bureau shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. ~~It is given for information only.~~

5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under § 5.2.8, the Bureau will make inquiries of the administration not earlier than six months after the expiry of the period specified in § 5.1.3. On receipt of the relevant information, the Bureau will either modify the date of coming into use or cancel the entry.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Bureau within three months, whereupon the entry shall be removed from the Master Register.

APPENDIX S30A

MOD

ARTICLE 5

Coordination, notification, examination and recording in the Master International Frequency Register of frequency assignments to feeder-link transmitting earth stations and receiving space stations in the fixed-satellite service

5.1 Coordination and notification

5.1.1 When an administration wishes to determine whether it is possible to use, at a given location, an amount of power control which is in excess of that contained in column 14 of the Regions 1 and 3 feeder-link Plan, it shall request the Bureau to determine the amount of permissible power control (not to exceed 10 dB) from that given location using the procedure contained in § 3.11 of Annex 3 to this Appendix.

5.1.2 Whenever an administration intends to bring into use a frequency assignment to a transmitting earth station or receiving space station in the fixed-satellite service in the bands between 14.5 GHz and 14.8 GHz and between 17.3 GHz and 18.1 GHz in Regions 1 and 3, and between 17.3 GHz and 17.8 GHz in Region 2, it shall notify this frequency assignment to the Bureau. For this purpose, the notifying administration shall apply the following provisions.

5.1.3 Before an administration in Region 1 or 3 notifies to the Bureau or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz with an e.i.r.p. greater than the sum of the values specified in columns 13 and 14 of the Plan, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station using the method detailed in Appendix S7.

5.1.4 Before an administration in Region 1 or 3 notifies to the Bureau or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station, using the method detailed in Appendix S7, in respect of notices concerning stations of the mobile and fixed services in the bands 14.5-14.8 GHz and 17.7-18.1 GHz and of the fixed-satellite service (space-to-Earth) in the band 17.7-18.1 GHz received by the Bureau prior to 29 August 1988 for recording in the International Master Frequency Register (Master Register).

5.1.5 If an administration with which coordination is sought under § 5.1.4 does not respond within three months, the administration intending to bring into use a frequency assignment to a feeder-link earth station shall notify this frequency assignment in accordance with § 5.1.2 above.

5.1.6 For any notification under § 5.1.2, an individual notice for each frequency assignment shall be drawn up as prescribed in [Annex 2][Appendix S4], the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.

5.1.7 Each notice must reach the Bureau not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Bureau not later than three months before that date.

5.1.8 Any frequency assignment the notice of which reaches the Bureau after the applicable period specified in § 5.1.7 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with § 5.1.7.

5.1.9 Any notice made under § 5.1.2 which does not contain the characteristics specified in [Annex 2][~~Appendix S4~~] shall be returned by the Bureau immediately by airmail to the notifying administration with the relevant reasons.

5.1.10 Upon receipt of a complete notice, the Bureau shall include its particulars, with the date of receipt, in its ~~weekly circular~~ International Frequency Information Circular (IFIC) which shall contain the particulars of all such notices received since the publication of the previous circular.

5.1.11 The circular shall constitute the acknowledgements to the notifying administration of the receipt of a complete notice.

5.1.12 Complete notices shall be considered by the Bureau in order of receipt. The Bureau shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Bureau shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Bureau until it has reached a finding with respect to such earlier notice.

5.2 Examination and recording

5.2.1 The Bureau shall examine each notice:

- a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to § *b*), *c*), *d*), *e*) and ~~*e*)~~*f*) below); *and*
- b) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List; *or*
- c) with respect to the coordination requirements specified in the remarks column of Article 9 or Article 9A of the Appendix; or
- ~~*e*)~~*d*) with respect to its conformity with the appropriate Regional Plan or the Regions 1 and 3 List, however, having characteristics differing from those in the Plan or in the Regions 1 and 3 List in one or more of the following aspects:
 - use of a reduced e.i.r.p.,
 - use of a reduced coverage area entirely situated within the coverage area appearing in the Plan or in the Regions 1 and 3 List,
 - use of other modulating signals in accordance with the provisions of § 3.1.3 to Annex 5 of Appendix **S30**,
 - in the case of Region 2, use of an orbital position under the conditions specified in paragraph B of Annex 7 to Appendix **S30**,
 - in the case of Regions 1 and 3, use of an orbital position under the conditions specified in § 3.15 of Annex 3⁴,

⁴ The Bureau shall also apply this provision to paragraph 5.2.1 ~~*e*)~~*d*) of Appendix **S30** for Regions 1 and 3.

~~e)~~ for Region 2, with respect to its conformity with the provisions of Resolution **42 (Rev.Orb-88)**;

~~f)~~ for Regions 1 and 3, with respect to its conformity with the provisions of § 5.1.3 and also its conformity with § 5.1.4 or 5.1.5 relating to coordination.

5.2.2 When the Bureau reaches a favourable finding with respect to § 5.2.1 ~~a)~~, 5.2.1 ~~b)~~, 5.2.1 ~~c)~~ and 5.2.1 ~~e)~~~~f)~~, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.2.1 When the Bureau reaches a favourable finding with respect to § 5.2.1 ~~a)~~, 5.2.1 ~~c)~~, 5.2.1 ~~d)~~ and 5.2.1 ~~e)~~~~f)~~, the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Bureau shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the Plan.

5.2.2.2 In the case of Region 2, when the Bureau reaches a favourable finding with respect to § 5.2.1 ~~a)~~ and 5.2.1 ~~c)~~ but an unfavourable finding with respect to § 5.2.1 ~~b)~~ and 5.2.1 ~~e)~~~~d)~~, it shall examine the notice with respect to the successful application of the provisions of Resolution **42 (Rev.Orb-88)**. A frequency assignment for which the provisions of Resolution **42 (Rev.Orb-88)** have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Bureau shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of the provisions of Resolution **42 (Rev.Orb-88)** and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. If the finding with respect to § 5.2.1 ~~e)~~~~e)~~ is unfavourable, the notice shall be returned immediately by airmail to the notifying administration.

5.2.2.3 In the case of Regions 1 and 3, when the Bureau reaches a favourable finding with respect to § 5.2.1 ~~a)~~ and 5.2.1 ~~c)~~ but an unfavourable finding with respect to § 5.2.1 ~~b)~~ and 5.2.1 ~~e)~~~~d)~~, the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.2.4 In the case of Regions 1 and 3, when the Bureau reaches a favourable finding with respect to § 5.2.1 ~~a)~~, 5.2.1 ~~b)~~, 5.2.1 ~~c)~~ and 5.2.1 ~~e)~~~~d)~~ but an unfavourable finding with respect to § 5.2.1 ~~e)~~~~f)~~, the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem. If the unfavourable finding under § 5.2.1 ~~e)~~~~f)~~ is due to the coordination under § 5.1.3 only not being effected, the administration shall undertake only to bring this assignment into use with an e.i.r.p. level not greater than the sum of the values specified in columns 13 and 14 of the Regions 1 and 3 Plan.

5.2.2.5 When an assignment is recorded as a result of a favourable finding with respect to § 5.2.1 ~~e)~~~~f)~~, a remark shall be included indicating that coordination has been effected.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Bureau shall be indicated by a symbol in Column 13a.

5.2.4 When the Bureau reaches an unfavourable finding with respect to § 5.2.1 *a)*, or with respect to 5.2.1 *c)*, or with respect to 5.2.1 *b)* and 5.2.1 ~~*e)*~~*d)*, the notice shall be returned immediately by airmail to the notifying administration with the Bureau's reasons for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 When the notifying administration resubmits the notice and the finding of the Bureau becomes favourable with respect to the appropriate parts of § 5.2.1, the notice shall be treated as in § 5.2.2, 5.2.2.1 or 5.2.2.2 as appropriate.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Bureau's finding with respect to § 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with § 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in § 5.2.5 is fulfilled.

5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with § 5.1.3 has received a favourable finding by the Bureau with respect to the provisions of § 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Bureau has received confirmation that the frequency assignment has been brought into use, the Bureau shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. ~~It is given for information only.~~

5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under § 5.2.8, the Bureau will make inquiries of the administration not earlier than six months after the expiry of the period specified in § 5.1.3. On receipt of the relevant information, the Bureau will either modify the date of coming into use or cancel the entry.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Bureau within three months, whereupon the entry shall be removed from the Master Register.



Chairperson, Working Group 4A ad hoc Group 1
Refinement of coordination procedure

REPORT TO WORKING GROUP 4A

Ad hoc Group 1 of Working Group 4A considered proposed modifications to Article S11.44 aimed at closing off a loophole in the Radio Regulations, whereby formal notification of a satellite network under the provisions of Article S11, is not necessary.

There was a lot of discussion regarding date of application of the provision, and the treatment of transitional matters, for networks for which the API was filed before the end of WRC-97.

Other administrations expressed concerns that under the current provisions, satellites could be operated forever without completing the coordination process. The proposed modification should limit such operation.

Committee 4 is requested to instruct the RRB to take into account any decision by WRC-2000 on this matter, and amend its rules of procedure accordingly.

In addition, the application of this provision is understood to come into affect when the final acts come into force on [1 January 2002].

MOD

S11.44 The notified date¹⁶ of bringing into use of any assignment to a space station of a satellite network shall be no later than five years following the date of receipt by the Bureau of the relevant information under No. **S9.1**. The notified date of bringing into use may be extended at the request of the notifying administration by not more than two years, only under the conditions specified under Nos. **S11.44B** to **S11.44I**. Any frequency assignment not brought into use within the required period shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.

ADD

¹⁶ **S11.44.1** In the case of space station frequency assignments that are brought into use prior to the completion of the coordination process, and for which the Resolution **49 (WRC-97)** data has been submitted to the Bureau, the assignment shall continue to be taken into consideration for a maximum period of seven years from the date of receipt of the relevant information under No. **S9.1**. If the notice for recording of the concerned assignments under **S11.15** has not been received by the Bureau by the end of this seven-year period, the relevant assignment shall no longer be taken into account by the Bureau and administrations. The Bureau shall inform concerned administrations of its pending actions three months in advance.

In the case of satellite networks for which relevant information under No. **S9.1** has been received prior to 22 November 1997; the corresponding period will be nine years from the date of publication of this information.



**WORKING GROUP 2
OF THE PLENARY**

Informal APT/CEPT Drafting Group

The following possible agenda item for WRC-03 and the relevant draft new Resolutions (see Annexes) are submitted for your consideration.

To consider, with the view to facilitating global harmonization, technical and regulatory requirements of:

- 1 the future development of IMT-2000 and systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution [**GT PLEN-2/3**] (**WRC-2000**);
- 2 terrestrial wireless interactive multimedia applications, in accordance with Resolution [**GT PLEN-2/2**] (**WRC-2000**).

Annexes: 2

ANNEX 1

RESOLUTION [GT PLEN-2/3] (WRC-2000)

Studies to consider the technical requirements of the future development of IMT-2000 and systems beyond IMT-2000 as defined by ITU-R

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that IMT-2000 is scheduled to start service around the year 2000, subject to market and other considerations;
- b) that Question ITU-R 229/8 addresses the future development of IMT-2000 and systems beyond IMT-2000;
- c) that the technical characteristics of IMT-2000 are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the radio interfaces of IMT-2000;
- d) that the evolution of telecommunication technologies is rapid;
- e) that adequate spectrum availability is a prerequisite for the technological and economic success of the future development of IMT-2000 and systems beyond IMT-2000;
- f) that the demand for the support of multimedia applications such as high-speed data, IP-packet and video by mobile communication systems will continue to increase;
- g) that the future development of IMT-2000 and systems beyond IMT-2000 is foreseen to address the need for higher data rates than those currently planned for IMT-2000;
- h) that for global operation and economy of scale it is desirable to agree on common system technical, operational and spectrum-related parameters;
- i) that it is therefore timely to study technical, spectrum and regulatory issues pertinent to the future development of IMT-2000 and systems beyond IMT-2000,

recognizing

- a) the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the continuing enhancement of mobile services;
- b) that the service functionalities in fixed and mobile networks are increasingly converging;
- c) that future mobile systems will require the adoption of more spectrally efficient techniques;
- d) the needs of developing countries for the implementation of advanced mobile communication technologies,

resolves

- 1 to invite ITU-R to continue the studies on the overall objectives, applications and technical and operational implementation, as necessary, for the future development of IMT-2000 and systems beyond IMT-2000;

2 to invite ITU-R to study the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT-2000, and in what time-frame would such spectrum be needed;

3 that the initial results of these studies be reported to WRC-[02/03] with a view to future conferences taking action,

to urge administrations

to participate actively in the studies by submitting contributions to ITU-R.

ANNEX 2

RESOLUTION [GT PLEN-2/2] (WRC-2000)

Review of spectrum and regulatory requirements to facilitate worldwide harmonization of emerging terrestrial wireless interactive multimedia applications

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* the rapid technical evolution in several areas of telecommunications;
- b)* the importance of finding global solutions and worldwide spectrum for new terrestrial wireless interactive multimedia applications;
- c)* the need for terrestrial wireless interactive multimedia applications to individual end-users;
- d)* the convergence among some applications of the fixed, mobile and broadcasting services;
- e)* the need for worldwide allocations to such services also calling for higher spectrum efficiency;
- f)* the benefit, also for developing countries, when applying new, globally harmonized equipment and spectrum for the implementation of market driven universal services,

noting

- a)* the historically-based frequency segmentation, particularly the differences between Regions, but also the segmentation between services, of the Table of Frequency Allocations (Article **S5** of the Radio Regulations);
- b)* Recommendation **34 (WRC-95)**, which was derived from the recommendations of the Voluntary Group of Experts (VGE) to study alternative allocation methods, merging of services, etc., and which set the objectives of allocating frequency bands on a worldwide basis and to the most broadly defined services, wherever possible,

also noting

- c)* Resolution 9 of the World Telecommunication Development Conference (Valletta, 1998), calling for an active participation by the developing countries to review the global spectrum requirements for new technologies;
- d)* that ITU-R study groups are currently addressing the relevant issues, including *inter alia* the digitalization of broadcasting services and studies on spectrum requirements,

recognizing

- a)* the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the introduction of harmonized multimedia wireless applications;

- b) that the service functionalities in fixed, mobile and broadcasting networks are increasingly converging;
- c) that for international operation and economy of scale it is desirable to agree on the system technical, operational and spectrum-related parameters;
- d) that spectrum consideration is a prerequisite for the technological and economical success of multimedia wireless applications,

resolves

that future WRCs include in their agendas an item to review spectrum and regulatory requirements to facilitate the harmonized implementation of emerging terrestrial wireless interactive multimedia systems to respond to the convergence of technologies and applications, in order to enable suitable and timely allocations or identification of spectrum,

requests ITU-R

- 1 to pursue, [as a matter of urgency] its studies in order to assist in the development of common, worldwide allocations or identification of spectrum suitable for new terrestrial wireless interactive multimedia technologies and applications;
- 2 to review, [as a matter of urgency], regulatory methods and appropriate means of worldwide spectrum identification in order to facilitate harmonization of emerging terrestrial wireless interactive multimedia systems to allow the instant implementation of universal personal services in a flexible way;
- 3 to review, if necessary, service definitions in the light of convergence of applications;
- 4 to report in time for WRC-[03],

invites administrations

to participate in these studies by submitting contributions to ITU-R and to bring proposals to future WRCs to meet the above.



**WORKING GROUP 2
OF THE PLENARY**

Chairperson, GT PLEN-2

The following possible agenda item for WRC-03 and the relevant draft new Resolutions (see Annexes) are submitted for your consideration.

To consider technical and regulatory requirements and to assess spectrum demand of:

1 systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution [GT PLEN-2/3] (WRC-2000);

Alternative text proposed

 [future development of IMT-2000 systems as defined by ITU-R, in accordance with Resolution [GT PLEN-2/3] (WRC-2000);

2 emerging terrestrial wireless interactive multimedia applications, in accordance with Resolution [GT PLEN-2/2] (WRC-2000);

with the view to facilitating global harmonization.

Annexes: 2

ANNEX 1

RESOLUTION [GT PLEN-2/3] (WRC-2000)

Studies to consider the frequency related matters of the systems beyond IMT-2000 as defined by ITU-R

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that the bands 1 885-2 025 MHz and 2 110-2 200 MHz were identified by WARC-92 as intended for use on a worldwide basis by administrations wishing to implement IMT-2000 and that such use would not preclude the use of these bands by other services to which they are allocated;
- b)* that WRC-2000 has identified additional frequency bands for IMT-2000;
- c)* Question ITU-R 229/8 on future development of IMT-2000 and systems beyond IMT-2000;
- d)* that the evolution of telecommunication technologies is rapid;
- e)* that the spectrum requirement consideration is a prerequisite for the technological and economical success of the future mobile communication systems beyond IMT-2000;
- f)* that demands will continue to increase for mobile communication systems to support multimedia applications such as high-speed data, IP-packet and video;
- g)* that future mobile communication systems will require higher data rates than those planned in the initial implementation of IMT-2000;
- h)* that for international operation and economy of scale it is desirable to agree on the system technical, operational and spectrum-related parameters;
- i)* Recommendation ITU-R M.1455 on key characteristics for the IMT-2000 radio interfaces;
- j)* that it is anticipated that the initial implementation of IMT-2000 systems will be around 2001,

recognizing

- a)* the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the introduction of a new generation of advanced mobile services;
- b)* that the service functionalities in fixed and mobile networks are increasingly converging;
- c)* that higher data rates, greater than those associated with initially implemented IMT-2000 systems, are expected to be required to meet future needs;
- d)* that the characteristics of future systems beyond IMT-2000, with data rates higher than 2 Mbit/s, will require the adoption of more spectrally efficient techniques;

e) the need of developing countries for implementation of [advanced mobile communication technologies],

considering further

that as administrations begin deploying third-generation communication systems it is relevant and timely to study spectrum and regulatory issues pertinent to the systems beyond IMT-2000,

resolves

1 to invite ITU-R to continue [as a matter of urgency] the studies on the overall objectives, applications and technical and operational implementation, as necessary, for the systems beyond IMT-2000;

2 to invite ITU-R to study [as a matter of urgency] the initial frequency spectrum requirements and potential frequency bands suitable for the systems beyond IMT-2000 and in what time-frame would such spectrum be needed;

3 that the results of these studies be reported to WRC-[02/03],

to urge administrations

to participate actively in the studies by submitting contributions to ITU-R.

ANNEX 2

RESOLUTION [GT PLEN-2/2] (WRC-2000)

Review of spectrum and regulatory requirements to facilitate worldwide harmonization of emerging terrestrial wireless interactive multimedia applications

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* the rapid technical evolution in several areas of telecommunications;
- b)* the importance of finding global solutions and worldwide spectrum for new terrestrial wireless interactive multimedia applications;
- c)* the need for terrestrial wireless interactive multimedia applications to individual end-users;
- d)* the convergence among some applications of the fixed, mobile and broadcasting services;
- e)* the need for worldwide allocations to such services also calling for higher spectrum efficiency;
- f)* the benefit, also for developing countries, when applying new, globally harmonized equipment and spectrum for the implementation of market driven universal services,

noting

- a)* the historically-based frequency segmentation, particularly the differences between Regions, but also the segmentation between services, of the Table of Frequency Allocations (Article **S5** of the Radio Regulations);
- b)* Recommendation **34 (WRC-95)**, which was derived from the recommendations of the Voluntary Group of Experts (VGE) to study alternative allocation methods, merging of services, etc., and which set the objectives of allocating frequency bands on a worldwide basis and to the most broadly defined services, wherever possible,

also noting

- c)* Resolution 9 of the World Telecommunication Development Conference (Valletta, 1998), calling for an active participation by the developing countries to review the global spectrum requirements for new technologies;
- d)* that ITU-R study groups are currently addressing the relevant issues, including *inter alia* the digitalization of broadcasting services and studies on spectrum requirements,

recognizing

- a)* the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the introduction of harmonized multimedia wireless applications;

- b) that the service functionalities in fixed, mobile and broadcasting networks are increasingly converging;
- c) that for international operation and economy of scale it is desirable to agree on the system technical, operational and spectrum-related parameters;
- d) that spectrum consideration is a prerequisite for the technological and economical success of multimedia wireless applications,

resolves

that future WRCs include in their agendas an item to review spectrum and regulatory requirements to facilitate the harmonized implementation of emerging terrestrial wireless interactive multimedia systems [to respond to the convergence of technologies and applications, in order to enable suitable and timely allocations or identification of spectrum],

requests ITU-R

- 1 to pursue, as a matter of urgency, its studies in order to assist in the development of common, worldwide fixed and mobile allocations or identification of spectrum suitable for such new terrestrial wireless interactive multimedia technologies and applications;
- 2 to review, as a matter of urgency, regulatory methods and appropriate means of worldwide spectrum identification in order to facilitate harmonization of emerging terrestrial wireless interactive multimedia systems to allow the instant implementation of universal personal services in a flexible way;
- 3 to review, if necessary, service definitions in the light of convergence of applications;
- 4 to report in time for WRC-03,

invites administrations

to participate in these studies by submitting contributions to ITU-R and to bring proposals to future WRCs to meet the above.



Chairperson, GT PLEN-2

The following possible agenda item for WRC-03 and the relevant draft new Resolutions (see Annexes) are submitted for your consideration.

To consider technical and regulatory requirements and to assess spectrum demand of:

- 1 systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution [J/133/62] (WRC-2000);
- 2 emerging terrestrial wireless interactive multimedia applications, in accordance with Resolution [EUR/13/12] (WRC-2000);

with the view to facilitate global harmonization.

Annexes: 2

ANNEX 1

RESOLUTION [GT PLEN-2/3] (WRC-2000)

Studies to consider the frequency related matters of the systems beyond IMT-2000 as defined by ITU-R

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that the bands 1 885-2 025 MHz and 2 110-2 200 MHz were identified by WARC-92 as intended for use on a worldwide basis by administrations wishing to implement IMT-2000 and that such use would not preclude the use of these bands by other services to which they are allocated;
- b)* that WRC-2000 has identified additional frequency bands for IMT-2000;
- c)* that Question ITU-R 229/8 concerns the future mobile communication systems beyond IMT-2000;
- d)* that the evolution of telecommunication technologies is rapid;
- e)* that the spectrum requirement consideration is a prerequisite for the technological and economical success of the future mobile communication systems beyond IMT-2000;
- f)* that demands will continue to increase for mobile communication systems to support multimedia applications such as high-speed data, IP-packet and video;
- g)* that future mobile communication systems will require higher data rates than those planned in the initial implementation of IMT-2000;
- h)* that for international operation and economy of scale it is desirable to agree on the system technical, operational and spectrum related parameters;
- i)* that the initial standardization of IMT-2000 radio interface specifications has been completed in November 1999;
- j)* that it is anticipated that the initial implementation of IMT-2000 systems will be around 2001,

recognizing

- a)* the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the introduction of a new generation of advanced mobile services;
- b)* that the service functionalities in fixed and mobile networks are increasingly converging;
- c)* that higher data rates, greater than those associated with initially implemented IMT-2000 systems, are expected to be required to meet future needs;
- d)* that the characteristics of future systems beyond IMT-2000, with data rates higher than 2 Mbit/s, will require the adoption of more spectrally efficient techniques;

e) the considerable time-scales necessary to relocate the frequency bands for existing radio services,

considering further

that as administrations begin deploying third-generation communication systems it is relevant and timely to study spectrum and regulatory issues pertinent to the systems beyond IMT-2000,

resolves, as a matter of urgency

1 to invite ITU-R to continue the studies on the overall objectives, applications and technical and operational implementation, as necessary, for the systems beyond IMT-2000;

2 to invite ITU-R to study the initial frequency spectrum requirements and potential frequency bands suitable for the systems beyond IMT-2000 and in what time-frame would such spectrum be needed;

3 that the results of these studies be reported to WRC-02/03,

to urge administrations

to participate actively in the studies by submitting contributions to ITU-R.

ANNEX 2

RESOLUTION [GT PLEN-2/2] (WRC-2000)

Review of spectrum and regulatory requirements to facilitate worldwide harmonization of emerging terrestrial wireless interactive multimedia applications

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) the rapid technical evolution in several areas of telecommunications;
- b) the importance of finding global solutions and worldwide spectrum for new terrestrial wireless interactive multimedia applications;
- c) the need for terrestrial wireless interactive multimedia applications to individual end-users;
- d) the convergence between services (such as fixed, mobile and some broadcasting applications);
- e) the need for worldwide allocations to such services also calling for higher spectrum efficiency;
- f) the benefit, also for developing countries, when applying new, globally harmonized equipment and spectrum for the implementation of market driven universal services,

noting

- a) the historically based frequency segmentation, particularly the differences between Regions, but also the segmentation between services, of the Table of Frequency Allocations (Article **S5** of the Radio Regulations);
- b) Recommendation **34 (WRC-95)**, which was derived from the recommendations of the Voluntary Group of Experts (VGE) to study alternative allocation methods, merging of services, etc., and which set the objectives of allocating frequency bands on a worldwide basis and to the most broadly defined services, wherever possible,

also noting

- c) Resolution 9 of the World Telecommunication Development Conference (Valetta, 1998), calling for an active participation by the developing countries to review the global spectrum requirements for new technologies;
- d) ITU-R Study Groups are currently addressing the relevant issues,

recognizing

- a) the time-scales necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the introduction of harmonized multimedia wireless applications;
- b) that the service functionalities in fixed and mobile networks are increasingly converging;

- c) that for international operation and economy of scale it is desirable to agree on the system technical, operational and spectrum-related parameters;
- d) that spectrum consideration is a prerequisite for the technological and economical success of multimedia wireless applications,

resolves

that future WRCs include in their agendas an item to review spectrum and regulatory requirements to facilitate the harmonized implementation of emerging terrestrial wireless interactive multimedia systems to respond to the convergence of technologies and applications, in order to enable suitable and timely allocations or identification of spectrum,

requests ITU-R, as a matter of urgency

- 1 to pursue its studies in order to assist in the development of common, worldwide fixed and mobile allocations or identification of spectrum suitable for such new terrestrial wireless interactive multimedia technologies and applications;
- 2 to review regulatory methods and appropriate means of worldwide spectrum identification in order to facilitate harmonization of emerging terrestrial wireless interactive multimedia systems to allow the instant implementation of universal personal services in a flexible way;
- 3 to review, if necessary, service definitions in light of convergence of applications; and
- 4 to report in time for WRC-03,

invites administrations

to participate in these studies by submitting contributions to ITU-R and to bring proposals to future WRCs to meet the above.



Draft

REPORT BY COMMITTEE 2 TO THE PLENARY MEETING

CREDENTIALS

1 Terms of reference

To verify the credentials of delegations, in conformity with Article 31 of the ITU Convention, and to report on its conclusions to the Plenary Meeting within the time specified by the latter (Document 2).

2 Meetings

The Committee met twice, on 11 and 26 May 2000.

The delegates from [Brazil, Cameroon, Japan, Morocco, the Netherlands, Poland, Russia, Spain and the United States] have verified the credentials of delegations, in accordance with Article 31 of the ITU Convention.

3 Credentials

The situation is as follows:

- [128] credentials have been deposited to date with the secretariat of Committee 2;
- [128] credentials were found to be in order, of which two received clarification by fax according to CV338 and were found to be in order.

4 Transfer of powers

In accordance with the provisions of Article 31 of the ITU Convention, the Committee verified and approved the transfer of powers as follows:

- from Eritrea to Saudi Arabia;
- from Micronesia to the United States.

5 Conclusions

The Committee's conclusions are given in the annex to the present document and are submitted to the Plenary Meeting for approval.

6 Closing remarks

The Committee recommends to the Plenary to authorize the Chairperson of Committee 2 to verify any credentials received after the date of this report and that he submit his conclusions in that respect to the Plenary Meeting.

A.M.T. ABU
Chairperson

Annex: 1

ANNEX

1 Credentials deposited by the delegations of countries having the right to vote and found to be in order

ALBANIA	SPAIN
ALGERIA	ESTONIA
GERMANY	UNITED STATES
ANDORRA	ETHIOPIA
SAUDI ARABIA	FINLAND
ARGENTINA	FRANCE
ARMENIA	GABON
AUSTRALIA	GHANA
AUSTRIA	GREECE
BAHRAIN	GUATEMALA
BELARUS	GUYANA
BELGIUM	HUNGARY
BENIN	INDIA
BHUTAN	IRAN (ISLAMIC REPUBLIC OF)
BOTSWANA	IRELAND
BRAZIL	ICELAND
BRUNEI DARUSSALAM	ISRAEL
BULGARIA	ITALY
BURKINA FASO	JAPAN
BURUNDI	JORDAN
CAMEROON	KENYA
CANADA	LAO P.D.R.
CENTRAL AFRICAN REP.	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA
CHILE	LEBANON
CHINA	LIECHTENSTEIN
CYPRUS	LITHUANIA
VATICAN	LUXEMBOURG
COLOMBIA	MADAGASCAR
COMOROS	MALAYSIA
KOREA (REP. OF)	MALI
CROATIA	MALTA
CUBA	MOROCCO
DENMARK	MAURITIUS
EGYPT	MEXICO
EL SALVADOR	MOLDOVA
UNITED ARAB EMIRATES	MONACO
ECUADOR	MONGOLIA
ERITREA	MOZAMBIQUE

NAMIBIA	SAN MARINO
NIGERIA	SENEGAL
NORWAY	SEYCHELLES
NEW ZEALAND	SINGAPORE
OMAN	SLOVENIA
UGANDA	SRI LANKA
PAKISTAN	SOUTH AFRICA
PAPUA NEW GUINEA	SWEDEN
PARAGUAY	SWITZERLAND
NETHERLANDS	SURINAME
PERU	TANZANIA
PHILIPPINES	THAILAND
POLAND	TONGA
PORTUGAL	TRINIDAD AND TOBAGO
QATAR	TUNISIA
SYRIA	TURKEY
KYRGYZSTAN	UKRAINE
DEM. PEOPLE'S REP. OF KOREA	URUGUAY
SLOVAKIA	VENEZUELA
CZECH REP.	VIET NAM
UNITED KINGDOM	YEMEN
RUSSIA	ZAMBIA

Conclusion

The delegations of the above countries are entitled to vote and to sign the Final Acts.

2 Credentials deposited by the delegations of countries without the right to vote and found to be in order (Document 132(Rev.1))

AZERBAIJAN	LATVIA
CONGO	LIBYA
DOMINICAN REP.	UZBEKISTAN
LESOTHO	

Conclusion

The delegations of the above countries are not entitled to vote but may sign the Final Acts.

3 Transfer of powers deposited by countries unable to send their own delegations to the Conference (CV335) and found to be in order (Document 215)

FROM

ERITREA

MICRONESIA

TO

SAUDI ARABIA

UNITED STATES

Conclusion

The delegation of Saudi Arabia is entitled to vote and to sign on behalf of the Eritrea. The delegation of the United States is entitled to vote and to sign on behalf of Micronesia.

4 Delegations participating in the Conference which have not deposited credentials

BOSNIA AND HERZEGOVINA

CAMBODIA *

COSTA RICA *

CÔTE D'IVOIRE

DJIBOUTI

INDONESIA

KUWAIT

LIBERIA

NEPAL

NIGER

DEM. REP. OF THE CONGO *

ROMANIA

RWANDA *

SUDAN

ZIMBABWE

Conclusion

The delegations of the above countries are not entitled to vote or to sign the Final Acts until the situation has been rectified.

* These countries have lost their right to vote (Document 132(Rev.1)).



Chairperson, GT PLEN-2

FRAMEWORK OF THE RESOLUTION [GT PLEN-2/] (WRC-2000)

Agenda for the 2003 World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference should be established four to six years in advance and a final agenda shall be established by the Council two years before the conference;
- b)* Article 13 of the ITU Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention regarding their agendas;
- c)* the relevant Resolutions and Recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

recognizing

- a)* that this Conference has identified a number of urgent issues requiring further examination by WRC-03;
- b)* that in preparing this agenda, many proposals from administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a world radiocommunication conference be held in [2003] for a period of four weeks, with the following agenda:

- 1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of WRC-2000, and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following topics:

1.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-2000)**;

1.2

....

....

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the [2003] Radiocommunication Assembly, in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97)**;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4 in accordance with Resolution **95 (WRC-97)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

6 to identify those items requiring urgent actions by the radiocommunication study groups in preparation for the next world radiocommunication conference;

7 in accordance with Article 7 of the Convention:

7.1 to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000;

7.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences,

further resolves

8 to recommend to the Council that extra budgetary and conference resources be provided so that the following items can be included in this agenda for WRC-03:

8.1

.....

.....

invites the Council

to finalize the agenda and arrange for the convening of WRC-03 and to initiate as soon as possible the necessary consultation with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a Report to WRC-03,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.



ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 2
OF THE PLENARY**

Chairperson, GT PLEN-2

FRAMEWORK OF RESOLUTION [GT PLEN-2/] (WRC-2000)

Preliminary agenda for the [2006] World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for WRC-06 should be established four to six years in advance;
- b) Article 13 of the Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the ITU Convention regarding their agendas;
- c) the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

resolves to give the view

that the following items should be included in the preliminary agenda for WRC-[06], to be held in [2006]:

- 1 to take appropriate action in respect of those urgent issues that were specifically requested by WRC-03;
- 2 on the basis of proposals from administrations and the report of the Conference Preparatory Meeting, and taking account of the results of WRC-03, to consider and take appropriate action in respect of the following topics:
 - 2.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-2000)**;
 - 2.2
 - ...
 - ...

3 to consider the results of the studies related to the following with a view to considering them for inclusion in the agendas of future conferences:

3.1

...

...

4 to examine the revised ITU-R recommendations incorporated by reference in the Radio Regulations which have been communicated by the 2006 Radiocommunication Assembly, in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in the annex to Resolution **27 (Rev.WRC-97)**;

5 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

6 in accordance with Resolution **95 (WRC-97)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

7 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

8 to identify those items requiring urgent action by the radiocommunication study groups;

9 in accordance with Article 7 of the Convention:

9.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-03;

9.2 to recommend to the Council items for inclusion in the agenda for the [2006] World Radiocommunication Conference,

invites the Council

to consider the views given in this Resolution,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC-[06],

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.



WORKING GROUP 4A

**Note by the Chairperson of Working Group 4A Ad-hoc-2 to the Chairperson of
Working Group 4A**

NON-GSO BSS(S) IN THE 2630 - 2655 MHZ BAND

The Ad Hoc group considered Document DT/65 (Rev.1), which contained proposed changes to Article **S5**, Article **S9**, and Appendix **S5** along with a new Resolution. This document supercedes Document DT/65 (Revision 1). The changes contained in this document are those that were agreed to by the Ad Hoc Group. Some items are in square brackets due to discussions occurring in other groups. The proposed changes in this document may need to be brought into conformity with the changes agreed by other groups.

S. KALTENMARK
Chairperson, Working Group 4A Ad Hoc 2

MOD

APPENDIX S5

**Identification of administrations with which coordination is to be effected or
agreement sought under the provisions of Article S9**

TABLE S5-1

Technical conditions for coordination
(see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.11 GSO ₂ <u>non-GSO</u> /terrestrial	A-For a space station in the BSS <u>broadcasting-satellite service</u> in any band shared on an equal primary basis with terrestrial services and where the BSS <u>broadcasting-satellite service</u> is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz 2 520-2 655 MHz 2 655-2 670 MHz 12.5-12.75 GHz (Region 3) 17.7-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 40.5-42.5 GHz 84-86 GHz	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.19 Terrestrial/ GSO ₂ <u>non-GSO</u>	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30	Bands listed in No. S9.11	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	

MOD

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.12 1) Non-GSO/ non-GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 630-2 655 MHz</u> <u>2 310-2 360 MHz</u> See also Table S5-2 [S5.393] [S5.XXX2]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.12[A] 2) Non-GSO/ GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12[A] in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 630-2 655 MHz</u> <u>2 310-2 360 MHz</u> See also Table S5-2 [S5.XXX1] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. S9.13 GSO/non-GSO	A station in a satellite network using the GSO in the frequency bands for which a footnote refers to No. S9.11A or S9.13 in respect of any other satellite network using a non-GSO, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 630-2 655 MHz</u> <u>2 310-2 360 MHz</u> See also Table S5-2 [S5.XXX3] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	

MOD

2 520-2 700 MHz

Allocation to services		
Region 1	Region 2	Region 3
2 520-2 655 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418 <u>ADD S5.[XXX2]</u> <u>ADD S5.[XXX3]</u>	2 520-2 655 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 <u>ADD S5.[XXX2]</u> <u>ADD S5.[XXX3]</u>	2 520-2 535 FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403 S5.415A
		2 535-2 655 FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418 <u>ADD S5.[XXX1]</u> <u>ADD S5.[XXX2]</u> <u>ADD S5.[XXX3]</u>

ADD

S5.[XXX1] Use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) in certain Region 3 countries for which complete Appendix **S4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **[S9.12A]**, and **S22.2** does not apply in respect of geostationary satellite networks for which complete Appendix **S4** coordination information, or notification information, is considered to have been received after 2 June 2000. **S22.2** shall continue to apply with respect to geostationary satellite networks for which complete Appendix **S4** coordination information, or notification information, is considered to have been received before 3 June 2000. Use of the band by non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to the provisions of Resolution **EEE**.

ADD

S5.[XXX2] Use of the band 2 630-2 655 MHz by non-geostationary satellite systems for which complete Appendix **S4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **[S9.12]**, and such systems shall be compliant with **Resolution 528**.

ADD

S5.[XXX3] Use of the band 2 630-2 655 MHz by geostationary satellite networks for which complete Appendix **S4** coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. **S9.13** with respect to non-geostationary satellite systems operating in the broadcasting-satellite service (sound), and **S22.2** does not apply.

ADD

RESOLUTION [COM 4/6] (WRC-2000)

Use of the band 2630 – 2655 MHz in certain Region 3 countries by non-GSO satellite systems in the broadcasting-satellite service (sound)

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that the band 2 535-2 655 MHz is allocated by No. **S5.418** to the broadcasting-satellite service (sound) in certain Region 3 countries;
- b) that the provisions of **Resolution 528** currently limit use of the band by systems in the broadcasting-satellite service (sound) to the upper 25 MHz of the band;
- c) that, prior to WRC-2000, there were no coordination procedures applicable to non-GSO broadcasting-satellite (sound) systems in this band in relation to other non-GSO or GSO satellite networks;
- d) that satellite technology has now advanced to the stage where non-GSO systems in the broadcasting-satellite service (sound) are technically and economically feasible when operated with high elevation angles;
- e) that satellite systems in the broadcasting-satellite service as described in *considering d)* can be used for the delivery of high quality, spectrally efficient broadcasting-satellite (sound) service to portable and mobile terminals;
- f) that non-GSO systems in the broadcasting-satellite service (sound) in the 2 630-2 655 MHz band in Region 3 have been communicated to the ITU and are expected to be brought into use in the near future;
- g) that the protection of existing terrestrial services is addressed through the coordination procedures of No. **S9.11**;
- h) that the provision in *considering g)* may be inadequate to ensure the future deployment of terrestrial services in this band,

resolves

- 1 that any broadcasting-satellite service (sound) using non-GSO orbits brought into operation in the 2630 – 2655 MHz band in Region 3 shall be operated such that the minimum elevation angle over the service area is not less than 40° for sharing with terrestrial services;
- 2 that systems in the broadcasting-satellite service (sound) using non-GSO satellites shall be limited to national services unless agreement has been reached to include the territories of other administrations in the service area;

invites ITU-R

to conduct the necessary studies to develop calculation methodologies and sharing criteria to be used by administrations when applying the provisions of footnotes Nos. **S5.[XXX1]**, **S5.[XXX2]** and **S5.[XXX3]**

2. to conduct the necessary technical and regulatory studies between systems in the broadcasting-satellite service (sound) and terrestrial services in the band 2535 – 2655 MHz with a view to not unduly constraining either service.



Note by the Chairperson, Working Group 4A

**A DRAFT NEW RESOLUTION (EVALUATION OF THE ADMINISTRATIVE
DUE DILIGENCE PROCEDURE FOR SATELLITE NETWORKS)**

Please find attached proposed modifications to Document DT/81 which have been developed based on discussions in the meeting on Monday 22 May.

N. KISRAWI
Chairperson, Working Group 4A
Box 50

RESOLUTION [COM4/2] (WRC-2000)

Evaluation of the administrative due diligence procedure for satellite networks

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that the World Radiocommunication Conference (Geneva, 1997) (WRC-97) adopted Resolution **49** establishing administrative due diligence procedures applicable to some satellite communication services with effect from 22 November 1997;
- b) that the Plenipotentiary Conference (Minneapolis, 1998) adopted Resolution **85** on the evaluation of the administrative due diligence procedure for satellite networks;
- c) that Resolution **85** (Minneapolis, 1998) instructs the Director of the Radiocommunication Bureau to inform WRC-2000 about the effectiveness of the administrative due diligence procedure, in accordance with Resolution **49** (WRC-97);
- d) that Resolution **85** (Minneapolis, 1998) resolves that WRC-2000 shall evaluate the results of the implementation of administrative due diligence and shall inform the following Plenipotentiary Conference, in 2002, of its conclusions in that regard;
- e) ~~that WRC-2000 has reviewed the report of the Director of the Radiocommunication Bureau on administrative due diligence applicable to some satellite networks and considered proposals from administrations to amend the administrative due diligence procedure and to implement financial due diligence;~~
- f) the proposal to this Conference to strengthen the administrative due diligence and the proposal to adopt financial due diligence procedures.

noting

- a) that the Bureau has not encountered any administrative difficulty in applying the provisions and in gathering and publishing information;
- b) that the Bureau has taken action pursuant to “*resolves 6*” of Resolution **49** to cancel and publish accordingly, the related Special Sections in respect of 376 satellite networks;
- c) that all of these cancellations had reached the maximum (nine year) period for bringing into use pursuant to the application of “*resolves 1 and 2*” of Resolution **51** (WRC-97) and **S11.44** of the Radio Regulations and hence would have been cancelled in any event;
- d) that when requested to provide due diligence information (triggered by the original date of bringing into use of their satellite networks), administrations have generally requested, wherever it is possible, extension of the regulatory period for bringing their satellites into use up to the maximum limit authorized by the Radio Regulations;
- e) that the effect of administrative due diligence may not, therefore, be fully apparent until at least 21 November 2003,

recognizing

that the administrative due diligence has not yet had any impact on the problem of reservation of orbit and spectrum capacity without actual use,

resolves

1 that further experience is needed in the application of the administrative due diligence procedures adopted by WRC-97, and that several years may be needed to see whether the procedure produces satisfactory results;

[2 that it is premature to consider the adoption of any financial due diligence procedures,]

instructs the Director of the Radiocommunication Bureau

to report to the 2002 Plenipotentiary Conference on the results of the implementation of the administrative due diligence procedure,

instructs the Secretary-General

to bring this resolution to the attention of the 2002 Plenipotentiary Conference.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/105-E
25 May 2000
Original : English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 1
OF THE PLENARY

Draft Note by the Chairperson of GT Plen-1 to Working Group 4B

AGENDA ITEM 2

(Incorporation by reference)

This is to inform Working Group 4B or Committee 4 that GT PLEN-1, in reply to the Note given in Doc. 198, propose to incorporate by reference Recommendation ITU-R BO.1293-1 in the Radio Regulations (Annex 3 of Appendix S30A and Annex 5 of Appendix S30), which is the updated version of Recommendation ITU-R BO.1293 referred to in the Note.

R. ZEITOUN
Chairperson GT PLEN-1, Box 27



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/106-E
25 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Document DL/62

WORKING GROUP 1
OF THE PLENARY
(GT PLEN-1)

DRAFT NEW RESOLUTION [GT PLEN-1/1]

This document is submitted from ad hoc Group 1 to Working Group GT PLEN-1 for further consideration. The draft Resolution attached is based upon the conclusions of GT PLEN-1 on Document 328. Section 6 of Annex 1 (APS30) will make reference to this Resolution.

NOTES - Further conclusions contained in Document 328 will appear as proposals for modifications to the Radio Regulations (APS30, APS30A). Some conclusions will appear incorporated in the draft revision of Resolution 53 (MOD WRC-2000). The various due dates given in Document 382 will be reflected in Article 11 of APS30.

This Resolution once adopted by the Conference, should be included in Article 59.

This Resolution should be brought to the attention of GT PLEN-2 as it may impact the agenda of the next WRC.

C. DOSCH
Chairperson, ad hoc Group 1 of GT PLEN-1
Box 751

DRAFT NEW RESOLUTION [GT PLEN-1/1]

Application and study of the regulatory procedures and associated sharing criteria contained in Appendices S30 and S30A and in the associated provisions of Articles S9 and S11

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WRC-2000 adopted a revision of the Regions 1 and 3 broadcasting-satellite service (BSS) and associated feeder-link Plans contained in Appendices **S30** and **S30A**, respectively;
- b) that WRC-2000 adopted revisions to the sharing criteria to identify whether terrestrial services may be affected by BSS contained in Annex 1 of Appendix **S30**;
- c) that WRC-2000 suppressed the method contained in section 3 of Annex 4 of Appendix **S30A** and applied in its place Appendix S7;
- d) that WRC-2000 modified the criteria in section 1 of Annex 4 of Appendix **S30A** concerning the sharing between non-planned transmitting space stations and planned receiving BSS feeder-link space stations;
- e) that WRC-2000 revised the orbital position limitations on Region 1 BSS in Section A3 of Annex 7 to Appendix **S30** to allow more flexibility for new and modified assignments in the Region 1 BSS List, while continuing to guarantee access to Region 2 fixed-satellite service (FSS) in the orbital arc from 37 W.L. to 10 E.L.;
- f) that the power flux-density limits currently appearing in section 6 of Annex 1 to Appendix **S30** for BSS to protect FSS do not vary as a function of orbital separation between the FSS and BSS space stations, and therefore do not provide adequate protection to FSS networks at small orbital separations, and at large orbital separations, overly constrains implementation of BSS networks;
- g) that the sharing criteria in Appendices **S30** and **S30A** should provide appropriate protection to the BSS, FSS and terrestrial services whilst not unduly constraining the services involved;
- h) that worldwide, in various sub-bands of the frequency range 11.7-12.7 GHz, FSS networks as well as BSS networks are in operation, and others will be operated in the near future and, consequently, difficulties may be experienced in modifying their characteristics;
- i) that WRC-2000 has also revised the regulatory procedures contained in Appendices **S30** and **S30A**, and the associated provisions in Articles **S9** and **S11** and associated Appendices,

recognizing

- a) that there are differing geographic situations between the ITU Regions and that this may impact the sharing criteria and therefore should be taken into account in any revision to the sharing criteria in the relevant Annexes of Appendices **S30** and **S30A**;
- b) the need to protect existing and future terrestrial and space services and systems,

further noting

that the Bureau was instructed by WRC-2000 to analyse the established new Regions 1 and 3 BSS and feeder-link Plans with respect to the compatibility with other services, having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan (Resolution **53 (MOD WRC-2000)**),

resolves

1 that, until section 6 of Annex 1 to Appendix **S30** is modified by the next WRC, the pfd limits appearing in the Annex to this Resolution shall be applied in place of the –138 dBW/m²/27 MHz and –160 dBW/m²/4kHz criteria appearing in paragraph 3 of section 6 of Annex 1 to Appendix **S30**;

2 to instruct the Radiocommunication Bureau to apply this Resolution as of [3 June 2000],

requests ITU-R

to study further, as a matter of urgency and complete by the next WRC:

1 the sharing criteria in Annexes 1, 3, 4 and 6 of Appendix **S30** and Annexes 1 and 4 of Appendix **S30A**, except the criteria referred to in *considering b) and c)*, taking into account *considering g) and h) and recognizing a)*;

2 review the changes made by WRC-2000 to the regulatory procedures contained in:

- a) Articles 4 and 5 of Appendices **S30** and **S30A** to create a List of additional uses for Regions 1 and 3 and to provide for its implementation;
- b) Articles 6 and 7 of Appendices **S30** and **S30A**, including related modifications to Articles **S9** and **S11** and the associated Appendix **S5**,

with a view to ensure consistency amongst these provisions as appropriate, taking into account *considering i)*;

3 [the limitations of Section A3 of Annex 7 (**MOD WRC-2000**) in the context of any changes to the sharing criteria studied by ITU-R,]

instructs the Secretary-General

to bring this Resolution to the attention of the ITU Council to include in the agenda of the next WRC the consideration of the results of the ITU-R studies pursuant to *requests ITU-R* above.

ANNEX

pdf limits to be applied in place of –138 dBW/m²/27 MHz and –160 dBW/m²/4 kHz in paragraph 3 of section 6 of Annex 1 to Appendix S30¹

Instead of the flat pdf limits of –138 dB(W/m²/27 MHz) and –160 dB(W/m²/4 kHz), apply new pdf limits to protect FSS in all Regions from BSS in all Regions, as given below:

For Regions 1 and 3 BSS → Region 2 FSS (space-to-Earth in the band 11.7-12.2 GHz):

–160 dB(W/m ² /27 MHz)	$0 < \theta < 0.054^\circ$
$(-137.46 + 17.74 \log \theta)$ dB(W/m ² /27 MHz)	$0.054^\circ \leq \theta < 3.67^\circ$
$(-141.56 + 25 \log \theta)$ dB(W/m ² /27 MHz)	$3.67^\circ \leq \theta < 11.54^\circ$
–115 dB(W/m ² /27 MHz)	$11.54^\circ \leq \theta$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

For Region 1 BSS → Region 3 FSS (space-to-Earth in the band 12.2-12.5 GHz):

–160 dB(W/m ² /27 MHz)	$0 < \theta < 0.054^\circ$
$(-137.46 + 17.74 \log \theta)$ dB(W/m ² /27 MHz)	$0.054^\circ \leq \theta < 3.67^\circ$
$(-141.56 + 25 \log \theta)$ dB(W/m ² /27 MHz)	$3.67^\circ \leq \theta < 16.69^\circ$
–111 dB(W/m ² /27 MHz)	$16.69^\circ \leq \theta$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

For Region 2 BSS → Regions 1 and 3 FSS (space-to-Earth in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3):

–160 dB(W/m ² /27 MHz)	$0 < \theta < 0.054^\circ$
$(-137.46 + 17.74 \log \theta)$ dB(W/m ² /27 MHz)	$0.054^\circ \leq \theta < 3.67^\circ$
$(-141.56 + 25 \log \theta)$ dB(W/m ² /27 MHz)	$3.67^\circ \leq \theta < 11.54^\circ$
–115 dB(W/m ² /27 MHz)	$11.54^\circ \leq \theta$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

It is understood that in the implementation of these criteria, the Bureau should take into account the pertinent station-keeping accuracy of the BSS and FSS space stations as filed by the notifying administrations.

NOTE - In addition, the 0.25 dB allowed increase over the pdf resulting from the original plan assignments of all Regions should be maintained.

¹ For those sharing situations not listed here, the provisions of Appendix S30 (MOD WRC-2000) and Appendix S30A (MOD WRC-2000) apply.



**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson of GT PLEN-1

ARTICLE 4 OF APPENDICES S30 AND S30A

Insert after 4.1.26 in Article 4 of Appendix S30, and Article 4 of Appendix S30A:

“4.1.27 When an administration has successfully applied this procedure and received all the agreements required to include in the List assignments over its national territory, at an orbital location and/or in channels different from those appearing in the Plan for this country, it may request the forthcoming World Radiocommunication Conference to consider the inclusion in the Plan of up to ten (for Region 1) and up to twelve (for Region 3) of these assignments, as a replacement to its assignments appearing in the Plan.”

R. ZEITOUN
Chairperson, GT PLEN-1
Box 27



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Documents DT/77(Rev.1),
DT/83, DT/84 and Addendum 1, DT/95

WORKING GROUP 1
OF THE PLENARY

Sub-Working Group 1 of GT PLEN-1

ARTICLES 1 TO 7 OF APPENDICES S30 AND S30A

At its ninth meeting, Sub-Working Group 1 of GT PLEN-1 agreed on the revisions that it would be appropriate to make to Articles 1, 2, 3, 4, 6 and 7 of Appendices S30 and S30A. Those revisions, which are reproduced herein, are now submitted to GT PLEN-1 for its consideration.

The revisions to be made to Article 5 of Appendices S30 and S30A will be submitted in an addendum to this document.

Jean CHARTIER
Chairperson, Sub-Working Group 1 of GT PLEN-1

APPENDIX S30

ARTICLE 1

General definitions

1 For the purposes of this Appendix the following terms shall have the meanings defined below:

1.1 *1977 Conference*: World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), called in short World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

1.2 *1983 Conference*: Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz and Associated Feeder Links in the Frequency Band 17.3-17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983.

1.3 *1985 Conference*: First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85.

ADD

1.3A *2000 Conference*: World Radiocommunication Conference (Istanbul, 2000) called in short WRC-2000.

MOD

1.4 *Regions 1 and 3 Plan*: The Plan for the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1 contained in this Appendix, ~~together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.~~

1.5 *Region 2 Plan*: The Plan for the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz in Region 2 contained in this Appendix, together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.

1.6 *Frequency assignment in conformity with the Plan*:

- Any frequency assignment which appears in the Regions 1 and 3 Plan; or
- Any frequency assignment which appears in the Region 2 Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.

ADD

1.7 *Additional use in Regions 1 and 3*: For the application of the provisions of this Appendix, additional uses in Regions 1 and 3 are:

- a) use of assignments with characteristics different from those appearing in the Regions 1 and 3 Plan and which are capable of causing more interference [or require more protection from interference] than the corresponding entries in the Plan;
- b) use of assignments in addition to those appearing in the Plan.

ADD

1.8 *Regions 1 and 3 List of additional uses (hereafter called in short “the List”):* The list of assignments for additional uses in Regions 1 and 3 as established by WRC-2000, as updated following the successful application of the procedure of § 4.1 of Article 4 of this Appendix.

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30**, as defined in section 3.9 of Annex 5 to this Appendix, to provide space operations functions in accordance with No. **S1.23** in support of GSO BSS networks operation, shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Region 2 Plan, or assignments to be included in the Regions 1 and 3 List with assignments intended to provide these functions shall be effected using paragraph 4.1.1 e), 4.2.3 e) or 4.2.3 f) as appropriate, of Article 4 of Appendix **S30**.

ARTICLE 3

Execution of the provisions and associated Plans

MOD

3.1 The Member States in Regions 1, 2 and 3 shall adopt, for their broadcasting-satellite space stations¹ operating in the frequency bands referred to in this Appendix, the characteristics specified in the appropriate Regional Plan and the associated provisions.

¹ ~~In Region 2, s~~ Such stations may also be used for transmissions in the fixed-satellite service (space-to-Earth) in accordance with No. **S5.492** of the Radio Regulations.

3.2 The Member States shall not change the characteristics specified in the Region 1 and Region 3 Plans or in the Region 2 Plan, or bring into use assignments to broadcasting-satellite space stations or to stations in the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

ADD

3.3 The Plan for Regions 1 and 3 is based on national coverage from the geostationary-satellite orbit. The associated procedures contained in this Appendix are intended to promote long-term flexibility of the Plan and to avoid monopolization of the planned bands and orbit by a country or a group of countries.

ARTICLE 4

MOD

Procedures for modifications to the Region 2 Plans or for additional uses in Regions 1 and 3^{2bis}

^{2bis} The provisions of Resolution 49 (WRC-2000) apply.

ADD

4.1 Provisions applicable to Regions 1 and 3

4.1.1 An administration proposing to include a new or modified assignment in the List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations³:

- a) of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service, any portion of which falls within the necessary bandwidth of the proposed assignment, which is included in the Regions 1 and 3 Plan; *or*
- b) of Regions 1 and 3 having a frequency assignment included in the List or for which complete Appendix S4 information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*
- c) of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article; *or*
- d) having no frequency assignment in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed assignment or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the proposed assignment exceeds the prescribed limit as a result of the proposed assignment; *or*

³ See Resolution XXX.

- e) having a frequency assignment in the band 11.7-12.2 GHz in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master International Frequency Register (Master Register) or for which complete coordination information has been received by the Bureau for coordination under No. **S9.7**, or under § 7.1 of this Appendix.
- 4.1.2 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.
- 4.1.3 An administration intending to include a new or modified assignment in the List shall send to the Bureau, not earlier than eight years but preferably not later than two years before the date on which the assignment is to be brought into use, the relevant information listed in Appendix **S4**. An assignment in the List shall lapse if it is not brought into use by that date.⁴
- 4.1.4 If the information received by the Bureau under paragraph 4.1.3 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.
- 4.1.5 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected. The Bureau shall publish, in a Special Section of its International Frequency Information Circular (IFIC), the complete information received under § 4.1.3, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the assignment.
- 4.1.6 The Bureau shall send a telegram/fax to the administrations listed in the Special Section of the IFIC drawing their attention to the information it contains and shall send them the results of its calculations.
- 4.1.7 An administration which considers that it should have been identified in the publication referred to under paragraph 4.1.5 above shall, within four months of the date of publication of the relevant IFIC, and giving the technical reasons for so doing, request the Bureau to include its name in the publication. The Bureau shall study this information on the basis of Annex 1 and shall inform both administrations of its conclusions. Should the Bureau agree to the administration's request, it shall publish an addendum to the publication under paragraph 4.1.5.
- 4.1.8 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.
- 4.1.9 Comments from administrations on the information published pursuant to § 4.1.5 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.
- 4.1.10 An administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the IFIC referred to in § 4.1.5 shall be understood to have agreed to the proposed assignment. This time limit may be extended:
- for an administration that has requested additional information under § 4.1.8 by up to three months, or

⁴ See Resolution YYY.

– for an administration that has requested the assistance of the Bureau under § 4.1.21 by up to three months following the date at which the Bureau communicated the result of its action.

4.1.11 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.1 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.1.12 If no comments have been received on the expiry of the periods specified in § 4.1.10, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the new or modified assignment may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.1.13 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.1.14 When the proposed assignment involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

4.1.15 The Bureau shall publish in a Special Section of the IFIC the information received under § 4.1.12 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall be included in the List.

4.1.16 In case of disagreement from an administration whose agreement has been sought, the requesting administration should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.1.17 If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by either one of these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.1.18 If in spite of the application of paragraphs 4.1.16 and 4.1.17, there is still continuing disagreement and the notifying administration insists that the proposed assignment be included in the List, the Bureau shall enter the assignment provisionally in the List with an indication of those administrations whose assignments were the basis of the disagreement. The entry shall be changed from provisional to definitive recording in the List only if the Bureau is informed that the new assignment has been in use, together with the assignment which was the basis for the disagreement, for at least four months without any complaint of harmful interference being made.

4.1.19 Should the assignments that were the basis of the disagreement not be brought into use within the period specified in No. **S11.44** (for the non-planned services), or in paragraph 4.1 (for assignments in the List or having initiated the procedure under paragraph 4.1), as appropriate, then the status of the assignment in the List shall be reviewed accordingly.

4.1.20 Should harmful interference be caused by an assignment included in the List under paragraph 4.1.18 to any recorded assignment in the MIFR which was the basis of the disagreement, the administration using the frequency assignment included in the List under paragraph 4.1.18 shall, upon receipt of advice thereof, immediately eliminate this harmful interference.

4.1.21 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau.

4.1.22 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Bureau.

4.1.23 When a frequency assignment included in the List is no longer required, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a Special Section of its IFIC and delete the assignment from the List.

4.1.24 No assignment in the List shall have a period of operation exceeding 15 years, counted from the date of bringing into use, or 2 June 2000, whichever is later. Upon request by the responsible administration received by the Bureau at the latest three years before the expiry of this period, this period may be extended by up to 15 years, on the condition that all the characteristics of the assignment remain unchanged.

4.1.25 When an administration already having included in the List two assignments (not including those systems notified on behalf of a group of named administrations and included in the List by WRC-2000), in the same channel and covering the same service area, proposes to include in the List a new assignment in the same channel over this service area, it shall apply the following in respect of another administration which has no assignment in the List in the same channel and which proposes to include in the List a new assignment:

- a) If the agreement of the former administration is required following the application of paragraph 4.1 by the latter administration, in order to protect the new assignment proposed by the former administration from interference caused by the assignment proposed by the latter administration, both administrations shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks;
- b) in case of continuing disagreement, and if the former administration has not communicated to the Bureau the information specified in Annex 2 of Resolution **49 (WRC-2000)**, this administration shall be deemed to have given its agreement to the inclusion in the List of the assignment of the latter administration.

4.1.26 This procedure may be applied by the administration of a new ITU Member State in order to include new assignments in the List. Upon completion of the procedure, the next World Radiocommunication Conference may be requested to consider, among the assignments included in the List after the successful completion of this procedure, the inclusion in the Plan of up to 10 channels (for Region 1) and 12 channels (for Region 3), over the national territory of the new Member State.

4.1.27 The List as updated shall be published periodically by the Bureau.

MOD

4.2 Provisions applicable to Region 2

4.2.1 When an administration intends to make a modification⁵² to ~~one of the Regional 2~~ Plans, i.e.:

- a) to modify the characteristics of any of its frequency assignments to a space station⁶³ in the broadcasting-satellite service which are shown in the ~~appropriate~~ Regional 2 Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; *or*
- b) to include in the ~~appropriate~~ Regional 2 Plan a new frequency assignment to a space station in the broadcasting-satellite service; *or*
- c) to cancel a frequency assignment to a space station in the broadcasting-satellite service;

the following procedure shall be applied before any notification of the frequency assignment is made to the Radiocommunication Bureau (see Article 5 of this Appendix);

~~4.1.1 Before an administration proposes to include in the Plan, under the provisions of § 4.1 b), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should have been brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan.~~

4.2.2 The term “frequency assignment in conformity with the Plan” used in this and the following Articles is defined in Article 1.

4.3 Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or inclusion in that Plan of a new frequency assignment

~~For Regions 1 and 3:~~

~~4.3.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:~~

⁵ For assignments using analog modulation, the intention not to employ energy dispersal in accordance with § 3.18 of Annex 5 shall be treated as a modification and thus subject to the appropriate provisions of this Article.

~~² The intention not to employ energy dispersal in accordance with § 3.18 of Annex 5 shall be treated as a modification and thus subject to the appropriate provisions of this Article.~~

⁶ The expression “frequency assignment to a space station”, wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See also Annex 7 for the orbital limitations.

~~³ The expression “frequency assignment to a space station”, wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See also Annex 7 for the orbital limitations.~~

~~4.3.1.1 — of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.1.2 — of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.1.3 — (SUP-WRC 97)~~

~~4.3.1.4 — having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; or~~

~~4.3.1.5 — having a frequency assignment in the band 11.7-12.2 GHz in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master International Frequency Register (Master Register) or which has been coordinated or is being coordinated under the provisions of No. S9.7, or those of § 7.2.1 of this Appendix;~~

~~4.3.1.6 — whose services are considered to be affected.~~

~~4.3.2 — The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.~~

~~————— For Region 2:~~

~~4.3.2.3 — An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:~~

~~4.3.3.1 — of Region 2 having a frequency assignment in the Region 2 Plan to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with that Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.3.2a) — of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Bureau in accordance with the provisions of § 4.3.5.1 or 4.3.6 of this Article; or~~

~~4.3.3.3b) — (SUP-WRC 97) of Regions 1 and 3 having a frequency assignment included in the List or for which complete Appendix S4 information has been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; or~~

~~c) — of Region 2 having a frequency assignment in the Region 2 Plan to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with that Plan, or in respect of which proposed modifications to that Plan have already~~

been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article;
or

- 4.3.3.4d) having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; *or*
- 4.3.3.5e) having a frequency assignment in the band 12.5-12.7 GHz in Region 1 or 12.2-12.7 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master Register or for which complete coordination information has been received by the Bureau for coordination under the provisions of No. S9.7 or those of under § 7.2.1 of this Appendix;
or
- 4.3.3.6f) having a frequency assignment to a space station in the broadcasting-satellite service in the band 12.5-12.7 GHz in Region 3 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which
- ai) is recorded in the Master Register, *or*
- bi) ~~has been coordinated or is being coordinated~~for which complete coordination information has been received by the Bureau for coordination under the provisions of Resolution 33 (Rev.WRC-97), or under No. S9.7⁷ or under § 7.1 of this Appendix;
- e) ~~appears in a Region 3 Plan to be adopted at a future radiocommunication conference, taking account of modifications to that Plan which may be introduced in accordance with the Final Acts of the Conference;~~

4.3.3.72.4 whose services are considered to be affected.

4.3.42.5 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

For all Regions:

4.3.52.6 An administration intending to modify characteristics in ~~one of the Regional 2 Plans~~ shall send to the Bureau, not earlier than ~~five~~eight years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in ~~Annex 2~~Appendix S4. Modifications to that Plan involving additions under § 4.2.1 b) shall lapse if the assignment is not brought into use by that date.

4.2.7 If the information received by the Bureau under § 4.2.6 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

4.3.5.1 ~~Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Bureau the information required by § 4.3.5. The Bureau shall then publish this information in a special section of its Weekly Circular.~~

⁷ Or under Resolution 33 (Rev.WRC-97) for assignments for which the API or the request for coordination has been received by the Bureau prior to 1 January 1999.

~~4.3.5.2~~ — In all other cases the administration shall notify the Bureau of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in § 4.3.1 or § 4.3.3, as well as of those with which agreement has already been reached.

~~4.3.6.2.8~~ The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.3.1 or § 4.3.34.2.3. The Bureau shall ~~include the names of those administrations with the information received under § 4.3.5.2 and shall publish, in a special section of its IFIC, the complete information in a special section of its Weekly Circular received under § 4.2.6, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate.~~ The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the ~~appropriate Regional~~ 2 Plan.

~~4.3.7.2.9~~ The Bureau shall send a telegram/fax to the administrations listed in the special section of the ~~Weekly Circular~~ IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

~~4.3.8.2.10~~ An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Bureau to include its name. The Bureau shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the ~~appropriate Regional~~ 2 Plan.

~~4.3.9.2.11~~ Any modification to a frequency assignment which is in conformity with the ~~appropriate Regional~~ 2 Plan or any inclusion in that Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all administrations whose services are considered to be affected.

~~4.3.10.2.12~~ The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

~~4.3.11.2.13~~ Comments from administrations on the information published pursuant to § 4.3.64.2.8 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

~~4.3.12.2.14~~ An administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the ~~Weekly Circular~~ IFIC referred to in § 4.3.5.1 or § 4.3.64.2.8 shall be understood to have agreed to the proposed assignment. This time limit may be extended by up to three months for an administration that has requested additional information under § 4.3.104.2.12 or for an administration that has requested the assistance of the Bureau under § 4.3.204.2.22. In the latter case the Bureau shall inform the administrations concerned of this request.

~~4.3.13.2.15~~ If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.3.54.2 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

~~4.3.14.2.16~~ If no comments have been received on the expiry of the periods specified in § 4.3.124.2.14, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

~~4.3.15~~2.17 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

~~4.3.16~~2.18 When the proposed modification to the ~~appropriate-Regional~~ 2 Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

~~4.3.17~~2.19 The Bureau shall publish in a special section of its ~~weekly circular~~ IFIC the information received under § ~~4.3.14~~4.2.16 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the ~~appropriate-Regional~~ 2 Plan and will be considered as a frequency assignment in conformity with the Plan.

~~4.3.18~~2.20 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

~~4.3.19~~2.21 If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

~~4.3.20~~2.22 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau, ~~particularly in seeking the agreement of another administration.~~

~~4.3.21~~2.23 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Bureau.

4.2.24 Cancellation of frequency assignments

When a frequency assignment in conformity with ~~one of the-Regional~~ 2 Plans is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a special section of its ~~weekly circular~~ IFIC and delete the assignment from the ~~appropriate-Regional~~ 2 Plan.

4.2.25 Master copy of the Region 2 Plans

~~4.5.1~~ ~~a)~~ The Bureau shall maintain an up-to-date master copy of the ~~Regions 1 and 3~~ Plan taking account of the application of the procedure specified in this Article. The Bureau shall publish a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.

~~4.5.1~~ ~~b)~~4.2.25.1 The Bureau shall maintain an up-to-date master copy of the Region 2 Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure described in this Article. The Bureau shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure described in this Article.

~~4.5.22.25.2 The Secretary-General shall be informed by the Bureau of any modifications made to the Regional Plans and shall publish an up-to-date version of those Plans in an appropriate form. An up-to-date version of the Region 2 Plan shall be published by the Secretary-General when justified by the circumstances.~~

MOD

ARTICLE 6

Coordination, notification and recording in the Master International Frequency Register of frequency assignments to terrestrial stations or to earth stations in the fixed-satellite service (Earth-to-space) affecting broadcasting-satellite frequency assignments in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)⁵

SUP

6.1.1 to 6.3.41

ADD

6.1 The provisions of **S9.19** and the associated provisions under Articles **S9** and **S11**, are applicable in respect of frequency assignments to broadcasting-satellite stations in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3:

- a) to transmitting terrestrial stations in the frequency band 11.7-12.7 GHz in all Regions;
- b) to transmitting earth stations in the fixed-satellite service in the band 12.5-12.7 GHz (in Region 1).

6.2 In applying procedures referred to in § 6.1, the provisions of Appendix **S5** are replaced by the following:

6.2.1 Procedures are to be applied in respect of administrations whose territory is included within the service area associated with:

- a) assignments in conformity with the appropriate Regional Plan in Appendix **S30**;
- b) assignments included in the Regions 1 and 3 List;
- c) assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete Appendix **S4** information under 4.1 or 4.2.

6.2.2 Criteria to be applied are these given in Annex 3 to this Appendix.

⁵ These procedures do not replace the procedures prescribed for terrestrial stations in Articles **S9** and **S11**.

MOD

ARTICLE 7

Procedures for coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in the frequency bands 11.7-12.2 GHz (in Region 2), 12.2-12.7 GHz (in Region 3) and 12.5-12.7 GHz (in Region 1), and to stations in the broadcasting-satellite service in the frequency band 12.5-12.7 GHz (in Region 3) when frequency assignments to broadcasting-satellite stations in conformity with the Regions 1 and 3 Plan, or the Region 2 Plan, respectively, in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3 are involved⁸

SUP

7.1.1 to 7.8.6

ADD

7.1 The provisions of **S9.7**⁹ and the associated provisions under Articles **S9** and **S11** are applicable in respect of frequency assignments to broadcasting-satellite stations in the bands 11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3:

- a) to transmitting space stations in the fixed-satellite service in the band 11.7-12.2 GHz (in Region 2), 12.2-12.7 GHz (in Region 3) and 12.5-12.7 GHz (in Region 1); and
- b) to transmitting space stations in the broadcasting-satellite service in the frequency band 12.5-12.7 GHz (in Region 3).

7.2 In applying procedures referred to in § 7.1, the provisions of Appendix **S5** are replaced by the following:

7.2.1 The frequency assignments to be taken into account are:

- a) the assignments in conformity with the appropriate Regional Plan in Appendix **S30**;
- b) the assignments included in the Regions 1 and 3 List;
- c) the assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete Appendix **S4** information under 4.1 or 4.2.

7.2.2 Criteria to be applied are those given in Annex 4 of this Appendix.

⁸ These provisions do not replace the procedures prescribed in Articles **S9** and **S11** when stations other than those of the broadcasting-satellite service are involved.

⁹ The provision of Resolution **33 (Rev.WRC-97)** are applicable to space stations in the BSS for which the API or the request for coordination has been received by the Bureau prior to 1 January 1999.

APPENDIX S30A

ARTICLE 1

General definitions

MOD

1.1 *Regions 1 and 3 feeder link Plan:* The Plan for the feeder-links in the frequency bands 14.5-14.8 GHz² and 17.3-18.1 GHz for the broadcasting-satellite service in Regions 1 and 3 contained in this Appendix ~~together with any modifications resulting from the successful application of the procedure of Article 4 herein referred to as the Regions 1 and 3 Plan.~~

1.2 *Region 2 feeder link Plan:* The Plan for the feeder-links in the frequency band 17.3-17.8 GHz for the broadcasting-satellite service in Region 2 contained in this Appendix, together with any modifications resulting from the successful application of the procedure of Article 4 herein referred to as the Region 2 Plan.

MOD

1.3 *Frequency assignment in conformity with the Plans:* Any frequency assignment for a receiving space station or transmitting earth station which appears in the Regions 1 and 3 Plan or any frequency assignment for a receiving space station or transmitting earth station which appears in the Region 2 Plan or for which the procedure of Article 4 has been successfully applied.

1.4 *1983 Conference:* Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz and Associated Feeder-links in the Frequency Band 17.3-17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983.

1.5 *1985 Conference:* First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85.

1.6 *1988 Conference:* Second Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1988, called in short WARC Orb-88.

ADD

1.7 *2000 Conference:* World Radiocommunication Conference (Istanbul, 2000) called in short WRC-2000.

² This use the band 14.5-14.8 GHz is reserved for countries outside Europe.

ADD

1.8 Additional use in Regions 1 and 3: for the application of the provisions of this Appendix, additional uses in Regions 1 and 3 are:

- a) use of assignments with characteristics different from those appearing in the Regions 1 and 3 Plan and which are capable of causing more interference [or require more protection from interference] than the corresponding entries in the Plan;
- b) use of assignments in addition to those appearing in the Plan;

ADD

1.9 Regions 1 and 3 List of additional uses (hereafter called in short “the List”): The list of assignments for additional uses in Regions 1 and 3 as established by WRC-2000, as updated following the successful application of the procedure of § 4.1 of Article 4 of this Appendix.

ARTICLE 2

Frequency bands

NOC

2.1

ADD

2.2 The use of the guardbands of the Plans in Appendix **S30A**, as defined in sections 3.1 and 4.1 of Annex 3 to this Appendix, to provide space operations functions in accordance with No. **S1.23** in support of GSO BSS networks operation, shall be coordinated with the assignments subject to these Plans using the provisions of Article 7 of this Appendix. Coordination among assignments intended to provide these functions and services not subject to a Plan shall be effected using the provisions of No. **S9.7** and the associated provisions of Articles **S9** and **S11**. Coordination of modifications to the Region 2 Plan, or assignments to be included in the Regions 1 and 3 List, with assignments intended to provide these functions shall be effected using paragraph 4.1.1 *d*) as appropriate, of Article 4 of Appendix **S30A**.

ARTICLE 3

Execution of the provisions and associated Plans

3.1 The Member States in Regions 1, 2 and 3 shall adopt, for their feeder-link space and earth stations in the fixed-satellite service (Earth-to-space) in the frequency bands referred to in this Appendix, the characteristics specified in the appropriate Regional Plan and the associated provisions.

3.2 The Member States shall not change the characteristics specified in the Region 1 and Region 3 Plans or in the Region 2 Plan, or bring into use assignments to receiving space stations or transmitting earth stations in the fixed-satellite service or to stations of the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

3.3 The procedures for the use of interim systems in Region 2 for feeder-links in the fixed-satellite service for the bands covered by this Appendix are given in Resolution **42 (Rev.Orb-88)**.

ADD

3.4 The Plan for Regions 1 and 3 is based on national coverage from the geostationary-satellite orbit. The associated procedures contained in this Appendix are intended to promote long-term flexibility of the Plan and to avoid monopolization of the planned bands and orbit by a country or a group of countries.

ARTICLE 4

MOD

Procedure for modifications to the Region 2 Plans or for additional uses in Regions 1 and 3

ADD

4.1 Provisions applicable to Regions 1 and 3

4.1.1 An administration proposing to include a new or modified assignment in the List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations^{1, 2}:

- a)* of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service, in the same channel or an adjacent channel, in the same orbital position or an adjacent orbital position in the range $\pm 12.5^\circ$, which is included in the Regions 1 and 3 Plan, *or*
- b)* of Regions 1 and 3 having a feeder-link frequency assignment included in the List or for which complete [Annex 2] [Appendix S4] information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*
- c)* of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 feeder-link Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article; *or*
- d)* of Region 2 having a feeder-link frequency assignment in the band 17.8-18.1 GHz in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. **S9.7**, or under § 7.1 of this Appendix.

¹ See Resolution XXX.

² Agreement with administrations having a frequency assignment in the bands 14.5-14.8 GHz or 17.7-18.1 GHz to a terrestrial station or having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth) shall be sought respectively under No. **S9.17** or No. **S9.17A**.

ADD

4.1 Provisions applicable to Regions 1 and 3

4.1.1 An administration proposing to include a new or modified assignment in the List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations³:

- a) of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service, any portion of which falls within the necessary bandwidth of the proposed assignment, which is included in the Regions 1 and 3 Plan; *or*
- b) of Regions 1 and 3 having a frequency assignment included in the List or for which complete Appendix **S4** information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*
- c) of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article; *or*
- d) having no frequency assignment in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed assignment or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the proposed assignment exceeds the prescribed limit as a result of the proposed assignment; *or*
- e) having a frequency assignment in the band 11.7-12.2 GHz in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master International Frequency Register (Master Register) or for which complete coordination information has been received by the Bureau for coordination under No. **S9.7**, or under § 7.1 of this Appendix.

4.1.2 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

4.1.3 An administration intending to include a new or modified assignment in the List shall send to the Bureau, not earlier than eight years but preferably not later than two years before the date on which the assignment is to be brought into use, the relevant information listed in Appendix **S4**. An assignment in the List shall lapse if it is not brought into use by that date.⁴

4.1.4 If the information received by the Bureau under paragraph 4.1.3 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

³ See Resolution XXX.

⁴ See Resolution YYY.

4.1.5 The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected. The Bureau shall publish, in a Special Section of its International Frequency Information Circular (IFIC), the complete information received under § 4.1.3, together with the names of the affected administrations, FSS networks and BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the assignment.

4.1.6 The Bureau shall send a telegram/fax to the administrations listed in the Special Section of the IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

4.1.7 An administration which considers that it should have been identified in the publication referred to under paragraph 4.1.5 above shall, within four months of the date of publication of the relevant IFIC, and giving the technical reasons for so doing, request the Bureau to include its name in the publication. The Bureau shall study this information on the basis of Annex 1 and shall inform both administrations of its conclusions. Should the Bureau agree to the administration's request, it shall publish an addendum to the publication under paragraph 4.1.5.

4.1.8 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

4.1.9 Comments from administrations on the information published pursuant to § 4.1.5 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

4.1.10 An administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the IFIC referred to in § 4.1.5 shall be understood to have agreed to the proposed assignment. This time limit may be extended:

- for an administration that has requested additional information under § 4.1.8 by up to three months, or
- for an administration that has requested the assistance of the Bureau under § 4.1.21 by up to three months following the date at which the Bureau communicated the result of its action.

4.1.11 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.1 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.1.12 If no comments have been received on the expiry of the periods specified in § 4.1.10, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the new or modified assignment may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.1.13 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.1.14 When the proposed assignment involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

4.1.15 The Bureau shall publish in a Special Section of the IFIC the information received under § 4.1.12 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall be included in the List.

4.1.16 In case of disagreement from an administration whose agreement has been sought, the requesting administration should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.1.17 If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by either one of these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.1.18 If in spite of the application of paragraphs 4.1.16 and 4.1.17, there is still continuing disagreement and the notifying administration insists that the proposed assignment be included in the List, the Bureau shall enter the assignment provisionally in the List with an indication of those administrations whose assignments were the basis of the disagreement. The entry shall be changed from provisional to definitive recording in the List only if the Bureau is informed that the new assignment has been in use, together with the assignment which was the basis for the disagreement, for at least four months without any complaint of harmful interference being made.

4.1.19 Should the assignments that were the basis of the disagreement not be brought into use within the period specified in No. **S11.44** (for the non-planned services), or in paragraph 4.1 (for assignments in the List or having initiated the procedure under paragraph 4.1), as appropriate, then the status of the assignment in the List shall be reviewed accordingly.

4.1.20 Should harmful interference be caused by an assignment included in the List under paragraph 4.1.18 to any recorded assignment in the MIFR which was the basis of the disagreement, the administration using the frequency assignment included in the List under paragraph 4.1.18 shall, upon receipt of advice thereof, immediately eliminate this harmful interference.

4.1.21 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau.

4.1.22 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Bureau.

4.1.23 When a frequency assignment included in the List is no longer required, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a Special Section of its IFIC and delete the assignment from the List.

4.1.24 No assignment in the List shall have a period of operation exceeding 15 years, counted from the date of bringing into use, or 2 June 2000, whichever is later. Upon request by the responsible administration received by the Bureau at the latest three years before the expiry of this period, this period may be extended by up to 15 years, on the condition that all the characteristics of the assignment remain unchanged.

4.1.25 When an administration already having included in the List two assignments (not including those systems notified on behalf of a group of named administrations and included in the List by WRC-2000) in the same channel and covering the same service area, proposes to include in the List a new assignment in the same channel over this service area, it shall apply the following in respect of another administration which has no assignment in the List in the same channel and which proposes to include in the List a new assignment:

- a) If the agreement of the former administration is required following the application of paragraph 4.1 by the latter administration, in order to protect the new assignment proposed by the former administration from interference caused by the assignment proposed by the latter administration, both administrations shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks;
- b) in case of continuing disagreement, and if the former administration has not communicated to the Bureau the information specified in Annex 2 of Resolution **49 (WRC-2000)**, this administration shall be deemed to have given its agreement to the inclusion in the List of the assignment of the latter administration.

4.1.26 This procedure may be applied by the administration of a new ITU Member State in order to include new assignments in the List. Upon completion of the procedure, the next World Radiocommunication Conference may be requested to consider, among the assignments included in the List after the successful completion of this procedure, the inclusion in the Plan of up to 10 channels (for Region 1) and 12 channels (for Region 3), over the national territory of the new Member State.

4.1.27 The List as updated shall be published periodically by the Bureau.

ADD

4.2 Provisions applicable to Region 2

MOD

~~4.14.2.1~~ When an administration intends to make a modification to ~~one of the Regional~~the Region 2 Plans, i.e. either:

- a) to modify the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the ~~appropriate Regional~~Region 2 Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; *or*
- b) to include in the Region 2 Plan a new frequency assignment in the fixed-satellite service; *or*
- c) to cancel a frequency assignment in the fixed-satellite service,

the following procedure shall be applied before any notification of the frequency assignment is made to the Radiocommunication Bureau (see Article 5 and Resolution **42 (Rev.Orb-88)**).

~~4.1.1 Before an administration proposes to include in the Plan, under the provisions of § 4.1 b), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should have been Brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan.~~

4.2 — ~~Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or proposed inclusion in that Plan of a new frequency assignment~~

~~For Regions 1 and 3~~

4.2.1 — ~~An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations:~~

4.2.1.1 — ~~of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, in the same orbital position or an adjacent orbital position in the range $\pm 12.5^\circ$, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; or~~

4.2.1.2 — ~~having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. S9.7 and which is located within the coordination area of the feeder-link fixed-satellite earth station; or~~

4.2.1.3 — ~~having a frequency assignment in the bands 14.5-14.8 GHz or 17.7-18.1 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder-link modification into use, and which is located within the coordination area of the feeder-link fixed-satellite earth station; or~~

4.2.1.4 — ~~having an assignment for feeder links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 feeder-link Plan, or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article;~~

4.2.1.5 — ~~which are considered affected.~~

4.2.1.6 — ~~The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.~~

4.2.2 — ~~The agreement referred to in § 4.2.1 is not required when an administration proposes to bring into use, with characteristics³ appearing in the Plan, a fixed feeder-link earth station or a transportable feeder-link earth station in the bands 14.5-14.8 GHz or 17.3-18.1 GHz.~~

~~For Region 2~~

4.2.32 — ~~An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations^{3bis/3ter}~~

³ — ~~The power to be taken into account is obtained by adding the values specified in columns 13 and 14 of the Plan.~~

^{3bis} Agreement with administrations having a frequency assignment in the bands 17.7-17.8 GHz to a terrestrial station or to an earth station in the fixed-satellite service (space-to-Earth) shall be sought respectively under No. S9.17 or No. S9.17A.

^{3ter} Agreement with administrations having a frequency assignment in the band 17.3-17.8 GHz to an earth station in the broadcasting-satellite service shall be sought under No. S9.19.

~~4.2.3.1 — of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; or~~

~~4.2.3.2 — having a frequency assignment in the band 17.7-17.8 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. S9.7 and which is located within the coordination area of the feeder-link fixed-satellite earth station; or~~

~~4.2.3.3 — having a frequency assignment in the band 17.7-17.8 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder-link modification into use, and which is located within the coordination area of the feeder-link fixed-satellite earth station; or~~

~~4.2.3.4a) having an assignment for feeder-links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 feeder-link Plan, or in respect of which proposed modifications to the Plan have already been published by the Bureau in accordance with the provisions of § 4.2.6.1 and 4.2.7 of this Article; or~~

~~b) of Regions 1 and 3 having a feeder-link frequency assignment included in the List or for which complete [Annex 2][Appendix S4] information has already been received by the Bureau in accordance with the provisions of § 4.1.3 of this Article, and any portion of which falls within the necessary bandwidth of the proposed assignment; or~~

~~c) of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 of this Article; or~~

~~4.2.3.5 which are considered affected.~~

~~4.2.3.64 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.~~

~~4.2.45 The agreement referred to in § 4.2.32 is not required when an administration proposes to bring into use, with characteristics appearing in the Plan, a fixed feeder-link earth station in the band 17.3-17.8 GHz or a transportable feeder-link earth station in the band 17.3-17.7 GHz. Administrations may communicate to the Bureau the characteristics of such earth stations for inclusion in the Plan.~~

For all Regions

~~4.2.56 An administration intending to modify characteristics in one of the Regionalthe Region 2 Plans shall send to the Bureau, not earlier than eight years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2Appendix S4 to this Appendix. Modifications to that Plan involving additions under § 4.2.1 b) shall lapse if the assignment is not brought into use by that state.~~

~~4.2.7 If the information received by the Bureau under paragraph 4.2.6 is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.~~

~~4.2.6 — If an administration wishes to modify its assignments in the Plans contained in Appendices S30 and S30A, the eight year period of § 4.2.5 will be applicable in lieu of the five-year period specified in § 4.3.5 of Appendix S30.~~

~~4.2.6.1 — Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Bureau the information required by § 4.2.5. The Bureau shall then publish this information in a special section of its Weekly Circular.~~

~~4.2.6.2 — In all other cases the administration shall notify the Bureau of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in § 4.2.1 and 4.2.3 as well as of those with which agreement has already been reached.~~

~~4.2.78~~ The Bureau shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of § 4.2.1 and 4.2.34.2.2. The Bureau shall include the names of those administrations with the information received under § 4.2.6.2 and shall publish, in a special section of its IFIC, the complete information in a special section of its Weekly Circular received under § 4.2.6, together with the names of the affected administrations, FSS and BSS networks and feeder-link BSS assignments, as appropriate. The Bureau shall immediately send the results of its calculations to the administration proposing the modification to the Region 2 Plan.

~~4.2.89~~ The Bureau shall send a telegram/fax to the administrations listed in the special section of the ~~weekly circular~~ IFIC drawing their attention to the information it contains and shall send them the results of its calculations.

~~4.2.910~~ An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Bureau to include its name. The Bureau shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Region 2 Plan.

~~4.2.101~~ Any modification to a frequency assignment which is in conformity with the Region 2 Plan or any inclusion in ~~the that~~ Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all affected administrations.

~~4.2.112~~ The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Bureau of such requests.

~~4.2.123~~ Comments from administrations on the information published pursuant to § 4.2.78 should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made.

~~4.2.134~~ An administration which has not notified its comments either to the administration seeking agreement or to the Bureau, within a period of four months following the date of the ~~Weekly Circular~~ IFIC referred to in § 4.2.6.1 or § 4.2.74.2.8 shall be understood to have agreed to the proposed modification. This time-limit may be extended by up to three months for an administration which has requested additional information under § 4.2.112 or for an administration which has requested the assistance of the Bureau under § 4.2.212. In the latter case the Bureau shall inform the administrations concerned of this request.

~~4.2.145~~ If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of § 4.2.5 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.2.156 If no comments have been received on the expiry of the periods specified in § 4.2.134, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Bureau, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.2.167 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.2.178 When the proposed modification to the Region 2 Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

4.2.189 The Bureau shall publish in a special section of its ~~Weekly Circular~~ IFIC the information received under § 4.2.156 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the Region 2 Plan and will be considered as a frequency assignment in conformity with the Plan.

4.2.1920 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.2.201 If no agreement is reached between the administrations concerned, the Bureau shall carry out any study that may be requested by these administrations; the Bureau shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.2.212 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Bureau, ~~particularly in seeking the agreement of another administration.~~

4.2.223 The relevant provisions of Article 5 shall be applied when frequency assignments are notified to the Bureau.

4.34.2.24 Cancellation of frequency assignments

When a frequency assignment in conformity with ~~one of the Regional~~ the Region 2 Plans is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Bureau. The Bureau shall publish this information in a special section of its ~~weekly circular~~ IFIC and delete the assignment from the Region 2 Plan.

4.44.2.25 Master copies of the Plans

4.4.1 ~~The Bureau shall maintain up-to-date master copies of the Plans as well as master copies of the margin reports, including for each assignment the overall equivalent protection margins in respect of Region 2 and the feeder link equivalent protection margins and the overall equivalent protection margins in respect of Regions 1 and 3, taking account of the application of the procedure specified in this Article. Each master copy of the margin reports shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference in the~~

~~ease of Region 2 and the feeder-link equivalent protection margins and the overall equivalent protection margins for the 1988 Conference in the case of Regions 1 and 3 and those derived from all modifications to the Plans as a result of the successful completion of the modification procedure of this Article.~~

4.2.25.1 The Bureau shall maintain an up-to-date master copy of the Region 2 Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure described in this Article. The Bureau shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure described in this Article.

~~4.4.22.25.2 The Secretary General shall be informed by the Bureau of any modifications made to the Regional Plans and shall publish up-to-date versions of the Plans in an appropriate form. An up-to-date version of the Region 2 Plan shall be published by the Secretary-General when justified by the circumstances.~~

ARTICLE 6

Procedure concerning coordination, notification and recording in the Master International Frequency Register of frequency assignments to receiving terrestrial stations in Regions 1 and 3 in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, and in Region 2 in the band 17.7-17.8 GHz, when frequency assignments to feeder-link transmitting earth stations for the broadcasting-satellite service in conformity with the Regions 1 and 3 Plan or the Region 2 Plan are involved

MOD

6.1 Administrations planning to implement assignments for terrestrial stations in Regions 1 and 3 in the bands 14.5-14.8 GHz and 17.7-18.1 GHz, and in Region 2 in the 17.7-17.8 GHz band should evaluate the level of interference assessed on the basis of coordination contours calculated in accordance with Appendix S7⁵, which might be caused by ~~the closest~~ a feeder-link earth station ~~which could be located on the border of~~ within the territory of another administration and included in the service area of an assignment to a BSS feeder-link space station which is in conformity with the appropriate Regional Plan. Should the administration planning terrestrial stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth station to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

⁵ In the case of Regions 1 and 3, the feeder-link earth-station power to be taken into account is obtained by adding the values specified in columns 13 and 14 of the Plan.

NOC

6.2 In the case of Region 2, when the entry in the Plan contains information on specific earth stations, this shall be used in the interference calculations mentioned in § 6.1 above. When such information is not contained in the Region 2 Plan, an administration which receives a request under § 6.1 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the terrestrial station, and to the Bureau in order to update the Plan.

MOD

6.3 In the case of Regions 1 and 3, an administration which receives a request under § 6.1 shall, within a period of ~~three~~four months, communicate the details of the feeder-link stations to the administration planning the terrestrial station, and to the Bureau for information.

MOD

6.4 If, at the end of a period of ~~three~~four months, the administration responsible for the terrestrial station does not receive a reply, it may request the assistance of the Bureau.

MOD

6.5 If the administration responsible for the feeder-link earth station does not communicate to the Bureau, within a period of ~~three~~four months, the information requested under § 6.1, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the terrestrial station under consideration.

NOC

6.6 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, the administration responsible for the terrestrial station may notify this station under Article **S11** for recording in the Master Register. A remark shall be included indicating either that an agreement has been reached or that no comments have been received.

MOD

ARTICLE 7

Procedure concerning coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in Regions 1, 2 and 3 in the band 17.7-18.1 GHz and in Region 2 in the band 17.7-17.8 GHz, to stations in the fixed-satellite service (Earth-to-space) in Region 2 in the band 17.8-18.1 GHz and to stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz when frequency assignments to feeder-links for broadcasting-satellite stations appearing in the 17.3-18.1 GHz band in the Regions 1 and 3 Plan or in the band 17.3-17.8 GHz in Region 2 Plan are involved

ADD

Section I – Coordination of transmit space or earth stations in the fixed-satellite service or transmit space stations in the broadcasting-satellite service with assignments to BSS feeder links

MOD

7.1 The provisions of No. **S9.7^{5bis}** and the associated provisions under Articles **S9** and **S11** and ~~Appendix S8~~ are applicable to transmitting space stations in the fixed-satellite service in the band 17.7-18.1 GHz, to transmitting earth stations in the fixed-satellite service in Region 2 in the band 17.8-18.1 GHz and ~~the provisions of Resolution 33 are applicable to transmitting space stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz together with the provisions of Annex 4, except that in relation to feeder link stations, the relevant criteria mentioned in Appendix S8 are replaced by those given in Section 1 of Annex 4.~~

ADD

7.2 In applying procedures referred to in § 7.1, the provisions of Appendix **S5** are replaced by the following:

7.2.1 The frequency assignments to be taken into account are:

- a) the assignments in conformity with the appropriate Regional Plan in Appendix **S30A**;
- b) the assignments included in the Regions 1 and 3 List;
- c) the assignments for which the procedure of Article 4 of this Appendix has been initiated, from the date of receipt of the complete Appendix **S4** information under 4.1 or 4.2.

7.2.2 Criteria to be applied are those given in Annex 4 to the Appendix.

^{5bis} The provisions of Resolution **33 (Rev.WRC-97)** are applicable to space stations in the BSS for which the API or the request for coordination has been received by the Bureau prior to 1 January 1999.

ADD

Section II – Coordination with assignments in conformity with the appropriate Regional Plan in Appendix S30A

MOD

7.23 Administrations planning to implement assignments for receiving earth stations in all Regions 1 and 3 in the 17.7-18.1 GHz band and in Region 2 in the 17.7-17.8 GHz band in the fixed-satellite service (space-to-Earth) or in the 17.3-17.8 GHz band in the broadcasting-satellite service should evaluate the level of interference, assessed on the basis of coordination contours calculated in accordance with Section 3 of Annex 4 Appendix S7, which might be caused by the closest a feeder-link earth station which could be located on the border of within the territory of another administration and included in the service area of an assignment to a BSS feeder-link space station which is in conformity with the appropriate Regional Plan. Should the administration planning receiving earth stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth stations to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

MOD

7.34 In the case of Region 2, when the entry in the Plan contains information on specific earth stations this shall be used in the interference calculations mentioned in § 7.2 above. When such information is not contained in the Plan an administration which receives a request under § 7.2 shall, within a period of threefour months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Bureau in order to update the Plan.

MOD

7.45 In the case of Regions 1 and 3, an administration which receives a request under § 7.2 shall, within a period of threefour months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Bureau for information.

MOD

7.56 If, at the end of the period of threefour months, the administration responsible for the fixed-satellite or broadcasting-satellite receiving earth station(s) does not receive a reply, it may request the assistance of the Bureau.

MOD

7.67 If the administration responsible for the feeder-link earth stations does not communicate to the Bureau, within a period of threefour months, the information requested under § 7.2, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the fixed-satellite or broadcasting-satellite earth station(s) under consideration.

NOC

7.78 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, and when the station is recorded in the Master Register in accordance with Article **S11**, the Bureau shall enter a remark indicating either that an agreement has been reached or that no comments have been received.

ADD

Section III – Coordination with assignments in the Regions 1 and 3 List, or for which the procedure of Article 4 of Appendix S30A has been initiated

7.9 The provisions of **S9.17A** and the associated provisions under Articles **S9** and **S11** and Appendix **S5**, are applicable to FSS and BSS receiving earth stations in respect of frequency assignments to transmit BSS feeder-link earth stations in the fixed-satellite service in the bands 17.3-18.1 GHz in Regions 1 and 3 and 17.3-17.8 GHz in Region 2, which correspond to assignments to receiving BSS feeder-link space stations already included in the Regions 1 and 3 List, or for which the procedure of Article 4 of Appendix S30A has been initiated, from the date of receipt of the complete Appendix **S4** information.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/108(Rev.2)-E
29 May 2000
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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Drafting Group 1

DRAFTING GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

**RESOLUTION CONCERNING THE BRINGING INTO FORCE OF
REGIONS 1 AND 3 BSS PLANS ADOPTED BY WRC-2000**

Following discussions at the meeting of GT PLEN-1 on 29 May 2000 a revised version of the above-mentioned proposed new Resolution is attached for consideration. If adopted, this Resolution may need to be listed in Article 59 of the Final Acts.

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

ADD

RESOLUTION [GT PLEN-1/...] (WRC-2000)

**Implementation of WRC-2000 broadcasting-satellite service Plans
and associated broadcasting-satellite service feeder-link Plans of
Appendices S30/S30A of the Radio Regulations**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WRC-2000 has adopted a Plan for the broadcasting-satellite service (BSS) in the frequency bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1, as well as a Plan for feeder links for the BSS in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and has also revised the technical criteria and regulatory procedures of those Plans as contained in Appendix **S30** and Appendix **S30A**;
- b) that this Conference decided that the provisions of the Radio Regulations, as revised by it, shall provisionally apply as from [date to be decided];
- c) that there is a need to apply a single set of technical criteria and regulatory provisions for processing of Article 4 submissions, so as to avoid problems due to parallel sets of technical criteria or regulatory provisions;
- d) that it is necessary to ensure that the integrity of the Region 2 Plan and its associated provisions is ensured,

resolves to instruct the Radiocommunication Bureau

- 1 that the Regions 1 and 3 Plan, the List and their associated procedures together with the annexes thereto be entered into force as of 3 June 2000;
- 2 that for the notification of assignments under Article 5 of Appendices **S30/S30A** for Regions 1 and 3:
 - 2.1 for assignments which are contained in the List: once notified with the same characteristics, they will be examined with the same criteria and calculation methods used when they completed the procedure of Article 4;
 - 2.2 for those assignments contained in the Plan: the new criteria and calculation methods as adopted by WRC-2000 will be used;
- 3 that for the notification of assignments with the same characteristics under Article 5 of Appendices **S30/S30A** for Region 2 which have already completed the procedure of Article 4, the same criteria and calculation methods used when they completed the procedure of Article 4 will be used;
- 4 that for assignments of all three Regions whose notified characteristics are different from those used for coordination, the new criteria and calculation methods as adopted by WRC-2000 will be used.



**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Drafting Group 1

DRAFTING GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

**RESOLUTION CONCERNING THE BRINGING INTO FORCE OF
REGIONS 1 AND 3 BSS PLANS ADOPTED BY WRC-2000**

Attached for consideration is a proposed new Resolution. If adopted, this Resolution may need to be listed in Article 59 of the Final Acts.

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

ADD

RESOLUTION [GT PLEN-1/...] (WRC-2000)

**Implementation of WRC-2000 broadcasting-satellite service Plans
and associated broadcasting-satellite service feeder-link Plans of
Appendices S30/S30A of the Radio Regulations**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that WRC-2000 has adopted a Plan for the broadcasting-satellite service (BSS) in the frequency bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1, as well as a Plan for feeder links for the BSS in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and has also revised the technical criteria and regulatory procedures of those Plans as contained in Appendix **S30** and Appendix **S30A**;
- b) that this Conference decided that the provisions of the Radio Regulations, as revised by it, shall provisionally apply as from [date to be decided];
- c) that there is a need to apply a single set of technical criteria and regulatory provisions for processing of Article 4 submissions, so as to avoid problems due to parallel sets of technical criteria or regulatory provisions;
- d) that it is necessary to ensure that the integrity of the Region 2 Plan and its associated provisions is ensured,

resolves to instruct the Radiocommunication Bureau

- 1 that for the examination of submissions for modification of assignments in the Regions 1 and 3 Plans received under Articles 4 and 5 of Appendices **S30** and **S30A**, Appendices **S30** and **S30A** as adopted at WRC-2000 shall take effect from [3 June 2000];
- 2 that for the examination of submissions for modification of assignments in the Region 2 Plan received under Articles 4 and 5 of Appendices **S30** and **S30A**, Appendices **S30** and **S30A** as adopted at WRC-2000 shall take effect from [];
- 3 that implementation of decisions related to examination of submissions for modification of assignments in the Regions 1 and 3 Plans received under Articles 4 and 5 of Appendices **S30** and **S30A** prior to [3 June 2000] is contained in Resolution **533 (Rev.WRC-2000)**.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Drafting Group 1

DRAFTING GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

**RESOLUTION CONCERNING THE BRINGING INTO FORCE OF
REGIONS 1 AND 3 BSS PLANS ADOPTED BY WRC-2000**

Attached for consideration is a proposed new Resolution. If adopted, this Resolution may need to be listed in Article 59 of the Final Acts.

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

RESOLUTION [GT PLEN-1/...] (WRC-2000)

**Implementation of WRC-2000 broadcasting-satellite service Plans
and associated broadcasting-satellite service feeder-link Plans of
Appendices S30/S30A of the Radio Regulations**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that WRC-2000 has adopted a Plan for the broadcasting-satellite service (BSS) in the frequency bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1, as well as a Plan for feeder links for the BSS in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and has also revised the technical criteria and regulatory procedures of those Plans as contained in Appendix **S30** and Appendix **S30A**;
- b)* that this Conference decided that the provisions of the Radio Regulations, as revised by it, shall provisionally apply as from [date to be decided];
- c)* that there is a need to apply a single set of technical criteria and regulatory provisions for processing of Article 4 submissions, so as to avoid problems due to parallel sets of technical criteria or regulatory provisions,

resolves to instruct the Radiocommunication Bureau

- 1 to apply, as of [3 June 2000], the technical data contained in Annexes to Appendix **S30** and Appendix **S30A** and the regulatory provisions contained in Articles [4 to 7] of Appendices **S30/S30A** to the submissions under Articles 4 and 5 of those Appendices;
- 2 Article 4 submissions received prior to [3 June 2000] shall be analysed [according to the Regulations adopted at this Conference and] using the methodology and criteria contained in the technical Annexes to Appendices **S30/S30A**.



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Documents WRC2000/36, 262

WORKING GROUP 1
OF THE PLENARY

Note by the Chairperson of ad hoc Group 1 of GT PLEN-1

DRAFT RESOLUTION [GT PLEN-1/ABC]

Use of Appendix S4 in lieu of Annex 2 in application of Appendix S30B

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that this conference decided to use Appendix **S4** in lieu of Annex 2 for the submission of data under Appendix **S30/30A**;

b) that it is critical to harmonize the data structure of the space service and to integrate space plans data in the existing Space Data Base (SNS),

noting

that the issue of Appendix **S30B** is not on the agenda of this conference,

resolves

to request the RRB to adopt a Rule of Procedure which would require administrations to use Appendix **S4** when furnishing the basic data relating to stations in the fixed-satellite service subject to Appendix **S30B**,

instructs the Director, BR

to bring this resolution to the attention of RRB.



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Document DL/66

WORKING GROUP 1
OF THE PLENARY

Note by the Chairperson of ad hoc Group 1 of GT PLEN-1

REGIONS 1 AND 3 BSS/BSS SHARING

Ad hoc Group 1 of GT PLEN-1 established the Informal Group - GT PLEN-1 - 1B under the chairmanship of Mr David C. Netterville. Please find enclosed the report on this issue as far as it could be approved by ad hoc Group 1.

1 Terms of reference of GT PLEN-1 - 1B

To consider changes to the examination and criteria to be used for determining when a proposed entry in the List would be considered as affecting either:

- a) an assignment in the Plan; or
- b) an assignment in the List; or
- c) a previously proposed entry in the List.

The informal group met on numerous occasions and agreed that there would be benefits to modify the criteria and the method used for determining when any of the above assignments would be considered as being affected.

The proposed text that would replace that currently in Annex 1 of Appendix S30 for the Regions 1 and 3 Plan is included in the attachment to this document.

While the group did not specifically consider text for Appendix S30A:

- it was suggested that the same approach could be utilized with the provision that the 27 dB criteria would be changed to 34 dB; and
- with the understanding that the equivalent diameter concept would not apply; and
- rain fade would be taken into consideration on the wanted path.

Christoph DOSCH
Chairperson of ad hoc Group 1
to GT PLEN-1, Box 751

ATTACHMENT

Annex 1 proposed criterion for protection of the Plan or the List or assignments previously proposed for inclusion in the List

With respect to paragraphs 4.1.1 *a)* or *b)* of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the effect of the proposed new or modified assignments in the List would result in the single-entry carrier to interference ratio (C/I) at any test point within the service area associated with any of its frequency assignments in the Plan, or in the List or proposed for inclusion in the List falling below 27 dB. This C/I ratio shall be calculated as follows:

e.i.r.p._{wanted}: e.i.r.p. of the wanted broadcasting-satellite space station at the test point considered (E_w)

e.i.r.p._{interfering}: e.i.r.p. of the interfering emission of a broadcasting-satellite space station at the test point considered (E_i)

D_e: For entries in the List, the equivalent antenna diameter (in metres) at the test point considered in the interference analyses: the earth station antenna diameter required to obtain the same carrier to thermal noise ratio as a 60 cm antenna, compliant with Recommendation ITU-R BO.1213, pointed at a BSS satellite providing an e.i.r.p. of [54.5] dBW into the same test point under clear-sky conditions.

$$D_e = 0.6 \times 10^{(54.5 - \text{e.i.r.p.}_{\text{wanted}})/20}$$

[It is proposed to establish a minimum antenna diameter of 45 cm and a maximum of 2.4 m, compliant with Recommendation ITU-R BO.1213.]

G_{wanted}: On-axis gain of the [equivalent] antenna at the test point considered, assuming a 65% efficiency.

G_{θwanted}: Co-polar or cross-polar antenna gain of the [equivalent] victim receiving antenna at the test point considered, in the direction of the interfering satellite, under the worst-case satellite station-keeping situation, using Recommendation ITU-R BO.1213 and including the effect of different polarization tilt angles as indicated in Recommendation ITU-R BO.1212.

$C/I = E_w - \text{free space path loss for the wanted path} - E_i + \text{free space path loss on the interfering path} + G_{\theta\text{wanted}} - G_{\text{wanted}} - K$

where:

K is the ratio of the bandwidth of the interfering signal overlapping the bandwidth of the wanted signal to the bandwidth of the interfering signal as described in Recommendation ITU-R BO.1293.

Interference from satellites at geocentric separations angles greater than 9.0 degrees would not be taken into account, except in the case where an administration were to show within the four month comment period that its assignments would suffer a single-entry C/I less than 27 dB.



NOTE BY THE CHAIRPERSON OF AD-HOC GROUP 1 TO GT PLEN-1

Document 269 was assigned to Ad-hoc Group 1 at the 8th meeting of GT PLEN-1 (23 May 2000). Ad-Hoc Group 1 discussed this document at their ninth meeting on 25 May 2000. Proposal J/269/1 contained in this document requests to retain existing systems, which are currently in the Plan with national coverage, in the new Plan (i.e. not in the List) and to group them with digital national beams assigned by WRC-2000, provided that the existing system and the newly assigned beams are located at the same orbital position.

A conclusion with respect to determine whether an assignment of an “existing” or “Part B” system, which is contained in the ongoing planning process and listed in Document 328, is to be incorporated in the new R1/R3 Plan or the List, could be as follows:

Systems of national service area (“existing” and “Part B” systems, which have not more than 10 channels (or the corresponding number entered by WRC-97)), are nominally included in the new R1/R3 Plan. Systems with multi-national coverage resulting from successful application of the Article 4 modification procedure are nominally included in the List. Administrations should be invited to opt accordingly. Once the option taken, the results are to be submitted to the Conference for approval.

Proposal J/269/2 contained in Document 269 was not explicitly discussed by Ad-hoc Group 1 due to lack of time. It was, however, implicitly considered during the discussions of Document DL/66 (now DT/110) relating to sharing criteria for future additions to the List. As the latter document could not be approved, the issue of protection ratios to be maintained for “existing” systems needs clarification in the further considerations of Document DT/110 at the level of GT PLEN-1.



**WORKING GROUP 2
OF THE PLENARY**

Chairperson, GT PLEN-2

RESOLUTION [GT PLEN-2/4] (WRC-2000)

Agenda for the 2003 World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference should be established four to six years in advance and a final agenda shall be established by the Council two years before the conference;
- b)* Article 13 of the ITU Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention regarding their agendas;
- c)* the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

recognizing

- a)* that this conference has identified a number of urgent issues requiring further examination by WRC-03;
- b)* that in preparing this agenda, many proposals from administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a world radiocommunication conference be held in [2003] for a period of [four] weeks, with the following agenda:

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of WRC-2000, and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action with respect to the following topics:

- 1.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-2000)**;
- 1.2 to review and take action as required on No. **S5.134** and related Resolutions **517 (Rev.WRC-97)**, **537 (WRC-97)**, Recommendations **515 (Rev.WRC-97)**, **517 (Rev.WRC-2000)**, **519 (WRC-92)** and Appendix **S11**, in the light of the studies and actions set out therein, having particular regards to the advancement of new modulation techniques, including digital techniques, capable of providing an optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;
- 1.3 to consider identification of globally/regionally harmonized bands, to the extent practicable, to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief and to make regulatory adjustments, as necessary;
- 1.4 to consider the results of studies related to Resolution **114 (WRC-95)**, dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocations to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;
- 1.5 to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth exploration-satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (**WRC-2000**);
- 1.6 to consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
- 1.7 issues concerning the amateur and amateur-satellite services:
 - 1.7.1 to consider the possible revision of Article **S25**;
 - 1.7.2 to review the provisions of Article **S19** concerning the formation of call signs in the amateur services in order to provide flexibility for administrations;
 - 1.7.3 to review the terms and definitions of Article **S1** to the extent required as a consequence of changes made in Article **S25**;
- 1.8 issues related to unwanted emissions:
 - 1.8.1 to consider the results of studies regarding the boundary between spurious and out-of-band emissions with a view to include the boundary in Appendix **S3**;
 - 1.8.2 to consider the results of studies and to propose any regulatory measure regarding the protection of passive services from unwanted emissions, in particular from space services transmissions, in response to *recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)**;
- 1.9 to consider Appendix **S13** and Resolution **331 (Rev.WRC-97)** with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);
- 1.10 to consider the results of studies, and take necessary actions relating to:

- 1.10.1 the exhaustion of the maritime mobile service identity numbering resource (Resolution **344 (WRC-97)**);
- 1.10.2 shore-to-ship distress communication priorities (Resolution **348 (WRC-97)**);
- 1.11 to consider possible extension of the allocation to the mobile-satellite service (Earth-to-space) on a secondary basis in the band 14-14.5 GHz to permit the aeronautical mobile-satellite service as stipulated in Resolution **216 (Rev.WRC-2000)**;
- 1.12 to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev.WRC-2000)** and to review all EESS and SRS allocations between 35 and 38 GHz taking into account Resolution **[COM5/1] (WRC-2000)**;
- 1.13 to consider regulatory provisions and possible identification of existing frequency allocations for services which may be used by high altitude platform stations, taking into account No. **S5.5RRR** [Doc. 337] of the Radio Regulations and the results of the ITU-R studies conducted in accordance with Resolutions **122 (Rev.WRC-2000)** and **[COM5/14] (WRC-2000)**;
- 1.14 to review the results of studies concerning the RNSS in accordance with Resolutions **[COM5/16] (WRC-2000)**, **[COM5/19] (WRC-2000)** and **[COM5/20] (WRC-2000)**;
- 1.15 to consider measures to address harmful interference in the bands allocated to the maritime mobile and aeronautical mobile (R) services, taking into account Resolutions **207 (Rev.WRC-2000)** and **[COM5/12] (WRC-2000)** and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution **347 (WRC-97)**;
- 1.16 to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution **127 (Rev.WRC-2000)** provided that due recognition is given to the passive services taking into account No. **S5.340**;
- 1.17 to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary;
- 1.18 to consider a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 taking into account the primary allocations to various services in all Regions;
- 1.19 to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article **S22** based on the results of ITU-R studies carried out in accordance with Resolution **[COM5/2] (WRC-2000)**;
- 1.20 to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution **214 (Rev.WRC-2000)**;
- 1.21 to consider, with the view to facilitating global harmonization, technical and regulatory requirements of:
 - 1.21.1 systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution **[GT PLEN-2/3] (WRC-2000)**;
 - 1.21.2 terrestrial wireless interactive multimedia applications, in accordance with Resolution **[GT PLEN-2/2] (WRC-2000)**;
- 1.22 to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation **718 (WARC-92)**;

- 1.23 to review the usage of the band 13.75-14 GHz, in accordance with Resolution **[COM5/10] (WRC-2000)**, with a view to addressing sharing conditions;
- 1.24 to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;
- 1.25 to consider the provisions under which earth stations located on board vessels [may] [could] operate in fixed-satellite service networks, taking into account the ITU-R studies in response to Resolution **[COM4/3] (WRC-2000)**;
- 1.26 to review the ITU-R studies requested in Resolutions **[GT PLEN-1/1] (WRC-2000)** and **[GT PLEN-1/3 (WRC-2000)]** and modify as appropriate the regulatory relevant procedures and associated sharing criteria contained in Appendices **S30** and **S30A** and in the associated provisions;
- 1.27 to permit the use of the band 108-117.975 MHz for transmitting radionavigation satellite differential correction signals by international aviation standard ground-based systems;
- 1.28 to consider the results of studies related to Resolutions **[COM5/3]** and **[COM5/23]** dealing with sharing between non-GSO and GSO systems;
- 1.29 to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution **86 (Minneapolis, 1998)**;
- 1.30 to consider the additional allocations to MSS in the 1-3 GHz band in accordance with Resolutions **[COM5/29]** and **[COM5/30]**;
- 1.31 to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz in accordance with Resolutions **128 (Rev.WRC-2000)** and **[COM5/28]**;
- 1.32 to review and revise, if necessary, the provisional limits in Resolution **[COM5/13]** [and consider other regulatory and technical matters related to the operation of high altitude platform stations in frequency bands described in No. **S5.BBB**];
- 2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the [2003] Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-2000)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-2000)**;
- 3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;
- 4 in accordance with Resolution **95 (Rev.WRC-2000)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;
- 5 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;
- 6 to identify those items requiring urgent actions by the radiocommunication study groups in preparation for the next world radiocommunication conference;
- 7 in accordance with Article 7 of the Convention:
- 7.1 to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000;

7.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences,

further resolves

8 to recommend to the Council that extra budgetary and conference resources be provided so that the following items can be included in this agenda for WRC-03:

8.1 to examine the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, taking into account the seasonal planning procedures adopted by WRC-97;

8.2 to consider the regulatory and technical provisions for satellite networks using highly elliptical orbits;

8.3 to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution **727 (Rev.WRC-2000)**;

8.4 to examine the spectrum requirements in the FSS bands below 17 GHz for telemetry, tracking and telecommand of FSS networks operating with service links in the frequency bands above 17 GHz,

invites the Council

to finalize the agenda and arrange for the convening of WRC-03 and to initiate as soon as possible the necessary consultation with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a Report to WRC-03,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.



**WORKING GROUP 2
OF THE PLENARY**

Chairperson, GT PLEN-2

RESOLUTION [GT PLEN-2/4] (WRC-2000)

Agenda for the 2003 World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference should be established four to six years in advance and a final agenda shall be established by the Council two years before the conference;
- b)* Article 13 of the ITU Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention regarding their agendas;
- c)* the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

recognizing

- a)* that this conference has identified a number of urgent issues requiring further examination by WRC-03;
- b)* that in preparing this agenda, many proposals from administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a world radiocommunication conference be held in [2003] for a period of [four] weeks, with the following agenda:

1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of WRC-2000, and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action with respect to the following topics:

1.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-2000)**;

~~1.2 to consider results of ITU-R studies in accordance with Resolution [COM5/22] (WRC-2000) to ensure spectrum availability and protection for AMS(R) and GMDSS and take appropriate action on this subject keeping the generic allocation for the mobile-satellite service;~~

1.3 to consider identification of globally/regionally harmonized bands, to the extent practicable, to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief and to make regulatory adjustments, as necessary;

1.4 to consider the results of studies related to Resolution **114 (WRC-95)**, dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocations to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;

1.5 to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth exploration-satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution [GT PLEN-2/1] (**WRC-2000**);

1.6 to consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);

1.7 issues concerning the amateur and amateur-satellite services:

1.7.1 to consider the possible revision of Article **S25**;

1.7.2 to review the provisions of Article **S19** concerning the formation of call signs in the amateur services in order to provide flexibility for administrations;

1.7.3 to review the terms and definitions of Article **S1** to the extent required as a consequence of changes made in Article **S25**;

1.8 issues related to unwanted emissions:

1.8.1 to consider the results of studies regarding the boundary between spurious and out-of-band emissions with a view to include the boundary in Appendix **S3**;

1.8.2 to consider the results of studies and to propose any regulatory measure regarding the protection of passive services from unwanted emissions, in particular from space services transmissions, in response to *recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)**;

1.9 to consider Appendix **S13** and Resolution **331 (Rev.WRC-972000)** with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);

1.10 to consider the results of studies, and take necessary actions relating to:

1.10.1 the exhaustion of the maritime mobile service identity numbering resource (Resolution **344 (WRC-97)**);

1.10.2 shore-to-ship distress communication priorities (Resolution **348 (WRC-97)**);

1.11 to consider possible extension of the allocation to the mobile-satellite service (Earth-to-space) on a secondary basis in the band 14-14.5 GHz to permit the aeronautical mobile-satellite service as stipulated in Resolution **216 (Rev.WRC-2000)**;

- 1.12 to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev.WRC-2000)** and to review all EESS and SRS allocations between 35 and 38 GHz taking into account Resolution **[COM5/1] (WRC-2000)**;
- 1.13 to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account No. **S5.5RRR [Doc. 337]** of the Radio Regulations and the results of ITU-R studies conducted in response to Resolutions **122 (Rev.WRC-2000)** and **[COM5/14] (WRC-2000)**;
- 1.14 to review the results of studies concerning the RNSS in accordance with Resolutions **[COM5/16] (WRC-2000)**, **[COM5/19] (WRC-2000)** and **[COM5/20] (WRC-2000)**;
- 1.15 to consider measures to address harmful interference in the bands allocated to the maritime mobile and aeronautical mobile (R) services, taking into account Resolutions **207 (Rev.WRC-2000)** and **[COM5/12] (WRC-2000)** and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution **347 (WRC-97)**;
- 1.16 to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution **127 (Rev.WRC-2000)** provided that full protection is given to radio astronomy and other passive services in accordance with Recommendation ITU-R RA.769-1 can be used as a guidance;
- 1.17 to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary;
- 1.18 to consider a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 taking into account the primary allocations to various services in all Regions;
- 1.19 to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article **S22** based on the results of ITU-R studies carried out in accordance with Resolution **[COM5/2] (WRC-2000)**;
- 1.20 to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution **214 (Rev.WRC-2000)**;
- 1.21 to consider, with the view to facilitating global harmonization, technical and regulatory requirements of:
- 1.21.1 systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution **[GT PLEN-2/3] (WRC-2000)**;
- 1.21.2 terrestrial wireless interactive multimedia applications, in accordance with Resolution **[GT PLEN-2/2] (WRC-2000)**;
- 1.22 to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation **718 (WARC-92)**;
- 1.23 to review the usage of the band 13.75-14 GHz, in accordance with Resolution **[COM5/10] (WRC-2000)**, with a view to addressing sharing conditions;
- 1.24 to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;
- 1.25 to consider the provisions under which earth stations located on-board vessels operate in fixed-satellite service networks, taking into account the ITU-R studies in response to Resolution **[COM4/3] (WRC-2000)**;

1.26 to review the ITU-R studies requested in Resolution [GT PLEN-1/1] [WRC-2000] and modify as appropriate the regulatory procedures and associated sharing criteria contained in Appendices S30 and S30A and in the associated provisions of Articles S9 and S11;

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the [2003] Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-952000)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-972000)**;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4 in accordance with Resolution **95 (WRC-97)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

6 to identify those items requiring urgent actions by the radiocommunication study groups in preparation for the next world radiocommunication conference;

7 in accordance with Article 7 of the Convention:

7.1 to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000;

7.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences,

further resolves

8 to recommend to the Council that extra budgetary and conference resources be provided so that the following items can be included in this agenda for WRC-03:

8.1

...

...

invites the Council

to finalize the agenda and arrange for the convening of WRC-03 and to initiate as soon as possible the necessary consultation with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a Report to WRC-03,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.



Chairperson, GT PLEN-2

RESOLUTION [GT PLEN-2/4] (WRC-2000)

Agenda for the 2003 World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference should be established four to six years in advance and a final agenda shall be established by the Council two years before the conference;
- b)* Article 13 of the ITU Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention regarding their agendas;
- c)* the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

recognizing

- a)* that this conference has identified a number of urgent issues requiring further examination by WRC-03;
- b)* that in preparing this agenda, many proposals from administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a world radiocommunication conference be held in [2003] for a period of four weeks, with the following agenda:

- 1 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, taking account of the results of WRC-2000, and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action with respect to the following topics:

- 1.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (Rev.WRC-2000)**;
- 1.2 to consider results of ITU-R studies in accordance with Resolution **[COM5/22] (WRC-2000)** to ensure spectrum availability and protection for AMS(R) and GMDSS and take appropriate action on this subject keeping the generic allocation for the mobile-satellite service;
- 1.3 to consider identification of globally/regionally harmonized bands, to the extent practicable, to implement future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations, disaster relief and to make regulatory adjustments, as necessary;
- 1.4 to consider the results of studies related to Resolution **114 (WRC-95)**, dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite service), and review the allocation to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091-5 150 MHz;
- 1.5 to consider regulatory provisions and spectrum requirements for new and additional allocations to mobile, fixed, Earth exploration-satellite and space research services, as well as to review, with a view to upgrading, of the status of the radiolocation service, in the frequency range 5 150-5 725 MHz taking into account the results of ITU-R studies conducted in response to Resolution **[GT PLEN-2/1] (WRC-2000)**;
- 1.6 to consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (e.g. Recommendations ITU-R S.1426, S.1427 and M.1454);
- 1.7 issues concerning the amateur and amateur-satellite services:
 - 1.7.1 to consider the possible revision of Article **S25**;
 - 1.7.2 to review the provisions of Article **S19** concerning the formation of call signs in the amateur services in order to provide flexibility for administrations;
 - 1.7.3 to review the terms and definitions of Article **S1** to the extent required as a consequence of changes made in Article **S25**;
- 1.8 issues related to unwanted emissions:
 - 1.8.1 to consider the results of studies regarding the boundary between spurious and out-of-band emissions with a view to include the boundary in Appendix **S3**;
 - 1.8.2 to consider the results of studies and to propose any regulatory measure regarding the protection of passive services from unwanted emissions, in particular from space services transmissions, in response to *recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)**;
- 1.9 to consider Appendix **S13** and Resolution **331 (Rev.WRC-97)** with a view to their deletion and, if appropriate, consider related changes to Chapter SVII and other provisions of the Radio Regulations as necessary, taking into account the continued transition to and introduction of the global maritime distress and safety system (GMDSS);
- 1.10 to consider the results of studies, and take necessary actions relating to:
 - 1.10.1 the exhaustion of the maritime mobile service identity numbering resource (Resolution **344 (WRC-97)**);
 - 1.10.2 shore-to-ship distress communication priorities (Resolution **348 (WRC-97)**);

- 1.11 to consider possible extension of the allocation to the mobile-satellite service (Earth-to-space) on a secondary basis in the band 14-14.5 GHz to permit the aeronautical mobile-satellite service as stipulated in Resolution **216 (Rev.WRC-2000)**;
- 1.12 to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev.WRC-2000)**;
- 1.13 to consider regulatory provisions and possible frequency allocations for various services using high altitude platform stations, taking into account No. **S5.5RRR** of the Radio Regulations and the results of ITU-R studies conducted in response to Resolutions **122 (Rev.WRC-2000)** and **[COM5/14] (WRC-2000)**;
- 1.14 to review the results of studies concerning the RNSS in accordance with Resolutions **[COM5/16] (WRC-2000)**, **[COM5/19] (WRC-2000)** and **[COM5/20] (WRC-2000)**;
- 1.15 to consider measures to address harmful interference in the bands allocated to the maritime mobile and aeronautical mobile (R) services, taking into account Resolutions **207 (Rev.WRC-2000)** and **[COM5/12] (WRC-2000)** and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology and also taking into account Resolution **347 (WRC-97)**;
- 1.16 to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution **127 (Rev.WRC-2000)** provided that full protection is given to radio astronomy in accordance with Recommendation ITU-R RA.769-1;
- 1.17 to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary;
- 1.18 to consider a primary allocation to the fixed service in the band 17.3-17.7 GHz for Region 1 taking into account the primary allocations to various services in all Regions;
- 1.19 to consider regulatory provisions to avoid misapplication of non-GSO FSS single-entry limits in Article **S22** based on the results of ITU-R studies carried out in accordance with Resolution **[COM5/2] (WRC-2000)**;
- 1.20 to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz in accordance with Resolution **214 (Rev.WRC-2000)**;
- 1.21 to consider, with the view to facilitating global harmonization, technical and regulatory requirements of:
- 1.21.1 systems beyond IMT-2000 as defined by ITU-R, in accordance with draft Resolution **[GT PLEN-2/3] (WRC-2000)**;
- 1.21.2 terrestrial wireless interactive multimedia applications, in accordance with Resolution **[GT PLEN-2/2] (WRC-2000)**;
- 1.22 to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation **718 (WARC-92)**;
- 1.23 to review the usage of the band 13.75-14 GHz, in accordance with Resolution **[COM5/10] (WRC-2000)**, with a view to addressing sharing conditions;
- 1.24 to consider regulatory provisions and possible identification of spectrum above [17.8 GHz] [19.7 GHz] for high-density systems in the fixed-satellite service;

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the [2003] Radiocommunication Assembly, in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-97)**;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4 in accordance with Resolution **95 (WRC-97)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

6 to identify those items requiring urgent actions by the radiocommunication study groups in preparation for the next world radiocommunication conference;

7 in accordance with Article 7 of the Convention:

7.1 to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000;

7.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences,

further resolves

8 to recommend to the Council that extra budgetary and conference resources be provided so that the following items can be included in this agenda for WRC-03:

8.1

...

...

invites the Council

to finalize the agenda and arrange for the convening of WRC-03 and to initiate as soon as possible the necessary consultation with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a Report to WRC-03,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.



**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

NEW RESOLUTION [GT PLEN-1/3]

During the discussion on provisions S9.17, S9.17A and S9.19, Sub-Working Group 1 of GT PLEN-1 concluded that it would be necessary to undertake regulatory, operational and technical studies in the bands allocated with equal rights between the broadcasting-satellite service and the fixed-satellite service (Earth-to-space) or terrestrial services, in order to enable the next WRC to review the regulatory and technical sharing conditions between these services, with a view to enabling equitable access to spectrum by these services in these bands and ensure their harmonious development.

A text for a new Resolution dealing with this question is proposed hereafter for examination by GT PLEN-1.

Jean CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1

RESOLUTION [GT PLEN-1/3] (WRC-2000)

Studies relating to the review of the sharing procedures and criteria between receiving earth stations in the broadcasting-satellite service and transmitting earth stations or terrestrial stations in frequency bands allocated with equal rights between the broadcasting-satellite service and the fixed-satellite service (Earth-to-space) or terrestrial services

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that receiving earth stations in the broadcasting-satellite service are ubiquitously deployed throughout the service area of the associated satellite network and therefore cannot be coordinated or notified on the basis of specific earth stations;
- b) that coordination under Nos. **S9.17** and **S9.17A** of the Radio Regulations, respectively, and the associated provisions in Article **S11** only provide for the coordination and notification of specific earth stations with terrestrial stations or earth stations operating in the opposite direction of transmission, respectively;
- c) that transmitting earth stations or terrestrial stations sharing spectrum with the broadcasting-satellite service are required to coordinate with receiving earth stations in this service under No. **S9.19** of the Radio Regulations;
- d) that No. **S9.19** was introduced in the Radio Regulations by WRC-97 as a new provision, without specific criteria for sharing between these services;
- e) that No. **S9.19** was modified by WRC-2000 to include the coordination of earth stations in opposite directions of transmission and the protection of typical earth stations in the broadcasting-satellite service;
- f) that the harmonious development of terrestrial and space services in the bands allocated to the broadcasting-satellite service may be impeded in the absence of suitable procedures and associated sharing criteria;
- g) that Appendix **S7** and Annex 3 of Appendix **S30** provide sharing criteria that may be reviewed and adjusted in order to cover the sharing situations mentioned above,

resolves to invite ITU-R

to undertake, as a matter of urgency, and complete, in time for consideration by WRC-03, the appropriate regulatory, operational and technical studies in the bands allocated with equal rights between the broadcasting-satellite service and the fixed-satellite service (Earth-to-space) or terrestrial services, in order to enable WRC-03 to review, and if appropriate revise, the regulatory and technical sharing conditions between these services, with a view to enable equitable access to spectrum by these services in these bands and ensure their harmonious development,

urges administrations

to participate actively in these studies, with the involvement of both terrestrial and broadcasting satellite interests.



**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Sub-Working Group 1 of GT PLEN-1

REVISION OF RESOLUTION 49

If the new concept of the List were to be adopted, Resolution 49 would need to be amended to also apply to assignments of the List. Such amendments are proposed hereafter for examination by GT PLEN-1.

J. CHARTIER
Chairperson, Sub-Working Group 1
of GT PLEN-1

MOD

RESOLUTION 49 (Rev.WRC-972000)

**Administrative due diligence applicable to some satellite
communication services**

MOD

resolves

1 that the administrative due diligence procedure contained in Annex 1 to this Resolution shall be applied as from 22 November 1997 for a satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service for which the advance publication information under No. **S9.2B**, or for which the request for modifications of the Region 2 Plans under Article 4, § 4.2.1 b) of Appendices **S30** and **S30A** that involve the addition of new frequencies or orbit positions, or for which the request for modifications of the Region 2 Plans under Article 4, § 4.2.1 a) of Appendices **S30** and **S30A** that extends the service area to another country or countries in addition to the existing service area, or for which the request for additional uses in Regions 1 and 3 under § 4.1 of Article 4 of Appendices S30 and S30A, or for which the submission of information of Annex 2 of Appendix **S30B** under supplementary provisions applicable to additional uses in the planned bands as defined in Article 2 of that Appendix (Section III of Article 6 of Appendix **S30B**) has been received by the Bureau from 22 November 1997;

2 that for a satellite network or satellite system within the scope of § 1, 2 or 3 of Annex 1 to this Resolution not yet recorded in the Master International Frequency Register (MIFR), for which the advance publication information under No. **1042** of the Radio Regulations or the request for a modification to the Plans of Appendices **30** and **30A** or for the application of Section III of Article 6 of Appendix **30B** has been received by the Bureau before 22 November 1997, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 21 November 2003, or before the expiry of the notified period for bringing the satellite network into use, plus any extension period which shall not exceed three years pursuant to the application of No. **1550** of the Radio Regulations or the dates specified in the relevant provisions of Appendix **30** ([§ 4.3.5][§ 4.1.3 and 4.2.6]), Appendix **30A** [(§ 4.2.5 and 4.2.6)][§ 4.1.3 and 4.2.6] or Appendix **30B** (§ 6.57), whichever date comes earlier. If the date of bringing into use, including extension specified above, is before 1 July 1998, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 1 July 1998;

3 that for a satellite network or satellite system within the scope of § 1, 2 or 3 of Annex 1 to this Resolution recorded in the MIFR, the responsible administration shall submit to the Bureau the complete due diligence information in accordance with Annex 2 to this Resolution not later than 21 November 2000;

4 that six months before the expiry date specified in *resolves* 2 or 3 above, if the responsible administration has not submitted the due diligence information, the Bureau shall send a reminder to that administration;

5 that if the due diligence information is found to be incomplete, the Bureau shall immediately request the administration to submit the missing information. In any case, the complete due diligence information shall be received by the Bureau before the expiry date specified in *resolves* 2 or 3 above, as appropriate, and shall be published by the Bureau in the Weekly Circular;

6 that if the complete due diligence information is not received by the Bureau before the expiry date specified in *resolves* 2 or 3 above, the request for coordination or request for a modification to the Plans of Appendices **S30/30** and **S30A/30A** or for application of Section III of Article 6 of Appendix **S30B/30B** as covered by *resolves* 1 above submitted to the Bureau shall be cancelled. Any modifications of the Plans (Appendices **S30/30** and **S30A/30A**) shall lapse and any recording in the MIFR as well as recordings in the Appendix **S30B/30B** List shall be deleted by the Bureau after it has informed the concerned administration. The Bureau shall publish this information in the Weekly Circular,

further resolves

that the procedures in this Resolution are in addition to the provisions under Article **S9** or **S11** of the Radio Regulations or Appendices **S30/30**, **S30A/30A** or **S30B/30B**, as applicable, and, in particular, do not affect the requirement to coordinate under those provisions (Appendices **S30/30**, **S30A/30A**) in respect of extending the service area to another country or countries in addition to the existing service area,

instructs the Director of the Radiocommunication Bureau

to report to WRC-99 and future competent world radiocommunication conferences on the results of the implementation of the administrative due diligence procedure,

instructs the Secretary-General

to bring this Resolution to the attention of the 1998 Plenipotentiary Conference.

ANNEX 1 TO RESOLUTION 49 (Rev.WRC-972000)

1 Any satellite network or satellite system of the fixed-satellite service, mobile-satellite service or broadcasting-satellite service with frequency assignments that are subject to coordination under Nos. **S9.7**, **S9.8**, **S9.9**, **S9.11**, **S9.12** and **S9.13**, Resolution **33 (Rev.WRC-97)**, and Resolution **46 (Rev.WRC-97)** shall be subject to these procedures.

2 Any modifications of the Region 2 Plans under Article 4, § 4.2.1 *b*) of Appendices **S30/30** and **S30A/30A** that involve the addition of new frequencies or orbit positions or modifications of the Region 2 Plans under Article 4, § 4.2.1 *a*) of Appendices **S30/30** and **S30A/30A** that extend the service area to another country or countries in addition to the existing service area or request for additional uses in Regions 1 and 3 under § 4.1 of Article 4 of Appendices **S30** and **S30A** shall be subject to these procedures.

3 Any submission of information under Annex 2 of Appendix **S30B/30B** under supplementary provisions applicable to additional uses in the planned bands as defined in Article 2 of that Appendix (Section III of Article 6 of Appendix **S30B/30B**) shall be subject to these procedures.

4 An administration requesting coordination for a satellite network under § 1 above shall send to the Bureau as early as possible before bringing into use, but in any case to be received before the end of the 5-year period established as a limit to bringing into use in No. **S9.1**, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

5 An administration requesting a modification of the Region 2 Plans or additional uses in Regions 1 and 3 in ~~of~~ Appendices **S30/30** and **S30A/30A** under § 2 above shall send to the Bureau as early as possible before bringing into use, but in any case to be received before the end of the period established as a limit to bringing into use in accordance with Appendix **S30/30**, § ~~4.3.54.1.3~~ 4.2.5 and 4.2.6, and with Appendix **S30A/30A**, § ~~4.2.5 and 4.2.6~~ 4.1.3 and 4.2.6, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

6 An administration applying Section III of Article 6 of Appendix **S30B/30B** relating to additional uses under § 3. above shall send to the Bureau as early as possible before the bringing into use, but in any case so as to be received before the bringing into use, the due diligence information relating to the identity of the satellite network and the spacecraft manufacturer specified in Annex 2 to this Resolution.

7 The information to be submitted in accordance with § 4, 5 or 6 above shall be signed by an authorized official of the notifying administration or of an administration that is acting on behalf of a group of named administrations.

8 On receipt of the due diligence information under § 4, 5 or 6 above, the Bureau shall promptly examine that information for completeness. If the information is found to be complete, the Bureau shall publish the complete information in a special section of the Weekly Circular within 30 days.

9 If the information is found to be incomplete, the Bureau shall immediately request the administration to submit the missing information. In all cases, the complete due diligence information shall be received by the Bureau within the appropriate time period specified in § 4, 5 or 6 above, as the case may be, relating to the date of bringing the satellite network into use.

10 Six months before expiry of the period specified in § 4, 5 or 6 above and if the administration responsible for the satellite network has not submitted the due diligence information under § 4, 5 or 6 above, the Bureau shall send a reminder to the responsible administration.

11 If the complete due diligence information is not received by the Bureau within the time limits specified in this Resolution, the networks covered by § 1, 2 or 3 above shall no longer be taken into account and shall not be recorded in the MIFR. The provisional recording in the MIFR shall be deleted by the Bureau after it has informed the concerned administration. The Bureau shall publish this information in the Weekly Circular.

With respect to the request for modification of the Region 2 Plans or for additional uses in Regions 1 and 3 in ~~of~~ Appendices **S30/30** and **S30A/30A** under § 2 above, the modification shall lapse if the due diligence information is not submitted in accordance with this Resolution.

With respect to the request for application of Section III of Article 6 of Appendix **S30B/30B** under § 3 above, the network shall also be deleted from the Appendix **S30B/30B** List, if applicable.

12 Before the Bureau extends the date of bringing into use under No. **S11.44**, the complete due diligence information under § 4 above shall have been submitted by the responsible administration.

13 An administration notifying a satellite network under § 1, 2 or 3 above for recording in the MIFR shall send to the Bureau as early as possible before bringing into use, but in any case before the date of bringing into use, the due diligence information relating to the identity of the satellite network and the launch services provider specified in Annex 2 to this Resolution.

14 When an administration has completely fulfilled the due diligence procedure but has not completed coordination, this does not preclude the application of No. **S11.41** by that administration.

ANNEX 2 TO RESOLUTION 49 (Rev.WRC-972000)

A Identity of the satellite network

- a)* Identity of the satellite network
- b)* Name of the administration
- c)* Country symbol
- d)* Reference to the advance publication information or to the request for modification of the Region 2 Plans or for additional uses in Regions 1 and 3 in Appendices **S30/30** and **S30A/30A**
- e)* Reference to the request for coordination (not applicable for Appendices **S30/30** and **S30A/30A**)
- f)* Frequency band(s)
- g)* Name of the operator
- h)* Name of the satellite
- i)* Orbital characteristics.

B Spacecraft manufacturer*

- a)* Name of the spacecraft manufacturer
- b)* Date of execution of the contract
- c)* Contractual “delivery window”
- d)* Number of satellites procured.

C Launch services provider

- a)* Name of the launch vehicle provider
- b)* Date of execution of the contract
- c)* Anticipated launch or in-orbit delivery window
- d)* Name of the launch vehicle
- e)* Name and location of the launch facility.

* NOTE – In cases where a contract for satellite procurement covers more than one satellite, the relevant information shall be submitted for each satellite.



**DRAFT REPORT OF THE BUDGET CONTROL COMMITTEE
TO THE PLENARY MEETING**

1 Budget Control Committee

The Budget Control Committee held three meetings during the World Radiocommunication Conference (WRC-2000) and considered the issues arising from its terms of reference.

Under provisions 26 and 28 (sections a) and c), paragraph 4.4) of the Rules of Procedure of conferences and other meetings of the International Telecommunication Union, the Budget Control Committee's terms of reference are:

- a) to determine the organization and facilities available to delegates;
- b) to examine and approve the accounts for expenditure incurred throughout the duration of the conference;
- c) to present a report to the Plenary Meeting showing the estimated total expenditure of the conference as well as an estimate of the costs that may be entailed by the execution of the decisions taken by the conference.

**2 Agreement between the Government of Turkey and the
Secretary-General of ITU**

In accordance with Resolution 77 of the Plenipotentiary Conference (Minneapolis, 1998), Resolution 5 of the Plenipotentiary Conference (Kyoto, 1994) and Resolution No. 83 (amended) of the ITU Council concerning the organization, financing and liquidation of the accounts of ITU conferences and meetings, the Government of Turkey and the Secretary-General of ITU concluded an agreement concerning the organization, holding and financing of the Radiocommunication Assembly and the World Radiocommunication Conference.

The Budget Control Committee took note of the agreement.

3 Organization and facilities made available to delegates

The Budget Control Committee thanked the Government and people of Turkey for the very good organization and the excellent facilities provided for the conference.

4 Financial responsibilities of conferences

The attention of the Budget Control Committee was drawn to Article 34 of the Convention of the International Telecommunication Union (Geneva, 1992), which stipulates that:

- “1. Before adopting proposals or taking decisions with financial implications, the conferences of the Union shall take account of all the Union's budgetary provisions with a view to ensuring that they will not result in expenses beyond the credits which the Council is empowered to authorize.
2. No decision of a conference shall be put into effect if it will result in a direct or indirect increase in expenses beyond the credits that the Council is empowered to authorize.”

5 Budget of the World Radiocommunication Conference (WRC-2000)

At its 1999 session, the Council approved by Resolution 1133 the budget of the World Radiocommunication Conference (WRC-2000) for the biennium 2000-2001, amounting to CHF 2 467 000. In addition, the planned costs for documentation for the conference were estimated at CHF 3 724 000, leading to a total planned direct cost of CHF 6 191 000.

6 Situation of the accounts of the World Radiocommunication Conference (WRC-2000) as at 22 May 2000

- 6.1 The situation of the accounts for WRC-2000 indicates that expenditures remain within the budget. The budget showed a positive balance of CHF 8 000 as at 22 May. Although a provision has been made, the cost of overtime may be a matter for concern if actual overtime costs prove to be higher than foreseen.
- 6.2 The budget of the World Radiocommunication Conference (WRC-2000) and the forecast expenditure to the end of the conference as estimated on 22 May 2000 are shown in Annex 1.
- 6.3 Regarding documentation, the situation is sound and indicates some projected savings, mostly in document reproduction. These estimates are based on current volumes and trends which may vary depending on actual demand up to the end of the conference.

7 Contributions of organizations of an international character and Sector Members

- 7.1 No. 476 of the Convention of the International Telecommunication Union in force since 1 January 2000, provides that organizations of an international character (unless they have been exempted by Council, subject to reciprocity) and Sector Members (except those attending a conference of their respective Sector) which participate in a world radiocommunication conference shall share in defraying the expenses of the conference in question.

7.2 Council Decision No. 486 (Document C99/110) provides that - pending the inclusion of the necessary amendments to the Financial Regulations to be made by the Council at its session of 2000, which have become necessary for the implementation of No. 476 of the Convention as amended in Minneapolis - the contribution per unit to defraying the expenses of the conference shall be calculated on the basis of the same principles and calculation methods as those applied before the amendments made by the Minneapolis Plenipotentiary Conference to Nos. 476 and 481 of the Convention.

7.3 The contributory unit for non-exempted international organizations and Sector Members (except ITU-R Sector Members) to defraying the expenses of the conference has been set at CHF 17 300. No organization nor Sector Member has fallen under this category as of 26 May 2000.

8 Estimate of work for the implementation of WRC-2000 decisions

8.1 Based on the experience gained from WRC-95 and WRC-97, WRC-2000 decisions and resolutions, mainly regarding the agendas of the next and next but one WRC, will have a significant impact on the work plan and workload of ITU-R. The additional work incurred can be divided into three main activities:

8.1.1 Activities to be carried out for the preparation of the next conferences and particularly for WRC-03 (conference preparatory work): Working Group 2 of the Plenary (GT PLEN-2) shall provide the relevant information necessary so as to be able to estimate the financial incidences for the Union. The agendas for the next and next but one WRC will serve as a base for the evaluation of the requirements for ITU-R and mostly BR for the forthcoming years;

8.1.2 Additional activities as defined in new or revised resolutions and recommendations adopted by WRC-2000 (post-conference work): output from Committees 4 and 5 as well as from Working Group 1 of the Plenary (GT PLEN-1) shall be considered in this respect.

8.1.3 Modifications or deletions in the Radio Regulations which may incur additional work or release some resources of ITU-R.

8.2 At this early stage, due to the complexity of the results of the work of the Committees as well as the limited time available to make a realistic analysis, it is difficult to provide definitive financial estimates. Annex 2 gives the list of items including new and revised resolutions and recommendations, modifications to the Radio Regulations, and agendas for the next and next but one WRC that may incur additional workload for the Radiocommunication Sector and/or other Sectors and departments of the Union as well as provisional financial estimates.

8.3 Committee 3 has taken into consideration the note from Committee 4 (Document 436) requesting that all circulars and Special Sections of the past ten years be republished on CD-ROM. The financial implications of such a demand are included in Annex 2.

8.4 The 2000-2001 budget, as approved by the Council at its 1999 session (Resolution 1133) corresponds to the limits of expenditure set by Decision 5, PP-98. Therefore, it would not be possible to request Council 2000 for additional appropriations to carry over the above-mentioned post-conference work of WRC for 2000-2001 as well as the preparatory work for WRC-03. The following alternatives exist:

- a) the workload may be absorbed within the existing resources of the Union while improving working methods, efficiency and developing appropriate tools and mechanisms;

- b) priorities should be revised to take into consideration the increasing demand on ITU-R activities, products and services and therefore this re-prioritization will have to be reflected in the 2001 ITU-R operational plan. To this extent some activities will have to be reduced, postponed or even dropped;
- c) existing resources, in particular human resources, could be redistributed within BR and eventually within ITU, while reconsidering priorities and enhancing processes and mechanisms so as to increase efficiency;
- d) voluntary contributions could be made to the activities of ITU-R that would permit, at least partially, the implementation of the additional workload incurred by WRC decisions.

8.5 During the time-frame preceding Council 2000, BR, in collaboration with the relevant services of the General Secretariat, will carry out a detailed analysis of WRC-2000 decisions. A report will be presented to the 2000 session of Council to inform on the measures that the Secretariat will implement in order to carry over the additional demands that have resulted from the decisions of WRC-2000.

9 It was brought to the attention of the Committee that the timing of major Radiocommunication Sector meetings had a bearing on the Union's general financial situation. It was agreed that this issue would be brought to the attention of the conference.

Annexes: 2

ANNEX 1

Situation of the accounts of the World Radiocommunication Conference
as at 22 May 2000

CHF (000)

	Budget 2000-2001	Actual Expenditure as at 22/05/2000	Commitments as at 22/05/2000	Credits available 22/05/2000
Staff costs	2'084	68	2'023	-7
Other staff costs	96	12	89	-5
Travel on duty	80		80	0
Contractual services	5	0	16	-11
Rental & maintenance of premises and equipment	80		80	0
Materials and supplies	35	14	12	9
Public and internal services	72	14	40	18
Miscellaneous	15	6	5	4
Total Budget	2'467	114	2'345	8

CHF (000)

Documentation Costs	Planned costs 2000-2001	Actual costs as at 22/05/2000	Estimates* as at 22/05/2000	Variance as at 22/05/2000
Translation	1'113	582	449	82
Typing	1'026	610	391	25
Reprography	1'585	766	602	217
Total Documentation costs	3'724	1'958	1'442	324

Documentation Volumes	Planned volumes 2000-2001	Actual volumes as at 22/05/2000	Estimates* as at 22/05/2000	Variance as at 22/05/2000
Translation (pages)	8'474	4'432	3'419	623
Typing (pages)	23'017	13'690	8'772	555
Reprography (1000 pages)	26'435	12'729	10'000	3'706

*) Based on actual workload trends and estimates

ANNEX 2

Preliminary conclusions on the impact of WRC-2000 decisions on the Radiocommunication Sector workload

1 Additional work incurred in the preparation for the next conference

With reference to the work of Working Group 2 of the Plenary, in particular Document DT/70(Rev.3), the number and nature of agenda items proposed for the next world radiocommunication conference will generate a significant additional workload for the Radiocommunication Sector particularly for the Radiocommunication study group work programme.

At this stage, before the first meeting of CPM scheduled on 7 and 8 June 2000 and the ITU-R Chairpersons and Vice-Chairpersons' meeting on 6 and 9 June 2000, a preliminary evaluation of this workload indicates that there could be an increase of about 15% to 20% in the number of study group, working party and task group meeting days particularly for Study Groups 8, 7 and 4, as well as for the Special Committee on Regulatory/Procedural Matters. It should be noted that for the 1998/99 budgetary period, the expenditures of the study groups, including CPM, were over the allocated budget.

This increase in the coming period would affect the Radiocommunication Bureau and services provided by the General Secretariat, e.g. the Radiocommunication Bureau's Study Group Department could need some additional human resources at the Professional (36 staff.months) and General Service levels (36 staff.months) over the period between WRC-2000 and WRC-03.

In the light of the above, the overall additional financial impact estimates on the Radiocommunication Sector could be about 1.5 million Swiss francs during a three-year inter-conference period.

2 Impact on the on-going work of the Radiocommunication Bureau

Resolution S207 (periodical monitoring campaign) - The estimates for performing the tasks as requested by RS207 could amount to four person-months, per year, on a recurrent basis.

Resolution S716 (assistance to administrations) - The Bureau's involvement in the testing of a tool, if requested, could be 18 staff.months.

Modifications to Appendix S4 and in particular the inclusion of space plans in this Appendix require refinement of some specific tasks in Radiocommunication Bureau as well as the updating of existing software which would lead to the need of additional human resources (about 18 staff.months).

As noted in a report from Committee 4 to Committee 3 (see Document 436 in response to Document 134), should the conference so decide, the republication of the weekly circular, in particular the republication of Special Sections of the past ten years on CD-ROM, would require additional resources amounting to approximately 900 000 Swiss francs.

Changes to Resolution 51 would involve an additional workload of the concerned for the Radiocommunication Bureau: 18 staff.months in the period 2000/2001(see Document 411).

The effect of the new BSS Plan and the List, on the work of the Radiocommunication Bureau still has to be analysed further. However, as far as the implementation of Resolution 533 (WRC-2000) is concerned, the estimated human resources required for the implementation of this Resolution are

just those that were required for Resolution 533 (WRC-97). Also, issues related to - use of guardbands in Appendices S30/S30A - Implementation of Resolution 53 (Rev.WRC-2000) - compatibility between the new Plan and other services and with Regions - review of the criteria and regulatory procedures by ITU-R and its associated activities - preparation of modified Rules of Procedures for the new regulatory regime - will consume a significant amount of resources in the Radiocommunication Bureau. As was the case following WRC-97, ongoing processing of Article 4 modifications received before WRC-2000 will have to be postponed until the above re-examination.

The processing and approval of the minutes of the RRB meetings to meet the requirement of S13, as revised by WRC-2000, could require some additional resources.

Suppression of Resolutions 300 and 500 - These decisions have practically no impact (due to the low volume of activities); however, as indicated in Document 16, this would facilitate the implementation of TerRaSys as no module for Resolution 300 would need to be developed.

Resolution COM4/4: The mandatory electronic filing for satellite networks should result in significant savings, which still have to be identified after further detailed analysis. Further simplifications of the API process (which the conference decided to retain) will yield only a small saving of Bureau's resources. Separation of uplink and downlink examinations will produce some savings but, in the short term, additional requests for assistance could offset this.

3 Conclusion

The present preliminary conclusions on the impact of WRC-2000 decisions on the work of the Radiocommunication Sector and its eventual effects on the resources of the Radiocommunication Bureau, still need further study to take into account of the final decisions of this conference. A detailed report will be produced in this respect for the 2000 session of the Council.



**WORKING GROUP 1
OF THE PLENARY**

Report from the Chairperson of ad hoc Group 1

REVISED TEXTS OF APPENDICES S30 AND S30A

Please find attached the proposed amendments to the above-mentioned Appendices to the Radio Regulations as approved in ad hoc Group 1.

NOTE 1 - The attachment to this document has been added by the Chairperson in order to further help in the deliberations of this document at GT PLEN-1.

NOTE 2 - In order to cope with the new structure of Annex 1 of Appendix S30, the following footnotes are proposed to be added to Table 2 and to Table 3 of Article 10 of Appendix S30:

ADD [With reference to Table 2]

NOTE - Section 5 of Annex 1 was merged with Section 4 by WRC-2000. See also NOTE [XYZ] to Table 3 [the note below].

ADD [With reference to Table 3]

NOTE [XYZ] - The administrations listed in Table 3 were identified on the basis of the criteria adopted at the 1983 Conference [RARC Sat-R2], as shown in Table 2. WRC-2000 revised the criteria applicable to determine affected administrations. Therefore, the Bureau, when receiving a notification of an assignment in the Region 2 Plan, shall determine which countries are affected based on the revised criteria adopted at WRC-2000 which may lead to a different set of affected administration(s) than that currently contained in Table 3.

Christoph DOSCH
Chairperson, ad hoc Group 1
Box 751

APPENDIX S30

ANNEX 1

Limits for determining whether a service of an administration is affected by a proposed modification to the Region 2 Plans or proposed new or modified assignment in the Regions 1 and 3 List or when it is necessary under this Appendix to seek the agreement of any other administration¹³

(See Article 4)

1 [Limits to the change in the wanted-to-interfering signal ratio with respect to frequency assignments in conformity with the Regions 1 and 3 Plan]

With respect to § ~~4.1.1a~~4.3.1.1 or § 4.1.1b) of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the effect of the proposed new or modified assignment in modification to the Regions 1 and 3 Plan would result in the wanted-to-interfering signal ratio at any point within the service area associated with any of its frequency assignments in the Regions 1 and 3 Plan or Regions 1 and 3 List falling below either 30 dB or the value resulting from the frequency assignments in the Plan at the date of entry into force of the Final Acts¹⁴, whichever is the lower. [To be revised based on the deliberations of GT PLEN-1 concerning Document DT/110, if the current concept is not changed, possible text for this section may be found in the attachment prepared by the Chairperson of ad hoc 1 to GT PLEN-1.]

NOTE - In performing the calculation, the effect at the receiver input of all the co-channel and adjacent-channel signals is expressed in terms of one equivalent co-channel interfering signal. This value is usually expressed in decibels.

2 Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 Plan

With respect to § ~~4.2.3c~~4.3.3.1 of Article 4, an administration in Region 2 shall be considered as being affected if the overall equivalent protection margin¹⁵ corresponding to a test point of its entry in the Region 2 Plan, including the cumulative effect of any previous modification to that Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:

¹³ With respect to this Annex, except for section 2 ~~and § 8 b~~), the limits relate to the power flux-density which would be obtained assuming free-space propagation conditions.

~~With respect to § 8 b) of this Annex, the limits relate to the power flux density which would be obtained assuming clear sky propagation conditions using the method contained in Annex 5.~~

With respect to section 2 of this Annex, the limit specified relates to the overall equivalent protection margin calculated in accordance with § 2.2.4 of Annex 5.

¹⁴ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.

¹⁵ For the definition of the overall equivalent protection margin, see § 1.11 of Annex 5.

- the Region 2 Plan as established by the 1983 Conference; *or*
- a modification of the assignment in accordance with this Appendix; *or*
- a new entry in the Region 2 Plan under Article 4; *or*
- any agreement reached in accordance with this Appendix.

3 Limits to the change in the power flux-density to protect the broadcasting-satellite service in Regions 1 and 2 in the band 12.2-12.5 GHz and in Region 3 in the band 12.5-12.7 GHz

With respect to § ~~4.1.1c~~~~4.3.1.2~~ of Article 4, an administration in Region 2 shall be considered as being affected if the proposed ~~modification~~new or modified assignment in the Regions 1 and 3 List~~Plan~~ would result in exceeding the power flux-densities given below, at any point in the service area affected.

With respect to § ~~4.2.3a~~~~4.3.3.2~~ or ~~4.2.3f~~~~4.3.3.6~~ of Article 4, as appropriate, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in exceeding the power flux-densities given below, at any point in the service area affected.

–147 dB(W/m ² /27 MHz)	for $0^\circ \leq \theta < 0.44^\circ$;
–138 + 25 log θ dB(W/m ² /27 MHz)	for $0.44^\circ \leq \theta < 19.1^\circ$;
–106 dB(W/m ² /27 MHz)	for $\theta \geq 19.1^\circ$;

where θ is:

- the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 1 or 3 and the broadcasting-satellite space station affected in Region 2, *or*
- the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 2 and the broadcasting-satellite space station affected in Region 1 or 3.

4 Limits to the change in the power flux-density to protect the terrestrial services of other administrations in Region 2^{16, 17, 18}

With respect to § 4.1.1d) of Article 4, an administration in Region 1, 2 or 3 shall be considered as being affected if the consequence of the proposed modification of an existing assignment in the Regions 1 and 3 List is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Regions 1 and 3 Plan or List as established by WRC-2000. The same administrations shall be considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the limits expressed below.

¹⁶ See § 3.18 of Annex 5.

¹⁷ In the band 12.5-12.7 GHz in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. **S5.494** and **S5.496**.

¹⁸ See Resolution **34**.

With respect to § 4.2.3d) of Article 4, an administration in Region 1, 2 or 3 shall be considered as being affected if the consequence of the proposed modification to an existing assignment in the Region 2 Plan is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Region 2 Plan at the time of entry into force of the Final Acts (1985 Conference). The same administration shall be considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the limits expressed below.

With respect to § 4.1.1d) or § 4.2.3d)4.3.1.4 of Article 4, an administration in Region 1, 2 or 3 shall be considered as being affected if the proposed ~~modification~~ new assignment into the Regions 1 and 3 Plan ~~List~~, or if the proposed new frequency assignment in the Region 2 Plan, would result in exceeding a power flux-density, for any angle of arrival, at any point on its territories, of:

$$\underline{-148 \text{ dB(W/m}^2\text{/4 kHz) for } \theta \leq 5^\circ;}$$

$$\underline{-148 + 0.5 (\theta - 5) \text{ dB(W/m}^2\text{/4 kHz) for } 5^\circ < \theta \leq 25^\circ;}$$

$$\underline{-138 \text{ dB(W/m}^2\text{/4 kHz) for } 25^\circ < \theta \leq 90^\circ;}$$

where θ represents the angle of arrival.

~~— -125 dB(W/m²/4 kHz) — when the broadcasting satellite station uses circular polarization, and,~~

~~— -128 dB(W/m²/4 kHz) — when the broadcasting satellite station uses linear polarization.~~

5 Not used. Limits to the change in the power flux-density to protect the terrestrial services of administrations in Regions 1 and 3¹⁶

With respect to § 4.3.3.4 of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in the following power flux density limits being exceeded:

~~a) — in the frequency band 12.2-12.7 GHz for all the territories of administrations in Regions 1¹⁷ and 3 and for any arrival angle γ :~~

~~— -125 dB(W/m²/4 kHz) — for broadcasting satellite space stations using circular polarization;~~

~~— -128 dB(W/m²/4 kHz) — for broadcasting satellite space stations using linear polarization;~~

~~b) — in the frequency band 12.2-12.5 GHz for territories of administrations in Region 3 and those in the western part of Region 1, west of longitude 30° E¹⁸:~~

~~— -132 dB(W/m²/5 MHz) — for $0^\circ \leq \gamma < 10^\circ$;~~

~~— -132 + 4.2 ($\gamma - 10$) dB(W/m²/5 MHz) for $10^\circ \leq \gamma < 15^\circ$;~~

¹⁶ See § 3.18 of Annex 5.

¹⁷ In the band 12.5-12.7 GHz in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. ~~S5.494 and S5.496~~.

¹⁸ See Resolution ~~34~~.

- ~~_____ 111 dB(W/m²/5 MHz) _____ for $15^\circ \leq \gamma < 90^\circ$;~~
- e) ~~_____ in the frequency band 12.2-12.7 GHz for territories of administrations in Region 1¹⁷, east of longitude 30° E:~~
- ~~_____ 134 dB(W/m²/5 MHz) _____ for $\gamma = 0^\circ$;~~
- ~~_____ $134 + 4.6975 \gamma^2$ dB(W/m²/5 MHz) _____ for $0^\circ < \gamma \leq 0.8^\circ$;~~
- ~~_____ $128.5 + 25 \log \gamma$ dB(W/m²/5 MHz) _____ for $\gamma > 0.8^\circ$;~~
- d) ~~_____ in the frequency band 12.5-12.7 GHz for all the territories of administrations of Regions 1¹⁷ and 3:~~
- ~~_____ 148 dB(W/m²/4 kHz) _____ for $\gamma = 0^\circ$;~~
- ~~_____ $148 + 4.6975 \gamma^2$ dB(W/m²/4 kHz) _____ for $0^\circ < \gamma \leq 0.8^\circ$;~~
- ~~_____ $142.5 + 25 \log \gamma$ dB(W/m²/4 kHz) _____ for $\gamma > 0.8^\circ$;~~
- ~~_____ where γ is the angle of arrival of the incident wave above the horizontal plane, in degrees.~~

6 Limits to the change in the power flux-density of assignments in the Regions 1 and 3 Plan to protect the fixed-satellite service (space-to-Earth) in the band 11.7-12.2 GHz in Region 2 or in the band 12.2-12.5 GHz in Region 3, and of assignments in the Region 2 Plan to protect the fixed-satellite service (space-to-Earth) in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3

With respect to § ~~4.1.1e)4.3.1.5~~ of Article 4, an administration in Region 2 or Region 3 shall be considered as being affected if the proposed new or modified assignment in modification to the Regions 1 and 3 ListPlan would result in an increase in the power flux-density on its territory of 0.25 dB or more above that resulting from the frequency assignments in the Regions 1 and 3 Plan or List as established by WRC-2000 at the time of entry into force of the Final Acts (1977 Conference, in force on 1 January 1979).

With respect to § ~~4.2.3e)4.3.3.5~~ of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in an increase in the power flux-density on its territory of 0.25 dB or more above that resulting from the frequency assignments in the Region 2 Plan at the time of entry into force of the Final Acts (1985 Conference).

With respect to § 4.1.1e) of Article 4, ~~However,~~ where an proposed new or modified assignment in the Regions 1 and 3 Plan List or its subsequent modification gives a power flux-density of less than $-138 \text{ dB(W/m}^2\text{/27 MHz)}$ * anywhere in the territory of an administration of Region 2 or Region 3, that administration shall be considered as not being affected. ~~;-~~ With respect to § 4.2.3e) of Article 4, where an assignment in the Region 2 Plan or its subsequent a proposed modification to the Region 2 Plan gives a power flux-density of less than $-160 \text{ dB(W/m}^2\text{/4 kHz)}$ * anywhere in the territory of an administration of Region 1 or 3, that administration shall be considered as not being affected.

* In place of these values, the values given in the Annex to Resolution [GT PLEN1/1] (WRC-2000) shall be applied by administrations and the Bureau until this section is revised by a subsequent Conference.

7 Limits to the change in equivalent noise temperature to protect the fixed-satellite service (Earth-to-space) in Region 1 from modifications to the Region 2 Plan in the band 12.5-12.7 GHz

With respect to § 4.2.3e)4.3.3.5 of Article 4, an administration of Region 1 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in:

- the $\Delta T/T$ resulting from the proposed modification is greater than the $\Delta T/T$ resulting from the assignment in the Region 2 Plan as of the date of entry into force of the Final Acts (1985 Conference); *and*
- the $\Delta T/T$ resulting from the proposed modification exceeds 4%,
using the method of Appendix S8 (Case II).

8 ~~Not used.~~ Limits to the change in the power flux-density to protect the terrestrial services of other administrations

~~————— a) ——— In Region 1 or 3:~~

~~With respect to § 4.3.1.4 of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the consequence of the proposed modification of an existing assignment in the Regions 1 and 3 Plan is to increase the power flux density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Regions 1 and 3 Plan at the time of entry into force of the Final Acts (1977 Conference, in force on 1 January 1979). The same administration shall be considered as not being affected if the value of the power flux density anywhere in its territory does not exceed the limits expressed in § 5 a) and 5 b) of this Annex applied to the frequency range 11.7-12.5 GHz.~~

~~With respect to § 4.3.1.4 of Article 4, in the case of an addition of a new assignment to the Regions 1 and 3 Plan, an administration in Region 1 or 3 is considered as being affected if the power flux-density on any part of its territory exceeds the limit expressed in § 5 a) and 5 b) of this Annex applied to the frequency range 11.7-12.5 GHz.~~

~~————— b) ——— In Region 2:~~

~~With respect to § 4.3.3.4 of Article 4, an administration in Region 2 shall be considered as being affected if the consequence of the proposed modification to an existing assignment in the Region 2 Plan is to increase the power flux density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Region 2 Plan at the time of entry into force of the Final Acts (1985 Conference). The same administration shall be considered as not being affected if the value of the power flux density anywhere in its territory does not exceed the following limit: —115 dB(W/m²).~~

~~With respect to § 4.3.3.4 of Article 4, in the case of an addition of a new assignment to the Region 2 Plan, an administration in Region 2 is considered as being affected if the power flux density on any part of its territory exceeds —115 dB(W/m²).~~

ANNEX 2

Basic characteristics to be furnished in notices¹⁹ relating to space stations in the broadcasting-satellite service²⁰

The data elements contained in this Annex are included in APS4.

ANNEX 4

MOD

Need for coordination of a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service where this service is not subject to a Plan: in Region 2 (11.7-12.2 GHz) with respect to the Regions 1 and 3 Plan, in Region 1 (12.5-12.7 GHz) and in Region 3 (12.2-12.7 GHz) with respect to the Region 2 Plan

(See Article 7)

With respect to § 7.1 and 7.27.2.4 of Article 7, coordination of a space station in the fixed-satellite service of Region 2 is required when, under assumed free-space propagation conditions, the power flux-density on the territory of an administration in Region 1 or Region 3 exceeds the value derived from the expressions given below.

With respect to § 7.1 and 7.27.2.4 of Article 7, coordination of a space station in the fixed-satellite service (space-to-Earth) in Region 1 or 3 or broadcasting-satellite service not subject to a Plan in Region 3 is required when, under assumed free-space propagation conditions, the power flux-density on the territory of an administration in Region 2 exceeds the value derived from the same expressions:

$-147 \text{ dB(W/m}^2\text{/27 MHz)}$	for $0^\circ \leq \theta < 0.44^\circ$;
$-138 + 25 \log \theta \text{ dB(W/m}^2\text{/27 MHz)}$	for $0.44^\circ \leq \theta < 19.1^\circ$;
$-106 \text{ dB(W/m}^2\text{/27 MHz)}$	for $\theta \geq 19.1^\circ$;

where θ is:

- the difference in degrees between the longitude of the interfering fixed-satellite space station in Region 2 and the longitude of the affected broadcasting-satellite space station in Regions 1 and 3, *or*
- the difference in degrees between the longitude of the interfering fixed-satellite space station in Region 1 or 3 or the interfering broadcasting-satellite space station in Region 3 and the longitude of the affected broadcasting-satellite space station in Region 2.

ANNEX 5

MOD

Technical data used in establishing the provisions and associated Plans, the Regions 1 and 3 List and which should be used for their application²²

MOD

1.4 Nominal orbital position

The longitude of a position in the geostationary-satellite orbit associated with a frequency assignment to a space station in a space radiocommunication service. The position is given in degrees from the Greenwich meridian.

NOTE - Definitions in § 1.56 to 1.11 are applicable to Region 2.

MOD

1.11 Overall equivalent protection margin²⁴

The overall equivalent protection margin M is given in decibels by the expression:

$$M = -10 \log \left(\sum_{i=1}^5 10^{(-M_i/10)} \right)$$

where:

- M_1 : overall co-channel protection margin (dB) (as defined in § 1.8 of this Annex);
- M_2, M_3 : overall adjacent channel protection margins for the upper and lower adjacent channels, respectively (dB) (as defined in § 1.9 of this Annex);
- M_4, M_5 : overall second adjacent channel protection margins for the upper and lower second adjacent channels, respectively (dB) (as defined in § 1.10 of this Annex)²⁵.

The adjective “equivalent” indicates that the protection margins for all interference sources from the adjacent and second adjacent channels as well as co-channel interference sources have been included.

²² In revising this Annex at WRC-97 and at WRC-2000, no changes have been made to the technical data applicable to the Region 2 Plan. However, for all three Regions, it should be noted that some of the parameters of networks proposed as modifications to the Plans may differ from the technical data presented herein.

²⁴ For calculation of overall equivalent protection margin for Regions 1 and 3, as defined at WARC Orb-88, see alternative formula in § 1.12 to Annex 3 of Appendix ~~S30A/30A~~.

²⁵ M_4 and M_5 are normally applicable only for Region 2. However, in certain cases (e.g. when the channel spacing and/or bandwidth of an assignment are different from the values given in sections 3.5 and 3.8 of this Annex), these margins may also be used for Regions 1 and 3, provided that appropriate protection masks are included in ITU-R Recommendations. Until a relevant ITU-R Recommendation is incorporated in this Annex by reference, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board.

MOD

3.1.1 ~~In~~At WARC-77 and during revision of the Regions 1 and 3 BSS Plan at WRC-97, planning of the broadcasting-satellite service ~~is normally~~was based on the use of a signal consisting of a video signal with an associated carrier, frequency-modulated by a sound signal, both frequency-modulating a carrier in the 12 GHz band, with a pre-emphasis characteristic in accordance with Fig. 5 (from Recommendation ITU-R F.405-1). The WRC-2000 Regions 1 and 3 BSS Plan and the List are generally based on digital modulation of sound and television signals.

MOD

3.4 Protection ratio between television signals

For developing the original 1977 broadcasting-satellite service Plan for Regions 1 and 3, the following protection ratios were used^{27, 28}:

- 31 dB for co-channel signals;
- 15 dB for adjacent channel signals.

For revising this Plan at WRC-97, the following aggregate downlink protection ratios were specified in Recommendation ITU-R BO.1297 for the purpose of calculating downlink equivalent protection margins^{28, 28bis, 28ter}:

- 24 dB for co-channel signals;
- 16 dB for adjacent channel signals.

²⁷ These protection ratio values ~~may be~~were used for the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997.

²⁸ The equivalent protection margin M is given in dB by the formula

$$M = -10 \log (10^{-M_1/10} + 10^{-M_2/10} + 10^{-M_3/10})$$

where M_1 is the value in dB of the protection margin for the same channel. This is defined in the following expression where the powers are evaluated at the receiver input:

$$\frac{\text{wanted power}}{\text{sum of the co-channel interfering powers}} \quad (\text{dB}) - \text{co-channel protection ratio (dB)}$$

M_2 and M_3 are the values in dB of the upper and lower adjacent-channel protection margins respectively.

The definition of the adjacent-channel protection margin is similar to that for the co-channel case except that the adjacent-channel protection ratio and the sum of the interfering powers due to emissions in the adjacent channel are considered.

^{28bis} These protection ratio values were used for the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau between 27 October 1997 and 12 May 2000.

^{28ter} These protection ratio values were used for protection of digital and analogue assignments from analogue emissions.

In revising the Regions 1 and 3 Plan at WRC-97, the following aggregate overall protection ratio values were used (as specified in Recommendation **521 (WRC-95)**) for calculating the overall co-channel and adjacent-channel protection margins as defined in § 1.8 and 1.9 of this Annex:

- 23 dB for co-channel signals;
- 15 dB for adjacent channel signals.

Recommendation **521 (WRC-95)** also specified that for the revision of the Regions 1 and 3 Plan, no overall co-channel single entry *C/I* should be lower than 28 dB.

However, for the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997, the overall equivalent protection margins were calculated using a co-channel overall protection ratio of 30 dB and lower and upper overall adjacent channel protection ratios of 14 dB²⁹.

WRC-2000 adopted for the protection of digital assignments from digital emissions the following protection ratio values to be applied for calculation of downlink equivalent protection margins of the WRC-2000 Regions 1 and 3 BSS Plan:

- 21 dB for co-channel signals;
- 16 dB for adjacent channel signals.

During planning at WRC-2000 these values were used for all assignments of the Regions 1 and 3 BSS Plan and the List except those for which WRC-2000 adopted different values used in the planning process.

Revision of the Regions 1 and 3 Plan at WRC-97 ~~was~~ and planning at WRC-2000 were generally based on a set of reference parameters such as the average e.i.r.p., the reference earth station receiving antenna, all test points placed within the –3 dB contour, a bandwidth of 27 MHz and the predetermined value of *C/N*. The Regions 1 and 3 Plan as established by WRC-2000 is generally based on the use of digital modulation.

Protection masks and associated calculation methods for interference into broadcast satellite systems involving digital emissions are given in Recommendation ITU-R BO.1293-1.

NOTE - The calculation method and the default values specified in Recommendation ITU-R BO.1293-1 will be updated by the relevant ITU-R study group in accordance with the technical parameters adopted by WRC-2000 for planning.

MOD

3.8 Necessary bandwidth

The necessary bandwidths considered are as follows for WARC-77 Regions 1 and 3 BSS Plan and the WRC-97 revision of the Regions 1 and 3 BSS Plan used the following:

- 625-line systems in Regions 1 and 3: 27 MHz;
- 525-line systems in Region 3: 27 MHz.

The planning at WRC-2000 was generally based on the use of 27 MHz necessary bandwidth. However, in Regions 1 and 3, if different bandwidths are submitted, they will be treated in accordance with applicable ITU-R Recommendations for protection masks when available. In the

²⁹ The overall protection margin calculation method used is based on the first formula in § 1.12 of Annex 3 to Appendix **S30A**.

~~absence of such Recommendations, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board.~~

In Region 2, the Plan is based on a channel bandwidth of 24 MHz³⁴, but different bandwidths may be implemented in accordance with the provisions of this Appendix, provided that applicable ITU-R Recommendations are available. In the absence of such Recommendations, the Bureau will use the worst-case approach ~~as adopted by the Radio Regulations Board.~~

If different bandwidths and/or channel spacing are submitted, they will be treated in accordance with applicable ITU-R Recommendations for protection masks when available. In the absence of such Recommendations, the Bureau will use the worst-case approach.

MOD

3.9.2 For the planning of the broadcasting-satellite service, the guardbands chosen at the 1977 Conference to protect the services in adjacent frequency bands are shown in the table below.

Regions	Guardband at the lower edge of the band (MHz)	Guardband at the upper edge of the band (MHz)
1	14	11
2	12	12
3	14	11

For Regions 1 and 3 at WARC-77, ~~the guardbands were derived on the assumption of the for~~ analogue emissions ~~the guardbands assume~~ and a maximum beam centre e.i.r.p. of 67 dBW (value relating to individual reception), and a filter roll-off of 2 dB/MHz. If smaller e.i.r.p. values are assumed, the guardbands can be reduced in width by 0.5 MHz for each decibel decrease in e.i.r.p. The degree of possible reduction also depends on improvements in technology and on the type of modulation. ~~However, an appropriate ITU-R Recommendation concerning the sharing requirements is not yet available.~~

MOD

3.13.3 Transmitting antenna reference patterns

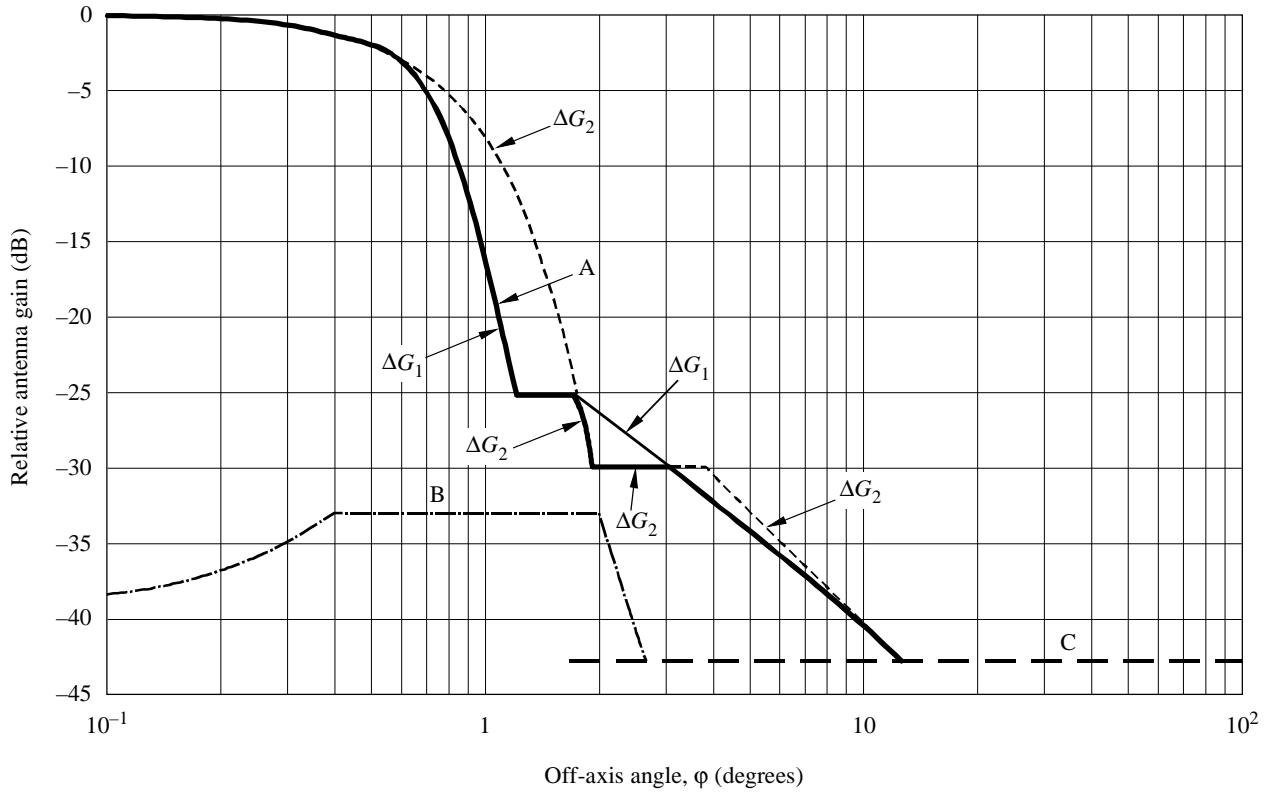
Add to the end of 3.13.3

The improved fast roll-off satellite transmitting antenna pattern described in ITU-R Recommendation BO.1445 (see Figure 13) has been used in the planning at WRC-2000.

³⁴ For France, Denmark and some of the United Kingdom requirements which use 625-line standards with greater video bandwidth, the channels shown in the Plan have a necessary bandwidth of 27 MHz. This is indicated by an appropriate symbol in the Plan.

FIGURE 13

Improved fast roll-off satellite transmitting antenna pattern for Regions 1 and 3



Note 1 – The diagram gives the example curves in case of a satellite antenna beamwidth of $\phi_0 = 1.2^\circ$ (circular).

1445-01

Curve A: co-polar relative gain $\Delta G = \min(\Delta G_1, \Delta G_2)$ (dB):

where:

$$\Delta G_1 = -12 \left(\frac{\phi}{\phi_0} \right)^2 \quad \text{for } 0 \leq (\phi/\phi_0) \leq 0.5$$

$$\Delta G_1 = -12 \left(\frac{\frac{\phi}{\phi_0} - x}{\frac{B_{min}}{\phi_0}} \right)^2 \quad \text{for } 0.5 < (\phi/\phi_0) \leq \left(\frac{1.45}{\phi_0} B_{min} + x \right)$$

$$\underline{\Delta G_1 = -25.3} \quad \text{for } \left(\frac{1.45}{\varphi_0} B_{min} + x \right) < (\varphi/\varphi_0) \leq 1.45$$

$$\underline{\Delta G_1 = -(22 + 20 \log(\varphi/\varphi_0))} \quad \text{for } (\varphi/\varphi_0) > 1.45$$

$$\underline{\Delta G_1 = -(G_{on-axis})} \quad \text{after intersection with Curve C}$$

$$\underline{\Delta G_2 = -12(\varphi/\varphi_0)^2} \quad \text{for } 0 \leq \varphi \leq 1.58 \varphi_0$$

$$\underline{\Delta G_2 = -30} \quad \text{for } 1.58 \varphi_0 < \varphi \leq 3.16 \varphi_0$$

$$\underline{\Delta G_2 = -(17.5 + 25 \log(\varphi/\varphi_0))} \quad \text{for } \varphi > 3.16 \varphi_0$$

$$\underline{\Delta G_2 = -(G_{on-axis})} \quad \text{after intersection with Curve C}$$

Curve B: cross-polar relative gain (dB):

$$\underline{- \left(40 + 40 \log \left| \frac{\varphi}{\varphi_0} - 1 \right| \right)} \quad \text{for } 0 \leq \varphi \leq 0.33 \varphi_0$$

$$\underline{-33} \quad \text{for } 0.33 \varphi_0 < \varphi \leq 1.67 \varphi_0$$

$$\underline{- \left(40 + 40 \log \left| \frac{\varphi}{\varphi_0} - 1 \right| \right)} \quad \text{for } \varphi > 1.67 \varphi_0$$

$$\underline{-(G_{on-axis})} \quad \text{after intersection with Curve C}$$

Curve C: minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 42.773 dBi)

where:

φ : off-axis angle (degrees)

φ_0 : cross-sectional half-power beamwidth in the direction of interest (degrees)

B_{min} : 0.6° for Regions 1 and 3

$$\underline{X = 0.5 \left(1 - \frac{B_{min}}{\varphi_0} \right)}$$

ADD

3.13.4 Composite beam

A composite beam represents a single beam (i.e. “simulated shaped beam”) and is formed by combining two or more elliptical beams at a given orbital position. In general, composite beams were used at WRC-2000 for administrations which had more than one beam at a given orbital position in the WRC-97 Regions 1 and 3 BSS Plan.

ADD

3.19 Orbital separation limit for interference calculation

WRC-2000 has adopted the use of an orbital separation limit for interference calculation in the Regions 1 and 3. Beyond this limit no interference was taken into account.

At the initial values of the orbital separation limit were 15 degrees for co-polar and 9 degrees for cross-polar emissions. At a later stage the unique value of the orbital separation limit of [9] degrees was adopted by WRC-2000.

ANNEX 7

Orbital position limitations

A In applying the procedure of Article 4 for modifications to the appropriate Regional Plan, administrations should observe the following criteria:

- 1) No broadcasting satellite serving an area in Region 1 and using a frequency in the band 11.7-12.2 GHz shall occupy a nominal orbital position further west than 37° W or further east than 146° E.
- 2) No broadcasting satellite serving an area in Region 2 that involves an orbital position different from that contained in the Region 2 Plan shall occupy a nominal orbital position:
 - a) further east than 54° W in the band 12.5-12.7 GHz; *or*
 - b) further east than 44° W in the band 12.2-12.5 GHz; *or*
 - c) further west than 175.2° W in the band 12.2-12.7 GHz.

However, modifications necessary to resolve possible incompatibilities during the incorporation of the Regions 1 and 3 feeder-link Plan into the Radio Regulations shall be permitted.

- 3) The purpose of the following orbital position and e.i.r.p. limitations is to preserve access to the GSO by the Region 2 fixed-satellite service in the frequency band 11.7-12.2 GHz. Within the orbital arc of the GSO between 37° W and 10° E, the orbital position associated with any new or modified assignment in the Regions 1 and 3 Plan or the list of additional uses shall lie within one of the portions of the orbital arc listed in Table 1. The e.i.r.p. of such assignments shall not exceed 56 dBW except at the positions listed in Table 2.
- ~~3) Any new orbital position in the Regions 1 and 3 Plan in the range of the orbital arc between 37° W and 10° E associated with a new assignment, or resulting from a modification of an assignment in the Plan, shall be coincident with, or within 1° to the east of, a nominal orbital position in the Region 1 and 3 Plan at the date of entry into force of the Final Acts of the 1977 Conference (in force on 1 January 1979).~~

~~In the event of a modification to an assignment in the Regions 1 and 3 Plan, the use of a new nominal orbital position not coincident with any nominal orbital position in the Plan at the date of entry into force of the Final Acts of the 1977 Conference (in force on 1 January 1979) shall involve an 8 dB reduction in the e.i.r.p. compared to that appearing in the Regions 1 and 3 Plan for the assignment before modification.~~

TABLE 1

Allowable portions of the orbital arc between 37° W and 10° E for new or modified assignments in the Regions 1 and 3 Plan and List

<u>Orbital position</u>	<u>37° W</u> to <u>36° W</u>	<u>33.5° W</u> to <u>32.5° W</u>	<u>30° W</u> to <u>29° W</u>	<u>26° W</u> to <u>24° W</u>	<u>20° W</u> to <u>18° W</u>	<u>14° W</u> to <u>12° W</u>	<u>8° W</u> to <u>6° W</u>	<u>3.8° W</u> to <u>4.2° W</u>]*	<u>2° W</u> to <u>0°</u>	<u>4° E</u> to <u>6° E</u>
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TABLE 2

Nominal positions in the orbital arc between 37° W and 10° E at which the e.i.r.p. may exceed the limit of 56 dBW

<u>Orbital position</u>	<u>37° W</u>	<u>33.5° W</u>	<u>30° W</u>	<u>25° W</u> ± 0.2°	<u>19° W</u> ± 0.2°	<u>13° W</u> ± 0.2°	<u>7° W</u> ± 0.2°	<u>4° W</u> ± 0.2°] *	<u>1° W</u> ± 0.2°	<u>5° E</u> ± 0.2°
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* Modifications to the list which involve this orbital position(s) shall not exceed the pfd limit -138 dBW/m²/27 MHz at any point in Region 2.

B The Region 2 Plan is based on the grouping of the space stations in nominal orbital positions of +0.2° and -0.2° from the centre of the cluster of satellites. Administrations may locate those satellites within a cluster at any orbital position within that cluster, provided they obtain the agreement of administrations having assignments to space stations in the same cluster. (See § 4.13.1 of Annex 3 to Appendix [S30A](#).)

APPENDIX S30A

ANNEX 1

Limits for determining whether a service of an administration is considered to be affected by a proposed modification to ~~one of the Regional 2 Plans~~ or a proposed new or modified assignment in the Regions 1 and 3 List or when it is necessary under this Appendix to seek the agreement of any other administration

1 ~~Not used.~~ Limits applicable to protect a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth) (see § 4.2.1.2 and 4.2.3.2 of Article 4)

~~An administration shall be considered as being affected if, upon application of the procedures of Section 3 of Annex 4, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station.~~

~~For the purpose of this calculation, the feeder-link transmitting earth station parameters notified by the administration, which may differ from those given in Annex 3, are used.~~

2 ~~Not used.~~ Limits applicable to protect a terrestrial station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz (see § 4.2.1.3 and 4.2.3.3 of Article 4)

~~An administration shall be considered as being affected if, upon application of the procedures of Appendix S7, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station⁹.~~

~~For the purpose of this calculation, the feeder-link transmitting earth station parameters notified by the administration, which may differ from those given in Annex 3, are used.~~

3 Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 Plan¹⁰

With respect to the modification to the Region 2 Plan and when it is necessary under this Appendix to seek the agreement of any other administration of Region 2, except in cases covered by Resolution 42 (Rev.Orb-88), an administration shall be considered affected if the overall

⁹ ~~In Regions 1 and 3, for the application of the procedures of Appendix S7, the e.i.r.p. for the feeder-link earth station is the sum of the values specified in columns 13 and 14 of the Plan.~~

¹⁰ With respect to § 3 the limit specified relates to the overall equivalent protection margin calculated in accordance with § 1.12 of Annex 3 to this Appendix.

equivalent protection margin¹¹ corresponding to a test point of its entry in the Plan, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:

- the Plan as established by the 1983 Conference; *or*
- a modification of the assignment in accordance with this Appendix; *or*
- a new entry in the Plan under Article 4; *or*
- any agreement reached in accordance with this Appendix except for Resolution 42 (Rev.Orb-88).

[4 Limits to the change in the feeder-link equivalent protection margin with respect to frequency assignments in conformity with the Regions 1 and 3 Plan or List¹²

With respect to the proposed new or modified assignments in modification to the Regions 1 and 3 Plan List and when it is necessary under this Appendix to seek the agreement of any other administration of Region 1 or 3, an administration shall be considered affected if the feeder-link equivalent protection margin¹³ corresponding to a test point of its entry in the Plan or List, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:

- the Plan as established by the 1988 Conference; *or*
- a modification of the assignment in accordance with this Appendix; *or*
- a new entry in the Plan under Article 4; *or*
- any agreement reached in accordance with this Appendix.]

[To be revised based on the deliberations of GT PLEN-1 concerning Document DT/110, if the current concept is not changed, possible text for this section may be found in the attachment prepared by the Chairperson of ad hoc 1 to GT PLEN-1.]

5 Limits applicable to protect a frequency assignment in the bands 17.3-18.1 GHz (Regions 1 and 3) and 17.3-17.8 GHz (Region 2) to a receiving space station in the fixed-satellite service (Earth-to-space)

An administration in Region 1 or 3 shall be considered affected by a proposed modification in Region 2 or an administration in Region 2 shall be considered affected by a proposed new or modified assignment in the Regions 1 and 3 List ~~vice-versa~~ when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link station would cause an increase in

¹¹ For the definition of the overall equivalent protection margin, see § 1.11 of Annex 5 to Appendix S30.

¹² With respect to § 4, the limit specified relates to the feeder-link equivalent protection margin calculated in accordance with § 1.7 of Annex 3.

¹³ For the definition of the equivalent protection margin, see § 1.7 of Annex 3.

the noise temperature of the feeder-link space station which exceeds the threshold value of $\Delta T/T$ corresponding to 3%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix S8, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the total RF bandwidth of the feeder-link carriers (24 MHz for Region 2 and 27 MHz for Regions 1 and 3).

Interim systems of Region 2 in accordance with Resolution 42 (Rev.Orb-88) shall not be taken into consideration when applying this provision to proposed modifications to the Regions 1 and 3 Plan. However, this provision shall be applied to Region 2 interim systems with respect to the Regions 1 and 3 Plan.

**6 Limits applicable to protect a frequency assignment in the band
17.8-18.1 GHz (Region 2) to a receiving feeder-link space station in the
fixed-satellite service (Earth-to-space)**

An administration in Region 2 shall be considered affected by a proposed new or modified assignment in the Regions 1 and 3 List when the power flux-density arriving at the Region 2 receiving space station of a broadcasting-satellite feeder-link station would cause an increase in the noise temperature of the receiving feeder-link space station which exceeds the threshold value of $\Delta T/T$ corresponding to 3%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix S8, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the total RF bandwidth of the feeder-link carriers.

ANNEX 2

**Basic characteristics to be furnished in notices¹⁴ relating to feeder-link stations
in the fixed-satellite service operating in the frequency bands
14.5-14.8 GHz and 17.3-18.1 GHz¹⁵**

The data elements contained in this Annex are included in APS4.

ANNEX 3*

MOD

Technical data used in establishing the provisions and associated Plans and the Regions 1 and 3 List and which should be used for their application¹⁹

MOD

1.7 Feeder-link equivalent protection margin for Regions 1 and 3²⁰

The feeder-link equivalent protection margin (M_u) is given by the formula:

$$M_u = -10 \log (10^{-M_1/10} + 10^{-M_2/10} + 10^{-M_3/10}) \quad \text{dB}$$

where:

M_1 is the value in dB of the protection margin for the same channel, i.e.:

$$M_1 = \left[\frac{\text{wanted power}}{\text{sum of the co-channel interfering powers}} \right] - \text{co-channel protection ratio}$$

M_2 and M_3 are the values in dB of the protection margin for the upper and lower adjacent channels, respectively, i.e.:

$$M_2 = \left[\frac{\text{wanted power}}{\text{sum of the upper adjacent channel interfering powers}} \right] - \text{adjacent channel protection ratio}$$

$$M_3 = \left[\frac{\text{wanted power}}{\text{sum of the lower adjacent channel interfering powers}} \right] - \text{adjacent channel protection ratio}$$

All powers are evaluated at the receiver input. All protection ratios are given in § 3.3.

¹⁹ In revising this Annex at WRC-97 and at WRC-2000, no changes were made to the technical data applicable to the Region 2 Plan. However, for all three Regions it should be noted that some of the parameters of networks proposed as modifications to the Plans may differ from the technical data presented herein.

* *Note by the Secretariat:* Subsequent to WARC Orb-88, certain errors have been discovered in the technical information for fast roll-off antenna patterns as contained in Appendices **S30A** and **S30B**. This technical information as corrected by the ex-IFRB derives from other relevant Conference decisions and is given in the provisional ex-IFRB Rule of Procedure No. H38, published in ex-IFRB Circular-letter No. 790 of 12 July 1989. ~~Copies of the latter may be obtained directly from the Bureau.~~

²⁰ This quantity is used in the alternative formula for the overall equivalent protection margin given in § 1.12. However, in certain cases (e.g. when the channel spacing and/or bandwidth are different from the values given in § 3.5 and 3.8 of Annex 5 to Appendix **S30**), ~~equivalent protection margins for the second adjacent channels may be used. Appropriate protection masks included in ITU-R Recommendations should be used if available. Until a relevant ITU-R Recommendation is incorporated in this Annex by reference, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board.~~

MOD

1.12 Overall equivalent protection margin

The overall equivalent protection margin M is given in dB by the expression²²:

$$M = -10 \log \left(\sum_{i=1}^n 10^{(-M_i/10)} \right)$$

where:

- n is generally equal to 3 for Regions 1 and 3, n is equal to 5 for Region 2;
- M1: overall co-channel protection margin (dB) (as defined in § 1.9);
- M2, M3: overall adjacent channel protection margins for the upper and lower adjacent channels, respectively (dB) (as defined in § 1.10);
- M4, M5: overall second adjacent channel protection margins for the upper and lower second adjacent channels, respectively (dB) as defined in § 1.11).²³

The adjective “equivalent” indicates that the protection margins for all interference sources from the adjacent and second adjacent as well as co-channel interference sources have been included.

The following alternative formula for overall equivalent protection margin was used at the 1988 Conference (WARC Orb-88) in developing the original feeder-link Plan for Regions 1 and 3. It may be used as a tool to assess the relative contributions of the feeder link and downlink to the overall equivalent protection margin defined above.

$$M = -10 \log \left(10^{-(M_u + R_{cu})/10} + 10^{-(M_d + R_{cd})/10} \right) - R_{co}$$

where:

- M_u : equivalent protection margin for the feeder link (as defined in § 1.7);
- M_d : equivalent protection margin for the downlink (as defined in § 3.4, Annex 5 to Appendix S30);
- R_{cu} : co-channel feeder-link protection ratio;
- R_{cd} : co-channel downlink protection ratio;
- R_{co} : co-channel overall protection ratio.

²² This formula is also used to calculate the overall equivalent protection margin of the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997.

²³ ~~M_4 and M_5 are applicable only for Region 2. However, in certain cases (e.g. when the channel spacing and/or bandwidth are different from the values given in § 3.5 and 3.8 of Annex 5 to Appendix S30), these margins may also be used for Regions 1 and 3. Appropriate protection masks included in ITU-R Recommendations should be used if available. Until a relevant ITU-R Recommendation is incorporated in this Annex by reference, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board.~~

The values of the protection ratios used for the 1988 feeder-link Plan were as follows:

$$R_{cu} = 40 \text{ dB}$$

$$R_{cd} = 31 \text{ dB}$$

$$R_{co} = 30 \text{ dB}$$

The adjective “equivalent” indicates that the protection margins for all interference sources from the adjacent channels as well as co-channel interference sources have been included.

The corresponding values for analysing the 1997 feeder-link Plan are:

$$R_{cu} = 30 \text{ dB}$$

$$R_{cd} = 24 \text{ dB}$$

$$R_{co} = 23 \text{ dB}$$

However, the latter values are restricted to the case of channels having the standard channel spacing and necessary bandwidth given in § 3.5 and 3.8, respectively, of Annex 5 to Appendix S30.

WRC-2000 generally applied the following protection ratio values for development WRC-2000 Regions 1 and 3 feeder-link Plan:

$$\underline{R_{cu} = 27 \text{ dB}}$$

$$\underline{R_{cd} = 21 \text{ dB}}$$

These values were used for all assignments in WRC-2000 planning except those, for which WRC-2000 adopted different values. The planning at WRC-2000 was based on the use of the Equivalent Protection Margin criterion.

MOD

3.3 Protection ratios

For planning in Regions 1 and 3 at the 1988 Conference (WARC Orb-88), the following protection ratios were applied for the purpose of calculating the feeder-link equivalent protection margins²⁴ :

- co-channel protection ratio = 40 dB;
- adjacent channel protection ratio = 21 dB.

The method for the calculation of the feeder-link equivalent protection margin is given in § 1.7.

For revising the Regions 1 and 3 Plan at WRC-97, the corresponding values of aggregate protection ratio that were used to calculate the feeder-link equivalent protection margins which appear in the alternative formula for overall equivalent protection margin given in § 1.12 are specified in Recommendation ITU-R BO.1297, as follows^{24bis,24ter}:

²⁴ These protection ratio values ~~may be~~ were used for assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997.

^{24bis} These protection ratio values were used for assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau between 27 October 1997 and 12 May 2000.

^{24ter} These protection ratio values were used for protection of digital and analogue assignments from analogue emissions.

- co-channel protection ratio = 30 dB;
- adjacent channel protection ratio = 22 dB.

However, it should be noted that the revision of the Regions 1 and 3 Plan by the WRC-97 was, in accordance with Recommendation **521 (WRC-95)**, based on “simultaneous planning of feeder-link and downlink with calculation of overall equivalent protection margins” (as defined in § 1.11 of Annex 5 to Appendix **S30/30** and in § 1.12 using the following values of aggregate protection ratio:

- co-channel = 23 dB;
- adjacent channel = 15 dB.

Recommendation **521 (WRC-95)** also specified that for the revision of the Regions 1 and 3 Plan no overall co-channel single entry *C/I* ratio should be lower than 28 dB.

Nevertheless, for assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997, the overall equivalent protection margins were calculated using a co-channel overall protection ratio of 30 dB and lower and upper overall adjacent channel protection ratios of 14 dB.

Revision of the Regions 1 and 3 Plan at WRC-97 ~~was and planning at WRC-2000~~ were generally based on a set of reference parameters such as the average e.i.r.p., the reference earth station transmitting antenna, all test points placed within the –3 dB contour, a bandwidth of 27 MHz and the predetermined value of *C/N*. Regions 1 and 3 Plan as established by WRC-2000 is generally based on the use of digital modulation.

WRC-2000 adopted for the protection of digital assignments from digital emissions the following protection ratio values to be applied for calculation of feeder-link equivalent protection margins of the WRC-2000 Regions 1 and 3 BSS Plan;

- 27 dB for co-channel signals;
- 22 dB for adjacent channel signals.

During planning at WRC-2000 these values were used for all assignments of the Regions 1 and 3 feeder-link Plan and the List except those, for which WRC-2000 adopted different values to be used in the planning process.

Protection masks and associated calculation methods for interference into broadcasting-satellite systems involving digital emissions are given in Recommendation ITU-R BO.1293-1.

NOTE - The calculation method and the default values specified in the Recommendation ITU-R BO.1293-1 will be updated by the relevant ITU-R study group in accordance with the technical parameters adopted by WRC-2000 for planning.

ADD

3.7.5 Composite beam

A composite beam represents a single beam (i.e. “simulated shaped beam”) and is formed by combining two or more elliptical beams at a given orbital position. In general, composite beams were used at WRC-2000 for administrations which had more than one beam at a given orbital position in the WRC-97 Regions 1 and 3 BSS Plan.

[SUP

3.11 Power control

Reasons: WRC-2000 has decided to apply a single entry criterion instead of the Equivalent Protection Margin (EPM) criterion. Calculation of the Power Control value is based on the application of EPM. Taking into account that it is not possible to apply the current Power Control algorithm this paragraph should be suppressed.]

[SUP

3.13 Depolarization compensation

Reasons: The margin 0.5 dB is shared between the depolarization compensation the Power Control. Suppression of Power Control does not allow to determine the valid depolarisation compensation value.]

ADD

3.17 Orbital separation limit for interference calculation

WRC-2000 has adopted the use of an orbital separation limit for interference calculation in the Regions 1 and 3. Beyond this limit no interference was taken into account.

At the initial values of the orbital separation limit were 15 degrees for co-polar and 9 degrees for cross-polar emissions. At a later stage the unique value of the orbital separation limit of [9] degrees was adopted by WRC-2000.

ANNEX 4

Criteria for sharing between services

1 Threshold values for determining when coordination is required between transmitting space stations in the fixed-satellite service or the broadcasting-satellite service and a receiving space station in the feeder-link Plans in the frequency bands 17.3-18.1 GHz (Regions 1 and 3) and 17.3-17.8 GHz (Region 2)

With respect to § 7.1, Article 7 of this Appendix, coordination of a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service with a receiving space station in a broadcasting-satellite feeder link in the Regions 1 and 3 Plan or the Region 2 Plan is required, ~~for inter-satellite geocentric angular separations of less than 3° or greater than 150°~~, when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link station of another administration would cause an increase in the noise temperature of the feeder-link space station which exceeds a threshold value of $\Delta T_s/T_s$ corresponding to 4%. $\Delta T_s/T_s$ is calculated in accordance with Case II of the method given in Appendix **S8**.

~~The above provision does not apply when the geocentric angular separation between a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service and a receiving space station in the feeder-link Plan, exceeds 150° of arc and the free space power flux density of~~

~~the transmitting space station in the fixed-satellite service does not exceed a value of 137 dB(W/m²/MHz) on the Earth's surface at the equatorial Earth limb.~~

2 ~~Not used.~~ **Threshold values for determining when coordination is required between transmitting feeder-link earth stations in the fixed-satellite service in Region 2 and a receiving space station in the Regions 1 and 3 feeder-link Plan or List in the frequency bands 17.8-18.1 GHz**

With respect to § 7.1, Article 7 of this Appendix, coordination of a transmitting feeder-link earth station in the fixed-satellite service with a receiving space station in a broadcasting-satellite feeder link in the Regions 1 and 3 Plan or List is required, when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link station of another administration would cause an increase in the noise temperature of the feeder-link space station which exceeds a threshold value of $\Delta T/T$ corresponding to 3%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix S8, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the total RF bandwidth of the feeder-link carriers.

SUP

3 ~~Method for the determination of the coordination area around a feeder-link transmitting earth station of the Region 2 and Regions 1 and 3 Plans with respect to receiving earth stations in the fixed-satellite service in the frequency band 17.7-18.1 GHz~~

ATTACHMENT

Optional text for section 1 of Annex 1 to Appendix S30 and for section 4 of Annex 1 of Appendix S30A in case that the sharing criteria of the WRC-97 Regions 1 and 3 Plans are in principle maintained for BSS-BSS compatibility analysis.

APPENDIX S30

[1 Limits to the change in the wanted-to-interfering signal ratio with respect to frequency assignments in conformity with the Regions 1 and 3 Plan and the Regions 1 and 3 List

With respect to ~~§ 4.3.1.1~~ § 4.1.1a) or § 4.1.1b) of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the effect of the proposed ~~modification~~ new or modified assignment to the Regions 1 and 3 ~~Plan~~ List is that the equivalent down-link protection margin^{13bis} corresponding to a test point of its entry in the Regions 1 and 3 Plan or List, including cumulative effect of any previous modification to List or any previous agreement, falls more than [0.45] dB below 0 dB or, if already negative, more than [0.45] dB below the value resulting from:

- the Regions 1 and 3 Plan and List as established by the WRC-2000; or
- a proposed new or modified assignment to the List in accordance with this Appendix; or
- a new entry in the Regions 1 and 3 List as the result of successful application of Article 4 procedures.

~~would result in the wanted to interfering signal ratio at any point within the service area associated with any of its frequency assignments in that Plan falling below either 30 dB or the value resulting from the frequency assignments in the Plan at the date of entry into force of the Final Acts¹⁴, whichever is the lower.~~

NOTE - In performing the calculation, the effect at the receiver input of all the co-channel and adjacent-channel signals is expressed in terms of one equivalent co-channel interfering signal. This value is usually expressed in decibels.

For a proposed new or modified assignment to the List, in the interference analysis, for each test point, the antenna characteristics described in Figure 7bis of this Appendix shall apply. If the e.i.r.p. value of the wanted signal at a given test point is above or equal to [54.5] dBW, an antenna diameter of 0.6 m shall be used, otherwise the antenna diameter D of the receiving earth station shall be adjusted according to the following formula:

$$D = 0.6 \times 10^{(54.5 - \text{e.i.r.p.})/20}$$

but not exceeding [2.4] m.]

^{13bis} For the definition of the equivalent protection margin, see §3.4 of Annex 5.

¹⁴ ~~Final Acts of the 1977 Conference, which entered into force on 1 January 1979.~~

APPENDIX S30A

[4 Limits to the change in the feeder-link equivalent protection margin with respect to frequency assignments in conformity with the Regions 1 and 3 Plan¹² and the Regions 1 and 3 List

With respect to ~~the modification~~a proposed new or modified assignment to the Regions 1 and 3 ~~Plan~~ List and when it is necessary under this Appendix to seek the agreement of any other administration of Region 1 or 3, an administration shall be considered affected if the feeder-link equivalent protection margin¹³ corresponding to a test point of its entry in the ~~Plan~~ and the List, including the cumulative effect of any previous modification to the ~~Plan~~ List or any previous agreement, falls more than [0.2545] dB below 0 dB, or, if already negative, more than [0.245] dB below the value resulting from:

- the Regions 1 and 3 Plan and List as established by the ~~1988 WRC-2000 Conference~~; *or*
- a ~~modification~~proposed new or modified of the assignment to the List in accordance with this Appendix; *or*
- a new entry in the ~~Plan~~ Regions 1 and List ~~under~~ as the result of the successful application of Article 4 procedures; ~~or~~
- ~~any agreement reached in accordance with this Appendix.~~

For a proposed new or modified assignment to the List, in the interference analysis, for each test point, the antenna characteristics described in the section 3.5 of Annex 3 to this Appendix shall apply.]

¹² ~~With respect to § 4, the limit specified relates to the feeder-link equivalent protection margin calculated in accordance with § 1.7 of Annex 3.~~

¹³ For the definition of the equivalent protection margin, see § 1.7 of Annex 3.



RESOLUTION GT PLEN-2/[5] (WRC-2000)

Global harmonization of spectrum for public protection and disaster relief

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) the growing telecommunications needs of public agencies dealing with law and order, disaster relief and emergency response;
- b) that future advanced solutions used by such public protection agencies will need high data rates, video and multimedia;
- c) that there is a need for interoperability and interworking between security and emergency networks, both nationally and for cross-border operations in emergency situations and disaster relief;
- d) the importance of the needs of public protection agencies including those dealing with emergency situations and disaster relief for:
 - i) maintenance of law and order;
 - ii) emergency and disaster response;
 - iii) safety of life and property,

recognizing

- a) the benefits of globally harmonized frequency bands for such applications;
- b) the increased potential for cooperation by countries for the provision of effective and appropriate humanitarian assistance during disasters;
- c) the needs of developing countries for low-cost solutions for public protection agencies;
- d) that global harmonization of spectrum for such usage will lead to economies of scale and reduced costs of such solutions,

invites ITU-R

- a) to study, as a matter of urgency, identification of frequency bands that could be used on a global/regional basis by administrations intending to implement future solutions for public protection agencies including those dealing with emergency situations and disaster relief;
- b) to study, as a matter of urgency, regulatory provisions necessary for identifying globally/regionally harmonized frequency bands for such purposes;
- c) to conduct studies for development of a resolution to identify the technical and operational basis of global cross-border circulation of the radiocommunications equipment in emergency situations and disaster relief,

instructs the Radiocommunication Bureau

to report on the results of these studies to the CPM of WRC-03,

urges administrations

to actively participate in the aforementioned studies by submitting contributions to ITU-R,

and requests WRC-03

to consider identification of globally/regionally harmonized frequency bands for future advanced solutions to meet the needs of public protection agencies including those dealing with emergency situations and disaster relief systems and make regulatory provisions, as necessary.



**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Drafting Group 1

MODIFICATION OF RESOLUTION 53

Attached for consideration is a proposed modification to Resolution 53 (WRC-97). If adopted, this Resolution may need to be listed in Article 59 of the Final Acts.

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

RESOLUTION 53 (Rev.WRC-972000)

Updating of the “Remarks” columns in the tables of Article 9A of Appendix S30A and Article 11 of Appendix S30 to the Radio Regulations

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) ~~that this Conference has adopted new texts relating to the symbols in the “Remarks” columns of Article 9A of Appendix S30A and Article 11 of Appendix S30 to the Radio Regulations~~that WRC-2000 has adopted new methodologies and criteria for the calculation of compatibility between the WRC-2000 Regions 1 and 3 Plans in Appendices S30/S30A and other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan, and that these methodologies and criteria are included in, or referenced in Article 11 of Appendix S30 and Article 9A of Appendix S30A and in the Annexes to Appendices S30/S30A;
- b) ~~that this Conference has adopted new entries in the “Remarks” columns of Article 9A of Appendix S30A and Article 11 of Appendix S30, on the understanding that the lists of identified administrations will be reviewed and revised, as appropriate, by WRC-99~~that the R1/R3 downlink Plan (and the associated R1/R3 feeder-link Plan) were not analysed to identify any incompatibility with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan during WRC-2000 using the revised criteria adopted at WRC-2000;
- c) ~~that studies of compatibility between the revised Regions 1 and 3 broadcasting-satellite service (downlink and feeder link) Plans, and other services having allocations in the planned bands in all three Regions, and between the revised Regions 1 and 3 Plans and the Region 2 Plans, were performed during this Conference using data which had been received and published by the Radiocommunication Bureau at the time of this Conference under relevant provisions of the Radio Regulations~~[that national coverage existing systems [and Part B systems] included in the R1/R3 downlink and feeder-link Plans have already been determined to be compatible with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan];
- d) ~~that by inclusion of symbols in the “Remarks” columns of Article 9A to Appendix S30A and Article 11 of Appendix S30 to the Radio Regulations a mechanism is available to identify potential incompatibility conditions both for causing interference and receiving interference that shall be subject to a coordination process before the concerned assignments may be brought into service;~~
- d) ~~that it was not possible to analyse fully the effect of all assignments which were received before 27 October 1997 but which had not been processed at the time of this Conference;~~
- e) ~~that in order to analyse fully the effect of assignments that have not been fully processed, it is necessary to process the assignments which were received prior to this Conference,~~

recognizing

- a) ~~that the revised Regions 1 and 3 Plans must be compatible with the Region 2 Plans and with the other services which have primary allocations in the planned bands in all three Regions in accordance with principles adopted at this Conference~~that the integrity of the Region 2 Plan and its associated provisions must be preserved, by providing the same protection to the assignments contained in those Plans as is now received under the relevant provisions of the Radio Regulations,

and by not requiring more protection from assignments in the Region 2 Plan than that provided under the Radio Regulations;*

b) that the compatibility between the BSS in Regions 1 and 3 and services having primary allocations in all three Regions must be ensured;

~~b)c)~~ that the Bureau requires clear instructions from this Conference on how to complete the analyses and to finalize the entries to be included in the “Remarks” column of both Article 9A of Appendix S30A and Article 11 of Appendix S30;

~~e)d)~~ that the instructions to the Bureau shall take effect on ~~22 November 1997~~ [3 June 2000],
resolves

1 that the Bureau shall complete the required analyses based on the ~~new~~ Notes [3 to 7] in Section 9A.2 of Article 9A of Appendix S30A and Notes [5 to 7] in Section 11.2 of Article 11 of Appendix S30 added during this Conference using the methodology and criteria adopted at this Conference;

2 that the Radiocommunication Bureau shall publish the results of its analyses after this Conference, ~~together with a modified~~ by means of inclusion of entries in a “Remarks” column of Article 9A of Appendix S30A and Article 11 of Appendix S30, in the form of a eCircular-Letter;

3 that once the eCircular-Letter referred to in *resolves* 2 has been sent, administrations will have a period of ~~60~~ [120] days to decide whether they do or do not wish to ~~go on~~ continue appearing as “affected or affecting administrations” in the relevant table. The Bureau shall send a reminder to all administrations [45] days before the expiry of the above-mentioned deadline in the form of a circular telefax requesting comment/reply. If no reply is received from administrations within that period, it will be taken that there is no need to make any change ~~alter~~ the Remarks in the table;

~~54~~ that the Bureau shall report the results of its analyses ~~and in a further Circular Letter containing the final lists of administrations to be included in the modified “Remarks” columns to WRC-99 of the WRC-2000 Regions 1 and 3 Plans;~~

~~45~~ that the new coordination requirements identified in the ~~above-mentioned eCircular-Letter identified in resolves 4 shall apply provisionally from the date of the above-mentioned circular letter until a decision is taken by WRC-99~~ that the remarks are included in the Radio Regulations by a competent conference;

6 that any request for notification of an assignment included in the Regions 1 and 3 downlink Plan or the Regions 1 and 3 feeder-link Plan adopted at WRC-2000, which would be received before the expiry date of the Circular Letter mentioned in *resolves* 4, would be subject to an examination by the Bureau with respect to its compatibility with other services having primary allocations in the planned bands in all three Regions and with the Region 2 Plan, using the methodology and criteria adopted at this Conference,

~~instructs~~ [requests] the ~~Secretary General~~ Director, Radiocommunication Bureau]

to bring this Resolution to the attention of the Council, at its next session, with a view to including this item on the agenda of WRC-99 include the results of this analysis in his report to the next world radiocommunication conference.

* WRC-2000 decided to apply the procedure of section 3 of Annex 1 to Appendix S30 and section 5 to Annex 1 to Appendix S30A to preserve this integrity.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

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410, 434, 441, 445

Chairperson, Committee 4

MODIFICATION TO RR APPENDICES S4 AND S5

The attached text is a compilation from the source documents listed above of all currently adopted or proposed modifications to Appendices S4 and S5. Because of a lack of time the document had to be produced before all proposed modifications had been adopted by Committee 4. There were no conflicting proposals as far as Appendix S4 is concerned. However, there are conflicting proposals as far as Appendix S5 is concerned coming from Committees 4 and 5 and from GT PLEN-1. For that reason the source text has been indicated in the Remarks column of Table S5-1 of Appendix S5.

H. RAILTON
Chairperson of Committee 4
Box 2895

MODIFICATIONS TO APPENDIX S4

ANNEX 2A

Characteristics of satellite networks or earth or radio astronomy stations²

A General characteristics to be provided for the satellite network or the earth or radio astronomy station

A.2 Date of bringing into use

MOD

- a)* The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation^{2a} to provide the published Radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau. Whenever the assignment is changed in any of its basic characteristics (except in the case of a change in § A.1 *a*)), the date to be given shall be that of the latest change (actual or foreseen, as appropriate).

ADD

^{2a} Pending further studies by ITU-R on the applicability of the term “regular operation” to non-GSO networks, the condition of regular operation shall be limited to GSO networks.

A.4 *b*)

ADD

In addition, if the stations operate in a frequency band subject to **S22.5C, D or F**.

- 6) new data elements required to characterize properly the orbital operation of the non-GSO satellite systems:
- a)* for each range of latitudes provide:
 - the maximum number of non-GSO satellites transmitting with overlapping frequencies to a given location; and
 - the associated latitude range;
 - b)* the minimum altitude of the space station above the surface of the Earth at which any satellite transmit;
 - bbis)* an indicator identifying if the space station uses station keeping to maintain a repeating ground track;
 - c)* where the space station uses station-keeping to maintain a repeating ground track, the time in seconds that it takes for the constellation to return to its starting position, i.e. such that all satellites are in the same location with respect to the Earth and each other;
 - d)* an indicator identifying if the space station should be modelled with a specific precession rate of the ascending node of the orbit instead of the J_2 term;

- e) for a space station that is to be modelled with a specific precession rate of the ascending node of the orbit instead of the J_2 term, the precession rate in degrees/day, measured counter-clockwise in the equatorial plane;
- f) the longitude of the ascending node for the j -th orbital plane, measured counter-clockwise in the equatorial plane from the Greenwich meridian to the point where the satellite orbit makes its south-to-north crossing of the equatorial plane ($0^\circ \leq \Omega_j < 360^\circ$) (NOTE 1);
- g) the time at which the satellite is at the location defined by Ω_j (NOTE 1);
- h) the longitudinal tolerance of the longitude of the ascending node.

NOTE 1 - Currently non-GSO space stations are referenced by the "right ascension of ascending node" (A.4b5 Ω_j) to the first point of Aries. However, for the evaluation of epfd a reference to a point on the Earth is used and hence the "longitude of the ascending node" is required. All satellites in the constellation should use the same reference time.

- 7) new data elements required to characterize properly the performance of the non-GSO satellite systems:
 - a) the maximum number of non-GSO satellites receiving simultaneously with overlapping frequencies from the associated earth stations within a given cell;
 - b) the average number of associated earth stations with overlapping frequencies per square kilometre within a cell;
 - c) the average distance between co-frequency cells;
 - d) for the exclusion zone about the geostationary orbit provide:
 - the type of zone;
 - the width of the zone in degrees.

A.7 Earth station site characteristics

MOD

- a) The horizon elevation angle in degrees ~~and, in the case of a station submitted in accordance with Appendix S30A, the antenna gain in the direction of the horizon for each azimuth around the earth station.~~

SUP

- b)

ADD

- b) The distance in kilometres from the earth station to the horizon for each azimuth around the earth station.

SUP

- c)

ADD

- c) That is operating to an associated geostationary space station and having due regard to possible inclined-orbit operation of the associated space station:
 - i) the planned minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane;

- ii) the planned range of operating azimuthal angles for the direction of maximum radiation in degrees, clockwise from True North.

ADD

- d) That is operating to associated non-geostationary space stations, the minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane for each azimuth around the earth station.

(MOD)

- ~~de)~~ The altitude (metres) of the antenna above mean sea level.

ADD

A.14 Spectrum masks

For stations operating in a frequency band subject to **S22.5C**, **D** or **F**.

- a) for each e.i.r.p. mask used by the non-GSO space station provide:
- the type of mask;
 - the mask identification code;
 - the mask pattern defined in terms of the power in the reference bandwidth for a series of off-axis angles with respect to a specified reference point;
 - the lowest frequency for which the mask is valid;
 - the highest frequency for which the mask is valid;
- b) for each associated earth station e.i.r.p. mask provide:
- the type of mask;
 - the mask identification code;
 - the mask pattern defined in terms of the power in the reference bandwidth for a series of off-axis angles with respect to a specified reference point;
 - the lowest frequency for which the mask is valid;
 - the highest frequency for which the mask is valid;
 - the minimum elevation angle at which any associated earth station can transmit to a non-GSO satellite;
 - the minimum separation angle between the GSO arc and the associated earth station main beam-axis at which the associated earth station can transmit towards a non-GSO satellite;
- c) for each pfd mask used by the non-GSO space station provide:
- the type of mask;
 - the mask identification code;
 - the mask pattern of the power flux-density defined in three dimensions;
 - the lowest frequency for which the mask is valid;
 - the highest frequency for which the mask is valid.

(The space-station pfd mask is defined by the maximum power flux-density generated by any space station in the interfering non-GSO system as seen from any point on the surface of the Earth.)

ADD

A.15 Commitment regarding compliance with additional operational epfd↓ limits

For non-geostationary satellite systems operating in the fixed-satellite service in the bands 10.7-11.7 GHz (in all Regions), 11.7-12.2 GHz (Region 2), 12.2-12.5 GHz (Region 3), and 12.5-12.75 GHz (Regions 1 and 3), a commitment that the filed for system will meet the additional operational epfd↓ limits that are specified in Table **S22-4A** under No. **S22.5I**.

ADD

A.17 Commitment regarding compliance with aggregate pfd limits

For non-geostationary satellite systems operating in the radionavigation-satellite service in the band 5 010-5 030 MHz the aggregate power flux-density radiated in the bands above 5 030 MHz shall not exceed the level of $-124.5 \text{ dB(W/m}^2\text{)}$ in a 150 kHz bandwidth and in the band 4 990-5 000 MHz shall not exceed the provisional value of $-171 \text{ dB(W/m}^2\text{)}$ in a 10 MHz bandwidth under No. **S5.44C**.

B.3 g)

MOD

- 1) ~~the maximum isotropic antenna gain (dBi)~~co-polar gain of the antenna in the direction of maximum radiation referred to an isotropic radiator (dBi), as well as the cross-polar gain of the antenna in the case of a beam of other than elliptical shape;

SUP

7)

C.8 Power characteristics of the transmission

MOD

- h)* In the case of a space station submitted in accordance with Appendix **S30**:
—— ~~the power supplied to the antenna (dBW) (Regions 1 and 3);~~
— the power supplied to the antenna (dBW) and the maximum power density per Hz supplied to the antenna (dB(W/Hz)), averaged over the worst 5 MHz, ~~40 kHz and 4 kHz and 27 MHz~~, as well as averaged over the worst 40 kHz in the case of Region 2~~supplied to the antenna (Region 2)~~.

C.9 b)

ADD

- 9) in the case of a digital modulation, the effective and transmitted bit/symbol rates;

ADD

- d) For stations operating in a frequency band subject to **S22.5C**, **D** or **F**, provide:
- the type of mask;
 - the mask identification code.

C.11 Service area

MOD

- b) In the case of a space station submitted in accordance with Appendix **S30A**:
- ~~where the feeder link earth station is in Region 2, the geographical coordinates of the feeder link station in the frequency band 17.7-17.8 GHz, including the rain climatic zone;~~
 - a set of a maximum of twenty feeder-link test points, and
 - ~~in all other cases, the feeder link service area identified by a set of a maximum of ten feeder link test points, including the rain climatic zone for each test point, and by a service area contour on the surface of the Earth or a service area defined by a minimum elevation angle in degrees.~~

ADD

C.15 Description of the group(s) required in the case of non-simultaneous emissions

MOD

D Overall link characteristics

To be provided only when simple frequency-changing transponders are used on the space station onboard a geostationary satellite.

In the case of FSS networks using the frequency bands specified in No. **S9.7** (GSO/GSO) of Appendix **S5**, Table **S5-1** (items 1, 2 and 3 of the frequency band column), the data specified in this section of the Appendix is not mandatory and should not be submitted to the Bureau.

ANNEX 2B

Table of characteristics to be submitted for space and radio astronomy services

MOD

A – General characteristics of the satellite network or the earth station

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
A.1.a	X	X	X	X	X		X	X	X	A.1.a	
A.1.b							X			A.1.b	
A.1.c								X		A.1.c	
A.1.d									X	A.1.d	
A.1.e.1						X				A.1.e.1	
A.1.e.2						X				A.1.e.2	X
A.1.e.3						X				A.1.e.3	
A.1.e.4										A.1.e.4	X
A.1.f	X	X	X	X	X	X ¹¹	X	X	X	A.1.f	X
A.2.a	X	X	X	X	X	X	X	X	X	A.2.a	
A.2.b	X			X						A.2.b	
A.2.c										A.2.c	X
A.3			X	X	X	X	X	X		A.3	X
A.4.a.1	X			X			X	X	X	A.4.a.1	
A.4.a.2				X			X	X		A.4.a.2	
A.4.a.3				X						A.4.a.3	
A.4.a.4				X						A.4.a.4	
A.4.a.5				X						A.4.a.5	
A.4.b.1		X	X		X					A.4.b.1	
A.4.b.2		X	X		X					A.4.b.2	
A.4.b.3		X	X		X					A.4.b.3	
A.4.b.4		X	X		X					A.4.b.4	
A.4.b.5					X					A.4.b.5	
A.4.c						X				A.4.c	
A.5				X	X	X ¹¹	X	X	X	A.5	
A.6				X	X	X ¹¹	X	X	X	A.6	
A.7.a						X ¹¹		X		A.7.a	
A.7.b						X ¹¹		X		A.7.b	
A.7.c i)						X ¹¹		X		A.7.c i)	
A.7.c ii)						X ¹¹				A.7.c ii)	
A.7.d						X ¹¹		X		A.7.d	
A.7.e						X ¹¹		X		A.7.e	
A.8							X			A.8	

A – General characteristics of the satellite network or the earth station (end)

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
A.9							X			A.9	
A.10						X ¹¹				A.10	
A.11							X	X		A.11	
A.12								X		A.12	
A.13				X	X	X				A.13	
A.14					X					A.14	
A.15					X					A.15	
A.16				X						A.16	
A.17					X					A.17	

X Mandatory information

O Optional information

C This information need only be furnished when it has been used as a basis to effect coordination with another administration

* The application of this column is suspended pending the decision of WRC-99.

¹¹ Not required for coordination under No. **S9.7A** or **S9.7B**.

MOD

B – Characteristics to be provided for each satellite antenna beam and for each earth station antenna

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
B.1			X	X	X	X	X	X	X	B.1	
B.2			X	X	X	X ¹¹			X	B.2	
B.3.a				X						B.3.a	
B.3.b.1				X						B.3.b.1	
B.3.b.2				X						B.3.b.2	
B.3.c				C						B.3.c	
B.3.d				X			X	X	X	B.3.d	
B.3.e				X						B.3.e	
B.3.f				X				X		B.3.f	
B.3.g.1							X	X	X	B.3.g.1	
B.3.g.2							X	X	X	B.3.g.2	
B.3.g.3							X	X	X ⁹	B.3.g.3	
B.3.g.4							X	X	X ⁹	B.3.g.4	
B.3.g.5							X	X	X ⁹	B.3.g.5	
B.3.g.6								X		B.3.g.6	
B.3.g.7							X			B.3.g.7	
B.4.a			X		X					B.4.a	
B.4.b			X		X					B.4.b	

B – Characteristics to be provided for each satellite antenna beam and for each earth station antenna (end)

B.5.a						X				B.5.a	
B.5.b						X ¹¹				B.5.b	
B.5.c						X ¹²				B.5.c	
B.6										B.6	X

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

⁹ Only information on co-polar antenna characteristics is required.

¹¹ Not required for coordination under No. **S9.7A** or **S9.7B**.

¹² In the case of coordination under **S9.7A**, the reference radiation pattern is to be provided.

* The application of this column is suspended pending the decision of WRC-99.

MOD

C – Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth station antenna

Items in Appendix	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article S9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article S9	Notification or coordination of a geostationary-satellite network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the broadcasting-satellite service under Appendix S30 *	Notice for feeder-link stations under Appendix S30A *	Notice for stations in the fixed-satellite service under Appendix S30B	Items in Appendix	Radio astronomy
C.1	X	X	X						X	C.1	
C.2.a				X	X	X	X	X		C.2.a	
C.2.b										C.2.b	X
C.3.a				X	X	X		X		C.3.a	
C.3.b										C.3.b	X
C.4	X	X	X	X	X	X	X	X		C.4	X
C.5.a			X	X	X			X	X	C.5.a	
C.5.b						X				C.5.b	
C.5.c										C.5.c	X
C.6			X	X	X	X ¹¹	X	X		C.6	
C.7.a			O	X	X	X	X	X		C.7.a	
C.7.b			O	C	C	C				C.7.b	
C.7.c			O	C	C	C				C.7.c	
C.7.d			O	C	C	C				C.7.d	
C.8.a			X ^{1,7}	X ⁷	X ⁷	C ⁸				C.8.a	
C.8.b			X ^{1,7}	X ⁷	X ⁷	X ¹¹				C.8.b	
C.8.c			O	X ⁶	X ⁶	X ^{6,11}				C.8.c	
C.8.d				X ²	X ²					C.8.d	
C.8.e			O	X ⁶	X ⁶	X ^{6,11}				C.8.e	
C.8.f			X ³							C.8.f	
C.8.g				C ⁴	C ⁴	C ^{4,5}				C.8.g	
C.8.h							X			C.8.h	
C.8.i								X		C.8.i	
C.8.j									X	C.8.j	
C.9.a			O	C	C					C.9.a	
C.9.b							X	X		C.9.b	

C – Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth station antenna (end)

C.9.c			X		X					C.9.c	
C.10.a			X	X	X					C.10.a	
C.10.b			X	X	X			X		C.10.b	
C.10.c.1			X	X	X			X	X	C.10.c.1	
C.10.c.2			X	X	X			X	X	C.10.c.2	
C.10.c.3			O	X	X			X	X	C.10.c.3	
C.10.c.4			X	X	X			X	X	C.10.c.4	
C.10.c.5			X	X	X				X	C.10.c.5	
C.10.c.6								X		C.10.c.6	
C.11.a	X ¹⁰	X ¹⁰	X	X	X					C.11.a	
C.11.b								X		C.11.b	
C.11.c							X		X	C.11.c	
C.11.d					X					C.11.d	
C.12									X	C.12	
C.13										C.13	X
C.14							X			C.14	

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

- ¹ Only the value of maximum power density is mandatory.
² For transmission from the space station only.
³ For space-to-space relay only.
⁴ For transmission from the earth station only.
⁵ Not required for coordination under Nos. **S9.15**, **S9.17** or **S9.17A**.
⁶ Required, if applicable, for the type of transmission. If not applicable, a reason why it is not applicable is required.
⁷ One or the other of C.8.a or C.8.b is mandatory, but not both.
⁸ Only the value of total peak envelope power is required for coordination under Nos. **S9.15**, **S9.17** or **S9.17A**.
¹⁰ Only the list of country or geographic designators or a narrative description of the service area shall be supplied.
¹¹ Not required for coordination under No. **S9.7A** or **S9.7B**.

* The application of this column is suspended pending the decision of WRC-99.

APPENDIX S5

SUP

TABLE S5-1

ADD

TABLE S5-1

Technical conditions for coordination (see Article S9)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.7 GSO/GSO	A station in a satellite network using the geostationary-satellite orbit (GSO), in any space radiocommunication service, in a frequency band and in a Region where this service is not subject to a Plan, in respect of any other satellite network using that orbit, in any space radiocommunication service in a frequency band and in a Region where this service is not subject to a Plan, with the exception of the coordination between earth stations operating in the opposite direction of transmission	<u>1) 3 400-4 200 MHz</u> <u>5 725-5 850 MHz (Region 1)</u> <u>and 5 850-6 725 MHz</u>	i) <u>Bandwidth overlap; and</u> ii) <u>Any network in the fixed-satellite service with a space station within an orbital arc of ± 10 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		<u>With respect to FSS in the bands in (1), (2) and (3) an administration may request, pursuant to S9.41, to be included in requests for coordination, indicating the networks for which the value of $\Delta T/T$ calculated by the method in sections 2.2.1.2 and administration be excluded in requests for coordination, 3.2 of Appendix S8 exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to S9.42, the calculation method given in sections 2.2.1.2 and 3.2 of Appendix S8 shall be used.</u> <u>With respect to FSS in the bands in (1), (2) and (3) an administration may request, pursuant to S9.41, that an administration be excluded in</u>
		<u>2) 10.95-11.2, 11.45-11.7, 11.7-12.2 (Region 2)</u> <u>12.2-12.5 (Region 3)</u> <u>12.5-12.75 (Regions 1 and 3)</u> <u>12.2-12.5 GHz (Region 3)</u> <u>12.7-12.75 (Region 2) and</u> <u>13.75-14.5 GHz</u>	i) <u>Bandwidth overlap; and</u> ii) <u>Any network in the fixed-satellite service with a space station within an orbital arc of ± 9 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
		<u>3)17.7-20.2 GHz and 27.5-30 GHz</u>	<u>i) Bandwidth overlap; and</u> <u>ii)Any network in the fixed-satellite service with a space station within an orbital arc of ± 8 degrees of the nominal orbital position of a proposed network in the fixed-satellite service</u>		<u>requests for coordination, giving the reason that the network of this administration will not be affected because value of $\Delta T/T$ calculated by the method in sections 2.2.1.2 and 3.2 of Appendix S8 do not exceed 6%. When the Bureau, on request by an administration, studies this information pursuant to S9.42, the calculation method given in sections 2.2.1.2 and 3.2 of Appendix S8 shall be used.</u> Document 441 C4
		<u>4)AllAny frequency bands, other than those in items 1, 2 and 3, allocated to a space service, where this service is not subject to a Plan and the bands in items 1), 2) and 3) where the radio service of the proposed network or affected networks is other than the fixed-satellite service or in the case of coordination of space stations operating in the opposite direction of transmission.</u>	Value of $\Delta T/T$ exceeds 6%	<u>4)Appendix S8</u>	Document 441 C4

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.7A GSO earth station/ non-GSO system	A specific earth station in a geostationary-satellite network in the fixed-satellite service in respect of a non-geostationary-satellite system in the fixed-satellite service.	The following frequency bands: 10.7-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 17.8-18.6 GHz (space-to-Earth), and 19.7-20.2 GHz (space-to-Earth)	Conditions: i) bandwidths overlap; and ii) the satellite network using the geostationary-satellite orbit has specific receive earth stations which meet all of the following conditions: a) earth station antenna maximum isotropic gain greater than or equal to 64 dBi for the frequency bands 10.7-12.75 GHz or 68 dBi for the frequency bands 17.8-18.6 GHz and 19.7-20.2 GHz; b) G/T of 44 dB/K or higher; c) emission bandwidth of 250 MHz or higher for the frequency bands below 12.75 GHz or 800 MHz or higher for the frequency bands above 17.8 GHz; and	i) Check by using the assigned frequencies and bandwidths; ii) use the maximum antenna gain (G), the lowest total receiving system noise temperature (T), and the emission bandwidth of the specific receive earth station as given in the Appendix S4 data;	The threshold/condition for coordination does not apply to typical receive earth stations operating in satellite networks using the geostationary-satellite orbit Document 445 C5

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
			<p>iii) the $epfd_{down}$ from the satellite system using the non-geostationary orbit exceeds:</p> <p>a) in the frequency band 10.7-12.75 GHz: $-174.5 \text{ dB(W/(m}^2 \cdot 40 \text{ kHz))}$ for any percentage of time for non-GSO systems with all satellites only operating at or below 2 500 km altitude, or $-202 \text{ dB(W/(m}^2 \cdot 40 \text{ kHz))}$ for any percentage of the time for non-GSO systems with any satellites operating above 2 500 km altitude;</p> <p>b) in the frequency bands 17.8-18.6 GHz or 19.7-20.2 GHz: $-157 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for any percentage of time for non-GSO systems with all satellites only operating at or below 2 500 km altitude, or $-185 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for any percentage of the time for non-GSO systems with any satellites operating above 2 500 km altitude</p>	<p>iii) use the $epfd_{down}$ radiated by the non-GSO FSS system into the earth station employing the very large antenna when this antenna is pointed towards the wanted GSO satellite</p>	Document 445 C5

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.7B non-GSO system/ GSO earth station	A non-geostationary-satellite system in the fixed-satellite service in respect of a specific earth station in a geostationary-satellite network in the fixed-satellite service.	The following frequency bands: 10.7-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 17.8-18.6 GHz (space-to-Earth), and 19.7-20.2 GHz (space-to-Earth)	Conditions: i) bandwidths overlap; and ii) the satellite network using the geostationary-satellite orbit has specific receive earth stations which meets all of the following conditions: a) earth station antenna maximum isotropic gain greater than or equal to 64 dBi for the frequency bands 10.7-12.75 GHz or 68 dBi for the frequency bands 17.8-18.6 GHz and 19.7-20.2 GHz; b) G/T of 44 dB/K or higher; c) emission bandwidth of 250 MHz or higher for the frequency bands below 12.75 GHz or 800 MHz or higher for the frequency bands above 17.8 GHz; and	i) Check by using the assigned frequencies and bandwidths; ii) use the maximum antenna gain (G), the lowest total receiving system noise temperature (T), and the emission bandwidth of the specific receive earth station as given in the Appendix S4 data;	The threshold/condition for coordination do not apply to typical receive earth stations operating in satellite networks using the geostationary-satellite orbit Document 445 C5

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
			<p>iii) the $\text{epfd}_{\text{down}}$ from the satellite system using the non-geostationary orbit exceeds:</p> <p>a) in the frequency bands 10.7-12.75 GHz: $-174.5 \text{ dB(W/(m}^2 \cdot 40 \text{ kHz))}$ for any percentage of time for non-GSO systems with all satellites only operating at or below 2 500 km altitude, or $-202 \text{ dB(W/(m}^2 \cdot 40 \text{ kHz))}$ for any percentage of the time for non-GSO systems with any satellites operating above 2 500 km altitude;</p> <p>b) in the frequency bands 17.8-18.6 GHz or 19.7-20.2 GHz: $-157 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for any percentage of time for non-GSO systems with all satellites only operating at or below 2 500 km altitude, or $-185 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for any percentage of the time for non-GSO systems with any satellites operating above 2 500 km altitude</p>	<p>iii) use the $\text{epfd}_{\text{down}}$ radiated by the non-GSO FSS system into the earth station employing the very large antenna when this antenna is pointed towards the wanted GSO satellite</p>	Document 445 C5

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.8 GSO/GSO	A transmitting space station in the fixed satellite service (FSS) using the GSO in a frequency band shared with the broadcasting-satellite service (BSS) on an equal primary basis, in respect of space stations in the latter service which are subject to the Plans in Appendix S30	11.7-12.2 GHz (Region 2) 12.2-12.7 GHz (Region 3) 12.5-12.7 GHz (Region 4)	i) There is an overlap in the necessary bandwidths of the FSS and BSS space stations; and ii) the power flux density (pfd) of the FSS space station exceeds the value given in Annex 4 of Appendix S30 on the territory of another administration located in another Region	Check by using the assigned frequencies and bandwidths;	See also Article 7 of Appendix S30 . Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices. DT/90(Rev. 1) GT PLEN-1

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.9 GSO/GSO	A station of the FSS in a frequency band shared on an equal primary basis with the feeder links of the BSS, which are subject to the Plans in Appendix S30A	17.7-18.1 GHz (Region 1) 17.7-18.1 GHz (Region 3) 17.7-17.8 GHz (Region 2)	i) Value of $\Delta T_s/T_s$ exceeds 4% (see Section I of Annex 4 of Appendix S30A); and ii) geocentric inter-satellite angular separation is less than 3° or greater than 150°	i) Case II of Appendix S8 ii) Annex 1 of Appendix S8	The threshold/conditions do not apply when the geocentric angular separation, between an FSS transmitting space station and a receiving space station in the feeder-link plan, exceeds 150° of arc and the free-space pfd of the FSS transmitting space station does not exceed a value of $-137 \text{ dB(W/m}^2\text{/MHz)}$ on the surface of the Earth at the equatorial limb. Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC 99 on the revision of these two Appendices. DT/90(Rev. 1) GT PLEN-1

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.11 GSO/terrestrial	A space station in the BSS in any band shared on an equal primary basis with terrestrial services and where the BSS is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz 2 520-2 655 MHz 2 655-2 670 MHz 12.5-12.75 GHz (Region 3) 17.73-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 40.5-42.5 GHz 84-86 GHz	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	Document 386 C4
No. S9.11 GSO/terrestrial	A space station in the BSS in any band shared on an equal primary basis with terrestrial services and where the BSS is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz 2 520-2 655 MHz 2 655-2 670 MHz 12.5-12.75 GHz (Region 3) 17.7-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 40.5-42.5 GHz 84-86 GHz <u>74-76 GHz</u>	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	Document 408 C5

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.12 1) Non-GSO/ non-GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to S9.11A or S9.12 in respect of any other satellite network using a non-geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	2 630-2 655 MHz 2 310-2 360 MHz See also Table S5-2 <u>Also frequency bands for which a footnote refers to No. S9.11A</u> [S5.393] [S5.XXX2]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	Document 410 C4 Document 441 C4
No. S9.12A 2) Non-GSO/ GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote <u>or a Resolution</u> refers to S9.11A <u>or to S9.12A</u> in respect of any other satellite network using the geostationary-satellite orbit, with the exception of coordination between earth stations operating in the opposite direction of transmission	<u>2 630-2 655 MHz</u> <u>2 310-2 360 MHz</u> See Table S5-2 <u>[See modifications by 4A]</u> <u>Also frequency bands for which a footnote refers to No. S9.11A</u> [S5.XXX1] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	Document 408 C5 Document 410 C4 Document 441 C4

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.13 GSO/non-GSO	A station in a satellite network using the GSO in the frequency bands for which a footnote <u>or a Resolution</u> refers to No. S9.11A or to S9.13 in respect of any other satellite network using a non-GSO, with the exception of coordination between earth stations operating in the opposite direction of transmission	See Table S5-2 See modifications by 4A] <u>2 630-2 655 MHz</u> <u>2 310-2 360 MHz</u> <u>Also frequency bands for which a footnote refers to No. S9.11A</u> [S5.XXX3] [S5.393]	Condition: bandwidths overlap	Check by using the assigned frequencies and bandwidths	Document 408 C5 Document 441 C4 Document 410 C4
No. S9.14 Non-GSO/ terrestrial, GSO/terrestrial	For a space station in a satellite network in the frequency bands for which a footnote refers to No. S9.11A in respect of stations of terrestrial services where threshold(s) is (are) exceeded	See Table S5-2 <u>Frequency bands for which a footnote refers to No. S9.11A</u>	See § 1 of Annex 1 of this Appendix	See § 1 of Annex 1 of this Appendix	Document 410 C4
No. S9.15 Non-GSO/ terrestrial	A specific earth station or a typical earth station in respect of terrestrial stations in frequency bands for which a footnote refers to No. S9.11A allocated with equal rights to space and terrestrial services, where the coordination area of the earth station includes the territory of another country	See Table S5-2 <u>Frequency bands for which a footnote refers to No. S9.11A</u>	The coordination area of the earth station covers the territory of another administration	See § 2 of Annex 1 of this Appendix <u>Appendix S7</u>	Document 410 C4

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.16 Terrestrial/ non-GSO	A transmitting station in a terrestrial service within the coordination area of an earth station in a non-GSO network in frequency bands for which a footnote refers to No. S9.11A	See Table S5-2 Frequency bands for which a footnote refers to No. S9.11A	Transmitting terrestrial station is situated within the coordination area of a receiving earth station	See § 2 of Annex 1 of this Appendix	The coordination area of the affected earth station has already been determined using the calculation method of No. S9.15 Appendix S7 Document 410 C4
No. S9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz 100 MHz allocated with equal rights to space and terrestrial services in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. S9.15	Any frequency band allocated to a space service, except those mentioned in the Plans in Appendix S30A	The coordination area of the earth station covers the territory of another administration	Appendix S7 (for earth stations in the radiodetermination satellite service (RDSS) in the bands: 1 610-1 626.5 MHz, 2 483.5-2 500 MHz and 2 500-2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	NOTE — For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used Document 410 C4

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial (cont.)				2) For receiving earth stations in the meteorological satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming $4/3$ Earth radius	Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices Document 410 C4

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. S9.15	Any frequency band allocated to a space service, except those mentioned in the Plans in Appendix S30A	The coordination area of the earth station covers the territory of another administration	Appendix S7 (for earth stations in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz, 2 483.5-2 500 MHz and 2 500-2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	NOTE – For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used DT 90(Rev. 1) GT PLEN-1

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.17 GSO, non-GSO/ terrestrial (cont.)				2) For receiving earth stations in the meteorological-satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming $4/3$ Earth radius	Application of this provision with respect to Articles 6 and 7 of Appendices S30 and S30A is suspended pending the decision of WRC-99 on the revision of these two Appendices DT 90 (Rev. 1) GT PLEN-1

TABLE S5-1 (continued)

No. S9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of the frequency bands subject to the Plans in Appendix S30A	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	i) For bands in Table S5-2, see § 2 of Annex 1 of this Appendix ii) See Recommendations ITU R IS.847, ITU R IS.848 and ITU R IS.849 Appendix S7	Document 410 C4
No. S9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of the frequency bands subject to the Plans in Appendix S30A <u>with the exception of coordination under S9.19</u>	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	i) For bands in Table S5-2, see § 2 of Annex 1 of this Appendix ii) See Recommendations ITU R IS.847, ITU R IS.848 and ITU R IS.849 Appendix S7	DT 90 (Rev. 1) GT PLEN-1

TABLE S5-1 (continued)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.18 Terrestrial/ GSO, non-GSO	Any transmitting station of a terrestrial service in the bands referred to in No. S9.17 within the coordination area of an earth station, in respect of this earth station, with the exception of the coordination under Nos. S9.16 and S9.19	Any frequency band allocated to a space service.	Transmitting terrestrial station is situated within the coordination area of a receiving earth station	See Remarks column	The coordination area of the affected earth station has already been determined using the calculation method of No. S9.17 Current Radio Regulations
No. S9.19 Terrestrial/ GSO	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30 For any transmitting station of a terrestrial service or a transmitting earth station in the fixed-satellite service (Earth-to-space) in a frequency band shared on an equal primary basis with the broadcasting-satellite service, with respect to typical earth stations included in the service area of a space station in the broadcasting-satellite service	Bands listed in No. S9.11 and the band 11.7-12.7 GHz	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial interfering station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	<u>See also Article 6 of Appendix S30</u> DT 90 (Rev. 1) GT PLEN-1

TABLE S5-1 (*continued*)

Reference of Article S9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. S9.19 Terrestrial/ GSO, non-GSO	A transmitting station in a terrestrial service in a frequency band shared on an equal primary basis with the BSS, except where the service is subject to the Plans in Appendix S30	Bands listed in No. S9.11	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial station at the edge of the BSS service area exceeds the permissible level	Check by using the assigned frequencies and bandwidths	Document 441 (C4)
No. S9.21 Terrestrial, GSO, non-GSO/ terrestrial, GSO, non-GSO	A station of a service for which the requirement to obtain the agreement of other administrations is included in a footnote to the Table of Frequency Allocations, referring to No. S9.21	Band(s) indicated in the relevant footnote	Condition: Incompatibility established by the use of Appendices S7, S8 , technical annexes of Appendices S30, S30A , pfd values specified in some of the footnotes, other technical provisions of the Radio Regulations or ITU-R Recommendations as appropriate	Methods specified in, or adapted from, Appendices S7, S8, S30, S30A , other technical provisions of the Radio Regulations or ITU-R Recommendations	Document 386 C4

ADD

Applicability of No. S9.11A for space services

NOTE - Annex 1 contains the relevant coordination thresholds for sharing between the mobile-satellite service (MSS) (space-to-Earth) and terrestrial services. It also contains the relevant coordination thresholds for sharing between non-GSO MSS feeder links (space-to-Earth) and terrestrial services.

SUP

TABLE S5-1A

ANNEX 1

MOD

TABLE AS5-2

SUP

2 Hard limits

SUP

**3 Coordination areas for mobile earth stations operating below 3 GHz
and earth stations providing feeder links for non-GSO satellites
operating in the MSS and for non-GSO FSS earth stations**



WRC-2000

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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 1
OF THE PLENARY

Convenor of the informal group on BSS S23.13

Please find attached the results of the meeting held on Sunday, 28 May 2000, relating to the application of the provision S23.13.

Joao VALENTE
Convenor
Box 1047

Proposed modifications to No. S23.13 of the Radio Regulations

MOD

S23.13 § 4 In devising the characteristics of a space station in the broadcasting-satellite service [for television transmissions], all technical means available shall be used to reduce, to the maximum, the radiation over the territory of other countries unless an agreement has been previously reached with such countries.

ADD

S23.13A If the Bureau receives an indication of an explicit agreement under No. **S23.13**, it shall include reference to that agreement when the assignments to the system are recorded in the remarks column of the Master Register or included in the Regions 1 and 3 List with reference to No. **S23.13**.

ADD

S23.13B If within the four-month period following the publication of the Special Section for a BSS network submitted for coordination under **S9.7** or under No. [4.1.x or 4.2.x] of Appendix **S30**, an administration informs the Bureau that all technical means have not been used to reduce the radiation over its territory, the Bureau shall draw the attention of the notifying administration of the comments received. The Bureau shall request the two administrations to make every effort possible in order to resolve the issue. Either administration may request the Bureau to undertake a study under No. [13.1] and submit its report to the administrations concerned. If no agreement can be reached, then the Bureau shall delete the territory of the objecting administration from the service area without affecting the rest of the service area and inform the responsible administration.

ADD

S23.13C If after the four-month period mentioned above, an administration objects to remain in the service area, the Bureau shall delete the territory of the objecting administration from the service area of the BSS network concerned without adversely affecting the rest of the service area and inform the responsible administration.

Proposed text for the minutes of the conference

In adopting the provisions S23.13A, S23.13B and S23.13C, it is understood that these procedures are in addition to and separate from the procedures of Article S9 and Article 4 of Appendix S30 and consequently they are not taken into account in the application of Article 5 of Appendix S30 and Article S11. It is also to be noted that in the case of the planned bands when any of the test points is in the territory of the objecting administration, the notifying administration shall have the opportunity to move test points or to add additional test points to ensure that the rest of the service area is not adversely affected.



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WORKING GROUP 1
OF THE PLENARY

Note by the Chairperson, Drafting Group 1

MODIFICATION OF RESOLUTION 73

Attached for consideration is a proposed modification to Resolution 73 (WRC-97).

Murray DELAHOY
Chairperson, Drafting Group 1
of GT PLEN-1
Box 618

MOD

RESOLUTION 73 (Rev. WRC-97/2000)

Measures to solve the incompatibility between the broadcasting-satellite service in Region 1 and the fixed-satellite service in Region 3 in the frequency band 12.2-12.5 GHz

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) that the band 12.2-12.5 GHz is allocated on a primary basis to the broadcasting-satellite service (BSS) in Region 1 and the fixed-satellite service (FSS) in Region 3;
- b) that both services should have equitable access to the orbit and spectrum;
- c) ~~that at present, the procedures of Appendix 30 to the Radio Regulations applicable to the FSS in Region 3 in respect of the BSS Plan in Region 1 are such that only the Plan assignments are protected, so that it could lead to situations where an FSS system could receive interference from a BSS system, or vice versa, but for which currently there are no regulatory provisions which require any type of coordination procedure to be undertaken;~~
- d) that several modifications to the Regions 1 and 3 BSS Plan, which have assignments in the band 12.2-12.5 GHz, have entered into the Plan by successfully applying the ~~current~~ Article 4 of Appendix 30 procedure, ~~or are still applying the current Article 4 of Appendix 30 modification procedure~~. Some of these assignments have already been brought into use;
- e) that some Region 3 FSS systems are currently operating, or are under coordination, applying relevant provisions of the Radio Regulations;
- f) that the WRC-97 Regions 1 and 3 Plan included frequency assignments which may not be compatible with Region 3 fixed-satellite service networks for which notification or coordination data as per Appendix S3 or Appendix S4 information had been received by the Bureau before 27 October 1997;
- g) that WRC-97, in its Resolution 73, adopted measures to resolve such incompatibilities between the broadcasting-satellite service in Region 1 and the fixed-satellite service in Region 3 in the frequency band 12.2-12.5 GHz which included instructions to the Bureau to identify both the administrations whose assignments affect Region 1 BSS networks in the 12.2-12.5 GHz band, and also to identify those administrations whose assignments affect Region 3 FSS networks in the 12.2-12.5 GHz band;
- h) that this Conference has adopted procedures in Appendix S30 for coordination between the broadcasting-satellite service in Region 1 and the fixed-satellite service in Region 3 in the frequency band 12.2-12.5 GHz,

noting

that in response to Resolution 73 (WRC-97) the Bureau has developed necessary software tools for analysing the incompatibility situations mentioned under *considering f*).

resolves

1 ~~that the Radiocommunication Bureau shall apply the criteria of Annex 4 to Appendix **S30/30** to identify:~~

~~the BSS assignments in the 12.2-12.5 GHz frequency band, submitted under § 4.1 a) or 4.1 b) of Article 4 of Appendix **S30/30**, for which complete Annex 2 information has been received by the Bureau before 27 October 1997 and which are affected by Region 3 FSS networks for which complete Appendix **3** or Appendix **S4** information, submitted under § 7.2.1 of Article 7 of Appendix **S30/30**, has been received by the Bureau after the date of receipt of the above mentioned Annex 2 information for BSS and before these modifications and additions have been included in the Regions 1 and 3 BSS Plan;~~

~~the Bureau shall also identify the administrations whose assignments affect these BSS assignments in the 12.2-12.5 GHz frequency band;~~

2 ~~that the Bureau shall apply the criteria of Annex 1 to Appendix **S30/30** and relevant Rules of Procedure to identify:~~

~~the Region 3 FSS networks in the frequency band 12.2-12.5 GHz for which complete Appendix **3** or Appendix **S4** information, submitted under § 7.2.1 of Article 7 of Appendix **S30/30**, has been received by the Bureau before 27 October 1997 and which are affected by BSS assignments in the frequency band 12.2-12.5 GHz, submitted under § 4.1 a) or 4.1 b) of Article 4 of the same Appendix, for which complete Annex 2 information has been received by the Bureau prior to the date of the receipt of the above mentioned Appendix **3** or Appendix **S4** information but for which the date of inclusion of these modifications or additions in the BSS Plan is after the date of receipt of the above mentioned Appendix **3** or Appendix **S4** information;~~

~~the Bureau shall identify the administrations whose assignments affect the above-mentioned Region 3 FSS networks in the 12.2-12.5 GHz frequency band;~~

1 that, upon request, the Bureau shall provide the results of the analysis carried out in response to Resolution **73 (WRC-97)** regarding incompatibilities between the broadcasting-satellite service in Region 1 and the fixed-satellite service in Region 3 in the frequency band 12.2-12.5 GHz to the administrations concerned;

32 that the administrations which have been identified by the Bureau in *resolves 1 and 2* above shall make all possible mutual efforts to solve the interference problems;

NOTE 1 ~~The implications of this Resolution on the workload of the Bureau have to be taken into account.~~

3 NOTE 2 Any retroactive application of this Resolution that provision of this assistance shall in no way have any implications regarding the status of assignments in both the BSS and the FSS as identified by the Bureau.



ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY****Note to GT PLEN-1 from the Chairperson, Drafting Group 1**

Following consideration of the request from the Chairperson of Working Group 4B contained in Document 348, Drafting Group 1 has reviewed the Resolutions and Recommendations and provides the following proposals for consideration by GT PLEN-1.

Resolution number	Title	Proposed action
507	Relating to the establishment of agreements and associated plans for the broadcasting-satellite service	NOC
518	Country/geographical area symbols used in Appendices S30/30 and S30A/30A	SUP
519	Possible extension to Regions 1 and 3 of provisions for interim systems	SUP
524	Future consideration of the Plans for the broadcasting-satellite service in the band 11.7-12.5 GHz (Region 1) and the band 11.7-12.2 GHz (Region 3) in Appendix S30/30 and the associated feeder-link Plans in Appendix S30A/30A	SUP
531	Review of Appendices S30/30 and S30A/30A of the Radio Regulations	SUP
532	Review and possible revision of the 1997 broadcasting-satellite service Plans for Regions 1 and 3	NOC
533	Implementation of the decisions of the WRC-97 relating to Appendices S30 and S30A to the Radio Regulations	MOD
534	Implementation of Annex 5 to Appendix S30 and Annex 3 to Appendix S30A of the Radio Regulations	SUP
536	Operation of broadcasting satellites serving other countries	NOC

Recommendation number	Title	Proposed action
521	Technical parameters for use in the revision of Appendices S30/30 and S30A/30A in response to Resolution 524 (WRC-92)	SUP

M. DELAHOY
Chairperson, Drafting Group 1, Box 618



WRC-2000

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WORKING GROUP 1
OF THE PLENARY

Note by the Chairperson, Drafting Group 1

MODIFICATION OF RESOLUTION 533

Attached for consideration is a proposed modification to Resolution 533 (WRC-97). If adopted, this Resolution may need to be listed in Article 59 of the Final Acts.

M. DELAHOY
Chairperson,
Drafting Group 1 of GT PLEN-1
Box 618

RESOLUTION 533 (Rev.WRC-972000)

**Implementation of the decisions of the WRC-972000 relating to
processing of proposed networks submitted under Article 4 of
Appendices S30 and S30A to the Radio Regulations**

The World Radiocommunication Conference (~~Geneva, 1997~~Istanbul, 2000),

considering

- a) ~~that WRC-97 has adopted values for various technical parameters relating to Appendices S30 and S30A~~that WRC-2000 revised the Appendix S30 (downlink) Regions 1 and 3 Plan which, through decisions of WRC-2000, has been structured into a WRC-2000 Regions 1 and 3 APS30/Plan and a WRC-2000 Regions 1 and 3 APS30/List¹;
- b) ~~that these technical parameters were used for the establishment of the revised Plans for Regions 1 and 3;~~that similarly, WRC-2000 revised the 14.5-14.8 GHz and 17.3-18.1 GHz Appendix S30A Regions 1 and 3 (feeder-link) Plan and structured it into a R1/R3 feeder-link Plan and a R1/R3 feeder-link List;
- c) that the R1/R3-downlink Plan and the initial R1/R3-downlink List (and the associated R1/R3-feeder-link Plan and initial R1/R3-feeder-link List) were analysed and were confirmed to be compatible with each other;
- d) that compatibility between the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) and other services having primary allocations in the Plan bands in all three Regions and the Region 2 Plan must be ensured;
- e) that WRC-2000 has adopted new sharing criteria and associated calculation methods which are included in, or referenced in, the Annexes to Appendices S30/S30A;
- f) that national coverage existing systems included in the R1/R3 downlink and feeder-link Plans have already been determined to be compatible with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan;
- g) that during WRC-2000 the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) were not analysed to identify any incompatibility with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan;
- h) that since assignments in the initial R1/R3-downlink List (and the associated R1/R3-feeder-link List) have completed coordination with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan using the compatibility criteria in force at the time of WRC-2000 there will be no additional compatibility requirements associated with entries in the initial R1/R3-downlink List or the R1/R3-feeder-link List;

¹ Hereinafter within this Resolution the WRC-2000 Regions 1 and 3 Appendix S30 Plan is indicated as the “R1/R3-downlink Plan” and the WRC-2000 Regions 1 and 3 List of additional uses associated with the Appendix S30 Plan is indicated as the “R1/R3-downlink List”. Similar terminology has also been followed in relation to Appendix S30A.

i) that proposed additional assignments would only enter the evolving R1/R3-downlink List after they have satisfied all compatibility requirements with the R1/R3-downlink Plan, with the existing R1/R3-downlink List, with other Appendix S30 Article 4 submissions with prior dates of receipt, and with other services having primary allocations in the Plan bands in all three Regions and with the Region 2 Plan;

j) that proposed additional assignments would only enter the evolving R1/R3-feeder-link List after they have satisfied all compatibility requirements with the R1/R3-feeder-link Plan, with the existing R1/R3-feeder-link List, with other Appendix S30A Article 4 submissions with prior dates of receipt, and with other services with primary allocations in the same band in all three Regions and with the Region 2 Plan,

recognizing

~~a) that the revised Regions 1 and 3 Plans must be compatible with the Region 2 Plan and with the other services which have primary allocations in the planned bands in all three Regions;~~

~~b) that, in revising the Regions 1 and 3 Plans, the orbital position of a number of administrations were changed;~~

~~c) that a large number of Appendices S30 and S30A Article 4 submissions that have either been processed or are currently being processed might affect the services mentioned in recognizing a) above;~~

~~d) that the Radiocommunication Bureau needs clear instructions from this Conference on how to deal with these submissions and how to protect the Region 2 Plan and other services the large number of Appendices S30 and S30A Article 4 submissions that have either been processed or are currently being processed which might affect: the Regions 1 and 3 downlink and feeder-link Plans and Lists; other Appendix S30/S30A Article 4 submissions with prior dates of receipt; other services having primary allocations in the Plan bands in all three Regions; and the Region 2 Plan,;~~

~~e) that the instructions to Bureau should take effect as of the close of this Conference (22 November 1997);~~

resolves

1 that following WRC-2000 the Bureau shall compute the reference situations of the R1/R3-downlink Plan and the R1/R3-downlink List and the R1/R3-feeder-link Plan and R1/R3-feeder-link List as of [3 June 2000] and publish this information in a [Circular Letter];

12 that as of 22 November 1997[3 June 2000] the Bureau shall use the values of technical parameters revised Appendices S30/S30A as adopted for planning at this Conference in its subsequent examination of submissions for modification and notifications of assignments in the Regions 1 and 3 Plans received under Articles 4 and 5 of Appendices S30 and S30A. In particular, the following technical parameters shall be applied received after the Conference:

- ~~— protection ratios used for the equivalent protection margin (EPM) analyses as defined in Recommendation ITU R BO.1297 instead of the protection ratios applied at WARC SAT 77 and WARC Orb 88;~~
- ~~— new reference earth receiving antenna pattern (Recommendation ITU R BO.1213) instead of earth reference receiving antenna pattern applied at WARC SAT 77;~~
- ~~— new reference feeder link antenna patterns (Earth and space stations) in accordance with Recommendations ITU R BO.1295 and ITU R BO.1296 instead of the feeder link (Earth and space stations) reference antenna patterns applied at WARC Orb 88;~~

~~2~~ that the following revisions to the Regions 1 and 3 Plans:

~~the replacement of the assignments to Australia at 128°E and 98°E by assignments at 152°E and 164°E, respectively;~~

~~the assignments successfully coordinated under Article 4 of Appendices S30/30 and S30A/30A for satellite networks RST 1, 2, 3 and 5, at orbital positions 36°E, 56°E, 86°E and 140°E, respectively;~~

~~the replacement of assignments at 31°W by assignments at 30°W and 33.5°W*;~~

~~shall not be considered as new or additional assignments under § 4.1 b) of Article 4 of Appendices S30 and S30A. Therefore, these assignments shall not be subject to the provisions of § 4.3.5 of Appendix S30 and § 4.2.5 of Appendix S30A and the associated Rules of Procedure. In particular, the associated orbital positions shall be treated as “orbital positions in the Plan”, and the assignments shall not lapse even if they are not brought into use within eight years from the adoption of the revised Plans;~~

~~3 that the Bureau shall use EPM criteria to establish a new reference situation for the revised Regions 1 and 3 broadcasting-satellite-service and feeder-link Plans. In creating the new reference situation, the Bureau shall convert the merged overall EPM file into separate feeder-link and downlink EPM files by eliminating the redundant beams created for the purpose of overall EPM calculations using different “strapping” between feeder-link and downlink channels. The resultant new reference situation, including the use of power control for the feeder link, shall be published in a Circular Letter for subsequent use in the application of the provisions of Appendices S30 and S30A;~~

~~4₃ that the Bureau shall review, in date of receipt order, all sSpecial sSections already published in order to determine the requirement for coordination with the revised Regions 1 and 3 Plans as well as with the current Region 2 Plan and other services in all three Regions, and publish the results of its review in corrigenda to the concerned special sections (see Resolution 53 (WRC-97)) respect to the R1/R3-downlink Plan, the R1/R3-feeder-link Plan, and the R1/R3-downlink List and the R1/R3-feeder-link List and with other Article 4 submissions which have dates of receipt prior to the APS30/E, or APS30A/E, Special Section in question using the revised Appendices S30/S30A as adopted by this Conference;~~

~~– within four months from the date of the above-mentioned corrigenda publication, possibly affected administrations should provide comments to the Bureau and to the notifying administration shall indicate any still valid coordination agreements;~~

~~– the existing time period to bring the modifications into use of five years plus a possible extension of three years will continue to be counted as from the date of receipt of the modification by the Bureau of the complete Annex 2 information pertaining to the request for modification but shall be extended by a period equal to the time between [3 June 2000] and the date of publication of the relevant corrigenda to the Special Section;~~

~~5 that in examining the requirement for coordination of other services in all three Regions with the revised Regions 1 and 3 Plans in the cases described in resolves 4, the following methodology shall be applied:~~

~~* The orbital position at 31° W shall no longer be considered as an orbital position in the Plan.~~

~~Protection from fixed-satellite service assignments already published. The Bureau shall review all relevant special sections of the series, e.g. AP30/C previously published, and publish corrigenda where required.~~

~~Protection from fixed-satellite service assignments not yet processed. The Bureau shall determine the requirement for coordination and publish the request in its Weekly Circular. The administrations responsible for the fixed-satellite service assignments shall then initiate coordination with the affected assignments in the revised Plans.~~

~~Protection from terrestrial assignments already in process. The Bureau shall determine the requirement for coordination and publish the request in its Weekly Circular. The administration responsible for the terrestrial assignments shall then initiate coordination with the affected assignments in the revised Plans;~~

64 that as of the end of the Conference the Bureau shall process ~~the pending~~ all not yet published requests for modifications under Article 4 ~~modifications with respect to the revised reference situation described in *resolves* 3, as follows~~ which were received prior to [3 June 2000]:

~~the Bureau shall process all pending modifications to the Plans of Appendix S30 and Appendix S30A (i.e. those modifications being treated under Article 4 that have not yet completed the modification procedures) in the same date order of receipt by the Bureau of the complete information on the request for modification and, using the new technical planning criteria and reference situation, revised Appendices S30/S30A as adopted at this Conference, identify for each pending~~ not yet published request for modification the list of administrations whose agreement is required and publish this list of affected administrations;

~~within four months from the date of the above publication, possibly affected administrations should provide comments to the Bureau and to the notifying administration; however, the notifying administration shall indicate any agreements which have been obtained previously and any new agreements~~ shall indicate any still valid coordination agreements;

~~in those cases where the degradation of the equivalent protection margins caused by the proposed modification is no worse under the new situation arising from the revision of the Plans than under the original situation, any agreements previously obtained under the Article 4 procedures of Appendices S30/30 or S30A/30A should be confirmed by the respective administrations;~~

~~the existing time period to bring the modifications or additions into use of five years plus a possible extension of three years will continue to be counted as from the date of receipt of the modification or additions by the Bureau of the complete Annex 2 information pertaining to the request for modification~~ but shall be extended by a period equal to the time between [3 June 2000] and the date of publication of the last relevant corrigenda to the Special Sections described in *resolves* 3;

~~any modifications or additions involving new frequencies or orbit positions, or both, which have not been brought into service within this five + three year period shall be cancelled by the Bureau after it has informed the notifying administrations.~~

[5 that in examining the requirement for coordination of other services in all three Regions with the WRC-2000 Regions 1 and 3 Plans and Lists in the cases described in *resolves* 3, the following methodology shall be applied in accordance with Resolution 53 (Rev.WRC-2000) and Article 11 of Appendix S30 and Article 9A of Appendix S30A:

- protection from fixed-satellite service assignments already published. The Bureau shall review all relevant Special Sections of the series, e.g. APS30/C previously published, and publish corrigenda where required;
- protection from fixed-satellite service assignments not yet processed. The Bureau shall determine the requirement for coordination and publish the request in its IFIC. The administrations responsible for the fixed-satellite service assignments shall then initiate coordination with the affected assignments in the WRC-2000 Plans and Lists;
- protection from terrestrial assignments already in process. The Bureau shall determine the requirement for coordination and publish the request in its IFIC. The administration responsible for the terrestrial assignments shall then initiate coordination with the affected assignments in the WRC-2000 Plans and Lists.]

NOTE - Finalization of *resolves* 5 is dependent on the decisions of GT PLEN-1 concerning decisions about how inter-service sharing issues should be treated.



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/124-E
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ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Note by the Chairperson, Drafting Group 1

DRAFTING GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

**PROPOSED MODIFICATIONS TO THE NOTES ASSOCIATED WITH THE
REMARKS INCLUDED IN ARTICLE 11 OF APPENDIX S30 AND
ARTICLE 9A OF APPENDIX S30A**

Attached for consideration are proposed modifications to the Notes associated with the Remarks of Articles 9A and 11 of Appendices S30A and S30, respectively. If adopted, the contents of this document should be produced in the form of modifications to these Articles.

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

**Proposed amendments to Notes included in Article 11 of
Appendix S30 and Article 9A of Appendix S30A**

Modifications to Notes included in Article 11 of Appendix S30

5 This assignment shall be brought into use only when the limits given in Table 1 are not exceeded or with the agreement of the affected administrations ~~identified in Table 2~~ with respect to:

- a) assignments in the Region 2 Plan on ~~27 October 1997~~12 May 2000; or
- b) assignments in the terrestrial services which are recorded in the Master Register with a favourable finding or received by the Bureau prior to ~~27 October 1997~~12 May 2000 for recording in the Master Register and which subsequently receive a favourable finding based on the Plan as it existed on ~~27 October 1997~~12 May 2000; or
- c) assignments in the fixed-satellite service which:
 - are recorded in the Master Register prior to 12 May 2000 with a favourable finding; or
 - those which have been coordinated under the provisions of **S9.7** (or No. **1060**) or § [7.2.1] of Appendix **S30** prior to 12 May 2000; or
 - those that are in process of coordination under the provisions of No. ~~1060~~**S9.7** (or No. **1060**) or § [7.2.1] of Appendix **S30** prior to ~~27 October 1997~~31 July 2000 for which complete Appendix **S4** data (or Appendix **3** data, as appropriate) has been received by the Bureau under the relevant provisions of Article **S9** (or Article **11**, as appropriate):
 - filings received by the Bureau prior to 12 May 2000, 1700 hours (Istanbul time) shall be taken into account in the pertinent compatibility analysis to be carried out by the Bureau after WRC-2000 by applying the pfd criteria shown in Table 1; or
 - filings received by the Bureau after 12 May 2000, 1700 hours (Istanbul time), but before 31 July 2000, shall be taken into account by applying the sharing criteria of $-138 \text{ dB(W/m}^2\text{/27 MHz)}$ or the pfd criteria shown in Table 1, whichever is higher.

~~These administrations shall be informed by the notifying administration of changes in characteristics before these beams are brought into use.~~

6 This assignment shall not claim protection from the assignments of the administrations ~~indicated in Table 3~~ which are in conformity with the Region 2 Plan on ~~27 October 1997~~12 May 2000.

7 This assignment shall not claim protection from the assignments of the administration ~~indicated in Table 3~~ which ~~are recorded in the Master Register with a favourable finding prior to 27 October 1997 to which No. **S5.487/838** and No. **S5.43/435** do not apply.~~

8 ~~Pending clarification of bringing into service of the satellite network.~~

[Two options for text related to Notes 7 a) and b) are given below. It is noted that for both options] FSS systems filed after [the Conference]/[31 July 2000] shall coordinate with Regions 1 and 3 Plan assignments.

[Also, FSS networks for which complete Appendix S4 data (or Appendix 3 data, as appropriate) has been received by the Bureau under the relevant provisions of Article S9 (or Article 11, as appropriate) after 27 October 1997 shall coordinate with any BSS assignment of the WRC-97 Plan** included in the WRC-2000 Plan without change, or with only change of modulation from analogue to digital, or with the change of normal roll-off antenna pattern to a fast roll-off antenna pattern.]

Option 1:

- a) are recorded in the Master Register with a favourable finding prior to [12 May 2000] [to which No. S5.487 and No. S5.43 do not apply;]
- b) are for the fixed-satellite service and have provided complete Appendix S4 data (or Appendix 3 data, as appropriate) under the relevant provisions of Article S9 (or No. 1060, as appropriate), and the Bureau has published the associated Special Section AR11/C, prior to 12 May 2000.

(NOTE - Subject to further consideration of the “C” and “backlog” items in Document WRC2000/DL/63(Rev.1).)

Option 2:

- a) are recorded in the Master Register with a favourable finding prior to [12 May 2000] [to which No. S5.487 and No. S5.43 do not apply;]
- b) are for the fixed-satellite service and have provided complete Appendix S4 data (or Appendix 3 data, as appropriate) under the relevant provisions of Article S9 (or No. 1060, as appropriate) (or under the provisions of No. 1060 or § [7.2.1] of Appendix S30 prior to 31 July 2000);*

NOTE - Other ideas were identified for moving towards a compromise between the two options, including taking into account FSS networks for which due diligence information is filed as of a certain date.

- c) are for terrestrial services, and which were received prior to 12 May 2000 for recording in the Master Register, and which subsequently receive a favourable finding based on the Plan as it existed on 12 May 2000.

** Some of these assignments derive from the WARC-77 Plan.

* Noting that such networks are subject to the provisions of Resolution 49.

TABLE 1

Symbol	Criteria																
a	§ 3 of Annex 1*																
b	[§ 4, 5 a) and 5 b)] of Annex 1*																
c	<p>§ 6 of Annex 1 For Regions 1 and 3 BSS → Region 2 FSS:</p> <table> <tr> <td>$-160 \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$0 \leq \theta < 0.054^\circ$</td></tr> <tr> <td>$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$0.054^\circ \leq \theta < 3.67^\circ$</td></tr> <tr> <td>$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$3.67^\circ \leq \theta < 11.54^\circ$</td></tr> <tr> <td>$(-115 \text{ dB(W/m}^2\text{/27 MHz)})$</td><td>$11.54^\circ \leq \theta$</td></tr> </table> <p>For Region 1 BSS → Region 3 FSS:</p> <table> <tr> <td>$-160 \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$0 \leq \theta < 0.054^\circ$</td></tr> <tr> <td>$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$0.054^\circ \leq \theta < 3.67^\circ$</td></tr> <tr> <td>$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$</td><td>$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)</td></tr> <tr> <td>$(-107 \text{ dB(W/m}^2\text{/27 MHz)})$</td><td>$24.12^\circ \leq \theta$ (see NOTE 1)]</td></tr> </table>	$-160 \text{ dB(W/m}^2\text{/27 MHz)}$	$0 \leq \theta < 0.054^\circ$	$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$	$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$3.67^\circ \leq \theta < 11.54^\circ$	$(-115 \text{ dB(W/m}^2\text{/27 MHz)})$	$11.54^\circ \leq \theta$	$-160 \text{ dB(W/m}^2\text{/27 MHz)}$	$0 \leq \theta < 0.054^\circ$	$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$	$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)	$(-107 \text{ dB(W/m}^2\text{/27 MHz)})$	$24.12^\circ \leq \theta$ (see NOTE 1)]
$-160 \text{ dB(W/m}^2\text{/27 MHz)}$	$0 \leq \theta < 0.054^\circ$																
$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$																
$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$3.67^\circ \leq \theta < 11.54^\circ$																
$(-115 \text{ dB(W/m}^2\text{/27 MHz)})$	$11.54^\circ \leq \theta$																
$-160 \text{ dB(W/m}^2\text{/27 MHz)}$	$0 \leq \theta < 0.054^\circ$																
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$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2\text{/27 MHz)}$	$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)																
$(-107 \text{ dB(W/m}^2\text{/27 MHz)})$	$24.12^\circ \leq \theta$ (see NOTE 1)]																

* These paragraphs and this Annex are contained in the Radio Regulations in force at the ~~time~~end of WRC-97/2000.

NOTE 1 - For the purpose of analysing the WRC-2000 Plan. The values in these lines are to be revisited once the output of the WRC-2000 planning process is known to the Conference.

where θ corresponds to the minimum geocentric angular separation taking into account the pertinent station-keeping accuracy of the interfering BSS and the interfered with FSS space stations.

NOTE - In cases where assignments from the WRC-97 Plan without Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna characteristics, the coordination status afforded by the WRC-97 Plans shall be preserved.

In cases where assignments from the WRC-97 Plans with Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna pattern, the compatibility will be reassessed using the revised criteria and methodology of WRC-2000 and either the Remarks of the WRC-97 Plan assignment will be maintained or reduced on the basis of the results of this analysis.

In other cases the methodology described in Notes 5 to 7 shall be applied.

Modifications to Notes included in Article 9A of Appendix S30A

3 Before an administration notifies to the Bureau or brings into use this frequency assignment to a transmitting feeder-link earth station in the band 17.7-18.1 GHz, it shall [effect] coordination of this assignment, using the method described in ~~Annex 4~~Appendix S7, in respect of a specific earth station in the fixed-satellite service (space-to-Earth) in the band 17.7-18.1 GHz:

- a) either recorded in the Master Register prior to ~~27 October 1997~~[3 June 2000] with a favourable finding; or
- [b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[3 June 2000] for recording in the Master Register, but not yet processed, and which subsequently receives a favourable finding based on the Plan as it existed on ~~27 October 1997~~[3 June 2000].]

4 Before an administration notifies to the Bureau or brings into use this frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz ~~and~~ 17.7-18.1 GHz, it shall [effect] coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the feeder-link earth station, using the method described in Appendix **S7**, in respect of stations of the fixed and mobile services in the bands 14.5-14.8 GHz and 17.7-18.1 GHz:

- a) either recorded in the Master Register prior to ~~27 October 1997~~[3 June 2000] with a favourable finding; or
- b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[3 June 2000] for recording in the Master Register, ~~but not yet processed~~, and which subsequently receives a favourable finding based on the WRC-2000 Regions 1 and 3 feeder-link Plan as it existed on ~~27 October 1997~~[3 June 2000].

5 This assignment shall be brought into use only when the limits given in § 5 of Annex 1 are not exceeded, or with the agreement of administrations ~~identified in Table 1A~~ with respect to assignments which are in conformity with the Region 2 Plan on ~~27 October 1997~~12 May 2000.

~~These administrations shall be informed by the notifying administration of changes in characteristics before these beams are brought into use.~~

6 This assignment shall not claim protection from the assignments of the administrations ~~indicated in Table 1B~~ which are in conformity with the Region 2 Plan on ~~27 October 1997~~12 May 2000.

7 [This assignment shall not claim protection from the assignments of the administrations ~~indicated in Table 1B~~ which are recorded in the Master Register with a favourable finding prior to ~~27 October 1997~~[12 May 2000]]. ~~[to which No. S5.487/838 and No. S5.43/435 do not apply].~~

The methodology and criteria for this analysis shall be those contained in section 1 of Annex 4 to Appendix **S30A** modified to take into consideration the system noise temperature of the received space station to be 600 K and to apply a $\Delta T/T$ criterion of 6%.

NOTE - In cases where assignments from the WRC-97 Plan without Remarks were included in the WRC-2000 Regions 1 and 3 feeder-link Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna characteristics, the coordination status afforded by the WRC-97 Plans shall be preserved. In other cases the methodology described in Notes 3 to 7 shall be applied.

In cases where assignments from the WRC-97 Plans with Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna pattern, the compatibility will be reassessed using the revised criteria and methodology of WRC-2000 and either the Remarks of the WRC-97 Plan assignment will be maintained or reduced on the basis of the results of this analysis. In other cases the methodology described in Notes 3 to 7 shall be applied.



ISTANBUL, 8 MAY – 2 JUNE 2000

Source: Doc. 445

WORKING GROUP 1
OF THE PLENARY

**Draft Note by the Chairperson of Working Group 1
of the Plenary to Committees 5 and 6**

Upon request of Committee 5, GT PLEN-1 has considered Doc. 445 “Sixth series of texts submitted by the Editorial Committee to the Plenary meeting”, with respect to footnote 25 relating to Table S22-4C. GT PLEN-1 suggest the following:

[As described in Annex 1 to Chapter 3 of the CPM Report, the square brackets in Footnote 25 to Table S22-4C may be removed since the proposed modification in Doc. DT/116 to the pfd limits in Section 5C to Annex 1 of Appendix S30, now contained in Section 4 of Annex 1 of Appendix S30, have been adopted by GT PLEN-1.]

R. ZEITOUN
Chairperson, GT PLEN-1
Box 27



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

Document DT/126-E
29 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 1
OF THE PLENARY

Note from the Chairperson of GT PLEN-1

Please find attached a possible replacement of the attachment to Document DT/110, following informal discussions held on 28 May 2000.

R. ZEITOUN
Chairperson, GT PLEN-1, Box 27

ATTACHMENT

**Proposed criteria for protection of the Regions 1 and 3 Plan or List
or assignments previously proposed for inclusion in the List**

ANNEX 1 TO APPENDIX S30

MOD

1 Limits for to the change in the wanted-to-interfering signal ratio with respect to interference into frequency assignments in conformity with the Regions 1 and 3 Plan or with the Regions 1 and 3 List or into new or modified assignments in the Regions 1 and 3 List

~~With respect to § 4.3.1.1 of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the effect of the proposed modification to the Regions 1 and 3 Plan would result in the wanted-to-interfering signal ratio at any point within the service area associated with any of its frequency assignments in that Plan falling below either 30 dB or the value resulting from the frequency assignments in the Plan at the date of entry into force of the Final Acts¹⁴, whichever is the lower.~~

NOTE – In performing the calculation, the effect at the receiver input of all the co-channel and adjacent-channel signals is expressed in terms of one equivalent co-channel interfering signal. This value is usually expressed in decibels.

ADD

Under assumed free-space propagation conditions, the power flux-density of a proposed new or modified assignment in the List shall not exceed the value of $-103 \text{ dB(W/m}^2\text{/27 MHz)}$.

With respect to paragraphs 4.1.1 a) or b) of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the minimum orbital spacing between the wanted and interfering space stations, under worst case station keeping conditions, is less than 9° . However,

- a) an administration shall not be considered as affected if, under assumed free-space propagation conditions, the power flux-density at any test point within the service area associated with any of its frequency assignments in the Plan, does not exceed the following values^{14bis}:

$$\begin{aligned} -135 + 1.66 \theta^2 \text{ dB(W/m}^2\text{/27 MHz)} & \quad \text{for } 0^\circ \leq \theta < 3.6^\circ \\ -127.5 + 25 \log \theta \text{ dB(W/m}^2\text{/27 MHz)} & \quad \text{for } 3.6^\circ \leq \theta < 9^\circ; \end{aligned}$$

~~¹⁴ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.~~

^{14bis} For the protection of analogue assignments brought in service before 17 October 1997, the following values shall be used and until 1 January 2015:

$$\begin{aligned} -147 \text{ dB(W/m}^2\text{/27 MHz)} & \quad \text{for } 0^\circ \leq \theta < 0.44^\circ \\ -138 + 25 \log \theta \text{ dB(W/m}^2\text{/27 MHz)} & \quad \text{for } 0.44^\circ \leq \theta < 9^\circ. \end{aligned}$$

- b) an administration shall not be considered as affected if, under assumed free-space propagation conditions, the power flux-density at any test point within the service area associated with any of its frequency assignments in the List or for which the procedure of Article 4 has been initiated, does not exceed the following values:

$$\begin{array}{ll} -147 \text{ dB(W/m}^2\text{/27 MHz)} & \text{for } 0^\circ \leq \theta < 0.245^\circ \\ -134.8 + 20 \log \theta \text{ dB(W/m}^2\text{/27 MHz)} & \text{for } 0.245^\circ \leq \theta < 1.7^\circ \\ -135 + 1.66 \theta^2 \text{ dB(W/m}^2\text{/27 MHz)} & \text{for } 1.7^\circ \leq \theta < 3.6^\circ \\ -127.5 + 25 \log \theta \text{ dB(W/m}^2\text{/27 MHz)} & \text{for } 3.6^\circ \leq \theta < 9^\circ; \end{array}$$

- c) an administration shall not be considered as affected if the effect of the proposed new or modified assignments in the List would result in the wanted-to-interfering signal ratio (C/I) at any test point within the service area associated with any of its frequency assignments in the Plan, or in the List or for which the procedure of Article 4 has been initiated, exceeding 27 dB^{14ter}. The C/I shall be calculated on the assumption that the wanted antenna is in compliance with Recommendation ITU-R BO.1213 and using the methods in Recommendations ITU-R BO.1212 and BO.1293.

ANNEX 1 TO APPENDIX S30A

MOD

4 Limits to the interference change into the feeder-link equivalent protection margin with respect to frequency assignments in conformity with the Regions 1 and 3 Plan¹² or with the Regions 1 and 3 List or proposed new or modified assignments in the Regions 1 and 3 List

~~With respect to the modification to the Regions 1 and 3 Plan and when it is necessary under this Appendix to seek the agreement of any other administration of Region 1 or 3, an administration shall be considered affected if the feeder-link equivalent protection margin¹³ corresponding to a test point of its entry in the Plan, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:~~

- ~~_____ the Plan as established by the 1988 Conference; or~~
- ~~_____ a modification of the assignment in accordance with this Appendix; or~~
- ~~_____ a new entry in the Plan under Article 4; or~~
- ~~_____ any agreement reached in accordance with this Appendix.~~

^{14ter} For the protection of analogue assignments brought in service before 17 October 1997, this provision shall not apply until 1 January 2015.

¹² ~~With respect to § 4, the limit specified relates to the feeder-link equivalent protection margin calculated in accordance with § 1.7 of Annex 3.~~

¹³ ~~For the definition of the equivalent protection margin, see § 1.7 of Annex 3.~~

ADD

Under assumed free-space propagation conditions, the power flux-density of a proposed new or modified assignment in the List shall not exceed the value of $-76 \text{ dB(W/m}^2\text{/27 MHz)}$ at any point in the GSO orbit, and the relative off-axis e.i.r.p. of the associated feeder link antenna shall be in compliance with Figure A (WRC-97 curves) of Annex 3 to this Appendix.

With respect to paragraphs 4.1.1 a) or b) of Article 4, an administration in Region 1 or 3 shall be considered as being affected if the minimum orbital spacing between the wanted and interfering space stations, under worst case station keeping conditions, is less than 9° .

However, an administration shall not be considered as affected if, under assumed free-space propagation conditions, the effect of the proposed new or modified assignments in the List would result in the wanted-to-interfering signal ratio (C/I) in the direction of any test point within the service area associated with any of its frequency assignments, or in the List or proposed for inclusion in the List falling below:

- 33 dB for the protection of the Plan^{13bis}
- $114 + \text{pfd wanted dB(W/m}^2\text{/27 MHz)}$;

where pfd wanted is the power flux-density of the wanted signal measured at the input of the wanted receiving BSS feeder link space station antenna in a 27 MHz bandwidth.

The C/I shall be calculated using the methods in Recommendations ITU-R BO.1212 and BO.1293.

^{13bis} For the protection of analogue assignments brought in service before 17 October 1997, the value of 36 dB shall be used until 1 January 2015.



**WORKING GROUP 1
OF THE PLENARY**

Chairperson, Working Group 1 of the Plenary

**LIST OF “EXISTING”¹ SYSTEMS INCLUDED IN THE RE-PLANNING PROCESS
FOR SUBSEQUENT INCLUSION IN THE PLAN OR IN THE LIST**

Source: Document CMR2000/238.

Attached is the list of “existing” systems, as per Table 1 of Document CMR2000/238.

Table 1 of Document CMR2000/238 is reproduced in the Attachment to this document with the exception that the contents of Column 15 has been replaced with information related to the subsequent inclusion of these systems in the Plan or in the List according to the decision taken at the twelfth meeting of GT PLEN-1, Monday, 29 May 2000 09:30 hours, i.e.: “existing” systems with national coverage, co-located with the national Plan beam at the same orbital position, and with the same or a smaller number of channels (i.e. same grouping). Other “existing” systems, as well as “Part B”² systems (i.e. those of Tables 2 and 3 of Document CMR2000/238), should be included in the List.

R. ZEITOUN
Chairperson, GT PLEN-1

Attachment: List of the “existing” systems included in the replanning process.

¹ Whenever the term “existing” is used in this document, it refers to notified assignments that are in conformity with Appendices S30 and S30A, which have been brought into use and for which the date of bringing into use has been confirmed to the Bureau.

² Satellite systems for which the procedures of Article 4 of Appendices S30 and S30A have been successfully completed.

ATTACHMENT

TABLE 1

Satellite networks which satisfy the conditions of Principle 3 of Annex 1 to Resolution 532 (WRC-97); i.e. “existing” systems

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite network	Orbital position	Date of receipt for publication request	Special Section number		Date of receipt for publication request ³	Date of bringing into use	Date of receipt of due diligence ⁴ information	Downlink e.i.r.p. (dBW)		Number of channels		PLAN or LIST Indicator
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
1	ARS	ARABSAT-BSS1 (Channels 1-20)	26.0° E	08.08.95	73	69	12.05.00 16:47	01.04.99	29.09.98	50	50	20	19	LIST
2	E	HISPASAT-1 (27 MHz analog)	30.0° W	13.02.90	9	5	03.07.92	01.09.92	Yet to be provided ⁵	57.6	57.6	5	5	PLAN
3	E	HISPASAT-1 (27 MHz digital)	30.0° W	13.02.90	9 Corr.1	5 Corr.1	16.08.99	01.12.95	21.09.98	57.6	57.6	5	5	PLAN
4	E	HISPASAT-1 (33 MHz digital)	30.0° W	13.10.94	9 Add.1	5 Add.1	18.10.99	01.12.98	22.12.99	57.6	57.6	5	5	PLAN
5	E	HISPASAT-2 (27 MHz analog)	30.0° W	07.03.91	14	11	25.07.95	16.02.00	16.06.99	59.0	59.0	10	10	LIST
6	E	HISPASAT-2 (27 MHz digital) (APS30 only)	30.0° W	07.03.91	14 Corr.1	--	24.04.00	16.02.00	16.06.99	58.5	58.5	10	--	LIST

³ The service areas associated to these networks are those initially received by the Radiocommunication Bureau under relevant provisions of Article 4 of Appendix S30 and their associated Rules of Procedure, in particular under paragraphs 4.3.14 for publication under paragraph 4.3.17.

⁴ In accordance with Resolution 49 (WRC-97). Details of the administrative due diligence information are available in the BR secretariat (BSS team).

⁵ To be provided before 21 November 2000 in accordance with *resolves* 3 of Resolution 49 (WRC-97).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite network	Orbital position	Date of receipt for publication request	Special Section number		Date of receipt for publication request ³	Date of bringing into use	Date of receipt of due diligence ⁴ information	Downlink e.i.r.p. (dBW)		Number of channels		PLAN or LIST Indicator
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
7	E	HISPASAT-3 (27/33 MHz digital) (APS30 only)	30.0° W	30.10.95	103	--	12.05.00 10:30	16.02.00	12.05.00 10:30	54.5	56	40	--	LIST
8	EGY	NILESAT-1S	7.0° W	24.10.94	41	37	12.05.00 16:15	28.04.98	02.05.00	51.7	52.0	18	18	LIST
9	F/EUT	EUTELSAT B-13E (APS30)	13.0° E	11.05.93	26	--	26.01.00	18.12.96	03.02.00	51.4	55.5	40	--	LIST
		(APS30A)			--	23	27.01.00			--	--	--	40	
10	F/EUT	EUTELSAT-36 (APS30A only)	36.00° E	17.03.95	--	59	25.04.00	27.04.00	06.04.00	--	--	--	40	LIST
11	J	BS-3M	110.0° E	Not applicable	Not applicable	Not applicable	Not applicable	31.03.96	Not applicable	63.2	64.4	8	8	PLAN
12	J	BS-3N	109.85° E	27.05.93	28	24	31.04.94	15.06.95	30.06.98	63.2	64.4	8	8	LIST
13	KOR	KOREASAT-1 (analog)	116.0° E	15.10.90	12	9	15.11.95	05.02.96	04.04.00	63.6	63.7	6	6	PLAN
14	KOR	KOREASAT-1 (digital)	116.0° E	28.09.93	12 Add.1	9 Add.1	15.11.95	05.02.96	04.04.00	63.6	63.7	6	6	PLAN

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite network	Orbital position	Date of receipt for publication request	Special Section number		Date of receipt for publication request ³	Date of bringing into use	Date of receipt of due diligence ⁴ information	Downlink e.i.r.p. (dBW)		Number of channels		PLAN or LIST Indicator
				Part A	AP30/E	AP30A/E	Part B			Min	Max	APS30	APS30A	
15	KOR	KOREASAT-2 (digital)	113.0° E	28.09.93	22 Add.1	18 Add.1	12.05.00 16:24	30.12.99	04.04.00	47.4	51.9	6	6	LIST
16	LUX	DBL (APS30)	19.2° E	11.03.91 11.03.93	15 + Add.1	--	09.03.99	01.01.96	26.04.99	49.3	54.5	40	--	LIST
		(APS30A)		04.05.93 01.07.93	--	22 + Add.1	12.05.00 11:44			--	--	--	40	LIST
17	LUX	DBL-28.2E (APS30)	28.2° E	23.12.94	51	--	28.01.00	30.08.98	22.12.99	55.0	55.0	40	--	LIST
		(APS30A)			--	47	12.05.00 11:44			--	--	--	40	LIST
18	NOR	BIFROST-2	0.8° W	31.08.92	23	19	21.10.97	01.07.98	03.08.99	54.5	54.5	15	15	LIST
19	NOR	BIFROST	0.8° W	20.05.92	20	16	21.19.97	01.07.98	23.12.99	59.0	59.0	5	5	LIST [#]
20	RUS	RST-1	36.0° E	Not applicable	31	28	Not applicable	28.01.99	Not applicable	53.0	53.0	8	8	PLAN
21	S	TELE-X*	5.0° E	Not applicable	Not applicable	Not applicable	Not applicable	02.04.89	Not applicable	63.2	63.2	1	1	LIST [#]

[#] Considered as additional assignments to those assigned to the national Plan beam of that Administration according to its national preferences (see Document CMR2000/237).

* Sweden agreed to review the protection situation afforded to the TELE-X network (e.g. by reducing the protection ratios and the downlink power) in order to ease the replanning process.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.	Adm.	Satellite network	Orbital position	Date of receipt for publication request	Special Section number		Date of receipt for publication request ³	Date of bringing into use	Date of receipt of due diligence ⁴ information	Downlink e.i.r.p. (dBW)		Number of channels		PLAN or LIST Indicator
22	S	SIRIUS	5.2° E	12.08.91	17	13	19.04.93	01.04.95	Yet to be provided ⁶	58.0	59.5	5	5	LIST
23	S	SIRIUS-W	13.0° W	25.08.92	21	17	04.02.00	04.05.00	09.03.00	52.9	52.9	5	5	LIST
24	S	SIRIUS-2** (APS30)	5.00° E	27.03.95	65+a1	--	05.05.00	21.11.97	30.06.98	51.5	57.0	25	--	LIST
		SIRIUS-2** (APS30A)			--	61	12.05.00 15:33	21.11.97	30.06.98	--	--	--	16	LIST
25	S	SIRIUS-3** (APS30)	5.20° E	11.04.95	66	--	05.05.00	01.12.99	31.12.99	57.0	57.0	13	--	LIST
		SIRIUS-3** (APS30A)				62	12.05.00 15:33			--	--	--	9	LIST

⁶ To be provided before 21 November 2000 in accordance with *resolves* 3 of Resolution 49 (WRC-97).

** Sweden accepted to apply for this network the new protection ratios specified by the IRG (i.e. downlink co-channel: 21 dB, downlink upper and lower adjacent channels: 16 dB; feeder-link co-channel: 27 dB, feeder-link upper and lower adjacent channels: 22 dB), in order to ease the replanning process.



**WORKING GROUP 2
OF THE PLENARY**

Chairperson, GT PLEN-2

ADD

RESOLUTION [GT PLEN-2/6] (WRC-2000)

Preliminary agenda for the [2006] World Radiocommunication Conference

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for WRC-06 should be established four to six years in advance;
- b)* Article 13 of the Constitution regarding the competence and scheduling of world radiocommunication conferences and Article 7 of the ITU Convention regarding their agendas;
- c)* the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

resolves to give the view

that the following items should be included in the preliminary agenda for WRC-[06], to be held in [2006]:

- 1 to take appropriate action in respect of those urgent issues that were specifically requested by WRC-03;
- 2 on the basis of proposals from administrations and the report of the Conference Preparatory Meeting, and taking account of the results of WRC-03, to consider and take appropriate action in respect of the following topics:
 - 2.1 requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-2000)**;

- 2.2 to review the operational procedures of the global maritime distress and safety system (GMDSS) taking into account the experience since its introduction and the needs of all classes of shipping;
- 2.3 to review studies and consider allocations in the frequency bands above 275 GHz;
- 2.4 to consider a resolution specifying the technical bases for the global operation of stations in the land mobile and land mobile-satellite services between 30 MHz and 6 GHz;
- 2.5 to review the allocations for the HF services taking account of the impact of new modulation and adaptive control techniques and any recommendations by WRC-[03] on the adequacy of the frequency allocations for HF broadcasting and the fixed and mobile services, from about 4 MHz to 10 MHz, and on the future use and requirements of the aeronautical mobile (R) and maritime-mobile services;
- 2.6 to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution 86 (Minneapolis, 1998);
- 2.7 to consider potential for sharing around 4 300 MHz between radio altimeters and space-based passive earth sensors;
- 2.8 to review studies related to allocations to the non-GSO MSS below 1 GHz in the 470-862 MHz band (Resolution **728 (WRC-97)**);
- 2.9 to consider the use of frequency adaptive systems in the MF/HF bands in accordance with Resolution **729 (WRC-97)**;
- 2.10 to consider allocation of the frequency band 14.5-14.8 GHz to the FSS (Earth-to-space) in Region 3 (expansion of FSS to include other than feeder links of the broadcasting-satellite service);
- 2.11 to review the possibility for additional allocations for the fixed service in the bands above 3 GHz;
- 2.12 to consider spectrum requirements for wideband aeronautical telemetry in the band between 3 GHz and 30 GHz;
- 2.13 to review footnote **S5.332** in the frequency band 1 215-1 300 MHz concerning the Earth exploration-satellite (active) service and other services;
- 2.14 to take into account ITU-R studies in accordance with Resolution **342 (WRC-97)** and consider the use of new digital technology for the maritime mobile service in the band 156-174 MHz and consequential revision of Appendix **S18**;
- 2.15 to consider results of ITU-R studies in accordance with Resolution [**COM5/22 (WRC-2000)**] to ensure spectrum availability and protection for AMS(R) and GMDSS and take appropriate action on this subject keeping generic allocation for the mobile-satellite service;
- 2.16 to review with a view to identifying necessary spectrum for global harmonization spectrum and regulatory issues related to:
 - 2.16.1 systems beyond IMT-2000 as defined by ITU-R;
 - 2.16.2 terrestrial wireless interactive multimedia applications;

3 to consider the results of the studies related to the following with a view to considering them for inclusion in the agendas of future conferences:

3.1 to consider results of ITU-R studies on the feasibility of sharing in the band 2 700-2 900 MHz between the aeronautical radionavigation service and radars for meteorological purposes and the mobile service and take appropriate action on this subject;

4 to examine the revised ITU-R recommendations incorporated by reference in the Radio Regulations which have been communicated by the 2006 Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-2000)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in the annex to Resolution **27 (Rev.WRC-2000)**;

5 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

6 in accordance with Resolution **95 (Rev.WRC-2000)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

7 to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

8 to identify those items requiring urgent action by the Radiocommunication study groups;

9 in accordance with Article 7 of the Convention:

9.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-03;

9.2 to recommend to the Council items for inclusion in the agenda for the [2006] World Radiocommunication Conference,

invites the Council

to consider the views given in this resolution,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC-[06],

instructs the Secretary-General

to communicate this resolution to concerned international and regional organizations.



**WORKING GROUP 1
OF THE PLENARY**

Radiocommunication Bureau

DRAFT APPENDIX S30A REGIONS 1 AND 3 LIST(S)

The WRC-2000 Conference has adopted the new downlink and the associated feeder-link Plans for Regions 1 and 3 for inclusion in Appendices S30 and S30A of the Radio Regulations. This Conference has also adopted the Appendices S30/S30A Regions 1 and 3 Lists. The WRC-2000 Regions 1 and 3 BSS Plans and the Appendices S30/S30A Regions 1 and 3 Lists have been developed using the methodology based on the application of the Equivalent Protection Margin (EPM) criterion.

The revised Regions 1 and 3 feeder-link Plans (WRC-2000) were established using the methodology and assumptions contained in Documents WRC2000/34, WRC2000/183, WRC2000/237, WRC2000/238 and WRC2000/292 including the relevant addenda and corrigenda. All amendments made at the Second Plenary (Friday, 12 May 2000) and Third Plenary (Friday, 19 May 2000) to the above-mentioned documents were taken into account.

The technical characteristics of the assignments included into the Appendix S30A Regions 1 and 3 Lists (including e.i.r.p.) and the resulting maximum and minimum EPM values of these assignments are provided in the attachments to this document. Only the minimum and maximum EPM values have been included in order to have an acceptable size of this document.

ATTACHMENT 1

**Technical characteristics of the assignments in the
Appendix S30A Regions 1 and 3 Lists**

ARTICLE 9A

**~~Plan for feeder links for the broadcasting-satellite service in
the fixed-satellite service in the frequency bands 14.5-14.8 GHz and
17.3-18.1 GHz in Regions 1 and 3~~**

~~9A.1 COLUMN HEADINGS OF THE PLAN~~

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Beam identification* (column 2, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).
- Col. 3 *Nominal orbital position*, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).
- ~~Col. 4 *Channel number.*~~
- ~~Col. 5 *Assigned frequency, in MHz.*~~
- Col. ~~64~~ *Nominal intersection of the beam axis with the Earth* (boresight or aim point in the case of a non-elliptical beam), longitude and latitude, in degrees and hundredths of a degree.
- Col. ~~75~~ *Space station receiving antenna characteristics* (elliptical beams). This column contains three numerical values corresponding to the major axis, the minor axis and the major axis orientation respectively of the elliptical cross-section half-power beam, in degrees and hundredths of a degree. Orientation of the ellipse determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anticlockwise from a line parallel to the equatorial plane to the major axis of the ellipse, to the nearest degree.

The codes used for the antenna pattern of the receiving space station (feeder link) antenna are defined as follows:

R13RSS	Figure B (<u>curves A, B and C</u>) and § 3.7.3 in Annex 3
R123FR	Figure C and § 3.7.3 in Annex 3
MODRSS	Figure B (<u>curves A', B' and C'</u>) and § 3.7.3 in Annex 3 (<u>Recommendation ITU-R BO.1296</u>)

In cases where the “Space station receiving antenna pattern code” field is blank, the necessary antenna pattern data are provided by shaped beam data submitted by the administration. These data are stored in column ~~87~~. A particular shaped beam is identified by the combination of column 1, column ~~97~~ and column ~~1612~~. In such cases the maximum cross-polar gain is given in column ~~108~~, “Cross-polar gain” field. In cases where the “Space station transmitting antenna pattern” field contains the code, which starts from “CB_” characters - it is a composite beam. Any composite beam consists of two or more elliptical beams. Each composite beam is described in the special composite beam file having the same name plus GXT extension (e.g. description of the CB_COMP_BM1 composite beam is stored in the CB_COMP_BM1.GXT file).

Col. ~~86~~ *Space station receiving antenna pattern code.*

Col. ~~97~~ *Space station receiving antenna shaped (non-elliptical, non-composite) beam identification.*

Col. ~~108~~ *Maximum space station receiving antenna co-polar and cross-polar (in the case of shaped beam) isotropic gain, in dBi.*

Col. ~~119~~ *Earth station transmitting antenna pattern code and maximum gain in dBi.*

The codes used for transmitting earth station (feeder-link) antenna patterns are defined as follows:

R13TES	Figure A (<u>curves A and B</u>) and § 3.5.3 in Annex 3
MODTES	<u>Figures A (curves A' and B')</u> and § 3.5.3 in Annex 3 (Recommendation ITU-R BO.1295)

Col. ~~1210~~ *Polarization (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).*

Col. ~~13~~ ~~*e.i.r.p. in the direction of maximum radiation, in dBW.*~~

Col. ~~14~~ ~~*Permitted increase in earth station e.i.r.p. in dB for the purpose of power control (see Section 3.11 of Annex 3) ⁸.*~~

Col. ~~1511~~ *Designation of emission.*

Col. ~~1612~~ *Identity of the space station.*

Col. ~~1713~~ *Group code (An identification code which indicates that all assignments with the same group identification code will be treated as a group.)*

Group code: if an assignment is part of the group:

- a) the equivalent protection margin to be used for the application of Article 4 of this Appendix shall be calculated on the following basis:
 - for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; *and*
 - for the calculation of interference from assignments belonging to a group of assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.

- b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregate *C/I* ratio produced by all emissions from that group shall not exceed the *C/I* ratio calculated on the basis of § *a*) above.

Col. 1814 *Assignment status.*

The assignment status codes used for beams are defined as follows:

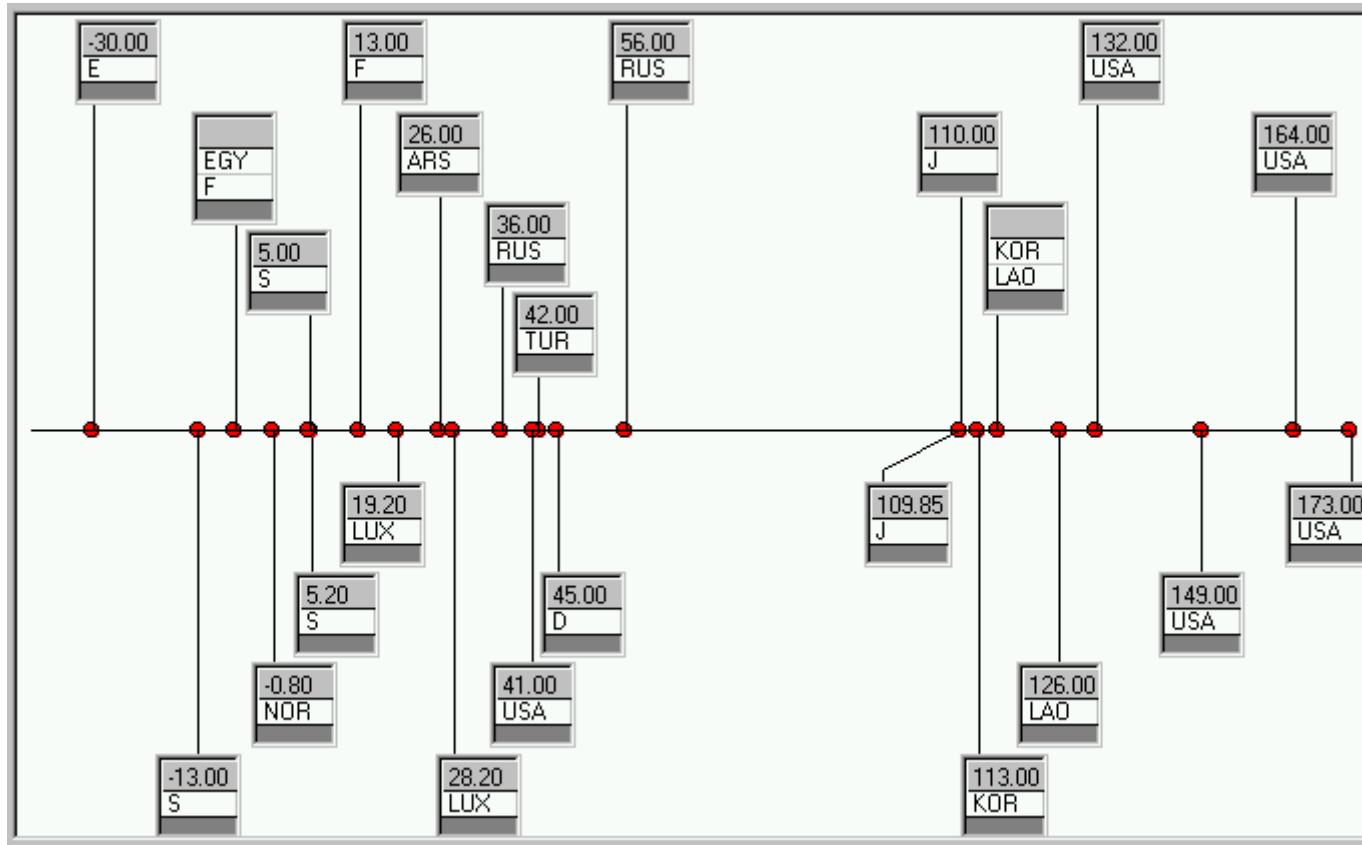
P	Assignment in the Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) does not apply.
PE	Assignment in the Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) does not apply. These assignments have been notified and brought into use and the date of bringing into use has been confirmed to the Bureau. For this category of assignments, the parameters in force before WRC-97 are applied.
A	Assignment in the <u>List</u> , which has successfully completed coordination but has not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau. § 4.1.3 in terms of eight years lapsing period of this Appendix applies for this assignment. Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) applies.
AE	Assignment in the <u>List</u> , which has been notified and brought into use and the date of bringing into use has been confirmed to the Bureau before 12 May 2000. § 4.1.3 (in terms of eight years lapsing period) of this Appendix is not applied for this assignment. For this category of assignments, WRC-97 protection ratios are applied (30 dB co-channel and 22 dB adjacent channel). Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) applies. These assignments have been notified and brought into use and the date of bringing into use has been confirmed to the Bureau. For this category of assignments, parameters in force before WRC-97 are applied.

Col. 1915 *Remarks.*

9A.2 TEXT FOR NOTES IN REMARKS COLUMN OF THE PLANLISTS

- 1 The Administrations of Egypt and France declared a bilateral temporary agreement with respect to the coordination of the satellite networks NILESAT-1S and RADIOSAT-5A for a specified period until 1 January 2002. The mentioned administrations have also requested the Radiocommunication Bureau to group at 7° W for this period the corresponding beams of RADIOSAT-5, RADIOSAT-5A and NILESAT-1S.
- 2 The Administration of Luxembourg declared to undertake on a case-by-case basis to coordinate any transmitting earth station with the Administrations of Norway, the United Kingdom and Poland in accordance with the relevant provisions in the Radio Regulations, in the case that their territory is inside the coordination area of the feeder-link station of the DBL (19.2 E) network.
- 3 The Swedish Administration declared to undertake to coordinate any earth station with the Administration of Finland in accordance with the relevant provisions in the Radio Regulations, in the case that Finland is inside the coordination area of the feeder-link station of the SIRIUS-2 network.
- 4 The German Administration declared that, for the upper band (17.7-18.1 GHz), it will undertake all necessary measures not to put any feeder link earth stations at any point within the service areas of the Europe*Star-1B feeder-links, the coordination contour of which covers the territory of the Administrations of ALG, CVA, CZE, ETH, I, IRN, IRQ, ISR, LBY, MRC, MTN, OMA, SDN, SUI, SYR, TUN, UAE and YUG.
- 5 The Turkish Administration declared that the TURKSAT-BSS satellite network will use only specific earth stations, for the time being located at the 11 test-points submitted in the corresponding Part B request. The use of any additional earth station not located at any of these 11 test-points would be subject to a coordination process with the concerned administrations in accordance with the Radio Regulations. The Administration of Turkey further declared that it will undertake all necessary measures not to put any feeder-link earth station at any point within the service area of its TURKSAT-BSS feeder link, the coordination contour of which covers the territory of the Administrations of Italy, Bulgaria and Iran.
- 6 EUTELSAT declared that the EUTELSAT B-36E satellite network is using specific feeder-link earth stations not located in the region of the service area that is subject to the coordination with the terrestrial services located in the territory of Egypt. The use of any additional feeder-link earth station, operating in the frequency band that is subject to the coordination with the terrestrial services located in the territory of Egypt, should be subject to a coordination process with the Administration of Egypt.
- 7 The assignments of this network entered into the List based on the conditions under which they have successfully completed the procedure of Article 4 of Appendix S30A (WRC-97). The characteristics of these assignments are being published in the corresponding Part B Special Section.
- 8 The Administration of Sweden accepted to apply for this network the new protection ratios specified by the IRG (i.e. downlink co-channel: 21 dB, downlink upper and lower adjacent channels: 16 dB; feeder-link co-channel: 27 dB, feeder-link upper and lower adjacent channels: 22 dB), in order to ease the replanning process.

Allocation of orbital positions in the Appendix S30A Regions 1 and 3 17 GHz List
(Position in degrees/Administration symbols)



Appendix S30A 14 GHz List

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Status	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orientation(°)			Co-polar	Cross-polar	Type	Gain (dB)	Type	Angle (°)					
KOR	KO11202D	113.00	127.50	36.00	1.24	1.02	168.00	MODRSS		43.40		MODTES	57.30	CL		27M0GXX--	KOREASAT-2		AE	

Appendix S30A 17 GHz List

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Status	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orientation(°)			Co-polar	Cross-polar	Type	Gain (dB)	Type	Angle (°)					
ARS	REGBSU11	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU12	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU13	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU14	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU15	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU16	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU17	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBSU18	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBSX13	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBSX14	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBSX17	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBSX18	26.00	20.08	25.67					COP	30.30	-4.70	MODTES	57.00	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	A	
D	ESTR1-DH	45.00	20.00	30.00					TR1	35.20		MODTES	60.00	LE	0.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR1-DV	45.00	20.00	30.00					TR1	35.20		MODTES	60.00	LE	90.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR3-DH	45.00	75.00	20.00					TR3	36.20		MODTES	60.00	LE	0.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR3-DV	45.00	75.00	20.00					TR3	36.20		MODTES	60.00	LE	90.00	27M0G7W--	EUROPE*STAR-1B	20	A	
E	HISP27D4	-30.00	-3.10	39.90					ECO	43.00	18.70	R13TES	55.00	CR		27M0G7W--	HISPASAT-1	1	AE	
E	HISP27D6	-30.00	-3.10	39.90					ECO	43.00	18.70	R13TES	58.50	CR		27M0G7W--	HISPASAT-1	1	AE	
E	HISP33D4	-30.00	-3.10	39.90					ECO	43.00	18.70	MODTES	55.00	CR		33M0G7W--	HISPASAT-1	1	AE	
E	HISP33D6	-30.00	-3.10	39.90					ECO	43.00	18.70	MODTES	58.50	CR		33M0G7W--	HISPASAT-1	1	AE	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Status	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orientation(°)			Co-polar	Cross-polar	Type	Gain (dB)	Type	Angle (°)					
E	HISPASA2	-30.00	-8.80	35.40	3.00	1.90	45.00	MODRSS		36.90		MODTES	57.00	CR		27M0F8W	HISPASAT-2	12	AE	
E	HISPASA2	-30.00	-8.80	35.40	3.00	1.90	45.00	MODRSS		36.90		MODTES	57.00	CR		27M0F8W	HISPASAT-2		AE	
EGY	D33NI1S1	-7.00	16.20	23.40					COV	30.32	-1.25	MODTES	57.20	LE	90.00	33M0G7W--	NILESAT-1S	12	AE	
EGY	D33NI1S2	-7.00	16.20	23.40					COH	30.33	-1.07	MODTES	57.20	LE	0.00	33M0G7W--	NILESAT-1S	8	AE	
F	E1327AS1	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	93.50	27M0F9W	EUTELSAT B-13E	8	AE	
F	E1327AS2	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	3.50	27M0F9W	EUTELSAT B-13E	8	AE	
F	E1327DS1	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	93.50	27M0G7W--	EUTELSAT B-13E	8	AE	
F	E1327DS2	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	3.50	27M0G7W--	EUTELSAT B-13E	8	AE	
F	E1333AS1	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	93.50	33M0F9W	EUTELSAT B-13E	8	AE	
F	E1333AS2	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	3.50	33M0F9W	EUTELSAT B-13E	8	AE	
F	E1333DS1	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	93.50	33M0G7W--	EUTELSAT B-13E	8	AE	
F	E1333DS2	13.00	18.00	44.00					RB	30.10	-4.90	MODTES	57.00	LE	3.50	33M0G7W--	EUTELSAT B-13E	50	AE	
F	E3FA3EL1	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	3.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3EL2	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	93.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3EL3	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	3.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3EL4	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	93.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3ST1	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	3.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3ST2	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	93.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3ST3	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	3.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA3ST4	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	93.50	33M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7EL1	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	3.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7EL2	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	93.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7EL3	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	3.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7EL4	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	93.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7ST1	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	3.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7ST2	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	93.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7ST3	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	3.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FA7ST4	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	93.50	27M0F9W	EUTELSAT B-36E	50	AE	
F	E3FD3EL1	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	3.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3EL2	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	93.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3EL3	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	3.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3EL4	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	93.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3ST1	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	3.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3ST2	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	93.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3ST3	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	3.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD3ST4	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	93.50	33M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7EL1	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	3.50	27M0G7W--	EUTELSAT B-36E	50	AE	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Status	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orientation(°)			Co-polar	Cross-polar	Type	Gain (dB)	Type	Angle (°)					
F	E3FD7EL2	36.00	33.50	38.50	8.00	4.80	3.50	MODRSS		30.00		MODTES	57.00	LE	93.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7EL3	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	3.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7EL4	36.00	33.50	38.50					SPO	38.00	3.00	MODTES	57.00	LE	93.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7ST1	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	3.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7ST2	36.00	9.65	38.55					COR	35.50	0.50	MODTES	57.00	LE	93.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7ST3	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	3.50	27M0G7W--	EUTELSAT B-36E	50	AE	
F	E3FD7ST4	36.00	9.65	38.55					AFU	35.50	0.50	MODTES	57.00	LE	93.50	27M0G7W--	EUTELSAT B-36E	21	AE	
F	F5_27D16	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	27M0G9W--	RADIOSAT-5	12	A	
F	F5_27D17	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	27M0G9W--	RADIOSAT-5	21	A	
F	F5_27D18	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	27M0G9W--	RADIOSAT-5	21	A	
F	F5_27D19	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	27M0G9W--	RADIOSAT-5	21	A	
F	F5_27D20	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	27M0G9W--	RADIOSAT-5	21	A	
F	F5_33D16	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	33M0G9W--	RADIOSAT-5	12	A	
F	F5_33D17	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	33M0G9W--	RADIOSAT-5	21	A	
F	F5_33D18	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	33M0G9W--	RADIOSAT-5	21	A	
F	F5_33D19	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	33M0G9W--	RADIOSAT-5	21	A	
F	F5_33D20	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	33M0G9W--	RADIOSAT-5	12	A	
F	F93D2751	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	27M0G9W--	RADIOSAT-5A	12	A	
F	F93D2753	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	27M0G9W--	RADIOSAT-5A	12	A	
F	F93D2754	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	27M0G9W--	RADIOSAT-5A	12	A	
F	F93D3351	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	33M0G9W--	RADIOSAT-5A	12	A	
F	F93D3353	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	0.00	33M0G9W--	RADIOSAT-5A	12	A	
F	F93D3354	-7.00	3.88	48.20	0.70	0.70	0.00	MODRSS		41.00		MODTES	61.00	LE	90.00	33M0G9W--	RADIOSAT-5A	51	A	
G	GE6HD001	-24.00	12.95	48.40					FD8	40.00	5.00	R2TES	60.50	LE	0.00	32M0G7W--	GE-SATCOM E1	51	A	
G	GE6HD002	-24.00	12.95	48.40					FD8	40.00	5.00	R2TES	55.80	LE	0.00	32M0G7W--	GE-SATCOM E1	51	A	
G	GE6VD001	-24.00	12.95	48.40					FD8	40.00	5.00	R2TES	60.50	LE	90.00	32M0G7W--	GE-SATCOM E1	51	A	
G	GE6VD002	-24.00	12.95	48.40					FD8	40.00	5.00	R2TES	55.80	LE	90.00	32M0G7W--	GE-SATCOM E1	23	A	
LAO	LST3CEL1	116.00	102.90	7.64					3CC	41.23	5.83	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	23	A	
LAO	LST3CEL2	116.00	102.90	7.64					3CC	41.23	5.83	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	23	A	
LAO	LST3COL1	116.00	102.90	7.64					3CC	41.23	5.83	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	23	A	
LAO	LST3COL2	116.00	102.90	7.64					3CC	41.23	5.83	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	25	A	
LAO	LST3EE2D	116.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	25	A	
LAO	LST3EELD	116.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	25	A	
LAO	LST3EO2D	116.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	25	A	
LAO	LST3EOLD	116.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	24	A	
LAO	LST3NE2D	116.00	116.10	24.94					3NC	40.83	5.23	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	24	A	
LAO	LST3NELD	116.00	116.10	24.94					3NC	40.83	5.23	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	24	A	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
LAO	LST3N02D	116.00	116.10	24.94					3NC	40.83	5.23	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	24	A	
LAO	LST3N0LD	116.00	116.10	24.94					3NC	40.83	5.23	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	22	A	
LAO	LST3WE2D	116.00	66.69	12.82					3WC	41.20	5.75	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	22	A	
LAO	LST3WELD	116.00	66.69	12.82					3WC	41.20	5.75	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR3B	22	A	
LAO	LST3WO2D	116.00	66.69	12.82					3WC	41.20	5.75	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	22	A	
LAO	LST3WOLD	116.00	66.69	12.82					3WC	41.20	5.75	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR3B	27	A	
LAO	LST4CEL1	126.00	103.00	7.12					4CC	41.23	7.12	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	27	A	
LAO	LST4CEL2	126.00	103.00	7.12					4CC	41.23	7.12	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	27	A	
LAO	LST4COL1	126.00	103.00	7.12					4CC	41.23	7.12	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	27	A	
LAO	LST4COL2	126.00	103.00	7.12					4CC	41.23	7.12	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	29	A	
LAO	LST4EE2D	126.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	29	A	
LAO	LST4EELD	126.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	29	A	
LAO	LST4EO2D	126.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	29	A	
LAO	LST4EOLD	126.00	123.30	10.60	1.90	1.40	140.00	R13RSS		40.50		DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	28	A	
LAO	LST4NE2D	126.00	117.30	25.00					4NC	40.83	5.23	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	28	A	
LAO	LST4NELD	126.00	117.30	25.00					4NC	40.83	5.23	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	28	A	
LAO	LST4N02D	126.00	117.30	25.00					4NC	40.83	5.23	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	28	A	
LAO	LST4NOLD	126.00	117.30	25.00					4NC	40.83	5.23	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	26	A	
LAO	LST4WE2D	126.00	76.79	12.28					4WC	41.20	5.75	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	26	A	
LAO	LST4WELD	126.00	76.79	12.28					4WC	41.20	5.75	DBL-TYP1	61.20	LE	0.00	33M0G7W--	LSTAR4B	26	A	
LAO	LST4WO2D	126.00	76.79	12.28					4WC	41.20	5.75	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	26	A	
LAO	LST4WOLD	126.00	76.79	12.28					4WC	41.20	5.75	DBL-TYP1	61.20	LE	90.00	33M0G7W--	LSTAR4B	9	A	
LUX	D3328H21	28.20	4.50	48.60					COP	35.00		MODTES	51.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328H22	28.20	4.50	48.60					COP	35.00		MODTES	51.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328H23	28.20	4.50	48.60					COP	35.00		MODTES	51.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328H51	28.20	4.50	48.60					COP	35.00		MODTES	57.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328H52	28.20	4.50	48.60					COP	35.00		MODTES	57.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328H53	28.20	4.50	48.60					COP	35.00		MODTES	57.40	LE	7.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328V21	28.20	4.50	48.60					COP	35.00		MODTES	51.40	LE	97.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328V22	28.20	4.50	48.60					COP	35.00		MODTES	51.40	LE	97.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328V51	28.20	4.50	48.60					COP	35.00		MODTES	57.40	LE	97.50	33M0G7WW	DBL-28.2E	9	AE	
LUX	D3328V52	28.20	4.50	48.60					COP	35.00		MODTES	57.40	LE	97.50	33M0G7WW	DBL-28.2E	7	AE	
LUX	D33ERH2X	19.20	4.62	48.52					ERH	39.80		MODTES	51.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33ERH2Y	19.20	4.62	48.52					ERH	39.80		MODTES	51.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33ERH5X	19.20	4.62	48.52					ERH	39.80		MODTES	57.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33ERH5Y	19.20	4.62	48.52					ERH	39.80		MODTES	57.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33ERV2X	19.20	4.62	48.52					ERV	37.80		MODTES	51.40	LE	95.10	33M0G7W--	DBL	7	AE	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
LUX	D33ERV2Y	19.20	4.62	48.52					ERV	37.80		MODTES	51.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33ERV5X	19.20	4.62	48.52					ERV	37.80		MODTES	57.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33ERV5Y	19.20	4.62	48.52					ERV	37.80		MODTES	57.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33R1H2X	19.20	4.62	48.52					R1H	40.00		MODTES	51.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33R1H2Y	19.20	4.62	48.52					R1H	40.00		MODTES	51.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33R1H5X	19.20	4.62	48.52					R1H	40.00		MODTES	57.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33R1H5Y	19.20	4.62	48.52					R1H	40.00		MODTES	57.40	LE	5.10	33M0G7W--	DBL	7	AE	
LUX	D33R1V2X	19.20	4.62	48.52					R1V	37.80		MODTES	51.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33R1V2Y	19.20	4.62	48.52					R1V	37.80		MODTES	51.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33R1V5X	19.20	4.62	48.52					R1V	37.80		MODTES	57.40	LE	95.10	33M0G7W--	DBL	7	AE	
LUX	D33R1V5Y	19.20	4.62	48.52					R1V	37.80		MODTES	57.40	LE	95.10	33M0G7W--	DBL	6	AE	
NOR	BIFROS21	-0.80	17.00	61.50	2.00	1.00	10.00	MODRSS		41.00		MODTES	55.00	CR		27M0FXF	BIFROSTXX2	6	AE	
NOR	BIFROS22	-0.80	17.00	61.50	2.00	1.00	10.00	MODRSS		41.00		MODTES	55.00	CL		27M0FXF	BIFROSTXX2	6	AE	
NOR	BIFROST	-0.80	17.00	61.50	2.00	0.67	10.00	MODRSS		41.00		MODTES	60.00	CL		27M0FXF--	BIFROST	5	AE	
RUS	RSTRBD11	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CR		27M0G7W	RST-1	5	A	
RUS	RSTRBD12	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CL		27M0G7W	RST-1	14	A	
RUS	RSTRBD21	56.00	65.00	63.00					COP	38.40	8.40	MODTES	57.00	CR		27M0G7W	RST-2	14	A	
RUS	RSTRBD22	56.00	65.00	63.00					COP	38.40	8.40	MODTES	57.00	CL		27M0G7W	RST-2	4	A	
S	S 13902	5.00	17.00	61.50	2.00	1.00	10.00	R13RSS		41.44		R13TES	57.00	CR		27M0F8W	TELEX	4	AE	
S	SI2UNA	5.00	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0F3F	SIRIUS*2	4	A	
S	SI2UNAA	5.00	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0F3F	SIRIUS*2	4	A	
S	SI2UNAS	5.00	12.50	46.00					STR	37.10	4.10	MODTES	58.60	LE	90.00	32M0F3F	SIRIUS*2	4	A	
S	SI2UND	5.00	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0G7W	SIRIUS*2	4	A	
S	SI2UNDA	5.00	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0G7W	SIRIUS*2	4	A	
S	SI2UNDS	5.00	12.50	46.00					STR	37.10	4.10	MODTES	58.60	LE	90.00	32M0G7W	SIRIUS*2	4	A	
S	SI3NHA	5.20	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0F3F	SIRIUS-3	4	A	
S	SI3NHD	5.20	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	0.00	32M0G7W	SIRIUS-3	4	A	
S	SI3NVA	5.20	17.11	60.22					NOR	43.20	10.20	MODTES	58.60	LE	90.00	32M0F3F	SIRIUS-3	4	A	
S	SI3NVD	5.20	18.30	57.30					NOR	43.20	10.20	MODTES	58.60	LE	90.00	32M0G7W	SIRIUS-3	4	A	
S	SIRIUS01	5.20	14.00	63.00	1.30	0.70	142.00	R13RSS		43.00		R13TES	57.00	CL		27M0F8W	SIRIUS	4	AE	
S	SIRIUS02	5.20	14.00	63.00	1.30	0.70	142.00	R13RSS		43.00		R13TES	57.00	CL		27M0F8W	SIRIUS	37	AE	
S	SIRIUSW1	-13.00	15.00	60.00	1.30	0.70	142.00	MODRSS		43.00		MODTES	57.00	CL		27M0F9WWW	SIRIUS-W	36	AE	
TUR	TKBSSEED	42.00	45.67	40.24	7.08	1.42	6.00	R123FR		40.00		MODTES	57.00	LE	355.70	33M0G7W	TURKSAT-BSS	36	A	
TUR	TKBSSWED	42.00	12.82	46.90	2.52	1.52	21.00	R123FR		44.00		MODTES	57.00	LE	65.30	33M0G7W	TURKSAT-BSS	13	A	

ATTACHMENT 2

Equivalent Isotropic Radiated Power (e.i.r.p.) of the Assignments in the Appendix S30 List

COLUMN HEADINGS

- Col. 1 *Nominal orbital position*, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).
- Col. 2 *Notifying administration symbol*.
- Col. 3 *Beam identification* (Column 3, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).
- Col. 4 *Polarization* (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).
- Col. 5 *Channels*.

Orbital Positon/Administration/Beam/Channel/Equivalent Isotropic Radiated Power dBW in the direction of maximum radiation

Appendix S30A 14 GHz List

1	2	3	4	5 (channels)					
Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	2	4	6	8	10	12
113.00	KOR	KO11202D	CL	82.0	82.0	82.0	82.0	82.0	82.0

Orbital Positon/Administration/Beam/Channel/Equivalent Isotropic Radiated Power dBW in the direction of maximum radiation

Appendix S30A 17 GHz List
(sorted by orbital position)

Orbital position (°)	Admin. symbol	Beam identification	Polarization type	5 (channels)																																												
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
-30.00	E	HISP27D4	CR	82.5			82.5				82.5				82.5				82.5																													
-30.00	E	HISP27D6	CR	83.5			83.5				83.5				83.5				83.5																													
-30.00	E	HISP33D4	CR	82.5			82.5				82.5				82.5				82.5																													
-30.00	E	HISP33D6	CR	83.5			83.5				83.5				83.5				83.5																													
-30.00	E	HISPASA2	CR																				84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0			
-24.00	G	GE6HD001	LE		78.5		78.5		78.5		78.5		78.5		78.5		78.5		78.5		78.5		81.7		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5	
-24.00	G	GE6HD002	LE		73.8		73.8		73.8		73.8		73.8		73.8		73.8		73.8		73.8		77.0		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8	
-24.00	G	GE6VD001	LE	79.5		79.5		79.5		79.5		79.5		79.5		79.5		79.5		79.5		79.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		83.5		
-24.00	G	GE6VD002	LE	74.8		74.8		74.8		74.8		74.8		74.8		74.8		74.8		74.8		74.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		78.8		
-13.00	S	SIRIUSW1	CL				84.0				84.0				84.0				84.0				84.0																									
-7.00	EGY	D33NI1S1	LE			82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0																								
-7.00	EGY	D33NI1S2	LE		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0																									
-7.00	F	F5_27D16	LE																					76.6				76.6				76.6				76.6					76.6							
-7.00	F	F5_27D17	LE		76.6			76.6				76.6				76.6				76.6																												
-7.00	F	F5_27D18	LE																					76.6				76.6				76.6				76.6					76.6							
-7.00	F	F5_27D19	LE																						73.5				73.5				73.5				73.5				73.5				73.5			
-7.00	F	F5_27D20	LE																							76.6				76.6				76.6				76.6				76.6				76.6		
-7.00	F	F5_33D16	LE																					76.6			76.6				76.6				76.6				76.6				76.6					
-7.00	F	F5_33D17	LE		76.6			76.6				76.6				76.6				76.6																												
-7.00	F	F5_33D18	LE																						76.6				76.6				76.6				76.6					76.6				76.6		

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Orbital position (°)	Admin. symbol	Beam identification	Polarization type	5 (channels)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
-7.00	F	F5_33D19	LE																							74.3			74.3			74.3				74.3				74.3					
-7.00	F	F5_33D20	LE																								76.6			76.6			76.6				76.6				76.6				
-7.00	F	F93D2751	LE	75.3				73.8				73.8				73.8				73.8																									
-7.00	F	F93D2753	LE			76.6				76.6				76.6				76.6																											
-7.00	F	F93D2754	LE				73.8				73.8				73.8				73.8				73.8																						
-7.00	F	F93D3351	LE	75.3				73.8				73.8				73.8				73.8																									
-7.00	F	F93D3353	LE			76.6				76.6				76.6				76.6																											
-7.00	F	F93D3354	LE				73.8				73.8				73.8				73.8				73.8																						
-0.80	NOR	BIFROS21	CR																							84.0			84.0				84.0				84.0				84.0				
-0.80	NOR	BIFROS22	CL		84.0				84.0				84.0				84.0			84.0						84.0				84.0				84.0				84.0				84.0			
-0.80	NOR	BIFROST	CL				77.5					77.0			77.0				76.0				76.0																						
5.00	S	S 13902	CR																																								84.0		
5.00	S	SI2UNA	LE																								77.5			77.5			77.5		77.5		77.5		77.5		77.5		85.6		
5.00	S	SI2UNAA	LE																				77.5																						
5.00	S	SI2UNAS	LE																			85.6									82.6		82.6		82.6		82.6		82.6		82.6				
5.00	S	SI2UND	LE																							77.5			77.5			77.5		77.5		77.5		77.5		77.5		85.6			
5.00	S	SI2UNDA	LE																				77.5																						
5.00	S	SI2UNDS	LE																			85.6									82.6		82.6		82.6		82.6		82.6		82.6				
5.20	S	SI3NHA	LE				85.6				85.6				85.6		85.6		85.6		85.6																								
5.20	S	SI3NHD	LE				85.6				85.6				85.6		85.6		85.6		85.6																								
5.20	S	SI3NVA	LE													85.6		85.6		85.6																									
5.20	S	SI3NVD	LE													85.6		85.6		85.6																									
5.20	S	SIRIUS01	CL				84.0				84.0																																		
5.20	S	SIRIUS02	CL											84.0				84.0					84.0																						
13.00	F	E1327AS1	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		
13.00	F	E1327AS2	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0	
13.00	F	E1327DS1	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		
13.00	F	E1327DS2	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0	
13.00	F	E1333AS1	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		
13.00	F	E1333AS2	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0	
13.00	F	E1333DS1	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		
13.00	F	E1333DS2	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0	
19.20	LUX	D33ERH2X	LE		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4																								
19.20	LUX	D33ERH2Y	LE																				76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		
19.20	LUX	D33ERH5X	LE		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4																								
19.20	LUX	D33ERH5Y	LE																				82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		
19.20	LUX	D33ERV2X	LE	76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4																							
19.20	LUX	D33ERV2Y	LE																					76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4	
19.20	LUX	D33ERV5X	LE	82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4																							

Orbital position (°)	Admin. symbol	Beam identifica-tion	Polariza-tion type	5 (channels)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
19.20	LUX	D33ERV5Y	LE																					82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4			
19.20	LUX	D33R1H2X	LE		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4																										
19.20	LUX	D33R1H2Y	LE																				76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		
19.20	LUX	D33R1H5X	LE		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4																										
19.20	LUX	D33R1H5Y	LE																																										
19.20	LUX	D33R1V2X	LE	76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4																									
19.20	LUX	D33R1V2Y	LE																					76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4		76.4			
19.20	LUX	D33R1V5X	LE	82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4																									
19.20	LUX	D33R1V5Y	LE																					82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4		82.4	
26.00	ARS	REGBSU11	LE	80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																									
26.00	ARS	REGBSU12	LE		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																								
26.00	ARS	REGBSU13	LE	80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																							
26.00	ARS	REGBSU14	LE		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																								
26.00	ARS	REGBSU15	LE	80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																							
26.00	ARS	REGBSU16	LE		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0		80.0																								
26.00	ARS	REGBSU17	LE	80.0		80.0																																							

Orbital position (°)	Admin. symbol	Beam identifica-tion	Polariza-tion type	5 (channels)																																														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40							
36.00	F	E3FA7EL1	LE	84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		83.0		84.0		84.0																										
36.00	F	E3FA7EL2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FA7EL3	LE																																															
36.00	F	E3FA7EL4	LE																																															
36.00	F	E3FA7ST1	LE	84.0		83.0		84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		84.0		84.0																								
36.00	F	E3FA7ST2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FA7ST3	LE																																															
36.00	F	E3FA7ST4	LE																																															
36.00	F	E3FD3EL1	LE	84.0		83.0		84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		84.0		84.0																								
36.00	F	E3FD3EL2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FD3EL3	LE																																															
36.00	F	E3FD3EL4	LE																																															
36.00	F	E3FD3ST1	LE	84.0		83.0		84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		84.0		84.0																								
36.00	F	E3FD3ST2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FD3ST3	LE																																															
36.00	F	E3FD3ST4	LE																																															
36.00	F	E3FD7EL1	LE	84.0		83.0		84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		84.0		84.0																								
36.00	F	E3FD7EL2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FD7EL3	LE																																															
36.00	F	E3FD7EL4	LE																																															
36.00	F	E3FD7ST1	LE	84.0		83.0		84.0		83.0		84.0		83.0		84.0		83.0		83.0		83.0		84.0		84.0																								
36.00	F	E3FD7ST2	LE		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		83.0		84.0																											
36.00	F	E3FD7ST3	LE																																															
36.00	F	E3FD7ST4	LE																																															
36.00	RUS	RSTRBD11	CR																																															
36.00	RUS	RSTRBD12	CL																																															
42.00	TUR	TKBSSEED	LE		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0	
42.00	TUR	TKBSSWED	LE	82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0		82.0																								

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Orbital position (°)	Admin. symbol	Beam identifica-tion	Polariza-tion type	5 (channels)																																												
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
116.00	LAO	LST3EELD	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																													
116.00	LAO	LST3EO2D	LE																				84.0		84.0																							
116.00	LAO	LST3EOLD	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										
116.00	LAO	LST3NE2D	LE																				84.0		84.0		84.0																					
116.00	LAO	LST3NELD	LE		82.6		84.0		84.0		84.0		84.0		84.0		81.4		81.4		84.0																											
116.00	LAO	LST3NO2D	LE																				84.0		84.0																							
116.00	LAO	LST3NOLD	LE	82.4		84.0		84.0		84.0		84.0		84.0		82.9		81.2		84.0		84.0																										
116.00	LAO	LST3WE2D	LE																				84.0		84.0		84.0																					
116.00	LAO	LST3WELD	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																											
116.00	LAO	LST3WO2D	LE																				84.0		84.0																							
116.00	LAO	LST3WOLD	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										
126.00	LAO	LST4CEL1	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																											
126.00	LAO	LST4CEL2	LE																				84.0		84.0		84.0																					
126.00	LAO	LST4COL1	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										
126.00	LAO	LST4COL2	LE																					84.0		84.0																						
126.00	LAO	LST4EE2D	LE																				84.0		84.0		84.0																					
126.00	LAO	LST4EELD	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																											
126.00	LAO	LST4EO2D	LE																				84.0		84.0																							
126.00	LAO	LST4EOLD	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										
126.00	LAO	LST4NE2D	LE																				84.0		84.0		84.0																					
126.00	LAO	LST4NELD	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																									
126.00	LAO	LST4NO2D	LE																					84.0		84.0																						
126.00	LAO	LST4NOLD	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										
126.00	LAO	LST4WE2D	LE																				84.0		84.0		84.0																					
126.00	LAO	LST4WELD	LE		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																											
126.00	LAO	LST4WO2D	LE																					84.0		84.0																						
126.00	LAO	LST4WOLD	LE	84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0		84.0																										

ATTACHMENT 3

Equivalent protection margins of the assignments in the Appendix S30 List

COLUMNS HEADING

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Nominal orbital position, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).*
- Col. 3 *Beam identification (column 3, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).*
- Col. 4 *Indication of minimum or maximum EPM for a given assignment derived from the set of values for all test points belonging to the given beam (**min** – indicates that the minimum EPM value shown in this row, **max** – indicates that the maximum EPM value shown in this row).*
- Col. 5 *Channels.*

Maximum and Minimum Equivalent Protection Margin (dB) of the Assignments in the Appendix S30A Regions 1 and 3 14 GHz List

1	2	3	3	5 (channels)					
Admin. symbol	Orbital position	Beam Identificat.	EPM	2	4	6	8	10	12
KOR	113.00	KO11202D	max	6.4	6.4	6.4	6.4	6.4	6.4
KOR	113.00	KO11202D	min	4.5	4.5	4.5	4.5	4.5	4.5

Maximum and Minimum Equivalent Protection Margin (dB) of the Assignments in the Appendix S30A Regions 1 and 3 17 GHz List

Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																											
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
ARS	26.00	REGBSU11	max	0.7		0.3		0.3		0.3		0.2		0.2		0.2		0.1		0.1		0.3																									
ARS	26.00	REGBSU11	min	-22.0		-22.4		-22.4		-22.5		-22.5		-22.5		-22.6		-22.6		-22.6		-22.4																									
ARS	26.00	REGBSU12	max		0.8		0.7		0.7		0.7		0.6		0.6		0.5		0.5		0.5																										
ARS	26.00	REGBSU12	min		-22.0		-22.0		-22.0		-22.1		-22.1		-22.2		-22.2		-22.2		-22.2																										
ARS	26.00	REGBSU13	max	0.7		0.3		0.3		0.3		0.2		0.2		0.2		0.1		0.1		0.3																									
ARS	26.00	REGBSU13	min	-22.0		-22.4		-22.4		-22.5		-22.5		-22.5		-22.6		-22.6		-22.6		-22.4																									
ARS	26.00	REGBSU14	max		0.8		0.7		0.7		0.7		0.6		0.6		0.5		0.5		0.5																										
ARS	26.00	REGBSU14	min		-22.0		-22.0		-22.0		-22.1		-22.1		-22.2		-22.2		-22.2		-22.2																										
ARS	26.00	REGBSU15	max	0.2		-0.3		-0.3		-0.3		-0.4		-0.4		-0.4		-0.5		-0.5		-0.3																									
ARS	26.00	REGBSU15	min	-22.6		-23.1		-23.1		-23.1		-23.1		-23.1		-23.2		-23.2		-23.2		-23.0																									
ARS	26.00	REGBSU16	max		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.3		-0.3		-0.3																										
ARS	26.00	REGBSU16	min		-22.9		-22.9		-22.9		-22.9		-22.9		-23.0		-23.0		-23.0		-23.1																										
ARS	26.00	REGBSU17	max	0.2		-0.3		-0.3		-0.3		-0.4		-0.4		-0.4		-0.5		-0.5		-0.3																									
ARS	26.00	REGBSU17	min	-22.6		-23.1		-23.1		-23.1		-23.1		-23.1		-23.2		-23.2		-23.2		-23.0																									
ARS	26.00	REGBSU18	max		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.3		-0.3		-0.3																										
ARS	26.00	REGBSU18	min		-22.9		-22.9		-22.9		-22.9		-22.9		-23.0		-23.0		-23.0		-23.1																										
ARS	26.00	REGBSX13	max																				4.9		4.6		4.8		4.8		4.8		4.8		4.8		4.8		4.8		4.8		4.8		4.8		4.8
ARS	26.00	REGBSX13	min																				4.0		3.7		3.8		3.8		3.8		3.8		3.8		3.8		3.8		3.8		3.8		3.8		3.8
ARS	26.00	REGBSX14	max																				4.2		4.1		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.8
ARS	26.00	REGBSX14	min																				3.3		3.2		3.2		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.8
ARS	26.00	REGBSX17	max																					4.2		3.8		3.9		3.9		3.9		4.0		4.0		4.0		4.0		4.0		4.0		4.0	
ARS	26.00	REGBSX17	min																					3.2		2.9		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0	
ARS	26.00	REGBSX18	max																					3.4		3.6		3.7		3.7		3.7		3.7		3.7		3.7		3.8		3.8		4.5			
ARS	26.00	REGBSX18	min																					2.4		2.7		2.7		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8		3.6	
D	45.00	ESTR1-DH	max	8.3		7.7		7.6		7.7		7.6		7.7		7.6		7.7		7.7		7.7		9.1		9.2		9.8		9.8		9.8		9.8		9.8		9.8		9.8		9.8		9.8		9.8	
D	45.00	ESTR1-DH	min	4.5		3.9		3.8		3.9		3.8		3.9		3.8		3.9		3.9		3.9		5.2		5.4		5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.9	

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																						
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
D	45.00	ESTR1-DV	max		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		8.3		9.1		9.6		9.8		9.8		9.8		9.8		9.8		9.8		9.8		10.8	
D	45.00	ESTR1-DV	min		4.1		4.1		4.1		4.1		4.1		4.1		4.1		4.1		4.4		5.2		5.7		5.9		5.9		5.9		5.9		5.9		5.9		5.9		7.0	
D	45.00	ESTR3-DH	max	14.4		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		15.1		15.2																		
D	45.00	ESTR3-DH	min	5.7		5.5		5.5		5.5		5.5		5.5		5.5		5.5		5.5		6.3		6.4																		
D	45.00	ESTR3-DV	max		16.2		16.2		16.2		16.2		16.2		16.2		16.2		16.2		16.2		16.5		17.5																	
D	45.00	ESTR3-DV	min		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.7		8.7																	
E	-30.00	HISP27D4	max	10.4				10.3				10.3				10.3				10.3																						
E	-30.00	HISP27D4	min	10.2				10.1				10.1				10.1				10.1																						
E	-30.00	HISP27D6	max	11.4				11.3				11.3				11.3				11.3																						
E	-30.00	HISP27D6	min	11.2				11.1				11.1				11.1				11.1																						
E	-30.00	HISP33D4	max	10.4				10.3				10.3				10.3				10.3																						
E	-30.00	HISP33D4	min	10.1				10.1				10.1				10.1				10.1																						
E	-30.00	HISP33D6	max	11.4				11.3				11.3				11.3				11.3																						
E	-30.00	HISP33D6	min	11.1				11.1				11.1				11.1				11.1																						
E	-30.00	HISPASA2	max																				9.0		6.5		6.5		6.5		6.5		6.5		6.3		6.3		6.4		6.4	
E	-30.00	HISPASA2	min																				5.6		3.1		3.1		3.0		3.0		3.1		2.9		2.9		3.0		3.0	
EGY	-7.00	D33N1S1	max			14.4		14.4		14.4		14.4		14.4		14.4		15.3		16.4		16.4																				
EGY	-7.00	D33N1S1	min			11.4		11.4		11.4		11.4		11.4		11.4		12.3		13.4		13.4																				
EGY	-7.00	D33N1S2	max		14.0		14.8		14.0		14.8		14.0		14.8		14.0		17.8		16.1																					
EGY	-7.00	D33N1S2	min		11.1		11.9		11.1		11.9		11.1		11.9		11.1		14.9		13.2																					
F	-7.00	F5_27D16	max																				-1.3				-3.7				-3.7				-3.7			-3.7				
F	-7.00	F5_27D16	min																				-1.3				-3.7				-3.7				-3.7			-3.7				
F	-7.00	F5_27D17	max		17.9				17.9				17.9				17.9				18.0																					
F	-7.00	F5_27D17	min		17.9				17.9				17.9				17.9				18.0																					
F	-7.00	F5_27D18	max																						-6.1				-6.1				-6.1				-6.1			-6.1		
F	-7.00	F5_27D18	min																						-6.1				-6.1				-6.1				-6.1			-6.1		
F	-7.00	F5_27D19	max																								-6.8				-6.8				-6.8				-6.8			-6.8
F	-7.00	F5_27D19	min																								-6.8				-6.8				-6.8				-6.8			-6.8
F	-7.00	F5_27D20	max																								-6.1				-6.1				-6.1				-6.1			-6.1
F	-7.00	F5_27D20	min																								-6.1				-6.1				-6.1				-6.1			-6.1
F	-7.00	F5_33D16	max																									-2.8				-5.1				-5.1				-5.1		
F	-7.00	F5_33D16	min																									-2.8				-5.1				-5.1				-5.1		
F	-7.00	F5_33D17	max		17.7				17.7				17.7				17.7				17.8																					
F	-7.00	F5_33D17	min		17.7				17.7				17.7				17.7				17.8																					
F	-7.00	F5_33D18	max																									-6.1				-6.1				-6.1				-6.1		
F	-7.00	F5_33D18	min																									-6.1				-6.1				-6.1				-6.1		
F	-7.00	F5_33D19	max																										-7.4				-7.4				-7.4				-7.4	
F	-7.00	F5_33D19	min																										-7.4				-7.4				-7.4				-7.4	
F	-7.00	F5_33D20	max																										-6.1				-6.1				-6.1				-6.1	
F	-7.00	F5_33D20	min																										-6.1				-6.1				-6.1				-6.1	

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																											
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
F	-7.00	F93D2751	max	20.8			18.7				18.7				18.7				18.9																												
F	-7.00	F93D2751	min	-2.6			-4.7				-4.7				-4.7				-4.5																												
F	-7.00	F93D2753	max			21.5				21.5				21.5				21.7				21.7																									
F	-7.00	F93D2753	min			-1.9				-1.9				-1.9				-1.8				-1.7																									
F	-7.00	F93D2754	max				18.7				18.9				18.9				19.4				2.7																								
F	-7.00	F93D2754	min				-4.7				-4.5				-4.5				-4.0				-20.7																								
F	-7.00	F93D3351	max	19.2			16.9				16.9				16.9				17.2																												
F	-7.00	F93D3351	min	-4.2			-6.5				-6.5				-6.5				-6.3																												
F	-7.00	F93D3353	max			19.7				19.7				19.7				19.9				19.9																									
F	-7.00	F93D3353	min			-3.7				-3.7				-3.7				-3.5				-3.5																									
F	-7.00	F93D3354	max				18.2				18.4				18.4				18.9				1.7																								
F	-7.00	F93D3354	min				-5.2				-5.0				-5.0				-4.5				-21.8																								
F	13.00	E1327AS1	max		3.7		3.5		3.7		3.5		3.7		3.4		3.4		3.4		3.4		4.2		3.7		3.7		3.7		3.7		3.6		3.7		3.7		3.7		3.7		3.7		3.6		
F	13.00	E1327AS1	min		1.1		0.9		1.1		0.9		1.1		0.9		0.9		0.9		0.9		1.7		1.2		1.2		1.2		1.2		1.1		1.2		1.2		1.2		1.2		1.2		1.1		
F	13.00	E1327AS2	max	4.5		3.6		3.6		3.6		3.6		3.6		3.4		3.4		3.4		3.4		6.5		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8			
F	13.00	E1327AS2	min	2.0		1.1		1.1		1.1		1.1		1.1		0.9		0.9		0.9		0.9		4.0		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3			
F	13.00	E1327DS1	max		3.7		3.5		3.7		3.5		3.7		3.4		3.4		3.4		3.4		4.2		3.7		3.7		3.7		3.7		3.6		3.7		3.7		3.7		3.7		3.7		3.6		
F	13.00	E1327DS1	min		1.1		0.9		1.1		0.9		1.1		0.9		0.9		0.9		0.9		1.7		1.2		1.2		1.2		1.2		1.1		1.2		1.2		1.2		1.2		1.2		1.1		
F	13.00	E1327DS2	max	4.5		3.6		3.6		3.6		3.6		3.6		3.4		3.4		3.4		3.4		6.5		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8		5.8			
F	13.00	E1327DS2	min	2.0		1.1		1.1		1.1		1.1		1.1		0.9		0.9		0.9		0.9		4.0		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3			
F	13.00	E1333AS1	max		3.1		2.9		3.1		2.9		3.1		2.8		2.8		2.8		2.8		3.8		3.7		3.6		3.7		3.6		3.6		3.6		3.6		3.6		3.7		3.7		3.6		
F	13.00	E1333AS1	min		0.6		0.4		0.6		0.4		0.6		0.3		0.3		0.2		0.3		1.3		1.2		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.0		
F	13.00	E1333AS2	max	4.1		3.0		3.0		3.0		3.0		3.0		2.8		2.8		2.8		2.8		5.2		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.4	
F	13.00	E1333AS2	min	1.6		0.5		0.5		0.5		0.5		0.5		0.3		0.3		0.3		0.3		2.7		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		1.9	
F	13.00	E1333DS1	max		3.1		2.9		3.1		2.9		3.1		2.8		2.8		2.8		2.8		3.8		3.7		3.6		3.7		3.6		3.6		3.6		3.6		3.6		3.7		3.7		3.6		
F	13.00	E1333DS1	min		0.6		0.4		0.6		0.4		0.6		0.3		0.3		0.2		0.3		1.3		1.2		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.0		
F	13.00	E1333DS2	max	4.1		3.0		3.0		3.0		3.0		3.0		2.8		2.8		2.8		2.8		5.2		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.4			
F	13.00	E1333DS2	min	1.6		0.5		0.5		0.5		0.5		0.5		0.3		0.3		0.3		0.3		2.7		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		1.9			
F	36.00	E3FA3EL1	max	0.8		-1.3		-0.3		-1.3		-0.3		-1.3		-0.3		-1.3		-1.3		-1.3		0.5		0.7																					
F	36.00	E3FA3EL1	min	-3.2		-5.4		-4.4		-5.4		-4.4		-5.4		-4.4		-5.4		-5.4		-5.4		-3.6		-3.4																					
F	36.00	E3FA3EL2	max		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.1		0.7																						
F	36.00	E3FA3EL2	min		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.2		-3.4																						
F	36.00	E3FA3EL3	max																								-6.3		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		
F	36.00	E3FA3EL3	min																								-6.3		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		
F	36.00	E3FA3EL4	max																								-1.2		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-6.3		
F	36.00	E3FA3EL4	min																								-1.2		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-7.4		-6.3		
F	36.00	E3FA3ST1	max	0.2		-2.0		-1.0		-2.0		-1.0		-2.0		-1.0		-2.0		-2.0		-2.0		-0.7		-0.5																					
F	36.00	E3FA3ST1	min	-0.5		-2.7		-1.7		-2.7		-1.7		-2.7		-1.7		-2.7		-2.7		-2.7		-1.4		-1.2																					
F	36.00	E3FA3ST2	max		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-0.6																						
F	36.00	E3FA3ST2	min		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-1.3																						

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																								
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
F	36.00	E3FA3ST3	max																									-3.7	-4.2		-4.2	-4.2		-4.2	-4.2		-4.2	-4.2		-4.2				
F	36.00	E3FA3ST3	min																									-5.4	-5.8		-5.8	-5.8		-5.8	-5.8		-5.8	-5.8		-5.8				
F	36.00	E3FA3ST4	max																									-2.7	-4.3		-4.3	-4.3		-4.3	-4.3		-4.3	-4.3		-4.3	-3.4			
F	36.00	E3FA3ST4	min																									-4.3	-5.9		-5.9	-5.9		-5.9	-5.9		-5.9	-5.9		-5.9	-5.0			
F	36.00	E3FA7EL1	max	1.2		-0.7		0.3		-0.7		0.3		-0.7		0.3		-0.7		-0.7		-0.7		1.1		1.3																		
F	36.00	E3FA7EL1	min	-2.9		-4.8		-3.8		-4.8		-3.8		-4.8		-3.8		-4.8		-4.8		-4.8		-3.0		-2.8																		
F	36.00	E3FA7EL2	max		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.6		1.3																			
F	36.00	E3FA7EL2	min		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.7		-2.8																			
F	36.00	E3FA7EL3	max																									-6.0	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	
F	36.00	E3FA7EL3	min																									-6.0	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	
F	36.00	E3FA7EL4	max																								0.2	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.0	
F	36.00	E3FA7EL4	min																								0.2	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.0	
F	36.00	E3FA7ST1	max	0.7		-1.4		-0.4		-1.4		-0.4		-1.4		-0.4		-1.4		-1.4		-1.4		0.0		0.1																		
F	36.00	E3FA7ST1	min	0.0		-2.1		-1.1		-2.1		-1.1		-2.1		-1.1		-2.1		-2.1		-2.1		-0.7		-0.6																		
F	36.00	E3FA7ST2	max		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-0.1																			
F	36.00	E3FA7ST2	min		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.3		-0.8																			
F	36.00	E3FA7ST3	max																									-3.1	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	
F	36.00	E3FA7ST3	min																									-4.7	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	
F	36.00	E3FA7ST4	max																									-2.2	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.1
F	36.00	E3FA7ST4	min																									-3.8	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-4.7
F	36.00	E3FD3EL1	max	0.8		-1.3		-0.3		-1.3		-0.3		-1.3		-0.3		-1.3		-1.3		-1.3		0.5		0.7																		
F	36.00	E3FD3EL1	min	-3.2		-5.4		-4.4		-5.4		-4.4		-5.4		-4.4		-5.4		-5.4		-5.4		-3.6		-3.4																		
F	36.00	E3FD3EL2	max		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.3		-1.1		0.7																			
F	36.00	E3FD3EL2	min		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.4		-5.2		-3.4																			
F	36.00	E3FD3EL3	max																									-6.3	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	
F	36.00	E3FD3EL3	min																									-6.3	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	
F	36.00	E3FD3EL4	max																									-1.2	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-6.3
F	36.00	E3FD3EL4	min																									-1.2	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-7.4		-7.4	-6.3
F	36.00	E3FD3ST1	max	0.2		-2.0		-1.0		-2.0		-1.0		-2.0		-1.0		-2.0		-2.0		-2.0		-0.7		-0.5																		
F	36.00	E3FD3ST1	min	-0.5		-2.7		-1.7		-2.7		-1.7		-2.7		-1.7		-2.7		-2.7		-2.7		-1.4		-1.2																		
F	36.00	E3FD3ST2	max		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-2.1		-0.6																			
F	36.00	E3FD3ST2	min		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-2.8		-1.3																			
F	36.00	E3FD3ST3	max																									-3.7	-4.2		-4.2	-4.2		-4.2	-4.2		-4.2	-4.2		-4.2	-4.2		-4.2	
F	36.00	E3FD3ST3	min																									-5.4	-5.8		-5.8	-5.8		-5.8	-5.8		-5.8	-5.8		-5.8	-5.8		-5.8	
F	36.00	E3FD3ST4	max																									-2.7	-4.3		-4.3	-4.3		-4.3	-4.3		-4.3	-4.3		-4.3	-4.3		-4.3	-3.4
F	36.00	E3FD3ST4	min																									-4.3	-5.9		-5.9	-5.9		-5.9	-5.9		-5.9	-5.9		-5.9	-5.9		-5.9	-5.0
F	36.00	E3FD7EL1	max	1.2		-0.7		0.3		-0.7		0.3		-0.7		0.3		-0.7		-0.7		-0.7		1.1		1.3																		
F	36.00	E3FD7EL1	min	-2.9		-4.8		-3.8		-4.8		-3.8		-4.8		-3.8		-4.8		-4.8		-4.8		-3.0		-2.8																		
F	36.00	E3FD7EL2	max		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.6		1.3																			
F	36.00	E3FD7EL2	min		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.9		-4.7		-2.8																			

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
F	36.00	E3FD7EL3	max																								-6.0	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8					
F	36.00	E3FD7EL3	min																								-6.0	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8					
F	36.00	E3FD7EL4	max																							0.2	-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.0			
F	36.00	E3FD7EL4	min																							0.2	-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.8	-6.8		-6.0			
F	36.00	E3FD7ST1	max	0.7		-1.4	-0.4		-1.4	-0.4	-1.4	-0.4	-1.4	-0.4	-1.4	-1.4	-1.4	-1.4	-1.4	0.0		0.1																							
F	36.00	E3FD7ST1	min	0.0		-2.1	-1.1		-2.1	-1.1	-2.1	-1.1	-2.1	-1.1	-2.1	-2.1	-2.1	-2.1	-0.7		-0.6																								
F	36.00	E3FD7ST2	max		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-0.1																								
F	36.00	E3FD7ST2	min		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.4		-2.3		-0.8																								
F	36.00	E3FD7ST3	max																							-3.1	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	-3.5		-3.5	-3.5			
F	36.00	E3FD7ST3	min																							-4.7	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	-5.1		-5.1	-5.1			
F	36.00	E3FD7ST4	max																							-2.2	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.8		-3.8	-3.8		-3.1	
F	36.00	E3FD7ST4	min																							-3.8	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-5.4		-5.4	-5.4		-4.7	
G	-24.00	GE6HD001	max		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		9.7		13.6		13.6		13.6		13.6		13.6		13.6		13.6		13.6		13.6		13.6		13.6		15.1
G	-24.00	GE6HD001	min		-1.0		-1.0		-1.0		-1.0		-1.0		-1.0		-1.0		-1.0		3.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		9.3
G	-24.00	GE6HD002	max		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		5.0		8.9		8.9		8.9		8.9		8.9		8.9		8.9		8.9		8.9		8.9		8.9		10.4
G	-24.00	GE6HD002	min		-5.7		-5.7		-5.7		-5.7		-5.7		-5.7		-5.7		-5.7		-0.8		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		4.6
G	-24.00	GE6VD001	max	4.7		5.1		4.5		5.1		4.5		5.1		4.5		5.1		4.5		5.1		13.2		13.1		13.1		13.1		13.1		13.1		13.1		13.1		13.1		13.1		13.1	
G	-24.00	GE6VD001	min	-1.1		-0.6		-1.3		-0.6		-1.3		-0.6		-1.3		-0.6		-1.3		-0.6		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4	
G	-24.00	GE6VD002	max	0.0		0.4		-0.2		0.4		-0.2		0.4		-0.2		0.4		-0.2		0.4		8.5		8.4		8.4		8.4		8.4		8.4		8.4		8.4		8.4		8.4		8.4	
G	-24.00	GE6VD002	min	-5.8		-5.3		-6.0		-5.3		-6.0		-5.3		-6.0		-5.3		-6.0		-5.3		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.7	
LAO	116.00	LST3CEL1	max		-8.4		-9.4		-9.4		-9.4		-9.4		-9.4		-7.7		-7.7		-9.4																								
LAO	116.00	LST3CEL1	min		-16.0		-17.0		-17.0		-17.0		-17.0		-17.0		-15.3		-15.3		-17.0																								
LAO	116.00	LST3CEL2	max																			-10.6		-10.6		-10.6																			
LAO	116.00	LST3CEL2	min																			-10.8		-10.8		-10.7																			
LAO	116.00	LST3COL1	max	-8.2		-9.4		-9.4		-9.4		-9.4		-9.4		-8.6		-7.5		-9.4		-9.4																							
LAO	116.00	LST3COL1	min	-15.8		-17.0		-17.0		-17.0		-17.0		-17.0		-16.2		-15.1		-17.0		-17.0																							
LAO	116.00	LST3COL2	max																			-10.6		-10.6																					
LAO	116.00	LST3COL2	min																			-10.8		-10.8																					
LAO	116.00	LST3EE2D	max																			-11.1		-11.0		-10.9																			
LAO	116.00	LST3EE2D	min																			-12.5		-12.5		-12.4																			
LAO	116.00	LST3EELD	max	-11.3		-12.0		-12.0		-12.0		-12.0		-12.0		-10.8		-10.8		-12.0																									
LAO	116.00	LST3EELD	min	-12.8		-13.5		-13.5		-13.5		-13.5		-13.5		-12.2		-12.3		-13.5																									
LAO	116.00	LST3EO2D	max																			-11.0		-11.0																					
LAO	116.00	LST3EO2D	min																			-12.5		-12.5																					
LAO	116.00	LST3EOLD	max	-11.0		-12.0		-12.0		-12.0		-12.0		-12.0		-11.4		-10.7		-12.0		-12.0																							
LAO	116.00	LST3EOLD	min	-12.5		-13.5		-13.5		-13.5		-13.5		-13.5		-12.9		-12.1		-13.5		-13.4																							
LAO	116.00	LST3NE2D	max																			-4.9		-4.9		-4.9																			
LAO	116.00	LST3NE2D	min																			-16.4		-16.4		-16.4																			
LAO	116.00	LST3NELD	max		-6.4		-5.0		-5.0		-5.0		-5.0		-5.0		-7.6		-7.6		-5.0																								
LAO	116.00	LST3NELD	min		-17.8		-16.4		-16.4		-16.4		-16.4		-16.4		-19.0		-19.0		-16.4																								

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																						
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
LAO	116.00	LST3NO2D	max																					-4.9	-4.9																	
LAO	116.00	LST3NO2D	min																					-16.4	-16.4																	
LAO	116.00	LST3NOLD	max	-6.5		-5.0		-5.0		-5.0		-5.0		-5.0		-6.1		-7.8		-5.0		-5.0																				
LAO	116.00	LST3NOLD	min	-18.0		-16.4		-16.4		-16.4		-16.4		-16.4		-17.5		-19.2		-16.4		-16.4																				
LAO	116.00	LST3WE2D	max																				1.6		1.6		1.8															
LAO	116.00	LST3WE2D	min																				-15.0		-15.0		-14.8															
LAO	116.00	LST3WELD	max		1.0		0.7		0.7		0.7		0.7		0.7		1.2		1.2		0.7																					
LAO	116.00	LST3WELD	min		-15.6		-15.9		-15.9		-15.9		-15.9		-15.9		-15.4		-15.4		-15.9																					
LAO	116.00	LST3WO2D	max																					1.6		1.6																
LAO	116.00	LST3WO2D	min																					-15.0		-15.0																
LAO	116.00	LST3WOLD	max	1.2		0.7		0.7		0.7		0.7		0.7		1.0		1.2		0.8		0.7																				
LAO	116.00	LST3WOLD	min	-15.4		-15.9		-15.9		-15.9		-15.9		-15.9		-15.7		-15.4		-15.9		-15.9																				
LAO	126.00	LST4CEL1	max		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1																					
LAO	126.00	LST4CEL1	min		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3																					
LAO	126.00	LST4CEL2	max																				-9.0		-9.0		-8.9															
LAO	126.00	LST4CEL2	min																				-9.0		-9.0		-9.0															
LAO	126.00	LST4COL1	max	-7.0		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1		-7.1																				
LAO	126.00	LST4COL1	min	-15.2		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3		-15.3																				
LAO	126.00	LST4COL2	max																					-9.0		-9.0																
LAO	126.00	LST4COL2	min																					-9.0		-9.0																
LAO	126.00	LST4EE2D	max																				-11.3		-11.2		-11.1															
LAO	126.00	LST4EE2D	min																				-12.6		-12.6		-12.4															
LAO	126.00	LST4EELD	max	-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2																				
LAO	126.00	LST4EELD	min	-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6																				
LAO	126.00	LST4EO2D	max																					-11.2		-11.2																
LAO	126.00	LST4EO2D	min																					-12.6		-12.6																
LAO	126.00	LST4EOLD	max	-12.1		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2		-12.2																				
LAO	126.00	LST4EOLD	min	-13.5		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6		-13.6																				
LAO	126.00	LST4NE2D	max																				-6.3		-6.3		-6.2															
LAO	126.00	LST4NE2D	min																				-17.9		-17.9		-17.8															
LAO	126.00	LST4NELD	max	-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3																				
LAO	126.00	LST4NELD	min	-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9																				
LAO	126.00	LST4NO2D	max																					-6.3		-6.3																
LAO	126.00	LST4NO2D	min																					-17.9		-17.9																
LAO	126.00	LST4NOLD	max	-6.2		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3		-6.3																				
LAO	126.00	LST4NOLD	min	-17.8		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9		-17.9																				
LAO	126.00	LST4WE2D	max																					0.4		0.4		0.5														
LAO	126.00	LST4WE2D	min																					-15.1		-15.1		-14.9														
LAO	126.00	LST4WELD	max		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4																					
LAO	126.00	LST4WELD	min		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9																					

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																								
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
LAO	126.00	LST4W02D	max																				0.4		0.4																			
LAO	126.00	LST4W02D	min																				-15.1		-15.1																			
LAO	126.00	LST4W0LD	max	-0.3		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4																						
LAO	126.00	LST4W0LD	min	-15.8		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9		-15.9																						
LUX	19.20	D33ERH2X	max		4.8		5.6		5.6		5.6		5.6		5.6		5.5		5.5		5.5																							
LUX	19.20	D33ERH2X	min		-4.4		-3.5		-3.6		-3.6		-3.6		-3.6		-3.6		-3.6		-3.7																							
LUX	19.20	D33ERH2Y	max																			2.8		0.7		0.7		0.7		0.7		0.7		0.6		0.6		0.7		0.7		2.1		
LUX	19.20	D33ERH2Y	min																			0.7		-1.4		-1.4		-1.4		-1.4		-1.4		-1.5		-1.5		-1.4		-1.4		0.0		
LUX	19.20	D33ERH5X	max		10.8		11.6		11.6		11.6		11.6		11.6		11.5		11.5																									
LUX	19.20	D33ERH5X	min		1.6		2.5		2.5		2.4		2.5		2.4		2.4		2.4		2.3																							
LUX	19.20	D33ERH5Y	max																			8.8		6.7		6.7		6.7		6.7		6.7		6.6		6.6		6.7		6.7		8.1		
LUX	19.20	D33ERH5Y	min																			6.7		4.6		4.6		4.6		4.6		4.6		4.5		4.6		4.6		4.6		6.0		
LUX	19.20	D33ERV2X	max	5.9		3.9		3.9		3.8		3.8		3.8		3.7		3.7		3.6		3.6																						
LUX	19.20	D33ERV2X	min	-1.5		-3.4		-3.5		-3.5		-3.6		-3.6		-3.7		-3.7		-3.8		-3.8																						
LUX	19.20	D33ERV2Y	max																			2.2		1.1		1.1		1.1		1.1		1.1		1.0		1.1		1.1		1.1		1.1		
LUX	19.20	D33ERV2Y	min																			-1.8		-2.9		-2.9		-2.9		-2.9		-2.9		-3.0		-2.9		-2.9		-2.9		-2.9		
LUX	19.20	D33ERV5X	max	11.9		9.9		9.9		9.8		9.8		9.8		9.7		9.7		9.6		9.6																						
LUX	19.20	D33ERV5X	min	4.5		2.6		2.5		2.5		2.4		2.4		2.4		2.3		2.2		2.2																						
LUX	19.20	D33ERV5Y	max																			8.2		7.1		7.1		7.1		7.1		7.1		7.0		7.1		7.1		7.1		7.1		
LUX	19.20	D33ERV5Y	min																			4.2		3.1		3.1		3.1		3.1		3.1		3.1		3.1		3.1		3.1		3.1		
LUX	19.20	D33R1H2X	max		4.2		5.2		5.2		5.2		5.2		5.2		5.1		5.1		5.1																							
LUX	19.20	D33R1H2X	min		-6.4		-5.4		-5.5		-5.5		-5.5		-5.5		-5.5		-5.5		-5.5																							
LUX	19.20	D33R1H2Y	max																			4.5		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.7		2.8		4.2		
LUX	19.20	D33R1H2Y	min																			-2.5		-4.2		-4.2		-4.2		-4.2		-4.2		-4.3		-4.2		-4.2		-4.1		-2.7		
LUX	19.20	D33R1H5X	max		10.2		11.2		11.2		11.2		11.2		11.2		11.1		11.1		11.1																							
LUX	19.20	D33R1H5X	min		-0.4		0.6		0.6		0.5		0.6		0.5		0.5		0.5		0.5																							
LUX	19.20	D33R1H5Y	max																			10.5		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.8		10.2		
LUX	19.20	D33R1H5Y	min																			3.6		1.8		1.8		1.8		1.8		1.8		1.8		1.8		1.8		1.9		3.3		
LUX	19.20	D33R1V2X	max	7.1		5.3		5.3		5.3		5.2		5.2		5.1		5.1		5.1		5.1																						
LUX	19.20	D33R1V2X	min	-5.6		-7.4		-7.4		-7.5		-7.5		-7.5		-7.6		-7.6		-7.7		-7.7																						
LUX	19.20	D33R1V2Y	max																			3.6		2.0		2.0		2.0		2.0		1.9		1.9		1.9		2.0		2.0				
LUX	19.20	D33R1V2Y	min																			-6.3		-7.9		-7.9		-7.9		-7.9		-7.9		-7.9		-7.9		-7.9		-7.9		-7.9		
LUX	19.20	D33R1V5X	max	13.1		11.3		11.3		11.3		11.2		11.2		11.1		11.1		11.1		11.1																						
LUX	19.20	D33R1V5X	min	0.4		-1.4		-1.4		-1.5		-1.5		-1.5		-1.6		-1.6		-1.7		-1.7																						
LUX	19.20	D33R1V5Y	max																			9.6		8.0		8.0		8.0		8.0		7.9		7.9		7.9		8.0		8.0				
LUX	19.20	D33R1V5Y	min																			-0.3		-1.9		-1.9		-1.9		-1.9		-1.9		-1.9		-1.9		-1.9		-1.9		-1.9		
LUX	28.20	D3328H21	max		-1.0		0.1		0.0		0.0		0.0		-0.1		-0.1		-0.1		-0.2																							
LUX	28.20	D3328H21	min		-10.8		-9.7		-9.8		-9.8		-9.8		-9.8		-9.9		-9.9		-10.0																							
LUX	28.20	D3328H22	max																			-0.1																						
LUX	28.20	D3328H22	min																			-1.2																						

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
LUX	28.20	D3328H23	max																						0.3	0.7	0.8		0.8		0.8		0.8		0.8		0.8		0.8		2.5				
LUX	28.20	D3328H23	min																						-0.7	-0.4	-0.3		-0.3		-0.3		-0.3		-0.3		-0.3		-0.2		1.5				
LUX	28.20	D3328H51	max		5.0		6.1		6.0		6.0		6.0		6.0		5.9		5.9		5.8																								
LUX	28.20	D3328H51	min		-4.8		-3.7		-3.8		-3.8		-3.8		-3.8		-3.9		-3.9		-4.0																								
LUX	28.20	D3328H52	max																				5.9																						
LUX	28.20	D3328H52	min																				4.8																						
LUX	28.20	D3328H53	max																						1.3	1.7	1.8		1.8		1.8		1.8		1.8		1.8		1.8		3.5				
LUX	28.20	D3328H53	min																						0.3	0.7	0.7		0.7		0.7		0.7		0.7		0.7		0.8		0.8		2.5		
LUX	28.20	D3328V21	max	2.7		0.1		0.0		0.0		-0.1		0.0		-0.1		-0.1		-0.1		-0.2																							
LUX	28.20	D3328V21	min	-7.1		-9.7		-9.8		-9.8		-9.8		-9.8		-9.9		-9.9		-9.9		-10.0																							
LUX	28.20	D3328V22	max																				0.4		0.5		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		
LUX	28.20	D3328V22	min																				-0.7		-0.6		-0.2		-0.2		-0.2		-0.3		-0.3		-0.3		-0.2		-0.2				
LUX	28.20	D3328V51	max	8.7		6.1		6.0		6.0		6.0		6.0		5.9		5.9		5.9		5.8																							
LUX	28.20	D3328V51	min	-1.1		-3.7		-3.8		-3.8		-3.8		-3.8		-3.9		-3.9		-3.9		-4.0																							
LUX	28.20	D3328V52	max																				1.4		1.5		1.8		1.8		1.8		1.8		1.8		1.8		1.8		1.8		1.8		
LUX	28.20	D3328V52	min																				0.4		0.4		0.8		0.8		0.8		0.8		0.8		0.7		0.8		0.8		0.8		
NOR	-0.80	BIFROS21	max																							0.9			0.9				0.8				0.9				0.8		0.8		
NOR	-0.80	BIFROS21	min																							-1.2			-1.2				-1.3				-1.3				-1.3				
NOR	-0.80	BIFROS22	max	-0.2				-0.2				-0.2		-0.2		-0.4		0.2								3.2			3.2			3.2		3.2				3.2			3.2		4.0		
NOR	-0.80	BIFROS22	min	-2.3				-2.3				-2.3		-2.3		-2.5		-1.9									1.1			1.1			1.1				1.1			1.1		1.9			
NOR	-0.80	BIFROST	max			-2.9				-3.4				-3.5			-4.3						-3.6																						
NOR	-0.80	BIFROST	min			-8.5				-9.0				-9.1			-10.0						-9.2																						
RUS	36.00	RSTRBD11	max																								1.7			1.7				1.7				1.7							
RUS	36.00	RSTRBD11	min																								-0.5			-0.5				-0.5				-0.5							
RUS	36.00	RSTRBD12	max																								1.5			1.5				1.5				1.5			1.5				
RUS	36.00	RSTRBD12	min																								-0.7			-0.7				-0.7				-0.7							
RUS	56.00	RSTRBD21	max																									19.4				18.9				18.9				18.9			18.9		
RUS	56.00	RSTRBD21	min																									17.6				17.1				17.1				17.1			17.1		
RUS	56.00	RSTRBD22	max																									19.4				18.9				18.9				18.9			19.9		
RUS	56.00	RSTRBD22	min																									17.6				17.2				17.2				17.2			18.2		
S	-13.00	SIRIUSW1	max			0.4				0.4				0.4			0.4				0.3																								
S	-13.00	SIRIUSW1	min			-1.6				-1.6				-1.6			-1.6				-1.7																								
S	5.00	S 13902	max																																							10.6			
S	5.00	S 13902	min																																							7.7			
S	5.00	SI2UNA	max																								-4.3			-4.3		-4.1		-4.3		-4.1		-4.3		-4.1		6.5			
S	5.00	SI2UNA	min																									-25.1			-25.1		-24.9		-25.0		-24.9		-25.0		-24.9		-14.2		
S	5.00	SI2UNAA	max																																										
S	5.00	SI2UNAA	min																																										
S	5.00	SI2UNAS	max																			3.3									1.4		1.3		1.4		1.3		1.4		1.3				
S	5.00	SI2UNAS	min																			-0.9									-2.8		-2.9		-2.8		-2.9		-2.8		-2.9				

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Admin. symbol	Orbital position	Beam identificat.	EPM	5 (channels)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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**WORKING GROUP 1
OF THE PLENARY**

Radiocommunication Bureau

**DRAFT REGIONS 1 AND 3 DOWNLINK PLAN
(WRC-2000)**

The revised Regions 1 and 3 feeder-link Plans (WRC-2000) were established using the methodology and assumptions contained in Documents WRC2000/34, WRC2000/183, WRC2000/237, WRC2000/238 and WRC2000/292, including the relevant addenda and corrigenda. All amendments made at the Second Plenary (Friday, 12 May 2000) and the Third Plenary (Friday, 19 May 2000) to the above-mentioned documents were taken into account.

The planning at WRC-2000 was based on the following technical assumptions and criteria:

- digital modulation and 27 MHz necessary bandwidth for the national and the extended national assignments in the Plans;
- consideration of “Part B”¹ assignments with digital modulation only;
- application of 21 dB - co-channel, 16 dB - adjacent channel protection ratios for the national and the extended national assignments of the downlink Plan and the “Part B” assignments in the case of digital interfering signal;
- reduction of the protection ratio values from 31 dB and 15 dB (co-channel and adjacent channel) to 24 dB and 16 dB (co-channel, adjacent channel) for the “existing”² systems (in consultation with the concerned administrations);
- application of EPM degradation threshold of 1.00 dB;

¹ Whenever the term “Part B” is used in this document, it refers to the assignments for which the procedures of Article 4 of Appendices S30 and S30A have been successfully completed and provided due diligence information (when required) before 1700 hours (Istanbul time), 12 May 2000, but have not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau.

² Whenever the term “existing” is used in this document, it refers to the notified assignments that are in conformity with Appendices S30 and S30A, which have been brought into use and for which the date of bringing into use has been confirmed to the Bureau before 1700 hours (Istanbul time), 12 May 2000.

- 9 degree geocentric orbital separation limit in the interference calculation (beyond this limit no interference was taken into account);
- use of “composite”³ beams;
- protection of the “existing” systems and “Part B” systems at the level accepted as a result of successful application of Article 4 procedures (keeping the same EPM level);
- use of the earth receiving antenna described in Figure 7bis of Annex 5 to Appendix S30 (Recommendation BO.1213) for the national and extended national assignments in the downlink Plan and for some “existing” and “Part B” assignments;
- use of the improved fast roll-off satellite transmitting antenna pattern, described in ITU-R Recommendation BO.1445 for some assignments;
- earth receiving antenna size increase for some “Part B” assignments having e.i.r.p. < 54.5 dBW;
- e.i.r.p. reduction for some “existing” systems having a peak e.i.r.p. > 58.9 dBW and protection ratios of 31 dB (co-channel downlink) in consultation with the concerned administrations;
- further degradation of EPM at some test points of the “Part B” system and the “existing” systems (after consultation with the concerned administrations).

The national preferences, communicated to the Bureau before 2400 hours (Istanbul time), 12 May 2000, have been taken into account during the planning process.

Some further minor adjustments of the technical characteristics of some assignments (e.g. change e.i.r.p.) have been introduced after consultations with the concerned administrations.

³ A “composite” beam represents a single beam (i.e. “simulated shaped beam”), which is formed by combining two or more elliptical beams at a given orbital position. In general, “composite” beams are used for administrations which had more than one elliptical beam at a given orbital position in the WRC-97 Regions 1 and 3 BSS Plan and/or in the associated Regions 1 and 3 feeder-link Plans.

ARTICLE 11

Plan for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1

11.1 COLUMN HEADINGS OF THE PLAN

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Beam identification* (Column 2, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).
- Col. 3 *Nominal orbital position*, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).
- ~~Col. 4~~ ~~*Channel number.*~~
- Col. ~~54~~ *Nominal intersection of the beam axis with the Earth* (boresight or aim point in the case of a non-elliptical beam), longitude and latitude, in degrees and hundredths of a degree.
- Col. ~~65~~ *Space station transmitting antenna characteristics* (elliptical beams). This column contains three numerical values corresponding to the major axis, the minor axis and the major axis orientation respectively of the elliptical cross-section half-power beamwidth, in degrees and hundredths of a degree. Orientation of the ellipse is determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anticlockwise from a line parallel to the equatorial plane to the major axis of the ellipse, to the nearest degree.
- Col. ~~76~~ *Space station transmitting antenna pattern code.*

The codes used for the antenna pattern of the transmitting space station (downlink) antenna are defined as follows:

<u>MOD13FRTSS</u>	<u>Figure 13 in Annex 5 (Recommendation ITU-R BO.1445)</u>
R13TSS	Figure 9 and § 3.13.3 in Annex 5
R123FR	Figure 11 and § 3.13.3 in Annex 5
RAD_TSS	RADIOSAT-3 antenna pattern (antenna pattern data supplied by the administration of France)

In cases where the “Space station transmitting antenna pattern” field is blank, the necessary antenna pattern data are provided by shaped beam data submitted by the administration. These data are stored in Column ~~87~~. A particular shaped beam is identified by the combination of Column 1, Column ~~87~~ and Column ~~1413~~. In such cases the maximum cross-polar gain is given in the “Cross-polar gain” field.

In cases where the “Space station transmitting antenna pattern” field contains the code, which starts from “CB ” characters - it is a composite beam. Any composite beam consists of two or more elliptical beams. Each composite beam is described in the special composite beam file as having the same name plus GXT extension (e.g. description of the CB_COMP_BM1 composite beam is stored in the CB_COMP_BM1.GXT file).

- Col. ~~87~~ *Space station transmitting antenna shaped (non-elliptical and non-composite) beam identification.*
- Col. ~~98~~ *Maximum space station transmitting antenna co-polar and cross-polar (in the case of shaped beam) isotropic gain, in dBi.*
- Col. ~~109~~ *Earth station receiving antenna pattern code and maximum antenna co-polar gain, in dBi.*

The codes used for receiving earth station (downlink) antenna patterns are defined as follows:

R13RES	Figure 7 and § 3.7.2 in Annex 5
MODRES	<u>Figure 7bis</u> and § 3.7.2 in Annex 5 (Recommendation ITU-R BO.1213)

- Col. ~~110~~ *Polarization (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).*
- Col. ~~121~~ *e.i.r.p. in the direction of maximum radiation, in dBW.*
- Col. ~~1312~~ *Designation of emission.*
- Col. ~~1413~~ *Identity of the space station.*
- Col. ~~1514~~ *Group code (An identification code which indicates that all assignments with the same group identification code will be treated as a group)*

Group code: If an assignment is part of the group:

a) The equivalent protection margin to be used for the application of Article 4 of this Appendix shall be calculated on the following basis:

- for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; and
- for the calculation of interference from assignments belonging to a group of assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.

b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregate carrier-to-interference ratio (C/I) produced by all emissions from that group shall not exceed the C/I ratio calculated on the basis of § a) above.

Col. 16 15 *Assignment status.*

The assignment status codes used for beams are defined as follows:

P	Assignment in the Plan <u>which has not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau, for which § 4.3.5 (in terms of 8 years lapsing period) of this Appendix does not apply</u>
PE	Assignment in the Plan <u>which is in conformity with Appendix S30, has been notified, for which § 4.3.5 (in terms of 8 years lapsing period) of this Appendix does not apply. These assignments have been notified and brought into use and the date of bringing into use has been confirmed to the Bureau before 12 May 2000. WRC-97 protection ratios are applied (24 dB co-channel and 16 dB adjacent channel). For this category of assignments, the parameters in force before WRC 97 are applied</u>
A	Assignment in the Plan for which § 4.3.5 (in terms of 8 years lapsing period) of this Appendix applies
AE	Assignment in the Plan for which § 4.3.5 (in terms of 8 years lapsing period) of this Appendix applies. These assignments have been notified and brought into use and the date of bringing into use has been confirmed to the Bureau. For this category of assignments, the parameters in force before WRC 97 are applied

Col. 17 16 *Remarks.*

11.2 TEXT FOR NOTES IN REMARKS COLUMN OF THE PLAN

- 1 ~~To be dedicated to the Islamic programme envisaged in WARC SAT-77 documents.~~[To be defined.]
- 2 ~~This assignment results from a common requirement of the administrations of Denmark and Iceland. The service area includes the Faroe Islands and Iceland. The assignment may, after consultations between the two administrations, be used by either of them.~~[To be defined.]
- 3 Provisional beam. This assignment has been included in the Plan by WRC-97. This assignment is for exclusive use by Palestine, subject to the Israeli-Palestinian Interim Agreement of 28 September 1995, Resolution 741 of the Council notwithstanding and Resolution 99 of the ITU Plenipotentiary Conference (Minneapolis, 1998).
- 4 ~~Assignment intended to ensure coverage of Algeria, Libya, Morocco, Mauritania and Tunisia, with the agreement of the countries concerned. If required, it may be used with the characteristics of the beam TUN15000.~~[To be defined.]
- 5 This assignment shall be brought into use only when the limits given in Table 1 are not exceeded or with the agreement of the affected administrations ~~identified in Table 2~~ with respect to:
 - a) assignments in the Region 2 Plan on ~~27 October 1997~~ 12 May 2000; or
 - b) assignments in the terrestrial services which are recorded in the Master Register with a favourable finding or received by the Bureau prior to ~~27 October 1997~~ 12 May 2000 for recording in the Master Register and which subsequently receive a favourable finding based on the Plan as it existed on ~~27 October 1997~~ 12 May 2000; or

- c) assignments in the fixed-satellite service which:
- are recorded in the Master Register prior to 12 May 2000 with a favourable finding; or
 - those which have been coordinated under the provisions of **S9.7** or (No. **1060**) or § 7.2.1 of Appendix **S30** prior to 12 May 2000; or
 - those that are in process of coordination under the provisions of **S9.7** (or No. **1060**) No. **1060** or § [7.2.1] of Appendix **S30** prior to 27 October 1997. 31 July 2000 for which complete Appendix **S4** data (or Appendix **3** data, as appropriate) has been received by the Bureau under the relevant provisions of Article **S9** (or Article **11**, as appropriate):
 - filings received by the Bureau prior to 12 May 2000, 1700 hours (Istanbul time) shall be taken into account in the pertinent compatibility analysis to be carried out by the Bureau after WRC-2000 by applying the pfd criteria shown in Table 1; or
 - filings received by the Bureau after 12 May 2000, 1700 hours (Istanbul time), but before 31 July 2000, shall be taken into account by applying the sharing criteria of $-138 \text{ dB(W/m}^2\text{/27 MHz)}$ or the pfd criteria shown in Table 1, whichever is higher.

~~These administrations shall be informed by the notifying administration of changes in characteristics before these beams are brought into use.~~

6 This assignment shall not claim protection from the assignments of the administrations indicated in Table 3 which are in conformity with the Region 2 Plan on ~~27 October 1997~~ 12 May 2000.

7 This assignment shall not claim protection from the assignments of the administration indicated in Table 3 which ~~are recorded in the Master Register with a favourable finding prior to 27 October 1997 to which No. **S5.487/838** and No. **S5.43/435** do not apply.~~

8 ~~Pending clarification of bringing into service of the satellite network.~~

[Two options for text related to NOTES 7 a) and b) are given below. It is noted that for both options] FSS systems filed after [the Conference]/[31 July 2000] shall coordinate with Regions 1 and 3 Plan assignments.]

[Also, FSS networks for which complete Appendix S4 data (or Appendix 3 data, as appropriate) has been received by the Bureau under the relevant provisions of Article S9 (or Article 11, as appropriate) after 27 October 1997 shall coordinate with any BSS assignment of the WRC-97 Plan¹ included in the WRC-2000 Plan without change, or with only change of modulation from analogue to digital, or with the change of normal roll-off antenna pattern to a fast roll-off antenna pattern.]

Option 1:

- a) are recorded in the Master Register with a favourable finding prior to [12 May 2000] [to which No. **S5.487** and No. **S5.43** do not apply;]
- b) are for the fixed-satellite service and have provided complete Appendix **S4** data (or Appendix **3** data, as appropriate) under the relevant provisions of Article **S9** (or No. **1060**, as appropriate), and the Bureau has published the associated Special Section AR11/C, prior to 12 May 2000.

¹ Some of these assignments derive from the WARC-77 Plan.

(NOTE - Subject to further consideration of the “C” and “backlog” items in Document WRC2000/DL/63(Rev.1).)

Option 2:

- a) are recorded in the Master Register with a favourable finding prior to [12 May 2000] [to which No. **S5.487** and No. **S5.43** do not apply;]
- b) are for the fixed-satellite service and have provided complete Appendix **S4** data (or Appendix **3** data, as appropriate) under the relevant provisions of Article **S9** (or No. **1060**, as appropriate) (or under the provisions of No. **1060** or § [7.2.1] of Appendix **S30** prior to 31 July 2000);*
- NOTE - Other ideas were identified for moving towards a compromise between the two options, including taking into account FSS networks for which due diligence information is filed as of a certain date.
- c) are for terrestrial services, and which were received prior to 12 May 2000 for recording in the Master Register, and which subsequently receive a favourable finding based on the Plan as it existed on 12 May 2000.

TABLE 1

Symbol	Criteria																
<u>Aa</u>	§ 3 of Annex 1*																
<u>Bb</u>	[§ 4, 5 a) and 5 b)] of Annex 1*																
<u>Ce</u>	<p>§ 6 of Annex 1 For Regions 1 and 3 BSS → Region 2 FSS:</p> <table> <tr> <td>$-160 \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$0 \leq \theta < 0.054^\circ$</td></tr> <tr> <td>$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$0.054^\circ \leq \theta < 3.67^\circ$</td></tr> <tr> <td>$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$3.67^\circ \leq \theta < 11.54^\circ$</td></tr> <tr> <td>$(-115 \text{ dB(W/m}^2/27 \text{ MHz)})$</td><td>$11.54^\circ \leq \theta$</td></tr> </table> <p>For Region 1 BSS → Region 3 FSS:</p> <table> <tr> <td>$-160 \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$0 \leq \theta < 0.054^\circ$</td></tr> <tr> <td>$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$0.054^\circ \leq \theta < 3.67^\circ$</td></tr> <tr> <td>$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$</td><td>$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)</td></tr> <tr> <td>$(-107 \text{ dB(W/m}^2/27 \text{ MHz)})$</td><td>$24.12^\circ \leq \theta$ (see NOTE 1)]</td></tr> </table>	$-160 \text{ dB(W/m}^2/27 \text{ MHz)}$	$0 \leq \theta < 0.054^\circ$	$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$	$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$3.67^\circ \leq \theta < 11.54^\circ$	$(-115 \text{ dB(W/m}^2/27 \text{ MHz)})$	$11.54^\circ \leq \theta$	$-160 \text{ dB(W/m}^2/27 \text{ MHz)}$	$0 \leq \theta < 0.054^\circ$	$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$	$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)	$(-107 \text{ dB(W/m}^2/27 \text{ MHz)})$	$24.12^\circ \leq \theta$ (see NOTE 1)]
$-160 \text{ dB(W/m}^2/27 \text{ MHz)}$	$0 \leq \theta < 0.054^\circ$																
$(-137.46 + 17.74 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$0.054^\circ \leq \theta < 3.67^\circ$																
$(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$3.67^\circ \leq \theta < 11.54^\circ$																
$(-115 \text{ dB(W/m}^2/27 \text{ MHz)})$	$11.54^\circ \leq \theta$																
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$[(-141.56 + 25 \log \theta) \text{ dB(W/m}^2/27 \text{ MHz)}$	$3.67^\circ \leq \theta < 24.12^\circ$ (see NOTE 1)																
$(-107 \text{ dB(W/m}^2/27 \text{ MHz)})$	$24.12^\circ \leq \theta$ (see NOTE 1)]																

* These paragraphs and this Annex are contained in the Radio Regulations in force at the ~~time~~end of WRC-972000.

NOTE 1 - For the purpose of analysing the WRC-2000 Plan. The values in these lines are to be revisited once the output of the WRC-2000 planning process is known to the Conference.

Where θ corresponds to the minimum geocentric angular separation taking into account the pertinent station-keeping accuracy of the interfering BSS and the interfered with FSS space stations.

NOTE - In cases where assignments from the WRC-97 Plan without Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna characteristics, the coordination status afforded by the WRC-97 Plans shall be preserved.

* Noting that such networks are subject to the provisions of Resolution 49.

In cases where assignments from the WRC-97 Plans with Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna pattern, the compatibility will be reassessed using the revised criteria and methodology of WRC-2000 and either the Remarks of the WRC-97 Plan assignment will be maintained or reduced on the basis of the results of this analysis.

In other cases the methodology described in NOTES 5 to 7 shall be applied.

8 [To be defined.]

9 Provisional beam. This assignment has been included in the Plan by WRC-2000. This assignment is for exclusive use by East Timor.

11.3

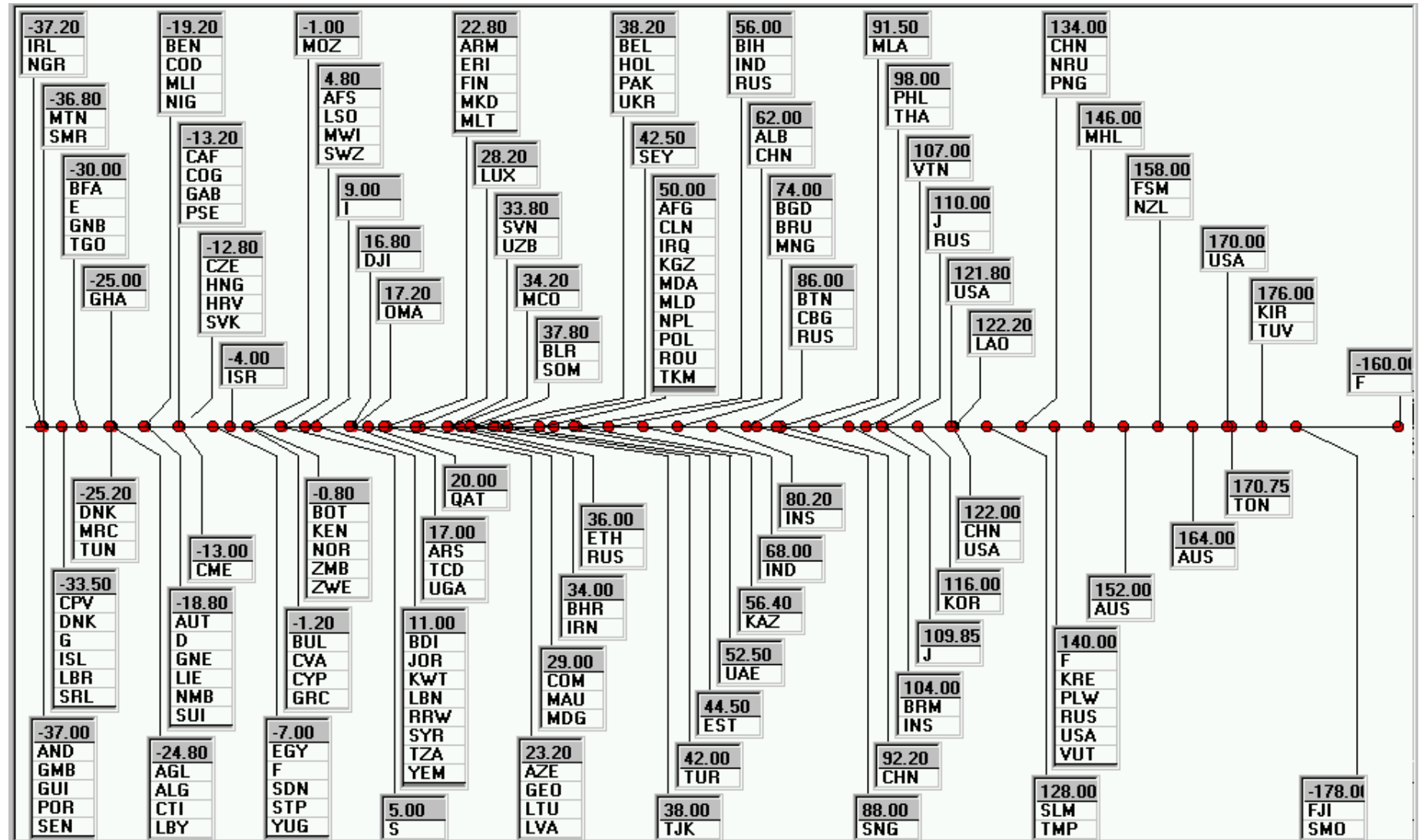
TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL
NUMBERS AND ASSIGNED FREQUENCIES

Channel No.	Assigned frequency (MHz)	Channel No.	Assigned frequency (MHz)
1	11 727.48	21	12 111.08
2	11 746.66	22	12 130.26
3	11 765.84	23	12 149.44
4	11 785.02	24	12 168.62
5	11 804.20	25	12 187.80
6	11 823.38	26	12 206.98
7	11 842.56	27	12 226.16
8	11 861.74	28	12 245.34
9	11 880.92	29	12 264.52
10	11 900.10	30	12 283.70
11	11 919.28	31	12 302.88
12	11 938.46	32	12 322.06
13	11 957.64	33	12 341.24
14	11 976.82	34	12 360.42
15	11 996.00	35	12 379.60
16	12 015.18	36	12 398.78
17	12 034.36	37	12 417.96
18	12 053.54	38	12 437.14
19	12 072.72	39	12 456.32
20	12 091.90	40	12 475.50

NOTE - Assigned frequency = 11 708.30 + 19.18 * n, where n is the channel number.

FIGURE 1

Allocation of orbital positions in Regions 1 and 3 broadcasting-satellite service Plan (Position in degrees/Administration symbols)



1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
AFG	AFG__100	50.00	65.88	33.86				CB_TSS_AFGA		42.71		MODRES	35.50	CL		58.4	27M0G7W			P	
AFS	AFS02100	4.80	24.50	-28.00	3.13	1.68	27.00	R13TSS		37.24		MODRES	35.50	CL		59.1	27M0G7W			P	
AGL	AGL29500	-24.80	16.06	-12.45	2.42	1.88	77.88	R13TSS		37.87		MODRES	35.50	CL		59.1	27M0G7W			P	
ALB	ALB29600	62.00	20.04	41.23	0.60	0.60	61.32	R13TSS		48.88		MODRES	35.50	CL		58.9	27M0G7W			P	
ALG	ALG__100	-24.80	1.86	27.60				CB_TSS_ALGA		39.59		MODRES	35.50	CL		54.5	27M0G7W			P	
AND	AND34100	-37.00	1.60	42.50	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CL		56.5	27M0G7W			P	
ARM	ARM06400	22.80	44.99	39.95	0.73	0.60	148.17	R13TSS		48.02		MODRES	35.50	CR		58.9	27M0G7W			P	
ARS	ARS__100	17.00	44.72	23.76				CB_TSS_ARSA		37.81		MODRES	35.50	CL		57.7	27M0G7W		54	P	
ARS	ARS34000	17.00	52.30	24.80	2.68	0.70	143.00	R13TSS		41.71		MODRES	35.50	CL		59.2	27M0G7W		54	P	
AUS	AUS00400	152.00	123.00	-24.20	3.06	2.17	102.00	R13TSS		36.22		MODRES	35.50	CR		58.2	27M0G7W		30	P	
AUS	AUS0040A	152.00	96.83	-12.19	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		30	P	
AUS	AUS0040B	152.00	105.69	-10.45	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		30	P	
AUS	AUS0040C	152.00	110.52	-66.28	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		30	P	
AUS	AUS00500	152.00	133.90	-18.40	2.82	1.74	105.00	R13TSS		37.53		MODRES	35.50	CL		59.4	27M0G7W			P	
AUS	AUS00600	152.00	136.60	-30.90	2.41	1.52	161.00	R13TSS		38.80		MODRES	35.50	CL		58.4	27M0G7W			P	
AUS	AUS00700	164.00	145.20	-38.10	2.12	1.02	147.00	R13TSS		41.09		MODRES	35.50	CR		58.5	27M0G7W		31	P	
AUS	AUS0070A	164.00	158.94	-54.50	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		31	P	
AUS	AUS00800	164.00	145.90	-21.70	3.62	1.63	136.00	R13TSS		36.73		MODRES	35.50	CL		58.8	27M0G7W			P	
AUS	AUS00900	164.00	147.50	-32.10	2.31	1.43	187.00	R13TSS		39.25		MODRES	35.50	CR		59.3	27M0G7W		32	P	
AUS	AUS0090A	164.00	159.06	-31.52	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		32	P	
AUS	AUS0090B	164.00	167.93	-29.02	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W		32	P	
AUS	AUSA_100	152.00	132.38	-38.37				CB_TSS_AUSA		48.88		MODRES	35.50	CR		58.9	27M0G7W			P	
AUS	AUSB_100	164.00	132.38	-38.37				CB_TSS_AUSB		48.88		MODRES	35.50	CL		58.9	27M0G7W			P	
AUT	AUT01600	-18.80	10.31	49.47	1.82	0.92	151.78	MOD13FRTSS		42.19		MODRES	35.50	CR		59.1	27M0G7W			P	
AZE	AZE06400	23.20	47.47	40.14	0.93	0.60	158.14	R13TSS		46.98		MODRES	35.50	CL		58.9	27M0G7W			P	
BDI	BDI27000	11.00	29.90	-3.10	0.71	0.60	80.00	R13TSS		48.15		MODRES	35.50	CL		58.4	27M0G7W			P	
BEL	BEL01800	38.20	5.12	51.96	1.00	1.00	24.53	MOD13FRTSS		44.45		MODRES	35.50	CL		55.5	27M0G7W			P	
BEN	BEN23300	-19.20	2.20	9.50	1.44	0.68	97.00	R13TSS		44.54		MODRES	35.50	CL		58.3	27M0G7W			P	
BFA	BFA10700	-30.00	-1.50	12.20	1.45	1.14	29.00	R13TSS		42.26		MODRES	35.50	CL		57.0	27M0G7W			P	
BGD	BGD22000	74.00	90.30	23.60	1.46	0.84	135.00	R13TSS		43.56		MODRES	35.50	CR		58.7	27M0G7W			P	
BHR	BHR25500	34.00	50.50	26.10	0.60	0.60	0.00	MOD13FRTSS		48.88		MODRES	35.50	CR		54.5	27M0G7W			P	
BIH	BIH14800	56.00	18.22	43.97	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		58.9	27M0G7W			P	
BLR	BLR06200	37.80	27.91	53.06	1.21	0.60	11.47	R13TSS		45.83		MODRES	35.50	CL		58.9	27M0G7W			P	
BOT	BOT29700	-0.80	23.30	-22.20	2.13	1.50	36.00	R13TSS		39.40		MODRES	35.50	CL		58.7	27M0G7W			P	
BRM	BRM29800	104.00	96.97	18.67	3.33	1.66	91.58	R13TSS		37.04		MODRES	35.50	CL		58.9	27M0G7W			P	
BRU	BRU33000	74.00	114.70	4.40	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		57.5	27M0G7W			P	

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
BTN	BTN03100	86.00	90.44	27.05	0.72	0.60	175.47	R13TSS		48.11		MODRES	35.50	CR		58.9	27M0G7W			P	
BUL	BUL02000	-1.20	25.00	43.00	1.04	0.60	165.00	R13TSS		46.50		MODRES	35.50	CL		58.6	27M0G7W			P	
CAF	CAF25800	-13.20	21.00	6.30	2.25	1.68	31.00	R13TSS		38.67		MODRES	35.50	CL		59.3	27M0G7W			P	
CBG	CBG29900	86.00	104.82	12.34	1.04	0.86	9.45	R13TSS		44.91		MODRES	35.50	CR		59.3	27M0G7W			P	
CHN	CHN15500	62.00	88.18	31.20	3.03	1.24	163.23	R13TSS		38.69		MODRES	35.50	CL		57.9	27M0G7W			P	
CHN	CHN15800	134.00	113.29	39.70	2.80	1.55	35.44	R13TSS		38.07		MODRES	35.50	CR		57.0	27M0G7W			P	
CHN	CHN19000	122.00	114.17	23.32	0.91	0.60	2.88	MOD13FRTSS		47.08		MODRES	35.50	CR		58.9	27M0G7W			P	
CHN	CHNA_100	62.00	90.56	39.22				CB_TSS_CHNA		40.01		MODRES	35.50	CR		58.5	27M0G7W			P	
CHN	CHNC_100	134.00	105.77	27.56				CB_TSS_CHNC		39.51		MODRES	35.50	CL		57.1	27M0G7W			P	
CHN	CHNE_100	92.20	114.96	20.16				CB_TSS_CHNE		44.74		MODRES	35.50	CL		59.4	27M0G7W			P	
CHN	CHNF_100	92.20	123.54	45.78				CB_TSS_CHNF		43.71		MODRES	35.50	CR		60.4	27M0G7W			P	
CHN	MAC00000	122.00	113.55	22.20	0.60	0.60	0.00	MOD13FRTSS		48.88		MODRES	35.50	CL		57.0	27M0G7W			P	
CLN	CLN21900	50.00	80.60	7.70	1.18	0.60	106.00	R13TSS		45.95		MODRES	35.50	CL		56.7	27M0G7W			P	
CME	CME30000	-13.00	12.70	6.20	2.54	1.68	87.00	R13TSS		38.15		MODRES	35.50	CR		58.5	27M0G7W			P	
COD	COD_100	-19.20	21.85	-3.40				CB_TSS_CODA		38.36		MODRES	35.50	CR		59.7	27M0G7W			P	
COG	COG23500	-13.20	14.60	-0.70	2.02	1.18	59.00	R13TSS		40.67		MODRES	35.50	CL		58.8	27M0G7W			P	
COM	COM20700	29.00	44.10	-12.10	0.76	0.60	149.00	R13TSS		47.86		MODRES	35.50	CR		58.1	27M0G7W			P	
CPV	CPV30100	-33.50	-24.12	16.09	0.77	0.63	94.46	R13TSS		47.56		MODRES	35.50	CL		57.2	27M0G7W			P	
CTI	CTI23700	-24.80	-5.78	7.19	1.50	1.26	111.74	R13TSS		41.67		MODRES	35.50	CL		58.8	27M0G7W			P	
CVA	CVA08300	-1.20	13.02	42.09	0.75	0.66	20.53	R13TSS		47.50		MODRES	35.50	CR		60.2	27M0G7W			P	
CVA	CVA08500	-1.20	12.59	41.09	1.72	1.31	144.13	MOD13FRTSS		40.92		MODRES	35.50	CR		56.5	27M0G7W			P	
CYP	CYP08600	-1.20	33.45	35.12	0.60	0.60	0.00	MOD13FRTSS		48.88		MODRES	35.50	CR		56.1	27M0G7W			P	
CZE	CZE14401	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CL		58.8	27M0G7W			P	
CZE	CZE14402	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		58.8	27M0G7W			P	
CZE	CZE14403	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		58.8	27M0G7W		37	P	
D	D 08700	-18.80	10.31	49.47	1.82	0.92	151.78	MOD13FRTSS		42.19		MODRES	35.50	CR		59.1	27M0G7W			P	
DJI	DJI09900	16.80	42.68	11.68	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		57.5	27M0G7W			P	
DNK	DNK_100	-25.20	2.92	59.62				CB_TSS_DNKA		48.88		MODRES	35.50	CL		58.3	27M0G7W			P	
DNK	DNK090XR	-33.50	13.27	60.86	1.99	0.63	151.38	MOD13FRTSS		43.48		MODRES	35.50	CR		54.5	27M0G7W			P	
DNK	DNK091XR	-33.50	-15.16	63.67	1.56	0.60	170.63	MOD13FRTSS		44.73		MODRES	35.50	CR		58.6	27M0G7W			P	
E	E_100	-30.00	-9.40	34.15				CB_TSS_E_A		44.79		MODRES	35.50	CL		58.9	27M0G7W		1	P	
E	HISP33D1	-30.00	-4.00	39.00					COP	39.80	5.50	MODRES	35.50	CL		57.6	33M0G7W--	HISPASAT-1	1	PE	
E	HISP33D2	-30.00	-4.00	39.00					COP	39.80	5.50	MODRES	32.50	CL		57.6	33M0G7W--	HISPASAT-1	1	PE	
E	HISPA27D	-30.00	-4.00	39.00					COP	39.80	5.50	MODRES	38.43	CL		57.6	27M0G7W--	HISPASAT-1	1	PE	
E	HISPASA4	-30.00	-4.00	39.00					COP	39.80	5.50	MODRES	38.43	CL		57.6	27M0F8W	HISPASAT-1	1	PE	
EGY	EGY02600	-7.00	29.70	26.80	2.33	1.72	136.00	R13TSS		38.42		MODRES	35.50	CL		58.1	27M0G7W		12	P	
ERI	ERI09200	22.80	39.41	14.98	1.67	0.95	145.48	R13TSS		42.44		MODRES	35.50	CR		58.9	27M0G7W			P	
EST	EST06100	44.50	25.06	58.60	0.77	0.60	12.27	R13TSS		47.81		MODRES	35.50	CR		58.7	27M0G7W			P	

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
ETH	ETH09200	36.00	40.29	8.95	2.87	2.16	174.06	R13TSS		36.52		MODRES	35.50	CL		58.7	27M0G7W			P	
F	F 09300	-7.00	3.52	45.41	2.22	1.15	159.34	R13TSS		40.39		MODRES	35.50	CL		58.8	27M0G7W		21	P	
F	F__100	-7.00	50.00	-15.65				CB_TSS_F_A		48.88		MODRES	35.50	CR		58.9	27M0G7W			P	
F	NCL10000	140.00	166.00	-21.00	1.14	0.72	146.00	R13TSS		45.30		MODRES	35.50	CR		58.7	27M0G7W			P	
F	OCE10100	-160.00	-145.00	-16.30	4.34	3.54	4.00	R13TSS		32.58		MODRES	35.50	CL		58.5	27M0G7W			P	
F	WAL10200	140.00	-176.80	-14.00	0.74	0.60	29.00	R13TSS		47.97		MODRES	35.50	CR		59.4	27M0G7W			P	
FIN	FIN10300	22.80	22.50	64.50	1.38	0.76	171.00	MOD13FRTSS		44.24		MODRES	35.50	CL		54.5	27M0G7W		52	P	
FIN	FIN10400	22.80	15.87	61.15	2.24	0.91	16.70	MOD13FRTSS		41.37		MODRES	35.50	CL		54.5	27M0G7W		52	P	
FJI	FJI19300	-178.00	179.62	-17.87	1.16	0.92	155.22	R13TSS		44.16		MODRES	35.50	CR		58.7	27M0G7W			P	
FSM	FSM00000	158.00	151.90	5.48	5.15	1.57	167.00	R13TSS		35.38		MODRES	35.50	CR		58.9	27M0G7W			P	
G	G 02700	-33.50	-3.50	53.80	1.84	0.72	142.00	R13TSS		43.23		MODRES	35.50	CR		58.0	27M0G7W			P	
GAB	GAB26000	-13.20	11.80	-0.60	1.43	1.12	64.00	R13TSS		42.40		MODRES	35.50	CR		58.3	27M0G7W			P	
GEO	GEO06400	23.20	43.35	42.27	1.11	0.60	161.21	R13TSS		46.23		MODRES	35.50	CR		58.9	27M0G7W			P	
GHA	GHA10800	-25.00	-1.20	7.90	1.48	1.06	102.00	R13TSS		42.49		MODRES	35.50	CR		58.6	27M0G7W			P	
GMB	GMB30200	-37.00	-15.10	13.40	0.79	0.60	4.00	R13TSS		47.69		MODRES	35.50	CL		58.3	27M0G7W			P	
GNB	GNB30400	-30.00	-15.00	12.00	0.90	0.60	172.00	R13TSS		47.12		MODRES	35.50	CL		58.1	27M0G7W			P	
GNE	GNE30300	-18.80	10.30	1.50	0.68	0.60	10.00	R13TSS		48.34		MODRES	35.50	CL		58.8	27M0G7W			P	
GRC	GRC10500	-1.20	24.51	38.08	1.70	0.95	152.97	MOD13FRTSS		42.40		MODRES	35.50	CL		56.3	27M0G7W			P	
GUI	GUI19200	-37.00	-11.00	10.20	1.58	1.04	147.00	R13TSS		42.29		MODRES	35.50	CR		58.4	27M0G7W			P	
HNG	HNG10601	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CL		59.3	27M0G7W		37	P	
HNG	HNG10602	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		59.3	27M0G7W		37	P	
HNG	HNG10603	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		59.3	27M0G7W		37	P	
HOL	HOL21300	38.20	5.12	51.96	1.00	1.00	24.53	MOD13FRTSS		44.45		MODRES	35.50	CL		58.5	27M0G7W			P	
HRV	HRV14801	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CL		58.8	27M0G7W			P	
HRV	HRV14802	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		58.8	27M0G7W			P	
HRV	HRV14803	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		58.8	27M0G7W		37	P	
I	I 08200	9.00	12.67	40.74	1.99	1.35	144.20	R13TSS		40.14		MODRES	35.50	CR		54.5	27M0G7W			P	
IND	IND03700	68.00	93.00	25.50	1.46	1.13	40.00	R13TSS		42.27		MODRES	35.50	CL		58.9	27M0G7W			P	
IND	IND04700	68.00	93.30	11.10	1.92	0.60	96.00	R13TSS		43.83		MODRES	35.50	CR		58.4	27M0G7W			P	
IND	INDA_100	56.00	76.16	14.72				CB_TSS_INDA		45.66		MODRES	35.50	CR		58.8	27M0G7W			P	
IND	INDB_100	56.00	83.43	24.22				CB_TSS_INDB		43.15		MODRES	35.50	CL		58.9	27M0G7W			P	
IND	INDD_100	68.00	74.37	29.16				CB_TSS_INDD		41.80		MODRES	35.50	CR		59.3	27M0G7W			P	
INS	INSA_100	80.20	108.82	-0.73				CB_TSS_INSA		38.88		MODRES	35.50	CR		59.2	27M0G7W			P	
INS	INSB_100	104.00	129.75	-3.50				CB_TSS_INSB		37.53		MODRES	35.50	CL		58.8	27M0G7W			P	
IRL	IRL21100	-37.20	-8.25	53.22	0.72	0.60	157.56	R13TSS		48.08		MODRES	35.50	CL		59.2	27M0G7W			P	
IRN	IRN10900	34.00	54.20	32.40	3.82	1.82	149.00	R13TSS		36.03		MODRES	35.50	CL		57.8	27M0G7W			P	
IRQ	IRQ25600	50.00	43.78	33.28	1.74	1.23	156.76	R13TSS		41.14		MODRES	35.50	CL		58.3	27M0G7W			P	
ISL	ISL04900	-33.50	-19.00	64.90	1.00	0.60	177.00	R13TSS		46.67		MODRES	35.50	CL		60.8	27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
ISL	ISL05000	-33.50	-15.35	63.25	1.58	0.60	169.00	R13TSS		44.67		MODRES	35.50	CR		57.3	27M0G7W			P	
ISR	ISR11000	-4.00	34.95	31.32	0.73	0.60	110.02	R13TSS		48.01		MODRES	35.50	CR		58.8	27M0G7W			P	
J	000BS-3N	109.85	134.50	31.50	3.52	3.30	68.00	R13TSS		33.80		MODRES	35.50	CR		58.2	27M0F8W	BS-3N	2	PE	
J	J 10985	109.85	134.50	31.50	3.52	3.30	68.00	R13TSS		33.80		MODRES	35.50	CR		58.2	34M5G7W		2	P	
J	J 11100	110.00	134.50	31.50	3.52	3.30	68.00	R13TSS		33.80		MODRES	35.50	CR		58.2	34M5G7W		2	P	
J	J 1110E	110.00	134.50	31.50	3.52	3.30	68.00	R13TSS		33.80		MODRES	35.50	CR		58.2	27M0F8W	BS-3M	2	PE	
JOR	JOR22400	11.00	37.55	34.02	1.47	0.91	73.16	MOD13FRTSS		43.19		MODRES	35.50	CL		55.5	27M0G7W			P	
KAZ	KAZ06600	56.40	65.73	46.40	4.58	1.76	177.45	R13TSS		35.38		MODRES	35.50	CR		58.9	27M0G7W			P	
KEN	KEN24900	-0.80	37.95	0.92	2.13	1.34	98.35	R13TSS		39.90		MODRES	35.50	CL		58.7	27M0G7W			P	
KGZ	KGZ07000	50.00	73.91	41.32	1.47	0.64	5.05	R13TSS		44.75		MODRES	35.50	CR		59.0	27M0G7W			P	
KIR	KIR_100	176.00	-170.31	-0.56				CB_TSS_KIRA		42.58		MODRES	35.50	CL		58.9	27M0G7W			P	
KOR	KO11201D	116.00	127.50	36.00	1.24	1.02	168.00	R13TSS		43.40		MODRES	38.43	CL		63.6	27M0G7W	KOREASAT-1	3	PE	
KOR	KOR11200	116.00	127.50	36.00	1.24	1.02	168.00	R13TSS		43.80		MODRES	35.50	CL		59.0	27M0G7W		3	P	
KOR	KOR11201	116.00	127.50	36.00	1.24	1.02	168.00	R13TSS		43.40		MODRES	38.43	CL		63.6	27M0F8W	KOREASAT-1	3	PE	
KRE	KRE28600	140.00	128.45	40.32	1.63	0.68	18.89	R13TSS		44.00		MODRES	35.50	CL		59.0	27M0G7W			P	
KWT	KWT11300	11.00	47.48	29.12	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CR		58.2	27M0G7W			P	
LAO	LAO28400	122.20	103.71	18.17	1.87	1.03	123.99	MOD13FRTSS		41.60		MODRES	35.50	CR		58.8	33M0G7W			P	
LBN	LBN27900	11.00	37.55	34.02	1.47	0.91	73.16	MOD13FRTSS		43.19		MODRES	35.50	CR		55.5	27M0G7W			P	
LBR	LBR24400	-33.50	-9.30	6.60	1.22	0.70	133.00	R13TSS		45.13		MODRES	35.50	CR		58.2	27M0G7W			P	
LBY	LBY_100	-24.80	17.62	26.55				CB_TSS_LBYA		40.30		MODRES	35.50	CL		58.0	27M0G7W			P	
LIE	LIE25300	-18.80	10.31	49.47	1.82	0.92	151.78	MOD13FRTSS		42.19		MODRES	35.50	CL		59.1	27M0G7W			P	
LSO	LSO30500	4.80	27.80	-29.80	0.66	0.60	36.00	R13TSS		48.47		MODRES	35.50	CR		59.2	27M0G7W			P	
LTU	LTU06100	23.20	24.51	56.09				CB_TSS_LTUA		48.21		MODRES	35.50	CL		56.9	27M0G7W			P	
LUX	LUX11400	28.20	5.21	49.20	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		57.9	27M0G7W		9	P	
LVA	LVA06100	23.20	24.51	56.09				CB_TSS_LVAA		48.21		MODRES	35.50	CR		56.9	27M0G7W			P	
MAU	MAU_100	29.00	58.61	-15.88				CB_TSS_MAUA		41.42		MODRES	35.50	CL		59.0	27M0G7W			P	
MCO	MCO11600	34.20	7.93	43.59	1.28	0.60	21.73	MOD13FRTSS		45.58		MODRES	35.50	CL		58.6	27M0G7W			P	
MDA	MDA06300	50.00	28.45	46.99	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W			P	
MDG	MDG23600	29.00	46.60	-18.80	2.72	1.14	65.00	R13TSS		39.53		MODRES	35.50	CL		58.3	27M0G7W			P	
MHL	MHL00000	146.00	167.64	9.83	2.07	0.90	157.42	R13TSS		41.75		MODRES	35.50	CR		59.0	27M0G7W			P	
MKD	MKD14800	22.80	21.61	41.56	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W			P	
MLA	MLA_100	91.50	108.05	4.00				CB_TSS_MLAA		43.00		MODRES	35.50	CR		58.4	27M0G7W			P	
MLD	MLD30600	50.00	72.95	5.78	1.19	0.91	104.53	R13TSS		44.09		MODRES	35.50	CR		58.7	27M0G7W			P	
MLI	MLI_100	-19.20	-5.35	17.11				CB_TSS_MLIB		41.21		MODRES	35.50	CR		58.7	27M0G7W			P	
MLT	MLT14700	22.80	14.40	35.90	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		56.0	27M0G7W			P	
MNG	MNG24800	74.00	102.20	46.60	3.60	1.13	169.00	R13TSS		38.35		MODRES	35.50	CR		59.0	27M0G7W			P	
MOZ	MOZ30700	-1.00	34.00	-18.00	3.57	1.38	55.00	R13TSS		37.52		MODRES	35.50	CL		59.2	27M0G7W			P	
MRC	MRC20900	-25.20	-8.95	28.98	3.56	1.23	49.23	R13TSS		38.02		MODRES	35.50	CR		54.9	27M0G7W			P	

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
MTN	MTN_100	-36.80	-10.52	19.66				CB_TSS_MTNA		41.91		MODRES	35.50	CR		55.5	27M0G7W			P	
MWI	MWI30800	4.80	33.79	-13.25	1.56	0.70	92.69	R13TSS		44.10		MODRES	35.50	CR		59.2	27M0G7W			P	
NGR	NGR11500	-37.20	7.63	17.01	2.20	1.80	102.40	R13TSS		38.48		MODRES	35.50	CL		59.5	27M0G7W			P	
NIG	NIG11900	-19.20	7.80	9.40	2.16	2.02	45.00	R13TSS		38.05		MODRES	35.50	CR		58.9	27M0G7W			P	
NMB	NMB02500	-18.80	17.50	-21.60	2.66	1.90	48.00	R13TSS		37.41		MODRES	35.50	CL		59.7	27M0G7W			P	
NOR	NOR12000	-0.80	13.42	62.76	1.43	0.60	19.61	MOD13FRTSS		45.10		MODRES	35.50	CL		56.2	27M0G7W		6	P	
NOR	NOR12100	-0.80	18.00	60.23	1.67	0.83	23.85	R13TSS		43.02		MODRES	35.50	CL		57.8	27M0G7W		6	P	
NPL	NPL12200	50.00	83.70	28.30	1.72	0.60	163.00	R13TSS		44.31		MODRES	35.50	CR		59.6	27M0G7W			P	
NRU	NRU30900	134.00	167.00	-0.50	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CL		57.5	27M0G7W			P	
NZL	NZL_100	158.00	-170.68	-19.72				CB_TSS_NZLA		48.88		MODRES	35.50	CL		59.6	27M0G7W			P	
OMA	OMA12300	17.20	55.60	21.00	1.88	1.02	100.00	R13TSS		41.62		MODRES	35.50	CR		58.3	27M0G7W			P	
PAK	PAK12700	38.20	69.60	29.50	2.30	2.16	14.00	R13TSS		37.49		MODRES	35.50	CR		58.9	27M0G7W			P	
PHL	PHL28500	98.00	121.30	11.10	3.46	1.76	99.00	R13TSS		36.60		MODRES	35.50	CL		58.7	27M0G7W			P	
PLW	PLW00000	140.00	132.98	5.51	1.30	0.60	55.41	R13TSS		45.53		MODRES	35.50	CR		58.8	27M0G7W			P	
PNG	PNG13100	134.00	148.07	-6.65	3.13	2.30	168.32	MOD13FRTSS		35.87		MODRES	35.50	CR		54.5	27M0G7W			P	
POL	POL13200	50.00	20.07	51.86	1.20	0.69	17.76	R13TSS		45.26		MODRES	35.50	CL		59.2	27M0G7W			P	
POR	POR_100	-37.00	-15.92	37.65				CB_TSS_PORA		47.17		MODRES	35.50	CR		58.4	27M0G7W			P	
PSE	YYY00000	-13.20	34.99	31.86	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		58.9	27M0G7W			P	
QAT	QAT24700	20.00	51.38	25.26	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		54.5	27M0G7W			P	
ROU	ROU13600	50.00	25.12	45.75	1.17	0.73	9.52	R13TSS		45.15		MODRES	35.50	CR		58.9	27M0G7W			P	
RRW	RRW31000	11.00	30.00	-2.10	0.66	0.60	42.00	R13TSS		48.47		MODRES	35.50	CL		59.8	27M0G7W			P	
RUS	RSTREA11	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CL		53.0	27M0F8W	RST-1	5	PE	
RUS	RSTREA12	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CR		53.0	27M0F8W	RST-1	5	PE	
RUS	RSTRED11	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CL		53.0	27M0G7W	RST-1	5	PE	
RUS	RSTRED12	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CR		53.0	27M0G7W	RST-1	5	PE	
RUS	RSTRSD11	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CL		53.0	27M0G7W	RST-1	5	P	
RUS	RSTRSD12	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CR		53.0	27M0G7W	RST-1	5	P	
RUS	RSTRSD13	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	39.02	CL		53.0	27M0G7W	RST-1	5	P	
RUS	RSTRSD14	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	39.02	CR		53.0	27M0G7W	RST-1	5	P	
RUS	RSTRSD21	56.00	65.00	63.00	2.20	2.20	0.00	R123FR		37.70		MODRES	35.50	CL		55.0	27M0G7W		14	P	
RUS	RSTRSD22	56.00	65.00	63.00	2.20	2.20	0.00	R123FR		37.70		MODRES	35.50	CR		55.0	27M0G7W	RST-2	14	P	
RUS	RSTRSD31	86.00	97.00	62.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CL		55.0	27M0G7W	RST-3	33	P	
RUS	RSTRSD32	86.00	97.00	62.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CR		55.0	27M0G7W	RST-3	33	P	
RUS	RSTRSD51	140.00	158.00	56.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CL		55.0	27M0G7W	RST-5	35	P	
RUS	RSTRSD52	140.00	158.00	56.00	2.20	2.20	0.00	R13TSS		37.70		MODRES	35.50	CR		55.0	27M0G7W	RST-5	35	P	
RUS	RUS00401	110.00	128.73	54.30	4.25	2.02	156.81	R13TSS		35.11		MODRES	35.50	CL		58.9	27M0G7W		34	P	
RUS	RUS00402	110.00	128.73	54.30	4.25	2.02	156.81	R13TSS		35.11		MODRES	35.50	CR		58.9	27M0G7W		34	P	
S	S 13800	5.00	16.20	61.00	1.04	0.98	14.00	R13TSS		44.36		MODRES	35.50	CL		55.6	27M0G7W		4	P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
S	S 13900	5.00	17.00	61.50	2.00	1.00	10.00	R13TSS		41.44		MODRES	35.50	CL		61.1	27M0G7W		4	P	
SDN	SDN_100	-7.00	30.24	13.53				CB_TSS_SDNA		40.26		MODRES	35.50	CR		59.4	27M0G7W			P	
SEN	SEN22200	-37.00	-14.40	13.80	1.46	1.04	139.00	R13TSS		42.63		MODRES	35.50	CL		58.6	27M0G7W			P	
SEY	SEY00000	42.50	51.86	-7.23	2.43	1.04	27.51	R13TSS		40.44		MODRES	35.50	CR		58.9	27M0G7W			P	
SLM	SLM00000	128.00	159.27	-8.40	1.35	1.08	118.59	R13TSS		42.81		MODRES	35.50	CL		58.9	27M0G7W			P	
SMO	SMO05700	-178.00	-171.70	-13.87	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CR		58.6	27M0G7W			P	
SMR	SMR31100	-36.80	12.60	43.70	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		57.4	27M0G7W			P	
SNG	SNG15100	88.00	103.86	1.42	0.92	0.72	175.12	R13TSS		46.25		MODRES	35.50	CL		58.5	27M0G7W			P	
SOM	SOM31200	37.80	45.16	7.11	3.31	1.51	65.48	R13TSS		37.46		MODRES	35.50	CR		57.4	27M0G7W			P	
SRL	SRL25900	-33.50	-11.80	8.60	0.78	0.68	114.00	R13TSS		47.20		MODRES	35.50	CR		58.4	27M0G7W			P	
STP	STP24100	-7.00	6.17	1.45	0.65	0.60	153.51	R13TSS		48.56		MODRES	35.50	CR		56.4	27M0G7W			P	
SUI	SUI14000	-18.80	10.31	49.47	1.82	0.92	151.78	MOD13FRTSS		42.19		MODRES	35.50	CL		59.1	27M0G7W			P	
SVK	SVK14401	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CL		59.3	27M0G7W			P	
SVK	SVK14402	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		59.3	27M0G7W			P	
SVK	SVK14403	-12.80	16.77	46.78	1.71	0.89	149.15	MOD13FRTSS		42.64		MODRES	35.50	CR		59.3	27M0G7W		37	P	
SVN	SVN14800	33.80	15.01	46.18	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CR		58.9	27M0G7W			P	
SWZ	SWZ31300	4.80	31.39	-26.44	0.60	0.60	90.00	R13TSS		48.88		MODRES	35.50	CL		57.9	27M0G7W			P	
SYR	SYR22900	11.00	37.55	34.02	1.47	0.91	73.16	MOD13FRTSS		43.19		MODRES	35.50	CL		55.5	27M0G7W		53	P	
SYR	SYR33900	11.00	37.60	34.20	1.32	0.88	74.00	MOD13FRTSS		43.80		MODRES	35.50	CL		56.4	27M0G7W		53	P	
TCD	TCD14300	17.00	18.36	15.47	3.23	2.05	82.89	R13TSS		36.23		MODRES	35.50	CR		58.9	27M0G7W			P	
TGO	TGO22600	-30.00	0.72	8.61	1.12	0.60	109.54	R13TSS		46.19		MODRES	35.50	CR		58.5	27M0G7W			P	
THA	THA14200	98.00	100.75	12.88	2.80	1.82	93.77	R13TSS		37.37		MODRES	35.50	CL		58.6	27M0G7W			P	
TJK	TJK06900	38.00	71.14	38.41	1.21	0.73	155.31	R13TSS		45.00		MODRES	35.50	CL		58.8	27M0G7W			P	
TKM	TKM06800	50.00	59.24	38.83	2.26	1.02	166.64	R13TSS		40.81		MODRES	35.50	CR		58.9	27M0G7W			P	
TMP	TMP00000	128.00	126.03	-8.72	0.66	0.60	13.92	R13TSS		48.50		MODRES	35.50	CR		58.9	27M0G7W			P	
TON	TON21500	170.75	-175.23	-18.19	1.59	0.60	71.33	R13TSS		44.64		MODRES	35.50	CR		58.3	27M0G7W			P	
TUN	TUN15000	-25.20	9.50	33.50	1.88	0.72	135.00	MOD13FRTSS		43.13		MODRES	35.50	CR		57.3	27M0G7W		51	P	
TUN	TUN27200	-25.20	2.10	31.75	3.41	1.81	179.18	MOD13FRTSS		36.54		MODRES	35.50	CR		55.5	27M0G7W		51	P	
TUR	TUR14500	42.00	34.95	39.09	3.18	0.99	0.79	R13TSS		39.47		MODRES	35.50	CL		58.8	27M0G7W		36	P	
TUV	TUV00000	176.00	177.61	-7.11	0.94	0.60	137.58	R13TSS		46.93		MODRES	35.50	CR		58.9	27M0G7W			P	
TZA	TZA22500	11.00	34.60	-6.20	2.41	1.72	129.00	R13TSS		38.27		MODRES	35.50	CR		58.7	27M0G7W			P	
UAE	UAE27400	52.50	53.85	24.34	1.19	0.85	3.72	R13TSS		44.39		MODRES	35.50	CR		58.2	27M0G7W			P	
UGA	UGA05100	17.00	32.20	1.04	1.50	1.02	68.73	R13TSS		42.62		MODRES	35.50	CL		58.2	27M0G7W			P	
UKR	UKR06300	38.20	31.74	48.22	2.29	0.96	177.78	R13TSS		41.01		MODRES	35.50	CR		58.9	27M0G7W			P	
USA	GUM33100	122.00	144.50	13.10	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CL		58.3	27M0G7W			P	
USA	MRA33200	121.80	145.90	16.90	1.20	0.60	76.00	R13TSS		45.87		MODRES	35.50	CR		58.5	27M0G7W			P	
USA	PLM33200	170.00	-161.40	7.00	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CL		57.4	27M0G7W			P	
USA	USAA_100	170.00	-170.51	-12.72				CB_TSS_USAA		48.88		MODRES	35.50	CL		56.1	27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		E.I.R.P.	Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
USA	WAK33400	140.00	166.50	19.20	0.60	0.60	0.00	R13TSS		48.88		MODRES	35.50	CR		58.6	27M0G7W			P	
UZB	UZB07100	33.80	63.80	41.21	2.56	0.89	159.91	R13TSS		40.84		MODRES	35.50	CR		58.8	27M0G7W			P	
VTN	VTN32500	107.00	106.84	14.21	3.43	1.76	109.43	R13TSS		36.65		MODRES	35.50	CR		58.4	27M0G7W			P	
VUT	VUT12800	140.00	168.00	-16.40	1.52	0.68	87.00	R13TSS		44.30		MODRES	35.50	CL		57.8	27M0G7W			P	
YEM	YEM_100	11.00	48.05	14.64				CB_TSS_YEMA		47.63		MODRES	35.50	CL		54.9	27M0G7W			P	
YUG	YUG14800	-7.00	20.50	43.98	0.91	0.60	145.16	R13TSS		47.07		MODRES	35.50	CR		58.9	27M0G7W			P	
ZMB	ZMB31400	-0.80	27.50	-13.10	2.38	1.48	39.00	R13TSS		38.98		MODRES	35.50	CR		58.7	27M0G7W			P	
ZWE	ZWE13500	-0.80	29.60	-18.80	1.46	1.36	37.00	R13TSS		41.47		MODRES	35.50	CR		59.2	27M0G7W			P	

Orbital Position/Administration/Beam/Channel/Minimum Equivalent Protection Ratio dBW
(sorted by orbital position)

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40							
-178.00	FJI	FJI19300	CR	6.1		6.1		6.1		6.1		6.1		6.1		6.1		6.1		6.1		6.1		6.1		6.1																								
-178.00	SMO	SMO05700	CR	1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6																								
-160.00	F	OCE10100	CL		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9																							
-37.20	IRL	IRL21100	CL	2.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6																												
-37.20	NGR	NGR11500	CL		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		11.3																											
-37.00	AND	AND34100	CL		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.8																											
-37.00	GMB	GMB30200	CL	4.6		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9																												
-37.00	GUI	GUI19200	CR		0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		1.5																											
-37.00	POR	POR_100	CR	10.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1																												
-37.00	SEN	SEN22200	CL																				-0.3		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7			
-36.80	MTN	MTN_100	CR																					1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		10.4		
-36.80	SMR	SMR31100	CR	4.4		3.2		3.2		3.1		3.1		3.1		3.2		3.2		3.2		3.2																												
-33.50	CPV	CPV30100	CL		10.2		10.2		10.2		10.2		10.2		10.2		10.2		10.2		10.2		10.8																											
-33.50	DNK	DNK090XR	CR																																															
-33.50	DNK	DNK091XR	CR																																															
-33.50	G	G 02700	CR		0.1		0.1		0.1		0.1		0.1		0.1		0.2		0.1		0.1		0.3																											
-33.50	ISL	ISL04900	CL																				10.5		7.2		7.2		10.1		14.8		3.6		14.8		3.6		21.7		21.7									
-33.50	ISL	ISL05000	CR																					0.1		0.1		0.1																						
-33.50	LBR	LBR24400	CR	3.3		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4																												
-33.50	SRL	SRL25900	CR																				-0.4		1.0		1.0		1.0		1.0		0.9		1.0		0.9		1.0		1.0		1.0		1.0		1.0			
-30.00	BFA	BFA10700	CL																					1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		2.4		
-30.00	E	E_100	CL																				10.3		11.6		11.6		11.6		11.6		11.5		11.5		11.5		11.5		11.6		11.6		11.6					
-30.00	E	HISP33D1	CL																						-0.2				-0.2				-0.2				-0.2				-0.2				-0.2				-0.2	
-30.00	E	HISP33D2	CL																						-0.1				-0.1				-0.1				-0.1				-0.1				0.0					
-30.00	E	HISPA27D	CL																							1.3				1.3				1.3				1.3				1.3				1.3				1.3
-30.00	E	HISPASA4	CL																							1.3				1.3				1.3				1.3				1.3				1.3				1.3
-30.00	GNB	GNB30400	CL																					0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.7		
-30.00	TGO	TGO22600	CR	7.9		7.5		7.5		7.5		7.5		7.5		7.5		7.5		7.5		7.5																												
-25.20	DNK	DNK_100	CL	0.3		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1																												
-25.20	MRC	MRC20900	CR	0.1		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.3		-0.3		-0.4		-0.4																										
-25.20	TUN	TUN15000	CR																					0.2		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		-0.8		
-25.20	TUN	TUN27200	CR																																															
-25.00	GHA	GHA10800	CR																					10.0		5.2		5.2		5.2		5.2		5.2		4.7		5.2		4.7		5.2		4.7		5.2		4.7		
-24.80	AGL	AGL29500	CL	4.6		3.6		3.6		3.6		3.6		3.6		3.6		3.6		3.6		3.6																												
-24.80	ALG	ALG_100	CL																					-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		12.0		
-24.80	CTI	CTI23700	CL	3.4		2.9		2.9		2.9		2.9		2.9		2.9		2.9		2.9		2.9																												
-24.80	LBY	LBY_100	CL		2.4		2.4		2.4		2.4		2.4		2.4		2.4		2.4		2.4		2.7																											

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Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
-19.20	BEN	BEN23300	CL	3.1	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6</

* This assignment shall only be used by the Administrations of CZE, HNG, HRV and SVK on the basis of equal access subject to mutual agreement between them.

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Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																												
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
-1.20	CVA	CVA08300	CR	2.2		0.5		0.9		0.9		0.9																																				
-1.20	CVA	CVA08500	CR																						0.4																							
-1.20	CYP	CYP08600	CR	1.4		0.0		0.5		0.5		0.5		0.5		2.2		2.2		2.2		1.5																										
-1.20	GRC	GRC10500	CL		-0.4		0.6		-0.1		0.8		-0.1		0.9		-0.1		0.9		-0.3		1.0																									
-1.00	MOZ	MOZ30700	CL		2.8		10.1		2.8		10.1		2.8		10.2		2.8		10.3		2.8		3.6																									
-0.80	BOT	BOT29700	CL																						1.5		0.9		1.5		0.9		1.5		0.9		1.5		0.9		1.5		0.9		1.5		2.2	
-0.80	KEN	KEN24900	CL																						3.8		2.8		3.9		2.8		3.9		2.8		3.9		2.8		3.9		2.8		3.9		3.3	
-0.80	NOR	NOR12000	CL	4.4		2.0		-0.7		-0.7		-0.7		-0.7		-0.6		-0.6		-0.6		1.1																										
-0.80	NOR	NOR12100	CL																							0.3				0.3																		
-0.80	ZMB	ZMB31400	CR																					2.8		3.2		4.3		3.2		4.3		3.2		4.3		3.2		4.3		3.2		4.3		3.2		
-0.80	ZWE	ZWE13500	CR	5.5		2.6		2.6		2.6		2.6		2.6		2.6		2.6		2.6		2.6																										
4.80	AFS	AFS02100	CL																						10.7		10.6		10.6		10.6		5.2		5.2		5.2		5.2		5.2		5.2		5.2			
4.80	LSO	LSO30500	CR	3.9		2.9		2.9		2.9		2.9		2.9		3.1		3.1		3.1		2.9																										
4.80	MWI	MWI30800	CR		3.2		3.8		3.3		3.9		3.3		3.9		3.9		3.9		3.8		3.4																									
4.80	SWZ	SWZ31300	CL	4.5		3.2		3.2		3.2		3.2		3.2		3.4		3.4		3.4		3.2																										
5.00	S	S 13800	CL																					4.7		0.0		2.3		0.0		2.3		0.6		4.5		0.6		4.5		0.6						
5.00	S	S 13900	CL																																													
9.00	I	I08200	CR																						-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-1.6		-0.3	
11.00	BDI	BDI27000	CL																						3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0		5.6	
11.00	JOR	JOR22400	CL		0.4		0.5		0.6		0.6		0.6		0.6		0.6		0.6		0.5		0.0																									
11.00	KWT	KWT11300	CR																						5.4		5.4		5.4		5.4		5.4		5.4		5.4		5.4		5.4		5.4		5.4		6.3	
11.00	LBN	LBN27900	CR	0.9		-0.3		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.3																										
11.00	RRW	RRW31000	CL		10.2		10.2		10.2		10.2		10.2		10.2		10.2		10.2		10.2		5.7																									
11.00	SYR	SYR22900	CL																						-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.5			
11.00	SYR	SYR33900	CL																																												1.4	
11.00	TZA	TZA22500	CR																					14.6		14.2		13.9		14.2		13.9		14.2		13.9		14.2		13.9		14.2		13.9		14.1		
11.00	YEM	YEM_100	CL	2.1		-0.3		-0.3		-0.3		-0.3		-0.3		-0.3		-0.3		-0.3		-0.3																										
16.80	DJI	DJI09900	CL		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		6.7																									
17.00	ARS	ARS_100	CL																						0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.0			
17.00	ARS	ARS34000	CL																																												2.0	
17.00	TCD	TCD14300	CR	10.5		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0																										
17.00	UGA	UGA05100	CL																					3.6		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		
17.20	OMA	OMA12300	CR																						1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		0.9			
20.00	QAT	QAT24700	CL		5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.8		5.8		6.2																									
22.80	ARM	ARM06400	CR																						0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.4		0.5		0.5		2.7			
22.80	ERI	ERI09200	CR																					2.3		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8		
22.80	FIN	FIN10300	CL																						-0.5		1.2		1.9		2.0		1.8		2.1		1.7		2.2		1.6		1.6		4.9			
22.80	FIN	FIN10400	CL																																					0.0					1.1			
22.80	MKD	MKD14800	CR																					3.6		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.2		3.3		3.3		3.3		
22.80	MLT	MLT14700	CR																						1.7		1.8		1.7		1.8		1.7		1.8		1.7		1.8		1.7		1.8		3.4			

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Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																											
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
23.20	AZE	AZE06400	CL																				0.6		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		
23.20	GEO	GEO06400	CR	10.6		12.3		12.3		12.3		12.3		12.3		12.3		12.3		12.3		12.3																									
23.20	LTU	LTU06100	CL	1.4		0.1		0.0		0.0		0.0		0.0		0.0		0.0		-0.1		-0.1																									
23.20	LVA	LVA06100	CR		0.0		0.0		0.0		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1																								
28.20	LUX	LUX11400	CL	3.1		2.9		2.8		2.8		2.8		2.8		2.8		2.8		2.8		2.8																									
29.00	COM	COM20700	CR																				11.2	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.7				
29.00	MAU	MAU__100	CL																					11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.1	11.1	11.1	12.7				
29.00	MDG	MDG23600	CL	14.0		13.6		13.5		13.4		13.4		13.3		13.3		13.2		13.2		13.2																									
33.80	SVN	SVN14800	CR		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.4		1.6																								
33.80	UZB	UZB07100	CR	3.3		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9																									
34.00	BHR	BHR25500	CR																				0.9	0.9	8.7	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8	9.2	8.8			
34.00	IRN	IRN10900	CL	1.2		0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		10.1	10.7																						
34.20	MCO	MCO11600	CL	0.7		-0.9		-0.9		-0.9		-0.9		-0.9		-0.9		-0.9		-0.9		-0.9																									
36.00	ETH	ETH09200	CL		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.8		12.1																								
36.00	RUS	RSTREA11	CL																											0.2			0.2			0.2			0.2			0.2			0.2		
36.00	RUS	RSTREA12	CR																												-0.3			-0.3			-0.3			-0.3			-0.3			-0.1	
36.00	RUS	RSTRED11	CL																											0.2			0.2			0.2			0.2			0.2			0.2		
36.00	RUS	RSTRED12	CR																												-0.3			-0.3			-0.3			-0.3			-0.3			-0.1	
36.00	RUS	RSTRSD11	CL																								4.5	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	
36.00	RUS	RSTRSD12	CR																									3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
36.00	RUS	RSTRSD13	CL																									10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	
36.00	RUS	RSTRSD14	CR																									3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6
37.80	BLR	BLR06200	CL	3.8		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3																									
37.80	SOM	SOM31200	CR																					3.3	3.3	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.2	11.7	10.4	10.4			
38.00	TJK	TJK06900	CL																					0.6	1.2	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.4	10.6	10.6	10.6	
38.20	BEL	BEL01800	CL																					2.5	2.2	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0	3.4	3.4					
38.20	HOL	HOL21300	CL		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6		2.5																								
38.20	PAK	PAK12700	CR		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5		4.6	2.0	2.1																						
38.20	UKR	UKR06300	CR		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		1.5																								
42.00	TUR	TUR14500	CL		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7																								
42.50	SEY	SEY00000	CR																					12.3	13.0	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	14.4	14.4		
44.50	EST	EST06100	CR	10.9		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6																									
50.00	AFG	AFG__100	CL	-0.3		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4		3.0	2.2																						
50.00	CLN	CLN21900	CL	0.8		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		1.5	1.6																						
50.00	IRQ	IRQ25600	CL	4.2		3.6		3.6		3.6		3.6		3.6		3.6		3.6		3.6		3.6																									
50.00	KGZ	KGZ07000	CR		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		1.0																								
50.00	MDA	MDA06300	CR																					0.7	0.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4		
50.00	MLD	MLD30600	CR	10.7		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		4.8	4.4																						
50.00	NPL	NPL12200	CR		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.3	2.3	3.5																						
50.00	POL	POL13200	CL																						2.4	2.7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	

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Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40							
50.00	ROU	ROU13600	CR	4.9		3.9		3.9		3.9		3.9		3.9		3.9		3.9		3.9																														
50.00	TKM	TKM06800	CR																					1.0		2.4		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.0				
52.50	UAE	UAE27400	CR																					10.5		10.5		14.3		15.1		15.1		15.1		15.1		15.1		15.1		15.1		15.1						
56.00	BIH	BIH14800	CL	5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.9		5.9																														
56.00	IND	INDA_100	CR		2.5		2.6		2.5		2.6		2.6		2.5		2.6		2.6		2.5		3.2		10.0		10.6																							
56.00	IND	INDB_100	CL	2.4		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		2.9		2.9																								
56.00	RUS	RSTRSD21	CL																								10.5		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6					
56.00	RUS	RSTRSD22	CR																									16.8		16.8		16.8		16.8		16.8		16.8		16.8		16.8		16.8		18.1				
56.40	KAZ	KAZ06600	CR	10.2		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3																												
62.00	ALB	ALB29600	CL																						10.7		10.9		33.5		33.5		33.5		33.5		33.5		33.5		33.5		33.5		33.5		34.4			
62.00	CHN	CHN15500	CL	2.5		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4																								
62.00	CHN	CHNA_100	CR		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		10.1		10.6		10.2																							
68.00	IND	IND03700	CL		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		10.6																							
68.00	IND	IND04700	CR	5.4		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0																								
68.00	IND	INDD_100	CR	10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0																						
74.00	BGD	BGD22000	CR	12.1		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		4.1		4.1																						
74.00	BRU	BRU33000	CR		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		4.8		4.5		6.9																							
74.00	MNG	MNG24800	CR																					6.6		6.6		26.4		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9				
80.20	INS	INSA_100	CR	12.8		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3																						
86.00	BTN	BTN03100	CR	11.8		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0																						
86.00	CBG	CBG29900	CR		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		11.7																					
86.00	RUS	RSTRSD31	CL																								10.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9			
86.00	RUS	RSTRSD32	CR																									99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		
88.00	SNG	SNG15100	CL	2.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3																						
91.50	MLA	MLA_100	CR		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		3.5																					
92.20	CHN	CHNE_100	CL	10.6		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5																						
92.20	CHN	CHNF_100	CR		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1																					
98.00	PHL	PHL28500	CL		2.3		2.3		2.3		2.3		2.3		2.3		2.3		2.3		2.3		2.3		2.3		2.3		4.7																					
98.00	THA	THA14200	CL	1.8		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2																						
104.00	BRM	BRM29800	CL	2.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1																						
104.00	INS	INSB_100	CL		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		11.6		10.4																					
107.00	VTN	VTN32500	CR		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		11.3																					
109.85	J	000BS-3N	CR	18.3		16.9		16.9		16.9		16.6		16.9		16.6		12.6																																
109.85	J	J 10985	CR	19.7		17.9		17.9		17.9		18.0		18.0		18.0		13.9		13.9		13.9		13.9		13.9		13.9																						
110.00	J	J 11100	CR	20.3		18.7		18.7		18.7		18.6		18.7		18.7		13.7		13.7		13.7		13.7		13.7		13.7																						
110.00	J	J 1110E	CR	18.9		17.7		17.7		17.6		17.2		17.6		17.2		12.4																																
110.00	RUS	RUS00401	CL																									13.2		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		
110.00	RUS	RUS00402	CR																										99.9		99.9																			
116.00	KOR	KO11201D	CL		5.6		5.7		5.6		5.2		5.0		5.3																																			
116.00	KOR	KOR11200	CL		0.3		0.3		0.3		0.3		-0.1		-0.1		3.4		1.9		1.9		1.9		1.9		2.9																							

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Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Minimum Equivalent Protection Margin (dB)																																											
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
116.00	KOR	KOR11201	CL		5.6		5.7		5.6		5.2		5.0		5.3																																
121.80	USA	MRA33200	CR	5.3		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5		3.5																					
122.00	CHN	CHN19000	CR	2.0		0.2		0.4		0.2		0.3		0.2		0.3		0.1		0.1		0.1		0.1		0.1																					
122.00	CHN	MAC00000	CL		0.9		1.3		1.3		1.2		1.2		1.3		0.7		-0.1		-0.1		-0.1		-0.1		1.5																				
122.00	USA	GUM33100	CL		5.9		6.0		6.0		6.0		6.0		6.0		6.0		6.0		6.0		6.0		6.0		8.6																				
122.20	LAO	LAO28400	CR		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.6																				
128.00	SLM	SLM00000	CL	12.9		11.6		11.9		11.7		11.9		11.7		11.9		11.6		11.5		11.5		11.5		11.5																					
128.00	TMP	TMP00000	CR		10.2		10.1		10.1		10.1		10.1		10.1		10.1		10.2		10.2		10.2		10.2		10.3																				
134.00	CHN	CHN15800	CR		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		1.2																				
134.00	CHN	CHNC_100	CL	2.0		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1																					
134.00	NRU	NRU30900	CL	13.9		12.5		12.5		12.5		12.5		12.5		12.5		12.5		12.5		12.5		12.5		12.5																					
134.00	PNG	PNG13100	CR		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		7.5																				
140.00	F	NCL10000	CR		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		4.2		5.3																				
140.00	F	WAL10200	CR		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.9																				
140.00	KRE	KRE28600	CL	15.5		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0																					
140.00	PLW	PLW00000	CR		11.2		11.2		11.2		11.2		11.2		11.2		11.2		11.2		11.2		11.2		11.2		11.4																				
140.00	RUS	RSTRSD51	CL																								15.8		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		
140.00	RUS	RSTRSD52	CR																									99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9		99.9	
140.00	USA	WAK33400	CR	16.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0																					
140.00	VUT	VUT12800	CL	11.9		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6																					
146.00	MHL	MHL00000	CR		25.2		25.1		25.2		25.1		25.2		25.4		25.5		25.4		25.5		25.4		25.5		26.3																				
152.00	AUS	AUS00400	CR			10.0				10.0				10.0				10.0				10.0				10.0																					
152.00	AUS	AUS0040A	CR			16.9				16.9				16.9				16.9				16.9				16.9																					
152.00	AUS	AUS0040B	CR			16.3				16.3				16.3				16.3				16.3				16.3																					
152.00	AUS	AUS0040C	CR			17.4				17.4				17.4				17.4				17.4				17.4																					
152.00	AUS	AUS00500	CL				5.1				5.1			11.4				11.4				11.4				11.5																					
152.00	AUS	AUS00600	CL		4.3				4.3				4.3			13.5			13.5				13.5			13.5																					
152.00	AUS	AUSA_100	CR	11.1				10.4				10.4																																			
158.00	FSM	FSM00000	CR	14.9		23.5		14.6		23.5		14.6		23.5		23.8		24.9		25.3		24.9		25.3		24.9																					
158.00	NZL	NZL__100	CL		12.1		10.6		12.1		10.6		12.1		10.7		12.1		12.1		12.1		12.1		12.1		15.1																				
164.00	AUS	AUS00700	CR			4.8				4.8				4.8				10.0				10.0				10.0																					
164.00	AUS	AUS0070A	CR			7.7				7.7				7.7				15.8				15.8				15.8																					
164.00	AUS	AUS00800	CL		10.3				10.3				10.3				10.3				10.3				10.3																						
164.00	AUS	AUS00900	CR	11.4				3.6				3.6				3.6				10.6				10.6																							
164.00	AUS	AUS0090A	CR	13.0				7.1				7.1				7.1				13.0				13.0																							
164.00	AUS	AUS0090B	CR	16.2				7.7				7.7				7.7				15.7				15.7																							
164.00	AUS	AUSB_100	CL				10.5				10.5				10.5																																
170.00	USA	PLM33200	CL		6.5		6.5		6.5		6.5		6.5		6.5		6.5		6.5		6.5		6.5		6.5		10.2																				
170.00	USA	USAA_100	CL	10.3		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4																					
170.75	TON	TON21500	CR		10.4		10.4		10.4		10.4		10.4		10.4		10.4		10.4		10.4		10.4		10.4		11.6																				

Orbital Position (°)	Admin. symbol	Beam Identifica- tion	Polariza- tion type	Channel number / Minimum Equivalent Protection Margin (dB)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
176.00	KIR	KIR_100	CL	13.4		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5																			
176.00	TUV	TUV00000	CR		6.2		6.2		6.2		6.2		6.2		6.2		6.2		6.2		6.2		6.2		6.2		10.7																		

INTERNATIONAL TELECOMMUNICATION UNION



WRC-2000

WORLD
RADIOCOMMUNICATION
CONFERENCE

**Addendum 1 to
Document DT/131-E
30 May 2000
Original: English**

ISTANBUL, 8 MAY – 2 JUNE 2000

**WORKING GROUP 1
OF THE PLENARY**

Radiocommunication Bureau

APPENDIX S30 REGIONS 1 AND 3 LIST

Insert pages *6bis* to *6septies* in Document WRC2000/DT/131.

Attachment: 6 pages

- 6bis -
CMR2000/DT/131(Add.1)-E

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
ARS	REGBS111	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS112	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS113	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS114	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS115	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS116	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS117	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS118	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS119	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS120	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS121	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS122	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS123	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS124	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	33M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS125	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS126	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS133	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	40.00	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS134	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	40.00	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS137	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	40.00	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS138	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	40.00	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS141	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS142	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS145	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	347.85	33M0G7WW	ARABSAT-BSS1	13	A	
ARS	REGBS146	26.00	20.08	25.67					COP1	30.30		DBLTVROC0001	47.00	LE	77.85	33M0G7WW	ARABSAT-BSS1	13	A	
D	ESTR1-DH	45.00	20.00	30.00					TR0	35.20		MODRES	38.00	LE	0.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR1-DV	45.00	20.00	30.00					TR0	35.20		MODRES	38.00	LE	90.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR3-DH	45.00	75.00	20.00					TR3	36.20		MODRES	38.00	LE	0.00	27M0G7W--	EUROPE*STAR-1B	20	A	
D	ESTR3-DV	45.00	75.00	20.00					TR3	36.20		MODRES	38.00	LE	90.00	27M0G7W--	EUROPE*STAR-1B	20	A	
E	HI27D3-1	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CL		27M0G7W--	HISPASAT-3	1	AE	
E	HI27D3-2	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CL		27M0G7W--	HISPASAT-3	1	AE	
E	HI27D3-3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CR		27M0G7W--	HISPASAT-3	1	AE	
E	HI27D3A1	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CL		27M0G7W--	HISPASAT-3	1	AE	
E	HI27D3A2	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CL		27M0G7W--	HISPASAT-3	1	AE	
E	HI27D3A3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CR		27M0G7W--	HISPASAT-3	1	AE	

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1	2			3		4			5			6		7		8			9			10		11		12		13	14	15
Admin. symbol	Beam identification			Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks								
					Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)													
E	HI27D3B1			-30.00	-4.00	39.00					COP1		37.00	3.20	MODRES	41.50	CL		27M0G7W--	HISPASAT-3	1	AE								
E	HI27D3B2			-30.00	-4.00	39.00					COP1		37.00	3.20	MODRES	41.50	CL		27M0G7W--	HISPASAT-3	1	AE								
E	HI27D3B3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	41.50	CR		27M0G7W--	HISPASAT-3	1	AE											
E	HI33D3-1	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3-2	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3-3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	35.50	CR		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3A1	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3A2	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3A3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	38.50	CR		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3B1	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	41.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3B2	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	41.50	CL		33M0G7W--	HISPASAT-3	1	AE											
E	HI33D3B3	-30.00	-4.00	39.00					COP1	37.00	3.20	MODRES	41.50	CR		33M0G7W--	HISPASAT-3	1	AE											
E	HISPAS2D	-30.00	-8.80	35.40					COP	36.90		MODRES	35.50	CL		27M0G7W--	HISPASAT-2	1	AE											
E	HISPASA2	-30.00	-8.80	35.40	3.00	1.90	45.00	R13TSS		36.90		MODRES	35.50	CL		27M0F8W	HISPASAT-2	1	AE											
EGY	D33NI1S1	-7.00	16.20	23.40					COH	32.75	-4.75	MODRES	35.50	LE	0.00	33M0G7W--	NILESAT-1S	12	AE											
EGY	D33NI1S2	-7.00	16.20	23.40					COV	32.51	1.80	MODRES	35.50	LE	90.00	33M0G7W--	NILESAT-1S	12	AE											
F	E127ASCA	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	93.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127ASCB	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	3.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127ASWA	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	93.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127ASWB	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	3.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127ASZA	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	93.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127ASZB	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	3.50	27M0F9W	EUTELSAT B-13E	8	AE											
F	E127DSCA	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	93.50	27M0G7W--	EUTELSAT B-13E	8	AE											
F	E127DSCB	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	3.50	27M0G7W--	EUTELSAT B-13E	8	AE											
F	E127DSWA	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	93.50	27M0G7W--	EUTELSAT B-13E	8	AE											
F	E127DSWB	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	3.50	27M0G7W--	EUTELSAT B-13E	8	AE											
F	E127DSZA	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	93.50	27M0G7W--	EUTELSAT B-13E	8	AE											
F	E127DSZB	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	3.50	27M0G7W--	EUTELSAT B-13E	8	AE											

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1		2		3		4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol		Beam identification		Orbital Position (°)		Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
F	E133ASCA	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	93.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133ASCB	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	3.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133ASWA	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	93.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133ASWB	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	3.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133ASZA	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	93.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133ASZB	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	3.50	33M0F9W	EUTELSAT B-13E	8	AE				
F	E133DSCA	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	93.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	E133DSCB	13.00	9.65	38.55					SHA	32.00	-1.00	MODRES	35.50	LE	3.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	E133DSWA	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	93.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	E133DSWB	13.00	9.65	38.55					WIS	33.00		MODRES	35.50	LE	3.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	E133DSZA	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	93.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	E133DSZB	13.00	9.65	38.55					ZOS	36.00	3.00	MODRES	35.50	LE	3.50	33M0G7W--	EUTELSAT B-13E	8	AE				
F	F5_27D11	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	90.00	27M0G9W--	RADIOSAT-5	12	A				
F	F5_27D12	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	27M0G9W--	RADIOSAT-5	12	A				
F	F5_27D13	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	90.00	27M0G9W--	RADIOSAT-5	12	A				
F	F5_27D14	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	27M0G9W--	RADIOSAT-5	12	A				
F	F5_27D15	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	27M0G9W--	RADIOSAT-5	21	A				
F	F5_33D11	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	90.00	33M0G9W--	RADIOSAT-5	12	A				
F	F5_33D12	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	33M0G9W--	RADIOSAT-5	12	A				
F	F5_33D13	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	90.00	33M0G9W--	RADIOSAT-5	12	A				
F	F5_33D14	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	33M0G9W--	RADIOSAT-5	12	A				
F	F5_33D15	-7.00	2.60	45.90					COP	41.80	13.80	MODRES	35.50	LE	0.00	33M0G9W--	RADIOSAT-5	21	A				
F	F93D2755	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	90.00	27M0G9W--	RADIOSAT-5A	21	A				
F	F93D2756	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	0.00	27M0G9W--	RADIOSAT-5A	21	A				
F	F93D2757	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	90.00	27M0G9W--	RADIOSAT-5A	21	A				
F	F93D3355	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	90.00	33M0G9W--	RADIOSAT-5A	21	A				
F	F93D3356	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	0.00	33M0G9W--	RADIOSAT-5A	21	A				
F	F93D3357	-7.00	2.60	45.90					OPT	41.80	13.80	MODRES	35.50	LE	90.00	33M0G9W--	RADIOSAT-5A	21	A				

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1	2		3	4			5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification		Orbital Position (°)	Boresight			Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
				Long(°)	Lat(°)		Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
KOR	KO11202D	113.00	127.50	36.00	1.24	1.02	168.00	R13TSS		43.43		MODRES	35.50	CL		27M0GXX--	KOREASAT-2		AE			
LAO	LST3CELD	116.00	104.67	13.82					3CC	39.90	3.80	MODRES	35.50	LE	90.00	33M0G7W--	LSTAR3B	23	A			
LAO	LST3COLD	116.00	104.67	13.82					3CC	39.90	3.80	MODRES	35.50	LE	0.00	33M0G7W--	LSTAR3B	23	A			
LAO	LST3EELD	116.00	123.30	10.60	1.90	1.40	140.00	R13TSS		40.50		MODRES	35.50	LE	90.00	33M0G7W--	LSTAR3B	25	A			
LAO	LST3EOLD	116.00	123.30	10.60	1.90	1.40	140.00	R13TSS		40.50		MODRES	35.50	LE	0.00	33M0G7W--	LSTAR3B	25	A			
LAO	LST3NEL1	116.00	115.00	22.79					3NC1	38.90	4.10	MODRES	41.30	LE	90.00	33M0G7W--	LSTAR3B	24	A			
LAO	LST3NOL1	116.00	115.00	22.79					3NC1	38.90	4.10	MODRES	41.10	LE	0.00	33M0G7W--	LSTAR3B	24	A			
LAO	LST3WELD	116.00	79.02	20.79					3WC1	39.00	5.10	MODRES	35.50	LE	90.00	33M0G7W--	LSTAR3B	22	A			
LAO	LST3WOLD	116.00	79.02	20.79					3WC1	39.00	5.10	MODRES	35.50	LE	0.00	33M0G7W--	LSTAR3B	22	A			
LAO	LST4CELD	126.00	103.72	13.97					4CC	39.90	3.80	MODRES	35.50	LE	90.00	33M0G7W--	LSTAR4B	27	A			
LAO	LST4COLD	126.00	103.72	13.97					4CC	39.90	3.80	MODRES	35.50	LE	0.00	33M0G7W--	LSTAR4B	27	A			
LAO	LST4EELD	126.00	123.30	10.60	1.90	1.40	140.00	R13TSS		40.50		MODRES	35.50	LE	90.00	33M0G7W--	LSTAR4B	29	A			
LAO	LST4EOLD	126.00	123.30	10.60	1.90	1.40	140.00	R13TSS		40.50		MODRES	35.50	LE	0.00	33M0G7W--	LSTAR4B	29	A			
LAO	LST4NELD	126.00	116.25	22.86					4NC1	37.80	4.20	MODRES	35.70	LE	90.00	33M0G7W--	LSTAR4B	28	A			
LAO	LST4NOLD	126.00	116.25	22.86					4NC1	37.80	4.20	MODRES	35.70	LE	0.00	33M0G7W--	LSTAR4B	28	A			
LAO	LST4WELD	126.00	77.73	20.27					4WC1	39.00	5.10	MODRES	35.50	LE	90.00	33M0G7W--	LSTAR4B	26	A			
LAO	LST4WOLD	126.00	77.73	20.27					4WC1	39.00	5.10	MODRES	35.50	LE	0.00	33M0G7W--	LSTAR4B	26	A			
LUX	D3128HI1	28.20	4.50	48.60					COM	35.00		DBLTVROI0001	33.50	LE	5.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3128HI4	28.20	4.50	48.60					COM	35.00		DBLTVROI0001	42.02	LE	5.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3128VI1	28.20	4.50	48.60					COM	35.00		DBLTVROI0001	33.50	LE	95.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3128VI4	28.20	4.50	48.60					COM	35.00		DBLTVROI0001	42.02	LE	95.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3228HI1	28.20	4.50	48.60					COM2	35.00		DBLTVROI0001	33.50	LE	5.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3228HI4	28.20	4.50	48.60					COM2	35.00		DBLTVROI0001	42.02	LE	5.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3228VI1	28.20	4.50	48.60					COM2	35.00		DBLTVROI0001	33.50	LE	95.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D3228VI4	28.20	4.50	48.60					COM2	35.00		DBLTVROI0001	42.02	LE	95.10	33M0G7W--	DBL-28.2E	9	AE			
LUX	D33THN13	19.20	4.62	48.52					THN1	38.82		DBLTVROI0001	28.50	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THN14	19.20	4.62	48.52					THN1	38.82		DBLTVROI0001	32.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THN1C	19.20	4.62	48.52					THN1	38.82		DBLTVROC0001	47.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THN1I	19.20	4.62	48.52					THN1	38.82		DBLTVROI0001	34.50	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP13	19.20	4.62	48.52					THP1	38.27		DBLTVROI0001	28.50	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP14	19.20	4.62	48.52					THP1	38.27		DBLTVROI0001	32.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP1C	19.20	4.62	48.52					THP1	38.27		DBLTVROC0001	47.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP1I	19.20	4.62	48.52					THP1	38.27		DBLTVROI0001	34.50	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP23	19.20	4.62	48.52					THP2	38.27		DBLTVROI0001	28.50	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP24	19.20	4.62	48.52					THP2	38.27		DBLTVROI0001	32.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP2C	19.20	4.62	48.52					THP2	38.27		DBLTVROC0001	47.00	LE	5.10	33M0G7W--	DBL	7	AE			
LUX	D33THP2I	19.20	4.62	48.52					THP2	38.27		DBLTVROI0001	34.50	LE	5.10	33M0G7W--	DBL	7	AE			

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1		2		3		4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol		Beam identification		Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks	
					Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
LUX	D33TVN13	19.20	4.62	48.52				TVN1	39.64		DBLTVROI0001	28.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN14	19.20	4.62	48.52				TVN1	39.64		DBLTVROI0001	32.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN1C	19.20	4.62	48.52				TVN1	39.64		DBLTVROC0001	47.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN1I	19.20	4.62	48.52				TVN1	39.64		DBLTVROI0001	34.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN23	19.20	4.62	48.52				TVN2	39.64		DBLTVROI0001	28.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN24	19.20	4.62	48.52				TVN2	39.64		DBLTVROI0001	32.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN2C	19.20	4.62	48.52				TVN2	39.64		DBLTVROC0001	47.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVN2I	19.20	4.62	48.52				TVN2	39.64		DBLTVROI0001	34.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP13	19.20	4.62	48.52				TVP1	38.83		DBLTVROI0001	28.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP14	19.20	4.62	48.52				TVP1	38.83		DBLTVROI0001	32.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP1C	19.20	4.62	48.52				TVP1	38.83		DBLTVROC0001	47.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP1I	19.20	4.62	48.52				TVP1	38.83		DBLTVROI0001	34.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP23	19.20	4.62	48.52				TVP2	38.83		DBLTVROI0001	28.50	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP24	19.20	4.62	48.52				TVP2	38.83		DBLTVROI0001	32.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP2C	19.20	4.62	48.52				TVP2	38.83		DBLTVROC0001	47.00	LE	95.10	33M0G7W--	DBL	7	AE					
LUX	D33TVP2I	19.20	4.62	48.52				TVP2	38.83		DBLTVROI0001	34.50	LE	95.10	33M0G7W--	DBL	7	AE					
NOR	BIFROS21	-0.80	17.00	61.50				NO9	32.00	6.00	MODRES	35.50	CL		27M0FXF	BIFROSTXX2	6	AE					
NOR	BIFROS22	-0.80	17.00	61.50				NO9	32.00	6.00	MODRES	35.50	CR		27M0FXF	BIFROSTXX2	6	AE					
NOR	BIFROST	-0.80	15.00	61.00				NO4	40.00		MODRES	35.50	CR		27M0FXF	BIFROST	6	AE					
RUS	RSTRBD11	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70	MODRES	35.50	CL		27M0G7W	RST-1	5	A					
RUS	RSTRBD12	36.00	38.00	53.00	2.20	2.20	0.00	R13TSS		37.70	MODRES	35.50	CR		27M0G7W	RST-1	5	A					
RUS	RSTRBD21	56.00	65.00	63.00	2.20	2.20	0.00	R123FR		37.70	MODRES	35.50	CL		27M0G7W	RST-2	14	A					
RUS	RSTRBD22	56.00	65.00	63.00	2.20	2.20	0.00	R123FR		37.70	MODRES	35.50	CR		27M0G7W	RST-2	14	A					
S	I2DN1A	5.00	18.30	57.30				NOR1	40.00	7.00	MODRES	38.43	LE	90.00	32M0F3F	SIRIUS*2	4	A					
S	I2DN1D	5.00	18.30	57.30				NOR1	40.00	7.00	MODRES	38.43	LE	90.00	32M0G7W	SIRIUS*2	4	A					
S	I2DS1A	5.00	12.50	46.00				STR1	34.00	1.90	MODRES	38.43	LE	0.00	32M0F3F	SIRIUS*2	4	A					
S	I2DS1D	5.00	12.50	46.00				STR1	34.00	1.90	MODRES	38.43	LE	0.00	32M0G7W	SIRIUS*2	4	A					
S	S 13902	5.00	17.00	61.50	2.00	1.00	10.00	R13TSS		41.44	MODRES	38.43	CL		27M0F8W	TELEX	4	AE					
S	SI2ADN2A	5.00	18.30	57.30				NOR2	40.00	7.00	MODRES	38.43	LE	90.00	32M0F3F	SIRIUS*2	4	A					
S	SI2ADN2D	5.00	18.30	57.30				NOR2	40.00	7.00	MODRES	38.43	LE	90.00	32M0G7W	SIRIUS*2	4	A					
S	SI2ADS2A	5.00	12.50	46.00				STR2	34.00	1.90	MODRES	38.43	LE	0.00	32M0F3F	SIRIUS*2	4	A					
S	SI2ADS2D	5.00	12.50	46.00				STR2	34.00	1.90	MODRES	38.43	LE	0.00	32M0G7W	SIRIUS*2	4	A					
S	SI2ADS3A	5.00	12.50	46.00				STR3	34.00	1.90	MODRES	38.43	LE	0.00	32M0F3F	SIRIUS*2	4	A					
S	SI2ADS3D	5.00	12.50	46.00				STR3	34.00	1.90	MODRES	38.43	LE	0.00	32M0G7W	SIRIUS*2	4	A					
S	SI2DN2A	5.00	18.30	57.30				NOR2	40.00	7.00	MODRES	38.43	LE	90.00	32M0F3F	SIRIUS*2	4	A					
S	SI2DN2D	5.00	18.30	57.30				NOR2	40.00	7.00	MODRES	38.43	LE	90.00	32M0G7W	SIRIUS*2	4	A					
S	SI2DN3A	5.00	18.30	57.30				NOR3	40.00	7.00	MODRES	38.43	LE	90.00	32M0F3F	SIRIUS*2	4	A					

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1	2		3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification		Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
				Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
S	SI2DN3D	5.00	18.30	57.30					NOR3	40.00	7.00	MODRES	38.43	LE	90.00	32M0G7W	SIRIUS*2	4	A		
S	SI2DS2A	5.00	12.50	46.00					STR2	34.00	1.90	MODRES	38.43	LE	0.00	32M0F3F	SIRIUS*2	4	A		
S	SI2DS2D	5.00	12.50	46.00					STR2	34.00	1.90	MODRES	38.43	LE	0.00	32M0G7W	SIRIUS*2	4	A		
S	SI2DS3A	5.00	12.50	46.00					STR3	34.00	1.90	MODRES	38.43	LE	0.00	32M0F3F	SIRIUS*2	4	A		
S	SI2DS3D	5.00	12.50	46.00					STR3	34.00	1.90	MODRES	38.43	LE	0.00	32M0G7W	SIRIUS*2	4	A		
S	SI3NHA	5.20	18.30	57.30					NORA	40.00		MODRES	35.50	LE	0.00	32M0F3F	SIRIUS-3	4	A		
S	SI3NHD	5.20	18.30	57.30					NORA	40.00		MODRES	35.50	LE	0.00	32M0G7W	SIRIUS-3	4	A		
S	SI3NVA	5.20	18.30	57.30					NORB	40.00		MODRES	35.50	LE	90.00	32M0F3F	SIRIUS-3	4	A		
S	SI3NVD	5.20	18.30	57.30					NORB	40.00		MODRES	35.50	LE	90.00	32M0G7W	SIRIUS-3	4	A		
S	SIRIUS01	5.20	14.00	63.00	1.30	0.70	142.00	R13TSS		42.50		MODRES	38.43	CR		27M0F8W	SIRIUS	4	AE		
S	SIRIUS02	5.20	14.00	63.00	1.30	0.70	142.00	R13TSS		42.50		MODRES	38.43	CR		27M0F8W	SIRIUS	4	AE		
S	SIRIUSW1	-13.00	15.00	60.00	1.30	0.70	142.00	R13TSS		42.50		MODRES	35.50	CR		27M0F9WWW	SIRIUS-W		AE		
TUR	TKBSSEED	42.00	45.67	40.24	7.08	1.42	6.00	R123FR		40.00		MODRES	41.00	LE	85.70	33M0G7W	TURKSAT-BSS	36	A		
TUR	TKBSSWSD	42.00	12.82	46.90					EUR	44.00		MODRES	36.00	LE	155.30	33M0G7W	TURKSAT-BSS	36	A		
USA	US29H51D	41.00	24.45	-29.38					AX1	36.49		MODRES	35.50	CL		27M0G7W--	USASAT29H	15	A		
USA	US29H52D	41.00	24.45	-29.38					AX1	36.49		MODRES	35.50	CR		27M0G7W--	USASAT29H	15	A		
USA	US29M11D	149.00	103.95	14.13	1.49	1.25	107.50	R123FR		41.60		MODRES	46.00	CL		27M0G7W--	USASAT29M	16	A		
USA	US29M12D	149.00	103.95	14.13	1.49	1.25	107.50	R123FR		41.60		MODRES	46.00	CR		27M0G7W--	USASAT29M	16	A		
USA	US29M21D	149.00	101.73	-0.03	2.30	0.43	117.50	R123FR		44.40		MODRES	41.00	CR		27M0G7W--	USASAT29M	16	A		
USA	US29M22D	149.00	101.73	-0.03	2.30	0.43	117.50	R123FR		44.40		MODRES	41.00	CL		27M0G7W--	USASAT29M	16	A		
USA	US29M23D	149.00	117.40	-7.68	3.15	0.85	172.50	R123FR		40.10		MODRES	40.00	CR		27M0G7W--	USASAT29M	16	A		
USA	US29M24D	149.00	117.40	-7.68	3.15	0.85	172.50	R123FR		40.10		MODRES	40.00	CL		27M0G7W--	USASAT29M	16	A		
USA	US29M25D	149.00	117.62	0.21	2.49	2.13	125.00	R123FR		37.10		MODRES	37.00	CR		27M0G7W--	USASAT29M	16	A		
USA	US29M26D	149.00	117.62	0.21	2.49	2.13	125.00	R123FR		37.10		MODRES	37.00	CL		27M0G7W--	USASAT29M	16	A		
USA	US29M31D	149.00	121.76	11.71	3.08	1.57	79.71	R123FR		37.60		MODRES	35.50	CR		27M0G7W--	USASAT29M	16	A		
USA	US29M32D	149.00	121.76	11.71	3.08	1.57	79.71	R123FR		37.60		MODRES	35.50	CL		27M0G7W--	USASAT29M	16	A		
USA	US29N11D	164.00	133.60	36.02					AX4	42.89		MODRES	35.50	CR		27M0G7W--	USASAT29N	17	A		
USA	US29N12D	164.00	133.60	36.02					AX4	42.89		MODRES	35.50	CL		27M0G7W--	USASAT29N	17	A		
USA	US29O11D	173.00	130.74	-22.08	3.67	2.63	108.78	R123FR		34.60		MODRES	35.50	CL		27M0G7W--	USASAT29O	18	A		
USA	US29O12D	173.00	130.74	-22.08	3.67	2.63	108.78	R123FR		34.60		MODRES	35.50	CR		27M0G7W--	USASAT29O	18	A		
USA	US29O21D	173.00	144.38	-27.81	4.74	2.38	116.58	R123FR		33.90		MODRES	35.50	CR		27M0G7W--	USASAT29O	18	A		
USA	US29O22D	173.00	144.38	-27.81	4.74	2.38	116.58	R123FR		33.90		MODRES	35.50	CL		27M0G7W--	USASAT29O	18	A		
USA	US29O31D	173.00	172.83	-39.31	2.18	1.10	43.86	R123FR		40.60		MODRES	35.50	CL		27M0G7W--	USASAT29O	18	A		
USA	US29O32D	173.00	172.83	-39.31	2.18	1.10	43.86	R123FR		40.60		MODRES	35.50	CR		27M0G7W--	USASAT29O	18	A		
USA	US29O41D	173.00	149.58	-6.59	2.71	1.90	159.23	R123FR		37.30		MODRES	35.50	CL		27M0G7W--	USASAT29O	18	A		
USA	US29O42D	173.00	149.58	-6.59	2.71	1.90	159.23	R123FR		37.30		MODRES	35.50	CR		27M0G7W--	USASAT29O	18	A		
USA	US29R11D	132.00	108.66	33.45					AX3	35.00		MODRES	48.00	CR		27M0G7W--	USASAT29R	19	A		

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1		2		3	4			5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identification			Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks	
					Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co- polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)						
USA	US29R12D	132.00	108.66	33.45				AX3	35.00		MODRES	48.00	CL	27M0G7W--	USASAT29R	19	A						



**WORKING GROUP 1
OF THE PLENARY**

Radiocommunication Bureau

APPENDIX S30 REGIONS 1 AND 3 LIST

The WRC-2000 Conference has adopted the new downlink and the associated feeder-link Plans for Regions 1 and 3 for inclusion in the Appendices S30 and S30A of the Radio Regulations. This Conference has also adopted the Appendices S30/S30A Regions 1 and 3 Lists. The WRC-2000 Regions 1 and 3 BSS Plans and the Appendices S30/S30A Regions 1 and 3 Lists have been developed using the methodology based on the application of the Equivalent Protection Margin (EPM) criterion.

The revised Regions 1 and 3 feeder-link Plans (WRC-2000) were established using the methodology and assumptions contained in Documents WRC2000/34, WRC2000/183, WRC2000/237, WRC2000/238 and WRC2000/292 including the relevant addenda and corrigenda. All amendments made at the Second Plenary (Friday, 12 May 2000) and Third Plenary (Friday, 19 May 2000) to the above-mentioned documents were taken into account.

The technical characteristics of the assignments included into the Appendix S30 Regions 1 and 3 List (including e.i.r.p.) and the resulting maximum and minimum EPM values of these assignments are provided in the attachments to this document. Only the minimum and maximum EPM values have been included in order to have an acceptable size of this document.

ATTACHMENT 1

Technical Characteristics of the Assignments in the Appendix S30 Regions 1 and 3 List

11.1 COLUMN HEADINGS OF THE PLAN

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Beam identification* (Column 2, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).
- Col. 3 *Nominal orbital position*, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).
- ~~Col. 4~~ ~~*Channel number.*~~
- Col. ~~54~~ *Nominal intersection of the beam axis with the Earth* (boresight or aim point in the case of a non-elliptical beam), longitude and latitude, in degrees and hundredths of a degree.
- Col. ~~65~~ *Space station transmitting antenna characteristics* (elliptical beams). This column contains three numerical values corresponding to the major axis, the minor axis and the major axis orientation respectively of the elliptical cross-section half-power beamwidth, in degrees and hundredths of a degree. Orientation of the ellipse is determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anticlockwise from a line parallel to the equatorial plane to the major axis of the ellipse, to the nearest degree.
- Col. ~~76~~ *Space station transmitting antenna pattern code.*
- The codes used for the antenna pattern of the transmitting space station (downlink) antenna are defined as follows:

<u>MOD13FRTSS</u>	<u>Figure 13 in Annex 5 (Recommendation ITU-R BO.1445)</u>
R13TSS	Figure 9 and § 3.13.3 in Annex 5
R123FR	Figure 11 and § 3.13.3 in Annex 5
RAD_TSS	RADIOSAT 3 antenna pattern (antenna pattern data supplied by the administration of France)

In cases where the “Space station transmitting antenna pattern” field is blank, the necessary antenna pattern data are provided by shaped beam data submitted by the administration. These data are stored in Column ~~87~~. A particular shaped beam is identified by the combination of Column 1, Column ~~87~~ and Column ~~1412~~. In such cases the maximum cross-polar gain is given in the “Cross-polar gain” field.

In cases where the “Space station transmitting antenna pattern” field contains the code, which starts from “CB ” characters - it is a composite beam. Any composite beam consists of two or more elliptical beams. Each composite beam is described in the special composite beam file having the same name plus GXT extension (e.g. description of the CB COMP BM1 composite beam is stored in the CB COMP BM1.GXT file).

- Col. ~~87~~ *Space station transmitting antenna shaped (non-elliptical and non-composite) beam identification.*

Col. ~~98~~ *Maximum space station transmitting antenna co-polar and cross-polar (in the case of shaped beam) isotropic gain, in dBi.*

Col. ~~409~~ *Earth station receiving antenna pattern code and maximum antenna co-polar gain, in dBi.*

The codes used for receiving earth station (downlink) antenna patterns are defined as follows:

R13RES	Figure 7 and § 3.7.2 in Annex 5
MODRES	Figure <i>7bis</i> and § 3.7.2 in Annex 5 (Recommendation ITU-R BO.1213)

Col. ~~44~~10 *Polarization (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).*

Col. ~~12~~ *~~e.i.r.p. in the direction of maximum radiation, in dBW.~~*

Col. ~~43~~11 *Designation of emission.*

Col. ~~44~~12 *Identity of the space station.*

Col. ~~45~~13 *Group code (An identification code which indicates that all assignments with the same group identification code will be treated as a group)*

Group code: If an assignment is part of the group:

a) The equivalent protection margin to be used for the application of Article 4 of this Appendix shall be calculated on the following basis:

- for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; and
- for the calculation of interference from assignments belonging to a group of assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.

b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregate carrier-to-interference ratio (C/I) produced by all emissions from that group shall not exceed the C/I ratio calculated on the basis of § a) above.

Col. ~~46~~14 *Assignment status.*

The assignment status codes used for beams are defined as follows:

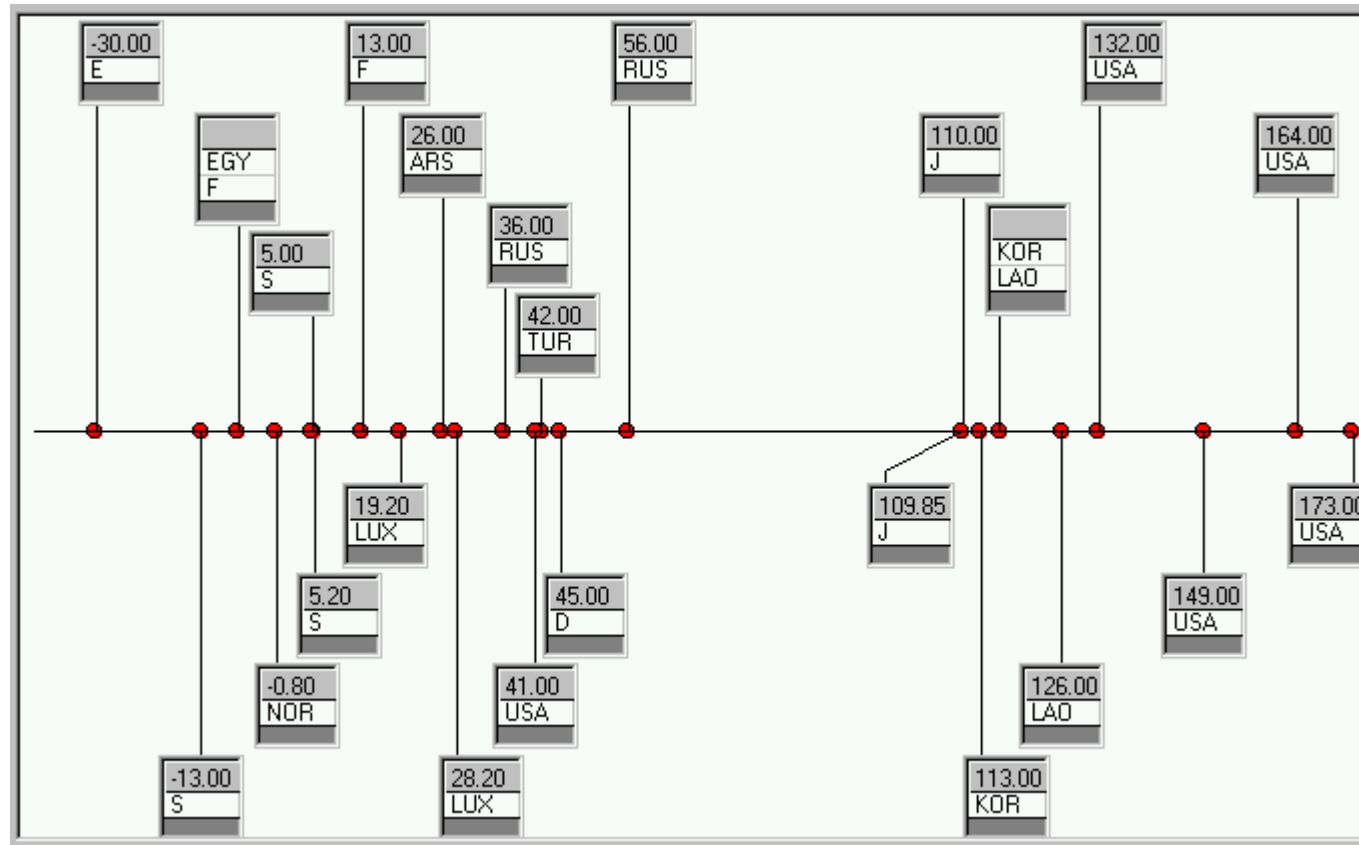
<u>A</u>	<u>Assignment in the List, which has successfully completed coordination but has not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau. § 4.2.6 in terms of eight years lapsing period of this Appendix applies for this assignment</u>
<u>AE</u>	<u>Assignment in the List, which has been notified and brought into use and the date of bringing into use has been confirmed to the Bureau before 12 May 2000. The § 4.2.6 (in terms of eight years lapsing period) of this Appendix is not applied for this assignment. For this category of assignments, WRC-97 protection ratios are applied (24 dB co-channel and 16 dB adjacent channel)</u>

Col. ~~47~~15 *Remarks.*

TEXT FOR NOTES IN REMARKS COLUMN OF THE LISTS

- 1 The Administrations of Egypt and France declared a bilateral temporary agreement with respect to the coordination of the satellite network NILESAT-1S for a specified period until 1 January 2002. The mentioned administrations have also requested the Radiocommunication Bureau to group at 7°W for this period the corresponding beams of RADIOSAT-5 and NILESAT-1S.
- 2 The assignments of this network entered into the List based on the conditions under which they have successfully completed the procedure of Article 4 of Appendix **S30** (WRC-97). The characteristics of these assignments are being published in the corresponding Part B Special Section.
- 3 The Administration of Sweden accepted to apply for this network the new protection ratios specified by the IRG (i.e. downlink co-channel: 21 dB, downlink upper and lower adjacent channels: 16 dB; feeder-link co-channel: 27 dB, feeder-link upper and lower adjacent channels: 22 dB), in order to ease the replanning process.

Allocation of orbital positions in the Appendix S30 Regions 1 and 3 List
(Position in degrees/Administration symbols)



1	2	3	4		5			6	7	8		9		10		11	12	13	14	15
Admin. symbol	Beam identificati on	Orbital Position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped Beam	Space antenna gain (dB)		Earth antenna		Polarization		Designation of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long(°)	Lat(°)	Major axis(°)	Minor axis(°)	Orien- tation(°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)					
ARS	REGBS111	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS112	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	27M0F9WW	ARABSAT-BSS1	13	AE	
ARS	REGBS113	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	347.85	27M0G7WW	ARABSAT-BSS1	13	AE	
ARS	REGBS114	26.00	20.08	25.67					COP1	30.30		DBLTVROI0001	38.70	LE	77.85	27M0G7WW	ARABSAT-BSS1	13	AE	
...

ATTACHMENT 2

Equivalent Isotropic Radiated Power (e.i.r.p.) of the Assignments in the Appendix S30 Regions 1 and 3 List

COLUMN HEADINGS

- Col. 1 *Nominal orbital position, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).*
- Col. 2 *Notifying administration symbol.*
- Col. 3 *Beam identification (Column 3, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).*
- Col. 4 *Polarization (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).*
- Col. 5 *Channels.*

Orbital Position/Administration/Beam/Channel/Equivalent Isotropic Radiated Power dBW in the direction of maximum radiation

Regions 1 and 3 List

(sorted by orbital position)

[illegible]

1	2	3	4	5 (channels)																																									
Orbital position (°)	Admin. symbol	Beam identification	Polarization type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
-7.00	F	F93D2755	LE																					56.0				56.0			56.0				56.0				56.0						
-7.00	F	F93D2756	LE																						56.0				56.0				56.0				56.0				56.0				
-7.00	F	F93D2757	LE																							56.0				56.0				56.0				56.0				56.0			
-7.00	F	F93D3355	LE																					56.0				56.0			56.0				56.0				56.0				56.0		
-7.00	F	F93D3356	LE																						56.0				56.0				56.0				56.0				56.0				
-7.00	F	F93D3357	LE																						56.0				56.0				56.0				56.0				56.0				
-0.80	NOR	BIFROS21	CL																							54.5				54.5				54.5				54.5				54.5			
-0.80	NOR	BIFROS22	CR		54.5				54.5				54.5				54.5				54.5						54.5				54.5				54.5				54.5				54.5		
-0.80	NOR	BIFROST	CR				55.0				55.0				55.0					55.0				55.0																					
5.00	S	I2DN1A	LE		57.0				57.0				57.0																																
5.00	S	I2DN1D	LE		57.0				57.0				57.0																																
5.00	S	I2DS1A	LE																												52.0								52.0						
5.00	S	I2DS1D	LE																													52.0								52.0					
5.00	S	S 13902	CL																																									63.2	
5.00	S	SI2ADN2A	LE																				57.0																						
5.00	S	SI2ADN2D	LE																				57.0																						
5.00	S	SI2ADS2A	LE																				52.0																						
5.00	S	SI2ADS2D																																											

1	2	3	4	5 (channels)																																									
Orbital position (°)	Admin. symbol	Beam identification	Polarization type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
13.00	F	E127ASZB	LE		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4
13.00	F	E127DSCA	LE	55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		53.5		55.5		53.5		55.5		53.5		55.5		53.5		55.5		53.5		53.5	
13.00	F	E127DSCB	LE		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		55.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5
13.00	F	E127DSWA	LE	52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0	
13.00	F	E127DSWB	LE		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0
13.00	F	E127DSZA	LE	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		53.5		55.0		53.5		55.0		53.5		55.0		53.5		55.0		53.5		53.5	
13.00	F	E127DSZB	LE		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5		53.5
13.00	F	E133ASCA	LE	51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5	
13.00	F	E133ASCB	LE		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5		51.5
13.00	F	E133ASWA	LE	51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4	
13.00	F	E133ASWB	LE		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4
13.00	F	E133ASZA	LE	51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4		51.4	
13.00	F	E133ASZB	LE		51.4		51.4		51.																																				

1	2	3	4	5 (channels)																																										
Orbital position (°)	Admin. symbol	Beam identification	Polarization type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
19.20	LUX	D33TVP13	LE				53.7				53.7				53.7				53.7				53.7																							
19.20	LUX	D33TVP14	LE				53.7				53.7				53.7				53.7				53.7																							
19.20	LUX	D33TVP1C	LE				53.7				53.7				53.7				53.7				53.7																							
19.20	LUX	D33TVP1I	LE				53.7				53.7				53.7				53.7				53.7																							
19.20	LUX	D33TVP23	LE																								49.7					49.7			49.7						49.7				49.7	
19.20	LUX	D33TVP24	LE																								49.7					49.7			49.7						49.7				49.7	
19.20	LUX	D33TVP2C	LE																								49.7					49.7			49.7						49.7				49.7	
19.20	LUX	D33TVP2I	LE																								49.7					49.7			49.7						49.7				49.7	
26.00	ARS	REGBS111	LE	50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																								
26.00	ARS	REGBS112	LE		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																							
26.00	ARS	REGBS113	LE	50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																								
26.00	ARS	REGBS114	LE		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																							
26.00	ARS	REGBS115	LE	50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																								
26.00	ARS	REGBS116	LE		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																							
26.00	ARS	REGBS117	LE	50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0		50.0																								
26.00	ARS	REGBS118	LE		50.0		50.0		50.0		50.0																																			

1	2	3	4	5 (channels)																																										
Orbital position (°)	Admin. symbol	Beam identification	Polarization type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
28.20	LUX	D3228VI4	LE																								55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0			
36.00	RUS	RSTRBD11	CL																									53.0				53.0				53.0				53.0						
36.00	RUS	RSTRBD12	CR																										53.0				53.0				53.0				53.0					
41.00	USA	US29H51D	CL	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0
41.00	USA	US29H52D	CR		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0	
42.00	TUR	TKBSSEED	LE		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		49.0		49.0		49.0		49.0		49.0		49.0		49.0		49.0		49.0		49.0	
42.00	TUR	TKBSSWSD	LE	54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0		54.0
45.00	D	ESTR1-DH	LE		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0	
45.00	D	ESTR1-DV	LE	52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0
45.00	D	ESTR3-DH	LE		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0	
45.00	D	ESTR3-DV	LE	52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0		52.0
56.00	RUS	RSTRBD21	CL																											55.0				55.0				55.0				55.0				55.0
56.00	RUS	RSTRBD22	CR																											55.0				55.0				55.0				55.0				55.0
113.00	KOR	KO11202D	CL		51.4		51.4		51.4		51.4																																			

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CMR2000/DT/131-E

1	2	3	4	5 (channels)																																													
Orbital position (°)	Admin. symbol	Beam identification	Polarization type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40						
149.00	USA	US29M26D	CL	53.0		53.0		53.0		53.0		53.0		53.0		53.0		53.0		53.0		53.0		53.0		53.0																							
149.00	USA	US29M31D	CR		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
149.00	USA	US29M32D	CL	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							
164.00	USA	US29N11D	CR		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
164.00	USA	US29N12D	CL	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							
173.00	USA	US29O11D	CL		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
173.00	USA	US29O12D	CR	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							
173.00	USA	US29O21D	CR		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
173.00	USA	US29O22D	CL	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							
173.00	USA	US29O31D	CL	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							
173.00	USA	US29O32D	CR		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
173.00	USA	US29O41D	CL		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																						
173.00	USA	US29O42D	CR	55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0		55.0																							

ATTACHMENT 3

Equivalent Protection Margins of the Assignments in the Appendix S30 Regions 1 and 3 List

COLUMN HEADINGS

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Nominal orbital position, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).*
- Col. 3 *Beam identification (column 3, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).*
- Col. 4 *Indication of minimum or maximum EPM for a given assignment derived from the set of values for all test points belonging to the given beam (**min** – indicates that the minimum EPM value shown in this row, **max** – indicates that the maximum EPM value shown in this row).*
- Col. 5 *Channels.*

Maximum and Minimum Equivalent Protection Margin of the Assignments in the Appendix S30 Regions 1 and 3 List

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1	2	3	4	5 (channels)																																								
Admin. symbol	Orbital position	Beam Identificat.	EPM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
F	-7.00	F5_27D15	min																								-0.5			-0.5				-0.5				-0.5					0.0	
F	-7.00	F5_33D11	max	19.8				18.3				18.3				18.8				18.7																								
F	-7.00	F5_33D11	min	1.8				1.7				1.8				4.9				4.8																								
F	-7.00	F5_33D12	max		16.9				16.9				17.0				17.2				17.2																							
F	-7.00	F5_33D12	min		2.0				2.0				2.1				2.4				2.3																							
F	-7.00	F5_33D13	max			18.2				18.2				18.3				18.7				18.7																						
F	-7.00	F5_33D13	min			1.6				1.6				1.7				4.6				4.5																						
F	-7.00	F5_33D14	max				18.6				18.6				18.7				18.9				5.0																					
F	-7.00	F5_33D14	min				2.9					2.9				5.1				7.6				2.9																				
F	-7.00	F5_33D15	max																								3.7				3.7					3.7					3.7			4.8
F	-7.00	F5_33D15	min																								-0.9				-0.8					-0.8				-0.8			-0.2	
F	-7.00	F93D2755	max																				3.0					4.2					4.2				4.2				4.2			
F	-7.00	F93D2755	min																				0.3					0.4					0.4				0.4				0.4			
F	-7.00	F93D2756	max																					4.1				4.3					4.3				4.3				4.3			
F	-7.00	F93D2756	min																						-1.6				-0.5				-0.5				-0.5				-0.5			
F	-7.00	F93D2757	max																							4.1				4.1				4.1				4.1				4.1		
F	-7.00	F93D2757	min																								-0.1				0.2				0.2				0.2				0.2	
F	-7.00	F93D3355	max	</																																								

1	2	3	4	5 (channels)																																							
Admin. symbol	Orbital position	Beam Identifcat.	EPM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
F	13.00	E127DSWB	max		6.0		6.7		7.6		7.6		7.6		7.6		7.6		7.6		6.7		6.0		4.0		3.9		4.0		3.9		3.9		4.0		3.8		4.0		3.8		6.3
F	13.00	E127DSWB	min		1.0		-2.5		-0.3		-3.1		-0.3		-2.3		-0.3		-2.3		0.4		-1.5		-3.4		-3.4		-3.4		-3.4		-3.7		-3.4		-3.4		-3.4		-3.4		-4.8
F	13.00	E127DSZA	max	8.9		8.6		9.0		9.1		9.0		9.1		9.0		9.0		9.0		8.5		4.8		3.8		4.9		3.7		4.5		3.3		4.9		3.7		4.9		3.3	
F	13.00	E127DSZA	min	4.6		3.4		2.6		2.6		2.6		2.5		2.2		2.1		2.1		2.8		2.4		0.1		1.6		0.1		0.8		-0.7		1.2		-0.2		1.2		-0.5	
F	13.00	E127DSZB	max		7.6		8.5		9.6		9.6		9.6		9.6		9.6		9.6		8.5		7.6		2.7		1.9		2.6		1.9		0.8		2.0		1.8		2.0		1.7		1.4
F	13.00	E127DSZB	min		4.1		0.3		1.7		-0.5		1.7		0.2		1.5		0.2		2.6		1.3		-2.0		-2.0		-2.0		-2.0		-2.5		-2.0		-2.0		-2.0		-2.0		-3.7
F	13.00	E133ASCA	max	11.9		11.2		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.2		7.5		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.4		7.3	
F	13.00	E133ASCA	min	-0.3		-1.5		-1.8		-1.8		-1.8		-1.8		-1.9		-1.9		-1.9		-1.6		-1.8		-3.3		-3.4		-3.3		-3.4		-3.3		-3.4		-3.3		-3.3		-3.6	
F	13.00	E133ASCB	max		9.0		10.2		12.0		12.0		12.0		12.0		12.0		12.0		10.2		7.8		6.6		6.6		6.6		6.6		6.6		6.6		6.6		6.6		6.6		8.8
F	13.00	E133ASCB	min		-1.0		-2.3		-2.4		-3.2		-2.4		-2.9		-2.4		-2.9		-1.5		-1.5		-4.6		-4.6		-4.6		-4.6		-4.6		-4.6		-4.5		-4.6		-4.6		-5.3
F	13.00	E133ASWA	max	5.9		5.2		5.6		5.5		5.5		5.5		5.5		5.5		5.5		5.2		3.7		4.2		3.9		4.2		3.9		4.0		3.9		4.3		3.9		4.0	
F	13.00	E133ASWA	min	-0.3		-1.7		-2.0		-1.9		-2.0		-2.0		-2.1		-2.0		-2.1		-1.8		-1.9		-3.1		-3.1		-3.1		-3.4		-3.3		-3.1		-3.1		-3.1		-3.9	
F	13.00	E133ASWB	max		3.9		4.8		6.0		6.0		6.0		6.0		6.0		6.0		4.8		3.9		2.1		1.6		2.1		1.6		1.6		1.7		1.6		1.7		1.5		4.2
F	13.00	E133ASWB	min		-0.8		-3.8		-2.6		-4.6		-2.6		-4.0		-2.6		-4.0		-1.6		-2.7		-4.3		-4.3																

1	2	3	4	5 (channels)																																								
Admin. symbol	Orbital position	Beam Identificat.	EPM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
LAO	116.00	LST3EOLD	min	0.6		-1.6		-1.6		-1.7		-1.9		-1.8		-0.2		-0.1		0.3		0.3		0.3		0.3																		
LAO	116.00	LST3NEL1	max		-9.8						-6.8		-6.8		-8.8		-0.1		1.9		1.9		1.9		1.9		2.2																	
LAO	116.00	LST3NEL1	min																																									
LAO	116.00	LST3NEL1	min																																									
LAO	116.00	LST3NOL1	max	-7.1		-9.7		-9.7		-8.8		-6.3		-8.3		-7.5		1.9		2.0		2.0		2.0		2.0																		
LAO	116.00	LST3NOL1	min																																									
LAO	116.00	LST3WELD	max		5.6		5.7		5.7		5.2		5.2		5.5		5.6		4.5		4.5		4.5		4.5		4.6																	
LAO	116.00	LST3WELD	min		-1.8		-1.7		-1.7		-2.0		-2.0		-1.8		-1.2		-1.9		-1.8		-1.8		-1.8		-1.8																	
LAO	116.00	LST3WOLD	max	7.3		6.3		6.3		6.2		5.8		6.1		6.9		4.6		4.6		4.6		4.6		4.6																		
LAO	116.00	LST3WOLD	min	-0.5		-1.2		-1.2		-1.3		-1.5		-1.3		-0.7		-1.8		-1.8		-1.8		-1.8		-1.8																		
LAO	126.00	LST4CELD	max		3.0		3.2		3.2		3.2		3.2		3.2		3.2		2.7		2.7		2.7		2.7		2.9																	
LAO	126.00	LST4CELD	min		-3.8		-3.8		-3.8		-3.8		-3.8		-3.8		-3.8		-3.9		-3.9		-3.9		-3.9		-3.8																	
LAO	126.00	LST4COLD	max	3.8		2.7		3.2		2.7		3.2		2.7		3.2		2.7		2.7		2.7		2.7		2.7																		
LAO	126.00	LST4COLD	min	-2.1		-3.4		-3.3		-3.4		-3.3		-3.4		-3.3		-3.5		-3.5		-3.5		-3.5		-3.5																		
LAO	126.00	LST4EELD	max		7.8		8.0		8.0		8.0		8.0		8.0		8.0		7.6		7.6		7.6		7.6		8.1																	
LAO	126.00	LST4EELD	min		3.6		4.2		4.2		4.2		4.2		4.2		4.2		3.5		3.5		3.5		3.5		3.7																	

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[illegible]

1	2	3	4	5 (channels)																																								
Admin. symbol	Orbital position	Beam Identificat.	EPM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
NOR	-0.80	BIFROS21	min																							31.4				31.2				33.2				31.6				33.0		
NOR	-0.80	BIFROS22	max		1.2				1.2				1.2				2.9				3.1						3.5				3.3				3.1				3.3				1.5	
NOR	-0.80	BIFROS22	min		-28.8				-28.8				-28.8				-27.5				-27.6						-28.1				-28.1				-28.1				-28.1				-29.6	
NOR	-0.80	BIFROST	max				-1.5				-1.5					0.2				1.4				1.2																				
NOR	-0.80	BIFROST	min				11.0				11.0					-9.7				-8.1				-8.5																				
RUS	36.00	RSTRBD11	max																									8.9				9.3				9.3				9.3				
RUS	36.00	RSTRBD11	min																									-0.8				-0.6				-0.6				-0.6				
RUS	36.00	RSTRBD12	max																										7.6				7.6				7.6				7.6			
RUS	36.00	RSTRBD12	min																										-1.3				-1.3				-1.3				-1.3			
RUS	56.00	RSTRBD21	max																											28.5				28.5				28.5				28.5		
RUS	56.00	RSTRBD21	min																											11.6				11.6				11.6				11.6		
RUS	56.00	RSTRBD22	max																												26.6				26.6				26.6				27.8	
RUS	56.00	RSTRBD22	min																													3.5				3.5				3.5				3.6
S	-13.00	SIRIUSW1	max				0.7				0.7					0.7				0.7				1.3																				
S	-13.00	SIRIUSW1	min				-5.5				-5.5					-5.5				-5.5				-5.4																				
S	5.00	I2DN1A	max		3.7				3.7				3.7																															
S	5.00	I2DN1A	min		-35.4				-35.4				-35.4																															
S	5.00	I2DN1D	max		5.5				5.5				5.5																															
S	5.00	I2DN1D	min		-32.8				-32.8				-32.8																															
S	5.00	I2DS1A	max																												1.7						1.7							
S	5.00	I2DS1A	min																													-4.1					-4.0							
S	5.00	I2DS1D	max																													3.3					3.3							
S	5.00	I2DS1D	min																													-2.8					-2.8							
S	5.00	S 13902	max																																							16.9		
S	5.00	S 13902	min																																							11.7		
S	5.00	SI2ADN2A	max																				5.5																					
S	5.00	SI2ADN2A	min																				-0.4																					
S	5.00	SI2ADN2D	max																				7.8																					
S	5.00	SI2ADN2D	min																				1.6																					
S	5.00	SI2ADS2A	max																				1.7																					
S	5.00	SI2ADS2A	min																				-3.5																					
S	5.00	SI2ADS2D	max																				4.3																					
S	5.00	SI2ADS2D	min																				-0.5																					
S	5.00	SI2ADS3A	max			1.7																		0.8																				
S	5.00	SI2ADS3A	min			-3.5																		-3.5																				
S	5.00	SI2ADS3D	max			4.2																		3.1																				
S	5.00	SI2ADS3D	min			-0.6																		-0.9																				

1	2	3	4	5 (channels)																																							
Admin. symbol	Orbital position	Beam Identificat.	EPM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
S	5.00	SI2DN2A	max																								2.3						6.9		6.8					6.9		9.7	
S	5.00	SI2DN2A	min																								-1.9						-0.5		-1.9					-0.5		-1.0	
S	5.00	SI2DN2D	max																								5.0						9.1		9.0					9.1		11.4	
S	5.00	SI2DN2D	min																								-1.2						1.6		-1.2					1.6		-0.6	
S	5.00	SI2DN3A	max																											2.3						6.9		6.8					
S	5.00	SI2DN3A	min																											-1.9					-0.5		-1.9						
S	5.00	SI2DN3D	max																											5.0					9.1		9.0						
S	5.00	SI2DN3D	min																											-1.2				1.6		-1.2							
S	5.00	SI2DS2A	max																												1.5		1.7		1.5				1.5		1.7		
S	5.00	SI2DS2A	min																												-4.0		-4.0		-4.0			-4.0		-4.0			
S	5.00	SI2DS2D	max																												3.3		3.3		3.3			3.3		3.3			
S	5.00	SI2DS2D	min																												-1.5		-2.1		-1.5			-1.5		-2.1			
S	5.00	SI2DS3A	max	3.4																						1.7		1.5															
S	5.00	SI2DS3A	min	-3.2																						-4.6		-4.0															
S	5.00	SI2DS3D	max	6.5																						3.3		3.3															
S	5.00	SI2DS3D	min	0.3																						-2.8		-1.5															
S	5.20	SI3NHA	max				4.1		4.1		4.1		4.1		4.1		4.1		4.1																								
S	5.20	SI3NHA	min				-35.7		-35.7		-35.7		-35.7		-35.7		-35.7		-35.7																								
S	5.20	SI3NHD	max				6.2		6.2		6.2		6.2		6.2		6.2		6.2																								
S	5.20	SI3NHD	min				-32.9		-32.9		-32.9		-32.9		-32.9		-32.9		-32.9																								
S	5.20	SI3NVA	max			4.5			4.5				4.5		3.6		4.5		3.6																								
S	5.20	SI3NVA	min			-0.8			-0.8				-0.8		-2.1		-0.8		-2.1																								
S	5.20	SI3NVD	max			6.9			6.9				6.9		5.7		6.9		5.7																								
S	5.20	SI3NVD	min			1.3			1.3				1.3		-0.6		1.3		-0.6																								
S	5.20	SIRIUS01	max			10.7			10.7																																		
S	5.20	SIRIUS01	min			6.0			6.0																																		
S	5.20	SIRIUS02	max											9.2			9.2				9.0																						
S	5.20	SIRIUS02	min											4.5			4.5				4.0																						
TUR	42.00	TKBSSEED	max		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		11.4		10.3			5.2		4.2		4.0		4.2		4.0		4.2		4.0		4.2		4.5	
TUR	42.00	TKBSSEED	min		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.7		1.1			-3.8		-2.0		-2.0		-2.0		-2.0		-2.0		-2.0		-2.0		-2.0	
TUR	42.00	TKBSSWSD	max	-0.8		-2.5		-2.5		-2.5		-2.5		-2.5		-2.5		-2.5		-2.5		0.9		3.2		2.9		2.4		2.7		2.4		2.7		2.4		2.7		2.4			
TUR	42.00	TKBSSWSD	min	-4.4		-5.8		-5.8		-5.8		-5.8		-5.8		-5.8		-5.8		-5.8		-5.2		-5.2		-5.2		-5.2		-5.2		-5.2		-5.2		-5.2		-5.2		-5.2			
USA	41.00	US29H51D	max	12.7		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.8		11.9		12.1		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2	
USA	41.00	US29H51D	min	11.9		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		10.9		11.0		11.2		11.3		11.3		11.3		11.3		11.3		11.3		11.3	
USA	41.00	US29H52D	max		11.3		11.3		11.3		11.3		11.3		11.3		11.3		11.3		11.3		6.1		6.2		6.3		6.3		6.3		6.3		6.3		6.3		6.3		6.3		
USA	41.00	US29H52D	min		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		5.3		5.4		5.5		5.5		5.5		5.5		5.5		5.5		5.5		
USA	132.00	US29R11D	max	7.4		6.9		6.9		6.9		6.9		6.9		6.9		6.9		6.9		6.9		6.9		6.9																	
USA	132.00	US29R11D	min	-6.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0		-9.0																	
USA	132.00	US29R12D	max		2.5		2.5		2.5		2.5		2.5		2.5		2.5		2.5		2.5		2.5		2.5		5.3																

[illegible]



**WORKING GROUP 1
OF THE PLENARY**

Radiocommunication Bureau

**DRAFT REGIONS 1 AND 3 FEEDER-LINK PLANS
(WRC-2000)**

The revised Regions 1 and 3 feeder-link Plans (WRC-2000) were established using the methodology and assumptions contained in Documents WRC2000/34, WRC2000/183, WRC2000/237, WRC2000/238 and WRC2000/292 including the relevant addenda and corrigenda. All amendments made at the Second Plenary (Friday, 12 May 2000) and Third Plenary (Friday, 19 May 2000) to the above-mentioned documents were taken into account.

The planning at WRC-2000 was based on the following technical assumptions and criteria:

- digital modulation and 27 MHz necessary bandwidth for the national and the extended national assignments in the Plans;
- consideration of “Part B”¹ assignments with digital modulation only;
- application of 27 dB - co-channel, 22 dB - adjacent channel protection ratios for the national and the extended national assignments of the downlink Plan and the “Part B” assignments in the case of digital interfering signal;
- reduction of the protection ratio values from 40 dB and 21 dB (co-channel and adjacent channel) to 30 dB and 22 dB (co-channel, adjacent channel) for the “existing”² systems (in consultation with the concerned administrations);

¹ Whenever the term “Part B” is used in this document, it refers to the assignments for which the procedures of Article 4 of Appendices S30 and S30A have been successfully completed and provided due diligence information (when required) before 1700 hours (Istanbul time) 12 May 2000, but have not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau.

² Whenever the term “existing” is used in this document, it refers to the notified assignments that are in conformity with Appendices S30 and S30A, which have been brought into use and for which the date of bringing into use has been confirmed to the Bureau before 1700 hours (Istanbul time) 12 May 2000.

- application of EPM degradation threshold of 1.00 dB;
- 9 degree geocentric orbital separation limit in the interference calculation (beyond this limit no interference was taken into account);
- use of “composite”³ beams;
- protection of the “existing” systems and “Part B” systems at the level accepted as a result of successful application of Article 4 procedures (keeping the same EPM level);
- increase of earth transmitting antenna size for some “Part B” assignments;
- further degradation of EPM at some test points of the “Part B” system and the “existing” systems (after consultation with the concerned administrations).

The national preferences, communicated to the Bureau before 2400 hours (Istanbul time), 12 May 2000, have been taken into account during the planning process.

Some further minor adjustment of the technical characteristics of some assignments (e.g. change e.i.r.p.) have been introduced after consultations with the concerned administrations.

³ A “composite” beam represents a single beam (i.e. “simulated shaped beam”), which is formed by combining two or more elliptical beams at a given orbital position. In general, “composite” beams are used for administrations which had more than one elliptical beam at a given orbital position in the WRC-97 Regions 1 and 3 BSS Plan and/or in the associated Regions 1 and 3 feeder-link Plans.

ARTICLE 9A

Plan for feeder-links for the broadcasting-satellite service in the fixed-satellite service in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3

9A.1 COLUMN HEADINGS OF THE PLAN

- Col. 1 *Notifying administration symbol.*
- Col. 2 *Beam identification* (column 2, normally, contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List, followed by the symbol designating the service area).
- Col. 3 *Nominal orbital position*, in degrees and hundredths of a degree from the Greenwich meridian (negative values indicate longitudes which are west of the Greenwich meridian; positive values indicate longitudes which are east of the Greenwich meridian).
- ~~Col. 4~~ ~~*Channel number.*~~
- ~~Col. 5~~ ~~*Assigned frequency, in MHz.*~~
- Col. ~~64~~ *Nominal intersection of the beam axis with the Earth* (boresight or aim point in the case of a non-elliptical beam), longitude and latitude, in degrees and hundredths of a degree.
- Col. ~~75~~ *Space station receiving antenna characteristics* (elliptical beams). This column contains three numerical values corresponding to the major axis, the minor axis and the major axis orientation respectively of the elliptical cross-section half-power beam, in degrees and hundredths of a degree. Orientation of the ellipse determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anticlockwise from a line parallel to the equatorial plane to the major axis of the ellipse, to the nearest degree.

The codes used for the antenna pattern of the receiving space station (feeder link) antenna are defined as follows:

R13RSS	Figure B (curves A, B and C) and § 3.7.3 in Annex 3
R123FR	Figure C and § 3.7.3 in Annex 3
MODRSS	<u>Figure B (curves A', B' and C') and § 3.7.3 in Annex 3 (Recommendation ITU-R BO.1296)</u>

In cases where the "Space station receiving antenna pattern code" field is blank, the necessary antenna pattern data are provided by shaped beam data submitted by the administration. These data are stored in column ~~87~~. A particular shaped beam is identified by the combination of column 1, column ~~97~~ and column ~~14~~~~14~~. In such cases the maximum cross-polar gain is given in column ~~108~~, "Cross-polar gain" field. In cases where the "Space station transmitting antenna pattern" field contains the code, which starts from "CB_" characters - it is a composite beam. Any composite beam consists of two or more elliptical beams. Each composite beam is described in the special composite beam file having the same name plus GXT extension (e.g. description of the CB COMP BM1 composite beam is stored in the CB COMP BM1.GXT file).

- Col. ~~86~~ *Space station receiving antenna pattern code.*

- Col. ~~97~~ *Space station receiving antenna shaped (non-elliptical, non-composite) beam identification.*
- Col. ~~108~~ *Maximum space station receiving antenna co-polar and cross-polar (in the case of shaped beam) isotropic gain, in dBi.*
- Col. ~~119~~ *Earth station transmitting antenna pattern code and maximum gain in dBi.*

The codes used for transmitting earth station (feeder-link) antenna patterns are defined as follows:

R13TES	Figure A (curves A and B) and § 3.5.3 in Annex 3
MODTES	Figure A (curves A' and B') and § 3.5.3 in Annex 3 (Recommendation ITU-R BO.1295)

- Col. ~~1210~~ *Polarization (CL – circular left, CR – circular right, LE – linear referenced to the equatorial plane) and polarization angle in degrees and hundredths of a degree (in the case of linear polarization only).*
- Col. ~~1311~~ *e.i.r.p. in the direction of maximum radiation, in dBW.*
- Col. ~~1412~~ *Permitted increase in earth station e.i.r.p. in dB for the purpose of power control (see Section 3.11 of Annex 3)⁸.*
- Col. ~~1513~~ *Designation of emission.*
- Col. ~~1614~~ *Identity of the space station.*
- Col. ~~1715~~ *Group code (An identification code which indicates that all assignments with the same group identification code will be treated as a group.)*

Group code: if an assignment is part of the group:

- a) the equivalent protection margin to be used for the application of Article 4 of this Appendix shall be calculated on the following basis:
 - for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; *and*
 - for the calculation of interference from assignments belonging to a group of assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.
- b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregate *C/I* ratio produced by all emissions from that group shall not exceed the *C/I* ratio calculated on the basis of § a) above.

⁸ ~~Because the applicable versions of ITU-R Recommendations relating to propagation loss due to rain and depolarization have not been defined, the power control values will be calculated after WRC-97.~~ The power control values will be calculated after WRC-2000.

Col. 1816 *Assignment status.*

The assignment status codes used for beams are defined as follows:

P	Assignment in the Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) does not apply <u>which has not been brought into use and/or the date of bringing into use has not been confirmed to the Bureau.</u>
PE	Assignment in the Plan, for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) does not apply <u>which is in conformity with Appendix S30, has.</u> These assignments have been notified, and brought into use and the date of bringing into use has been confirmed to the Bureau <u>before 12 May 2000.</u> For this category of assignments, the parameters in force before WRC 97 are applied <u>WRC-97 protection ratios are applied (30 dB co-channel and 22 dB adjacent channel).</u>
A	Assignment in the Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) applies.
AE	Assignment in the Plan for which § 4.2.5 of Article 4 (in terms of 8 years lapsing period) applies. These assignments have been notified and brought into use and the date of bringing into use has been confirmed to the Bureau. For this category of assignments, parameters in force before WRC 97 are applied.

Col. 1917 *Remarks.*

9A.2 TEXT FOR NOTES IN REMARKS COLUMN OF THE PLAN

1 ...

2 ...

3 Before an administration notifies to the Bureau or brings into use this frequency assignment to a transmitting feeder-link earth station in the band 17.7-18.1 GHz, it shall effect coordination of this assignment, using the method described in ~~Annex 4~~ Appendix S7, in respect of a specific earth station in the fixed-satellite service (space-to-Earth) in the band 17.7-18.1 GHz:

- a) either recorded in the Master Register prior to ~~27 October 1997~~ [3 June 2000] with a favourable finding; or
- b) for which a notice is received by the Bureau prior to ~~27 October 1997~~ [3 June 2000] for recording in the Master Register, but not yet processed, and which subsequently receives a favourable finding based on the Plan as it existed on ~~27 October 1997~~ [3 June 2000].

4 Before an administration notifies to the Bureau or brings into use this frequency assignment to a transmitting feeder-link earth station in the bands 14.5-14.8 GHz ~~and/or~~ 17.7-18.1 GHz, it shall [effect] coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the feeder-link earth station, using the method described in Appendix S7, in respect of stations of the fixed and mobile services in the bands 14.5-14.8 GHz and 17.7-18.1 GHz:

- a) either recorded in the Master Register prior to ~~27 October 1997~~ [3 June 2000] with a favourable finding; or

b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[3 June 2000] for recording in the Master Register, but not yet processed, and which subsequently receives a favourable finding based on the WRC-2000 Regions 1 and feeder-link Plan as it existed on ~~27 October 1997~~[3 June 2000].

5 This assignment shall be brought into use only when the limits given in § 5 of Annex 1 are not exceeded, or with the agreement of administrations ~~identified in Table 1A~~ with respect to assignments which are in conformity with the Region 2 Plan on ~~27 October 1997~~[12 May 2000].

~~These administrations shall be informed by the notifying administration of changes in characteristics before these beams are brought into use.~~

6 This assignment shall not claim protection from the assignments of the administrations ~~indicated in Table 1B~~ which are in conformity with the Region 2 Plan on ~~27 October 1997~~[12 May 2000].

7 [This assignment shall not claim protection from the assignments of the administrations ~~indicated in Table 1B~~ which are recorded in the Master Register with a favourable finding prior to ~~27 October 1997~~[12 May 2000]][~~to which No. S5.487/838 and No. S5.43/435 do not apply~~].

The methodology and criteria for this analysis shall be those contained in section 1 of Annex 4 to Appendix S30A modified to take into consideration the system noise temperature of the received space station to be 600 K and to apply a $\Delta T/T$ criterion of 6%.

NOTE - In cases where assignments from the WRC-97 Plan without Remarks were included in the WRC-2000 Regions 1 and 3 feeder-link Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna characteristics, the coordination status afforded by the WRC-97 Plans shall be preserved. In other cases the methodology described in NOTES 3 to 7 shall be applied.

In cases where assignments from the WRC-97 Plan with Remarks were included in the WRC-2000 Regions 1 and 3 downlink Plan without change, or with conversion of modulation from analogue to digital, or a change from normal roll-off to fast roll-off antenna pattern, the compatibility will be reassessed using the revised criteria and methodology of WRC-2000 and either the Remarks of the WRC-97 Plan assignment will be maintained or reduced on the basis of the results of this analysis.

In other cases the methodology described in NOTES 3 to 7 shall be applied.

8 Provisional beam. This assignment has been included in the Plan by WRC-97. This assignment is for exclusive use by Palestine, subject to the Israeli-Palestinian Interim Agreement of 28 September 1995, Resolution 741 of the Council notwithstanding and the Resolution 99 of the Plenipotentiary Conference (Minneapolis, 1998).

9 [Pending clarification of bringing into service of the satellite network.]

10 Provisional beam. This assignment has been included in the Plan by WRC-2000. This assignment is for exclusive use by East Timor.

TABLE 2A

**Table showing correspondence between channel numbers
and assigned frequencies for the feeder-links in
the frequency band 14.5-14.8 GHz**

Channel No.	Assigned feeder-link frequency (MHz)
1	14 525.30
2	14 544.48
3	14 563.66
4	14 582.84
5	14 602.02
6	14 621.20
7	14 640.38
8	14 659.56
9	14 678.74
10	14 697.92
11	14 717.10
12	14 736.28
13	14 755.46
14	14 774.64

NOTE - Assigned frequency = 14 506.12 + 19.18 * n, where n is the channel number.

TABLE 2B

Table showing correspondence between channel numbers and assigned frequencies for the feeder-links in the frequency band 17.3 GHz-18.1 GHz

Channel No.	Assigned feeder-link frequency (MHz)	Channel No.	Assigned feeder-link frequency (MHz)
1	17 327.48	21	17 711.08
2	17 346.66	22	17 730.26
3	17 365.84	23	17 749.44
4	17 385.02	24	17 768.62
5	17 404.20	25	17 787.80
6	17 423.38	26	17 806.98
7	17 442.56	27	17 826.16
8	17 461.74	28	17 845.34
9	17 480.92	29	17 864.52
10	17 500.10	30	17 883.70
11	17 519.28	31	17 902.88
12	17 538.46	32	17 922.06
13	17 557.64	33	17 941.24
14	17 576.82	34	17 960.42
15	17 596.00	35	17 979.60
16	17 615.18	36	17 998.78
17	17 634.36	37	18 017.96
18	17 653.54	38	18 037.14
19	17 672.72	39	18 056.32
20	17 691.90	40	18 075.50

NOTE - Assigned frequency = 17 308.3 + 19.18 * n, where n is the channel number.

FIGURE 1

Allocation of orbital positions for feeder-links of Regions 1 and 3 BSS Plan in the frequency band 14.5-14.8 GHz
(Position in degrees/Administration symbols)

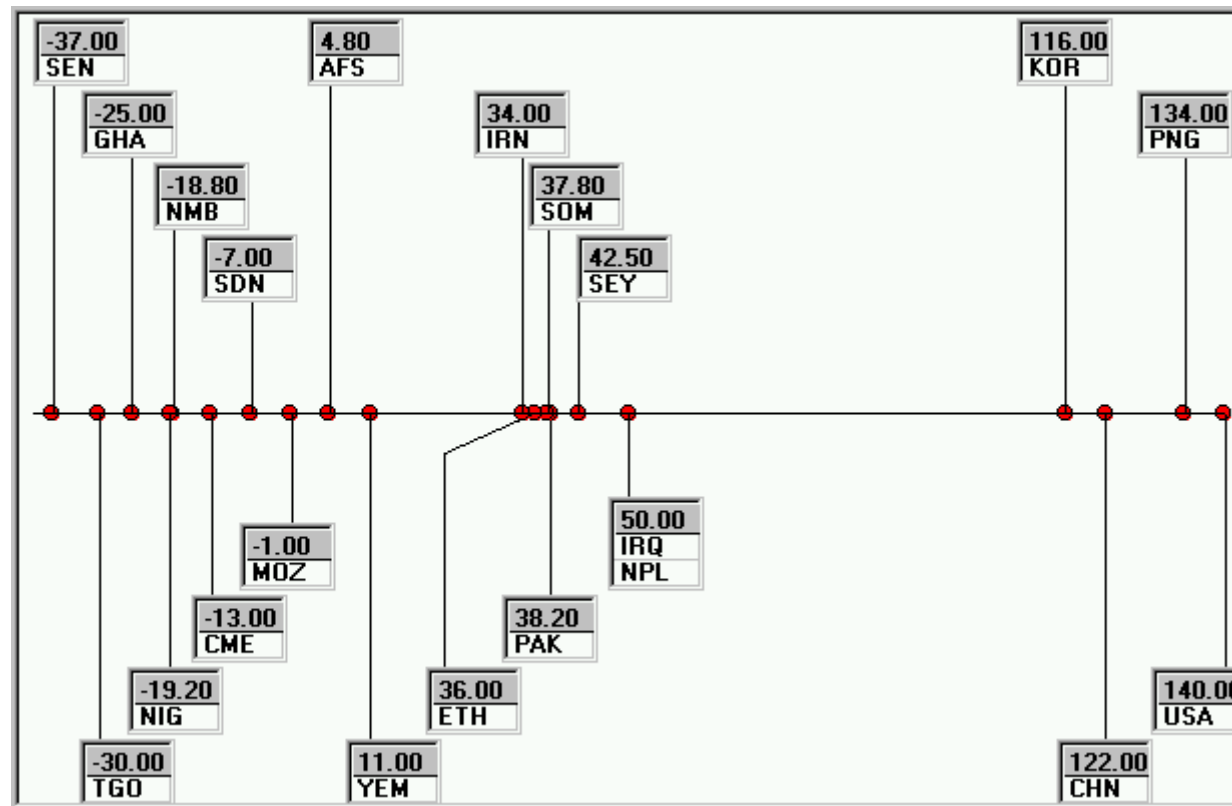
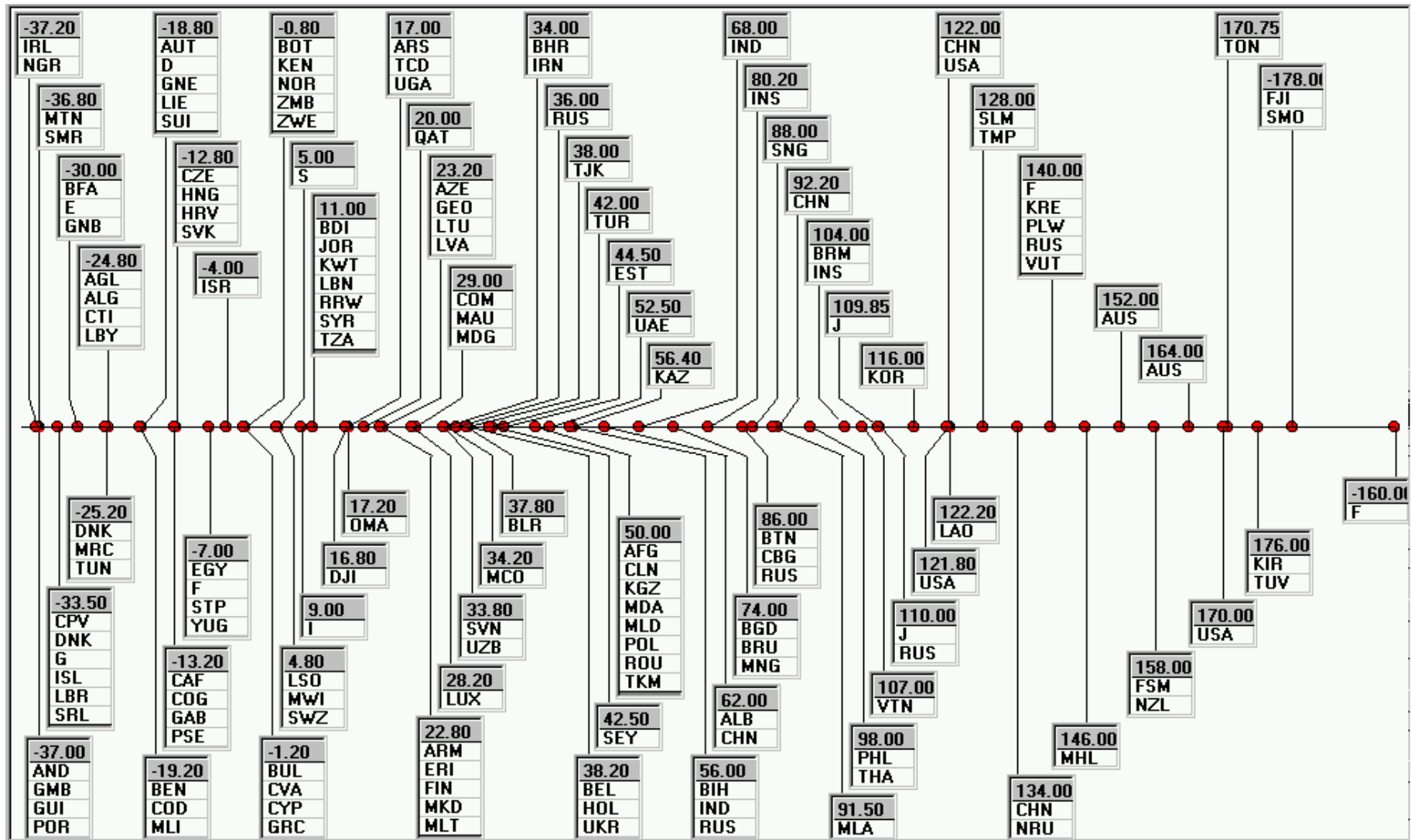


FIGURE 2

Allocation of orbital positions for feeder-links of Regions 1 and 3 BSS Plan in the frequency band 17.3-18.1 GHz
(Position in degrees/Administration symbols)



Feeder-links of Regions 1 and 3 BSS Plan in the frequency band 14.5-14.8 GHz

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
AFS	AFS02101	4.80	24.50	-28.00	3.13	1.68	27.00	MODRSS		37.24		MODTES	57.00	CL		82.0		27M0G7W		4L	P	
AFS	AFS02102	4.80	24.50	-28.00	3.13	1.68	27.00	MODRSS		37.24		MODTES	57.00	CR		82.0		27M0G7W		4L	P	
CHN	CHN19001	122.00	114.17	23.32	0.91	0.60	2.88	MODRSS		47.08		MODTES	57.00	CL		84.0		27M0G7W		4C	P	
CHN	CHN19002	122.00	114.17	23.32	0.91	0.60	2.88	MODRSS		47.08		MODTES	57.00	CR		84.0		27M0G7W		4C	P	
CME	CME30001	-13.00	12.70	6.20	2.54	1.68	87.00	MODRSS		38.15		MODTES	57.00	CL		84.0		27M0G7W		4I	P	
CME	CME30002	-13.00	12.70	6.20	2.54	1.68	87.00	MODRSS		38.15		MODTES	57.00	CR		84.0		27M0G7W		4I	P	
ETH	ETH09201	36.00	40.49	9.20	2.83	2.26	174.44	MODRSS		36.40		MODTES	57.00	CL		82.0		27M0G7W		4P	P	
ETH	ETH09202	36.00	40.49	9.20	2.83	2.26	174.44	MODRSS		36.40		MODTES	57.00	CR		82.0		27M0G7W		4P	P	
GHA	GHA10801	-25.00	-1.20	7.90	1.48	1.06	102.00	MODRSS		42.49		MODTES	57.00	CR		83.0		27M0G7W		4F	P	
GHA	GHA10802	-25.00	-1.20	7.90	1.48	1.06	102.00	MODRSS		42.49		MODTES	57.00	CL		83.0		27M0G7W		4F	P	
IRN	IRN10901	34.00	54.20	32.40	3.82	1.82	149.00	MODRSS		36.03		MODTES	57.00	CR		82.0		27M0G7W		4S	P	
IRN	IRN10902	34.00	54.20	32.40	3.82	1.82	149.00	MODRSS		36.03		MODTES	57.00	CL		82.0		27M0G7W		4S	P	
IRQ	IRQ25601	50.00	43.86	32.86	1.82	1.34	162.65	MODRSS		40.58		MODTES	57.00	CL		82.0		27M0G7W		4M	P	
IRQ	IRQ25602	50.00	43.86	32.86	1.82	1.34	162.65	MODRSS		40.58		MODTES	57.00	CR		82.0		27M0G7W		4M	P	
KOR	KO11201D	116.00	127.50	36.00	1.24	1.02	168.00	R13RSS		43.40		R13TES	57.30	CL		82.0		27M0G7W	KOREASAT-1	3	PE	
KOR	KOR11201	116.00	127.50	36.00	1.24	1.02	168.00	R13RSS		43.40		R13TES	57.30	CL		82.0		27M0F8W	KOREASAT-1	3	PE	
MOZ	MOZ30701	-1.00	34.00	-18.00	3.57	1.38	55.00	MODRSS		37.52		MODTES	57.00	CL		82.0		27M0G7W		4K	P	
MOZ	MOZ30702	-1.00	34.00	-18.00	3.57	1.38	55.00	MODRSS		37.52		MODTES	57.00	CR		82.0		27M0G7W		4K	P	
NIG	NIG11901	-19.20	7.80	9.40	2.16	2.02	45.00	MODRSS		38.05		MODTES	57.00	CR		82.0		27M0G7W		4G	P	
NIG	NIG11902	-19.20	7.80	9.40	2.16	2.02	45.00	MODRSS		38.05		MODTES	57.00	CL		82.0		27M0G7W		4G	P	
NMB	NMB02501	-18.80	17.50	-21.60	2.66	1.90	48.00	MODRSS		37.41		MODTES	57.00	CL		82.0		27M0G7W		4H	P	
NMB	NMB02502	-18.80	17.50	-21.60	2.66	1.90	48.00	MODRSS		37.41		MODTES	57.00	CR		82.0		27M0G7W		4H	P	
NPL	NPL12201	50.00	83.70	28.30	1.72	0.60	163.00	MODRSS		44.31		MODTES	57.00	CR		82.0		27M0G7W		4N	P	
NPL	NPL12202	50.00	83.70	28.30	1.72	0.60	163.00	MODRSS		44.31		MODTES	57.00	CL		82.0		27M0G7W		4N	P	
PAK	PAK12701	38.20	69.60	29.50	2.30	2.16	14.00	MODRSS		37.49		MODTES	57.00	CR		82.0		27M0G7W		4R	P	
PAK	PAK12702	38.20	69.60	29.50	2.30	2.16	14.00	MODRSS		37.49		MODTES	57.00	CL		82.0		27M0G7W		4R	P	
PNG	PNG13101	134.00	148.07	-6.65	3.13	2.30	168.32	MODRSS		38.87		MODTES	57.00	CR		89.0		27M0G7W		4B	P	
PNG	PNG13102	134.00	148.07	-6.65	3.13	2.30	168.32	MODRSS		38.87		MODTES	57.00	CL		89.0		27M0G7W		4B	P	
SDN	SDN__101	-7.00	30.13	13.52				CB_RSS_SDNA		37.20		MODTES	57.00	CL		86.0		27M0G7W		4J	P	
SDN	SDN__102	-7.00	30.13	13.52				CB_RSS_SDNA		37.20		MODTES	57.00	CR		86.0		27M0G7W		4J	P	
SEN	SEN22201	-37.00	-14.40	13.80	1.46	1.04	139.00	MODRSS		42.63		MODTES	57.00	CL		82.0		27M0G7W		4D	P	
SEN	SEN22202	-37.00	-14.40	13.80	1.46	1.04	139.00	MODRSS		42.63		MODTES	57.00	CR		82.0		27M0G7W		4D	P	
SEY	SEY00001	42.50	51.86	-7.23	2.43	1.04	27.51	MODRSS		40.44		MODTES	57.00	CL		84.0		27M0G7W		4T	P	
SEY	SEY00002	42.50	51.86	-7.23	2.43	1.04	27.51	MODRSS		40.44		MODTES	57.00	CR		84.0		27M0G7W		4T	P	
SOM	SOM31201	37.80	45.17	6.61	3.37	1.68	62.04	MODRSS		36.92		MODTES	57.00	CL		83.0		27M0G7W		4Q	P	

- 12 -
CMR2000/DT/132-E

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
SOM	SOM31202	37.80	45.17	6.61	3.37	1.68	62.04	MODRSS		36.92		MODTES	57.00	CR		83.0		27M0G7W		4Q	P	
TGO	TGO22601	-30.00	0.68	8.57	1.13	0.60	108.43	MODRSS		46.14		MODTES	57.00	CL		82.0		27M0G7W		4E	P	
TGO	TGO22602	-30.00	0.68	8.57	1.13	0.60	108.43	MODRSS		46.14		MODTES	57.00	CR		82.0		27M0G7W		4E	P	
USA	USAC_101	140.00	177.50	16.35				CB_RSS_USAC		44.06		MODTES	57.00	CL		87.0		27M0G7W		4A	P	
USA	USAC_102	140.00	177.50	16.35				CB_RSS_USAC		44.06		MODTES	57.00	CR		87.0		27M0G7W		4A	P	
YEM	YEM_101	11.00	48.29	14.53				CB_RSS_YEMA		47.78		MODTES	57.00	CR		82.0		27M0G7W		4O	P	
YEM	YEM_102	11.00	48.29	14.53				CB_RSS_YEMA		47.78		MODTES	57.00	CL		82.0		27M0G7W		4O	P	

Feeder-links of Regions 1 and 3 BSS Plan in the frequency band 17.3-18.1 GHz

1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
AFG	AFG24501	50.00	67.00	34.30	1.89	1.19	18.00	MODRSS		40.93		MODTES	57.00	CL		84.0		27M0G7W		7E	P	
AFG	AFG24502	50.00	67.00	34.30	1.89	1.19	18.00	MODRSS		40.93		MODTES	57.00	CR		84.0		27M0G7W		7E	P	
AGL	AGL29500	-24.80	16.43	-12.37	2.66	1.75	77.43	MODRSS		37.77		MODTES	57.00	CR		84.0		27M0G7W			P	
ALB	ALB29600	62.00	19.50	41.37	0.60	0.60	69.35	MODRSS		48.88		MODTES	57.00	CL		82.6		27M0G7W			P	
ALG	ALG25152	-24.80	1.50	27.60	3.65	2.94	135.00	MODRSS		34.14		MODTES	57.00	CL		84.0		27M0G7W			P	
AND	AND34100	-37.00	1.60	42.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		83.0		27M0G7W			P	
ARM	ARM06400	22.80	44.99	39.95	0.73	0.60	148.17	MODRSS		48.02		MODTES	57.00	CR		84.0		27M0G7W			P	
ARS	ARS00375	17.00	44.60	23.40	4.21	2.48	145.00	MODRSS		34.26		MODTES	57.00	CL		84.0		27M0G7W		7I	P	
ARS	ARS34000	17.00	44.60	23.40	4.21	2.48	145.00	MODRSS		34.28		MODTES	57.00	CL		84.0		27M0G7W		7I	P	
AUS	AUS00400	152.00	135.00	-24.20	7.19	5.20	140.00	MODRSS		28.71		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00401	152.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00402	152.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00403	152.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00404	152.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00405	152.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00406	152.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS0040A	152.00	135.36	-23.95	6.89	4.83	141.15	R123FR		29.23		MODTES	57.00	CL		87.0		27M0G7W		30	P	
AUS	AUS00500	152.00	135.00	-24.20	7.19	5.20	140.00	MODRSS		28.71		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00501	152.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00502	152.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00503	152.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00504	152.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00505	152.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00506	152.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		41	P	
AUS	AUS00600	152.00	135.50	-24.20	7.19	5.20	140.00	MODRSS		28.71		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00601	152.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00602	152.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00603	152.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00604	152.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00605	152.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00606	152.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		42	P	
AUS	AUS00700	164.00	136.00	-23.90	7.26	4.48	132.00	MODRSS		29.32		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00701	164.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
AUS	AUS00702	164.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00703	164.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00704	164.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00705	164.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00706	164.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS0070A	164.00	136.62	-24.16	6.82	4.20	134.19	R123FR		29.87		MODTES	57.00	CR		87.0		27M0G7W		31	P	
AUS	AUS00800	164.00	136.00	-23.90	7.26	4.48	132.00	MODRSS		29.32		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00801	164.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00802	164.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00803	164.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00804	164.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00805	164.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00806	164.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		44	P	
AUS	AUS00900	164.00	136.00	-23.90	7.26	4.48	132.00	MODRSS		29.32		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00901	164.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00902	164.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00903	164.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00904	164.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00905	164.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS00906	164.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUS0090A	164.00	136.62	-24.16	6.82	4.20	134.19	R123FR		29.87		MODTES	57.00	CR		87.0		27M0G7W		32	P	
AUS	AUSA0000	152.00	135.36	-23.95	6.89	4.83	141.15	R123FR		29.23		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0001	152.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0002	152.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0003	152.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0004	152.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0005	152.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSA0006	152.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		40	P	
AUS	AUSB0000	164.00	136.62	-24.16	6.82	4.20	134.19	R123FR		29.87		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0001	164.00	96.83	-12.19	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0002	164.00	105.69	-10.45	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0003	164.00	110.52	-66.28	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0004	164.00	158.94	-54.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0005	164.00	159.06	-31.52	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUS	AUSB0006	164.00	167.93	-29.02	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		87.0		27M0G7W		43	P	
AUT	AUT01600	-18.80	10.31	49.47	1.82	0.92	151.78	MODRSS		42.19		MODTES	57.00	CR		84.0		27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
AZE	AZE06400	23.20	47.47	40.14	0.93	0.60	158.14	MODRSS		46.98		MODTES	57.00	CL		84.0		27M0G7W			P	
BDI	BDI27000	11.00	29.90	-3.10	0.71	0.60	80.00	MODRSS		48.15		MODTES	57.00	CL		81.0		27M0G7W			P	
BEL	BEL01800	38.20	5.12	51.96	1.00	1.00	0.00	MODRSS		44.44		MODTES	57.00	CR		85.5		27M0G7W			P	
BEN	BEN23300	-19.20	2.20	9.50	1.44	0.68	97.00	MODRSS		44.54		MODTES	57.00	CL		84.0		27M0G7W			P	
BFA	BFA10700	-30.00	-1.50	12.20	1.45	1.14	29.00	MODRSS		42.26		MODTES	57.00	CL		84.0		27M0G7W			P	
BGD	BGD22000	74.00	90.30	23.60	1.46	0.84	135.00	MODRSS		43.56		MODTES	57.00	CR		84.0		27M0G7W			P	
BHR	BHR25500	34.00	50.50	26.10	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		83.0		27M0G7W			P	
BIH	BIH14800	56.00	18.22	43.97	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CR		84.0		27M0G7W			P	
BLR	BLR06200	37.80	28.04	53.18	1.17	0.60	9.68	MODRSS		45.96		MODTES	57.00	CL		84.0		27M0G7W			P	
BOT	BOT29700	-0.80	23.30	-22.20	2.13	1.50	36.00	MODRSS		39.40		MODTES	57.00	CL		84.0		27M0G7W			P	
BRM	BRM29800	104.00	96.97	18.68	3.33	1.66	91.63	MODRSS		37.02		MODTES	57.00	CR		84.0		27M0G7W			P	
BRU	BRU3300A	74.00	114.70	4.40	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		84.0		27M0G7W			P	
BTN	BTN03100	86.00	90.44	27.05	0.72	0.60	175.47	MODRSS		48.11		MODTES	57.00	CR		84.0		27M0G7W			P	
BUL	BUL02000	-1.20	25.00	43.00	1.04	0.60	165.00	MODRSS		46.50		MODTES	57.00	CL		83.0		27M0G7W			P	
CAF	CAF25800	-13.20	21.00	6.30	2.25	1.68	31.00	MODRSS		38.67		MODTES	57.00	CR		84.0		27M0G7W			P	
CBG	CBG29900	86.00	104.89	12.79	1.12	0.94	32.89	MODRSS		44.22		MODTES	57.00	CR		84.0		27M0G7W			P	
CHN	CHN15400	62.00	101.90	33.50	5.10	2.80	143.00	MODRSS		32.90		MODTES	57.00	CR		84.0		27M0G7W		45	P	
CHN	CHN15500	62.00	101.90	33.50	5.10	2.80	143.00	MODRSS		32.90		MODTES	57.00	CL		84.0		27M0G7W		45	P	
CHN	CHN15800	134.00	113.21	34.27	6.40	3.16	10.74	MODRSS		31.39		MODTES	57.00	CL		84.0		27M0G7W		46	P	
CHN	CHN15900	134.00	113.21	34.27	6.40	3.16	10.74	MODRSS		31.39		MODTES	57.00	CR		84.0		27M0G7W		46	P	
CHN	CHN16000	92.20	108.10	33.70	5.00	4.00	148.00	MODRSS		31.44		MODTES	57.00	CR		84.0		27M0G7W		47	P	
CHN	CHN16100	92.20	108.10	33.70	5.00	4.00	148.00	MODRSS		31.44		MODTES	57.00	CL		84.0		27M0G7W		47	P	
CHN	MAC00000	122.00	113.55	22.20	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
CLN	CLN21900	50.00	80.60	7.70	1.18	0.60	106.00	MODRSS		45.95		MODTES	57.00	CL		84.0		27M0G7W			P	
COD	COD_100	-19.20	21.85	-3.40				CB_RSS_CODA		38.36		MODTES	57.00	CL		84.0		27M0G7W			P	
COG	COG23500	-13.20	14.60	-0.70	2.02	1.18	59.00	MODRSS		40.67		MODTES	57.00	CR		84.0		27M0G7W			P	
COM	COM20700	29.00	44.10	-12.10	0.76	0.60	149.00	MODRSS		47.86		MODTES	57.00	CR		84.0		27M0G7W			P	
CPV	CPV30100	-33.50	-24.12	16.09	0.77	0.63	94.46	MODRSS		47.56		MODTES	57.00	CL		84.0		27M0G7W			P	
CTI	CTI23700	-24.80	-5.66	7.39	1.45	1.29	126.59	MODRSS		41.73		MODTES	57.00	CR		84.0		27M0G7W			P	
CVA	CVA08300	-1.20	13.02	42.09	0.75	0.66	20.53	MODRSS		47.48		MODTES	57.00	CR		84.0		27M0G7W			P	
CVA	CVA08500	-1.20	13.02	42.09	0.75	0.66	20.53	MODRSS		47.48		MODTES	57.00	CR		84.0		27M0G7W			P	
CYP	CYP08600	-1.20	33.45	35.12	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
CZE	CZE14401	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CR		84.0		27M0G7W			P	
CZE	CZE14402	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W			P	
CZE	CZE14403	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W		37	P	
D	D 08700	-18.80	10.31	49.47	1.82	0.92	151.78	MODRSS		42.19		MODTES	57.00	CR		84.0		27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
DJI	DJI09900	16.80	42.68	11.68	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
DNK	DNK__100	-25.20	5.28	61.83				CB_RSS_DNKA		48.88		MODTES	57.00	CL		79.5		27M0G7W			P	
DNK	DNK09000	-33.50	14.34	61.72	1.83	0.60	151.50	MODRSS		44.05		MODTES	57.00	CR		84.0		27M0G7W			P	
DNK	DNK09100	-33.50	-14.94	63.79	1.52	0.60	168.57	MODRSS		44.86		MODTES	57.00	CR		84.0		27M0G7W			P	
E	E____100	-30.00	-9.40	34.15				CB_RSS_E_A		44.79		MODTES	57.00	CR		84.0		27M0G7W		1	P	
E	HISPASA4	-30.00	-3.10	39.90					ECO	43.00	18.70	R13TES	55.00	CR		82.5		27M0F8W	HISPASAT-1	1	PE	
E	HISPASA6	-30.00	-3.10	39.90					ECO	43.00	18.70	R13TES	58.50	CR		83.5		27M0F8W	HISPASAT-1	1	PE	
EGY	EGY02600	-7.00	29.70	26.80	2.33	1.72	136.00	MODRSS		38.42		MODTES	57.00	CR		84.0		27M0G7W		12	P	
ERI	ERI09200	22.80	39.41	14.98	1.67	0.95	145.49	MODRSS		42.44		MODTES	57.00	CL		84.0		27M0G7W			P	
EST	EST06100	44.50	25.40	59.18	0.67	0.60	5.99	MODRSS		48.42		MODTES	57.00	CR		84.0		27M0G7W			P	
F	F 09300	-7.00	3.30	45.37	2.18	1.20	156.36	MODRSS		40.27		MODTES	57.00	CR		84.0		27M0G7W		21	P	
F	F____100	-7.00	29.16	13.43				CB_RSS_F_A		48.88		MODTES	57.00	CL		84.0		27M0G7W		12	P	
F	F____200	140.00	174.50	-17.30				CB_RSS_F_B		45.80		MODTES	57.00	CL		84.0		27M0G7W			P	
F	F____300	140.00	174.65	-17.65				CB_RSS_F_C		47.97		MODTES	57.00	CR		84.0		27M0G7W			P	
F	OCE10100	-160.00	-145.00	-16.30	4.34	3.54	4.00	MODRSS		32.58		MODTES	57.00	CL		84.0		27M0G7W			P	
FIN	FIN10300	22.80	17.61	61.54	2.18	0.90	11.59	MODRSS		41.53		MODTES	57.00	CL		84.0		27M0G7W		7F	P	
FIN	FIN10400	22.80	17.61	61.54	2.18	0.90	11.59	MODRSS		41.53		MODTES	57.00	CL		84.0		27M0G7W		7F	P	
FJI	FJI19300	-178.00	179.62	-17.87	1.16	0.92	155.22	MODRSS		44.16		MODTES	57.00	CR		84.0		27M0G7W			P	
FSM	FSM00000	158.00	151.90	5.48	5.15	1.57	167.00	MODRSS		35.38		MODTES	57.00	CR		84.0		27M0G7W			P	
G	G 02700	-33.50	-3.50	53.80	1.84	0.72	142.00	MODRSS		43.23		MODTES	57.00	CR		84.0		27M0G7W			P	
GAB	GAB26000	-13.20	11.80	-0.60	1.43	1.12	64.00	MODRSS		42.40		MODTES	57.00	CL		84.0		27M0G7W			P	
GEO	GEO06400	23.20	43.35	42.27	1.11	0.60	161.21	MODRSS		46.23		MODTES	57.00	CL		84.0		27M0G7W			P	
GMB	GMB30200	-37.00	-15.10	13.40	0.79	0.60	4.00	MODRSS		47.69		MODTES	57.00	CL		83.0		27M0G7W			P	
GNB	GNB30400	-30.00	-15.00	12.00	0.90	0.60	172.00	MODRSS		47.12		MODTES	57.00	CL		84.0		27M0G7W			P	
GNE	GNE30300	-18.80	10.30	1.50	0.68	0.60	10.00	MODRSS		48.34		MODTES	57.00	CR		84.0		27M0G7W			P	
GRC	GRC10500	-1.20	24.52	38.11	1.70	0.95	152.55	MODRSS		42.37		MODTES	57.00	CR		84.0		27M0G7W			P	
GUI	GUI19200	-37.00	-11.00	10.20	1.58	1.04	147.00	MODRSS		42.29		MODTES	57.00	CR		85.0		27M0G7W			P	
HNG	HNG10601	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CR		84.0		27M0G7W			P	
HNG	HNG10602	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W			P	
HNG	HNG10603	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W		37	P	
HOL	HOL21300	38.20	5.12	51.96	1.00	1.00	0.00	MODRSS		44.44		MODTES	57.00	CL		85.5		27M0G7W			P	
HRV	HRV14801	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CR		84.0		27M0G7W			P	
HRV	HRV14802	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W			P	
HRV	HRV14803	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W		37	P	
I	I 08200	9.00	12.67	40.74	1.99	1.35	144.20	MODRSS		40.14		MODTES	57.00	CR		84.0		27M0G7W			P	
IND	IND03700	68.00	93.00	25.50	1.46	1.13	40.00	MODRSS		42.27		MODTES	57.00	CL		84.0		27M0G7W			P	

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Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
IND	IND04701	68.00	93.30	11.10	1.92	0.60	96.00	MODRSS		43.83		MODTES	57.00	CR		84.0		27M0G7W		7E	P	
IND	IND04702	68.00	93.30	11.10	1.92	0.60	96.00	MODRSS		43.83		MODTES	57.00	CL		84.0		27M0G7W		7E	P	
IND	INDA_100	56.00	76.16	14.72				CB_RSS_INDA		45.66		MODTES	57.00	CL		84.0		27M0G7W			P	
IND	INDB_100	56.00	83.67	23.73				CB_RSS_INDB		43.13		MODTES	57.00	CR		84.0		27M0G7W			P	
IND	INDD_100	68.00	74.37	29.16				CB_RSS_INDD		41.79		MODTES	57.00	CR		84.0		27M0G7W			P	
INS	INS02800	80.20	113.60	-1.40	6.73	3.33	160.00	MODRSS		30.94		MODTES	57.00	CR		84.0		27M0G7W			P	
INS	INS03501	104.00	115.20	-1.70	9.14	3.43	170.00	MODRSS		29.48		MODTES	57.00	CL		84.0		27M0G7W		7D	P	
INS	INS03502	104.00	115.20	-1.70	9.14	3.43	170.00	MODRSS		29.48		MODTES	57.00	CR		84.0		27M0G7W		7D	P	
IRL	IRL21100	-37.20	-8.25	53.22	0.72	0.60	157.56	MODRSS		48.08		MODTES	57.00	CR		84.0		27M0G7W			P	
IRN	IRN10900	34.00	54.20	32.40	3.82	1.82	149.00	MODRSS		36.03		MODTES	57.00	CL		83.0		27M0G7W			P	
ISL	ISL04900	-33.50	-19.00	64.90	1.00	0.60	177.00	MODRSS		46.67		MODTES	57.00	CL		83.0		27M0G7W			P	
ISL	ISL05000	-33.50	-14.94	63.79	1.52	0.60	168.57	MODRSS		44.86		MODTES	57.00	CR		84.0		27M0G7W			P	
ISR	ISR11000	-4.00	34.95	31.32	0.73	0.60	110.02	MODRSS		48.03		MODTES	57.00	CR		84.0		27M0G7W			P	
J	000BS-3N	109.85	134.50	31.50	3.52	3.30	68.00	MODRSS		33.80		MODTES	57.00	CR		87.0		27M0F8W	BS-3N	2	PE	
J	J 10985	109.85	134.50	31.50	3.52	3.30	68.00	MODRSS		33.80		MODTES	57.00	CR		87.0		34M5G7W		2	P	
J	J 11100	110.00	134.50	31.50	3.52	3.30	68.00	MODRSS		33.80		MODTES	57.00	CR		87.0		34M5G7W		2	P	
J	J 1110E	110.00	134.50	31.50	3.52	3.30	68.00	MODRSS		33.80		MODTES	57.00	CR		87.0		27M0F8W	BS-3M	2	PE	
JOR	JOR22400	11.00	37.55	34.02	1.47	0.91	73.16	MODRSS		43.19		MODTES	57.00	CL		85.0		27M0G7W			P	
KAZ	KAZ06600	56.40	65.73	46.40	4.58	1.76	177.45	MODRSS		35.38		MODTES	57.00	CL		84.0		27M0G7W			P	
KEN	KEN24900	-0.80	37.99	0.88	2.06	1.30	99.68	MODRSS		40.17		MODTES	57.00	CR		84.0		27M0G7W			P	
KGZ	KGZ07000	50.00	73.91	41.32	1.47	0.64	5.05	MODRSS		44.75		MODTES	57.00	CR		84.0		27M0G7W			P	
KIR	KIR_100	176.00	-170.31	-0.56				CB_RSS_KIRA		42.60		MODTES	57.00	CL		84.0		27M0G7W			P	
KOR	KOR11201	116.00	127.50	36.00	1.24	1.02	168.00	MODRSS		43.43		MODTES	57.00	CL		89.0		27M0G7W		3	P	
KOR	KOR11202	116.00	127.50	36.00	1.24	1.02	168.00	MODRSS		43.43		MODTES	57.00	CR		89.0		27M0G7W		3	P	
KRE	KRE28600	140.00	128.45	40.32	1.63	0.68	18.89	MODRSS		44.00		MODTES	57.00	CL		87.0		27M0G7W			P	
KWT	KWT11300	11.00	47.48	29.12	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CR		83.0		27M0G7W			P	
LAO	LAO28400	122.20	103.71	18.17	1.87	1.03	123.99	MODRSS		42.18		MODTES	57.00	CR		84.0		33M0G7W			P	
LBN	LBN27900	11.00	37.55	34.02	1.47	0.91	73.16	MODRSS		43.19		MODTES	57.00	CR		84.0		27M0G7W			P	
LBR	LBR24400	-33.50	-9.30	6.60	1.22	0.70	133.00	MODRSS		45.13		MODTES	57.00	CR		84.0		27M0G7W			P	
LBY	LBY28021	-24.80	17.50	26.30	3.68	1.84	130.00	MODRSS		36.14		MODTES	57.00	CL		84.0		27M0G7W			P	
LIE	LIE25300	-18.80	10.31	49.47	1.82	0.92	151.78	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
LSO	LSO30500	4.80	27.80	-29.80	0.66	0.60	36.00	MODRSS		48.47		MODTES	57.00	CL		84.0		27M0G7W			P	
LTU	LTU06100	23.20	24.52	56.11				CB_RSS_LTUA		47.92		MODTES	57.00	CR		84.0		27M0G7W			P	
LUX	LUX11400	28.20	5.21	49.20	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W		9	P	
LVA	LVA06100	23.20	24.52	56.11				CB_RSS_LVAA		47.92		MODTES	57.00	CR		84.0		27M0G7W			P	
MAU	MAU_100	29.00	58.61	-15.88				CB_RSS_MAUA		41.42		MODTES	57.00	CL		84.0		27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identification	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
MCO	MCO11600	34.20	7.40	43.70	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		81.0		27M0G7W			P	
MDA	MDA06300	50.00	28.45	46.99	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CR		84.0		27M0G7W			P	
MDG	MDG23600	29.00	46.20	-18.60	2.57	0.80	67.00	MODRSS		41.32		MODTES	57.00	CL		84.0		27M0G7W			P	
MHL	MHL00000	146.00	167.64	9.83	2.07	0.90	157.42	MODRSS		41.75		MODTES	57.00	CR		84.0		27M0G7W			P	
MKD	MKD14800	22.80	21.53	41.50	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
MLA	MLA_100	91.50	108.07	3.92				CB_RSS_MLAA		41.75		MODTES	57.00	CR		84.0		27M0G7W			P	
MLD	MLD30600	50.00	73.10	6.00	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		84.0		27M0G7W			P	
MLI	MLI_100	-19.20	-4.80	16.10				CB_RSS_MLIA		41.11		MODTES	57.00	CR		87.0		27M0G7W			P	
MLT	MLT14700	22.80	14.40	35.90	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CR		84.0		27M0G7W			P	
MNG	MNG24800	74.00	101.95	46.79	3.32	1.04	169.27	MODRSS		39.07		MODTES	59.92	CL		86.9		27M0G7W			P	
MRC	MRC20900	-25.20	-8.90	28.90	3.96	1.55	50.00	MODRSS		36.57		MODTES	57.00	CR		80.0		27M0G7W			P	
MTN	MTN_100	-36.80	-11.24	20.91				CB_RSS_MTNA		37.55		MODTES	57.00	CR		86.0		27M0G7W			P	
MWI	MWI30800	4.80	33.79	-13.25	1.56	0.70	92.69	MODRSS		44.10		MODTES	57.00	CR		84.0		27M0G7W			P	
NGR	NGR11500	-37.20	7.63	16.97	2.20	1.80	100.58	MODRSS		38.47		MODTES	57.00	CL		84.0		27M0G7W			P	
NOR	NOR12000	-0.80	16.70	61.58	1.84	0.95	177.31	MODRSS		42.02		MODTES	57.00	CR		84.0		27M0G7W		6	P	
NOR	NOR12100	-0.80	16.70	61.58	1.84	0.95	177.31	MODRSS		42.02		MODTES	57.00	CL		84.0		27M0G7W		6	P	
NRU	NRU30900	134.00	167.00	-0.50	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
NZL	NZL_100	158.00	-174.35	-24.30				CB_RSS_NZLA		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
OMA	OMA12300	17.20	55.60	21.00	1.88	1.02	100.00	MODRSS		41.62		MODTES	57.00	CL		85.0		27M0G7W			P	
PHL	PHL28500	98.00	121.30	11.10	3.46	1.76	99.00	MODRSS		36.60		MODTES	57.00	CL		84.0		27M0G7W			P	
PLW	PLW00000	140.00	132.98	5.51	1.30	0.60	55.41	MODRSS		45.53		MODTES	57.00	CR		84.0		27M0G7W			P	
POL	POL13200	50.00	19.71	52.18	1.22	0.63	16.12	MODRSS		45.59		MODTES	57.00	CR		84.0		27M0G7W			P	
POR	POR_100	-37.00	-15.92	37.65				CB_RSS_PORA		47.17		MODTES	57.00	CR		84.0		27M0G7W			P	
PSE	YYY00001	-13.20	34.99	31.86	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		80.5		27M0G7W			P	
QAT	QAT24700	20.00	51.59	25.35	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
ROU	ROU13600	50.00	25.12	45.75	1.17	0.73	9.52	MODRSS		45.15		MODTES	57.00	CL		84.0		27M0G7W			P	
RRW	RRW31000	11.00	30.00	-2.10	0.66	0.60	42.00	MODRSS		48.47		MODTES	57.00	CR		81.0		27M0G7W			P	
RUS	RSTREA11	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0F8W	RST-1	5	PE	
RUS	RSTREA12	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0F8W	RST-1	5	PE	
RUS	RSTRED11	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RST-1	5	PE	
RUS	RSTRED12	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RST-1	5	PE	
RUS	RSTRSD11	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RST-1	5	P	
RUS	RSTRSD12	36.00	38.00	53.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RST-1	5	P	
RUS	RSTRSD21	56.00	65.00	63.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RST-2	14	P	
RUS	RSTRSD22	56.00	65.00	63.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RST-2	14	P	
RUS	RSTRSD31	86.00	97.00	62.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RST-3	33	P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
RUS	RSTRSD32	86.00	97.00	62.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RST-3	33	P	
RUS	RSTRSD51	140.00	158.00	56.00					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RST-5	35	P	
RUS	RSTRSD52	140.00	158.00	56.00					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RST-5	35	P	
RUS	RUS00401	110.00	118.22	51.52					COP	38.40	8.40	MODTES	57.00	CR		84.0		27M0G7W	RUS-4	34	P	
RUS	RUS00402	110.00	118.22	51.52					COP	38.40	8.40	MODTES	57.00	CL		84.0		27M0G7W	RUS-4	34	P	
S	S 13800	5.00	17.00	61.50	2.00	1.00	10.00	MODRSS		41.44		MODTES	57.00	CL		84.0		27M0G7W		4	P	
S	S 13900	5.00	17.00	61.50	2.00	1.00	10.00	MODRSS		41.44		MODTES	57.00	CL		84.0		27M0G7W		4	P	
SEY	SEY00000	42.50	51.86	-7.23	2.43	1.04	27.51	MODRSS		40.44		MODTES	57.00	CR		84.0		27M0G7W			P	
SLM	SLM00000	128.00	159.27	-8.40	1.35	1.08	118.59	MODRSS		42.81		MODTES	57.00	CL		84.0		27M0G7W			P	
SMO	SMO05700	-178.00	-171.70	-13.87	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
SMR	SMR31100	-36.80	12.50	43.90	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		83.0		27M0G7W			P	
SNG	SNG15100	88.00	103.86	1.42	0.92	0.72	175.12	MODRSS		46.25		MODTES	57.00	CL		84.0		27M0G7W			P	
SRL	SRL25900	-33.50	-11.80	8.60	0.78	0.68	114.00	MODRSS		47.20		MODTES	57.00	CR		84.0		27M0G7W			P	
STP	STP24100	-7.00	7.00	0.80	0.60	0.60	0.00	MODRSS		48.88		MODTES	57.00	CL		84.0		27M0G7W			P	
SUI	SUI14000	-18.80	10.31	49.47	1.82	0.92	151.78	MODRSS		42.19		MODTES	57.00	CL		84.0		27M0G7W			P	
SVK	SVK14401	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CR		84.0		27M0G7W			P	
SVK	SVK14402	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W			P	
SVK	SVK14403	-12.80	16.77	46.78	1.71	0.89	149.15	MODRSS		42.64		MODTES	57.00	CL		84.0		27M0G7W		37	P	
SVN	SVN14800	33.80	15.01	46.18	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CR		82.0		27M0G7W			P	
SWZ	SWZ31300	4.80	31.39	-26.44	0.60	0.60	90.00	MODRSS		48.88		MODTES	57.00	CR		82.0		27M0G7W			P	
SYR	SYR22900	11.00	37.55	34.02	1.47	0.91	73.16	MODRSS		43.19		MODTES	57.00	CL		84.0		27M0G7W		7H	P	
SYR	SYR33900	11.00	37.60	34.20	1.32	0.88	74.00	MODRSS		43.80		MODTES	57.00	CL		84.0		27M0G7W		7H	P	
TCD	TCD14300	17.00	18.39	15.52	3.21	2.05	83.26	MODRSS		36.26		MODTES	57.00	CR		84.0		27M0G7W			P	
THA	THA14200	98.00	100.75	12.88	2.80	1.82	93.77	MODRSS		37.38		MODTES	57.00	CR		84.0		27M0G7W			P	
TJK	TJK06900	38.00	71.14	38.41	1.21	0.73	155.31	MODRSS		45.00		MODTES	57.00	CL		82.0		27M0G7W			P	
TKM	TKM06800	50.00	59.24	38.83	2.26	1.02	166.64	MODRSS		40.81		MODTES	57.00	CL		85.7		27M0G7W			P	
TMP	TMP00000	128.00	126.03	-8.72	0.66	0.60	13.92	MODRSS		48.50		MODTES	57.00	CR		84.0		27M0G7W			P	
TON	TON21500	170.75	-175.23	-18.19	1.59	0.60	71.33	MODRSS		44.64		MODTES	57.00	CR		84.0		27M0G7W			P	
TUN	TUN15000	-25.20	9.50	33.50	1.88	0.72	135.00	MODRSS		43.13		MODTES	57.00	CR		84.0		27M0G7W		7G	P	
TUN	TUN27200	-25.20	2.50	32.00	3.59	1.75	175.00	MODRSS		36.47		MODTES	57.00	CR		84.0		27M0G7W		7G	P	
TUR	TUR14500	42.00	35.14	38.99	3.19	1.10	0.03	MODRSS		39.00		MODTES	57.00	CL		84.0		27M0G7W		36	P	
TUV	TUV00000	176.00	177.61	-7.11	0.94	0.60	137.58	MODRSS		46.93		MODTES	57.00	CR		84.0		27M0G7W			P	
TZA	TZA22500	11.00	34.60	-6.20	2.41	1.72	129.00	MODRSS		38.27		MODTES	57.00	CR		84.0		27M0G7W			P	
UAE	UAE27400	52.50	53.98	24.37	1.23	0.84	6.62	MODRSS		44.31		MODTES	57.00	CR		84.0		27M0G7W			P	
UGA	UGA05100	17.00	32.20	1.04	1.50	1.02	68.73	MODRSS		42.62		MODTES	57.00	CR		84.0		27M0G7W			P	
UKR	UKR06300	38.20	31.82	48.19	2.32	0.95	177.32	MODRSS		41.01		MODTES	57.00	CR		84.0		27M0G7W			P	

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1	2	3	4		5			6	7	8		9		10		11	12	13	14	15	16	17
Admin. symbol	Beam identifica- tion	Orbital position (°)	Boresight		Space antenna characteristics			Space antenna type	Shaped beam	Space antenna gain (dB)		Earth antenna		Polarization		e.i.r.p.	Power control	Designa- tion of emission	Satellite identification	Group code	Sta- tus	Remarks
			Long (°)	Lat (°)	Major axis (°)	Minor axis (°)	Orien- tation (°)			Co-polar	Cross- polar	Type	Gain (dB)	Type	Angle (°)							
USA	GUM33101	122.00	155.56	13.21				CB_RSS_GUMA		43.61		MODTES	57.00	CR		87.0		27M0G7W		7C	P	
USA	GUM33102	122.00	155.56	13.21				CB_RSS_GUMA		43.61		MODTES	57.00	CL		87.0		27M0G7W		7C	P	
USA	MRA33200	121.80	155.56	13.21				CB_RSS_MRAA		43.61		MODTES	57.00	CR		91.0		27M0G7W			P	
USA	PLM33200	170.00	-145.55	19.50				CB_RSS_PLMA		39.35		MODTES	57.00	CL		87.0		27M0G7W			P	
USA	USAA_101	170.00	-145.55	19.50				CB_RSS_USAA		39.35		MODTES	57.00	CR		87.0		27M0G7W		7A	P	
USA	USAA_102	170.00	-145.55	19.50				CB_RSS_USAA		39.35		MODTES	57.00	CL		87.0		27M0G7W		7A	P	
UZB	UZB07100	33.80	63.80	41.21	2.56	0.89	159.91	MODRSS		40.84		MODTES	57.00	CR		82.0		27M0G7W			P	
VTN	VTN32500	107.00	106.84	14.21	3.43	1.76	109.43	MODRSS		36.64		MODTES	57.00	CR		84.0		27M0G7W			P	
VUT	VUT12801	140.00	168.00	-16.40	1.52	0.68	87.00	MODRSS		44.30		MODTES	57.00	CL		84.0		27M0G7W		7B	P	
VUT	VUT12802	140.00	168.00	-16.40	1.52	0.68	87.00	MODRSS		44.30		MODTES	57.00	CR		84.0		27M0G7W		7B	P	
YUG	YUG14800	-7.00	20.50	43.98	0.91	0.60	145.16	MODRSS		47.07		MODTES	57.00	CL		84.0		27M0G7W			P	
ZMB	ZMB31400	-0.80	27.50	-13.10	2.38	1.48	39.00	MODRSS		38.98		MODTES	57.00	CR		84.0		27M0G7W			P	
ZWE	ZWE13500	-0.80	29.60	-18.80	1.46	1.36	37.00	MODRSS		41.47		MODTES	57.00	CL		85.0		27M0G7W			P	

Orbital position/administration/beam/channel/minimum equivalent protection margin (EPM) dB
Plan in the frequency band 14.5-14.8 GHz (sorted by orbital position)

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
-37.00	SEN	SEN22201	CL					40.8		39.6		39.6		39.6		39.6	
-37.00	SEN	SEN22202	CR						39.6		39.6		39.6		39.6		40.7
-30.00	TGO	TGO22601	CL					15.0		14.1		14.1		14.1		14.1	
-30.00	TGO	TGO22602	CR						14.1		14.1		14.1		14.1		15.0
-25.00	GHA	GHA10801	CR					14.9		14.1		14.1		14.1		14.1	
-25.00	GHA	GHA10802	CL						14.1		14.1		14.1		14.1		14.9
-19.20	NIG	NIG11901	CR					6.4		4.2		4.2		4.2		4.2	
-19.20	NIG	NIG11902	CL						4.2		4.2		4.2		4.2		6.4
-18.80	NMB	NMB02501	CL					6.9		4.5		4.5		4.5		4.5	
-18.80	NMB	NMB02502	CR						4.5		4.5		4.5		4.5		6.9
-13.00	CME	CME30001	CL					17.2		16.3		16.3		16.3		16.3	
-13.00	CME	CME30002	CR						16.3		16.3		16.3		16.3		17.2
-7.00	SDN	SDN_101	CL					27.1		26.2		26.2		26.2		26.2	
-7.00	SDN	SDN_102	CR						26.2		26.2		26.2		26.2		27.1
-1.00	MOZ	MOZ30701	CL					16.6		15.7		15.7		15.7		15.7	
-1.00	MOZ	MOZ30702	CR						15.7		15.7		15.7		15.7		16.6
4.80	AFS	AFS02101	CL					11.9		11.0		11.0		11.0		11.0	
4.80	AFS	AFS02102	CR						11.0		11.0		11.0		11.0		11.9
11.00	YEM	YEM_101	CR					47.8		47.3		47.3		47.3		47.3	
11.00	YEM	YEM_102	CL						47.3		47.3		47.3		47.3		47.8
34.00	IRN	IRN10901	CR			15.2		13.9		13.9		13.9		13.9		13.9	
34.00	IRN	IRN10902	CL				14.3		13.9		13.9		13.9		13.9		14.8
36.00	ETH	ETH09201	CL					2.3		1.4		1.4		1.4		1.4	
36.00	ETH	ETH09202	CR						1.4		1.4		1.4		1.4		2.3
37.80	SOM	SOM31201	CL					0.0		0.1		0.1		0.1		0.1	
37.80	SOM	SOM31202	CR						0.1		0.1		0.1		0.1		1.6
38.20	PAK	PAK12701	CR			14.2		3.2		0.9		0.9		0.9		0.9	
38.20	PAK	PAK12702	CL				4.2		0.9		0.9		0.9		0.9		3.3
42.50	SEY	SEY00001	CL					36.3		35.3		35.3		35.3		35.3	
42.50	SEY	SEY00002	CR						35.3		35.3		35.3		35.3		36.4
50.00	IRQ	IRQ25601	CL					0.0		0.0		0.0		0.0		0.0	
50.00	IRQ	IRQ25602	CR						0.0		0.0		0.0		0.0		2.4
50.00	NPL	NPL12201	CR			+ ∞		3.9		1.2		1.2		1.2		1.2	
50.00	NPL	NPL12202	CL				4.6		1.2		1.2		1.2		1.2		3.9
116.00	KOR	KO11201D	CL		7.5		7.5		7.5		7.5		7.5		7.5		
116.00	KOR	KOR11201	CL		7.5		7.5		7.5		7.5		7.5		7.5		
122.00	CHN	CHN19001	CL			47.7		47.7		47.7		47.7		47.7		50.7	

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Orbital Position (°)	Admin. symbol	Beam Identifica- tion	Polari- zation type	Channel number / Equivalent Protection Margin (dB)													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
122.00	CHN	CHN19002	CR				42.0		42.0		42.0		42.0		42.0		+ ∞
134.00	PNG	PNG13101	CR			26.1		25.2		25.2		25.2		25.2		25.2	
134.00	PNG	PNG13102	CL				25.2		25.2		25.2		25.2		25.2		26.1
140.00	USA	USAC_101	CL			19.4		18.6		18.6		18.6		18.6		18.6	
140.00	USA	USAC_102	CR				18.6		18.6		18.6		18.6		18.6		19.4

Orbital position/administration/beam/channel/minimum equivalent protection margin (EPM) dB
Plan in the frequency band 17.3-18.1 GHz (sorted by orbital position)

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)																																														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40							
-178.00	FJI	FJI19300	CR	3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3		3.3																								
-178.00	SMO	SMO05700	CL	12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2																								
-160.00	F	OCE10100	CL		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞		+ ∞																							
-37.20	IRL	IRL21100	CR																				10.2		10.2		10.2		10.2		10.2		10.3		10.2		10.2		10.3		10.3		10.3							
-37.20	NGR	NGR11500	CL	1.8		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2																												
-37.00	AND	AND34100	CL																					10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		12.0				
-37.00	GMB	GMB30200	CL																				0.2		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1					
-37.00	GUI	GUI19200	CR		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8		1.5																													
-37.00	POR	POR_100	CR	2.6		0.1		0.0		0.1		0.0		0.1		0.0		0.1		0.0		0.1																												
-36.80	MTN	MTN_100	CR																					-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		1.5				
-36.80	SMR	SMR31100	CL		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.6		10.2																											
-33.50	CPV	CPV30100	CL		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		14.3		11.6																											
-33.50	DNK	DNK09000	CR																											5.1						5.1														
-33.50	DNK	DNK09100	CR																																															
-33.50	G	G 02700	CR		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		6.4		4.2																											
-33.50	ISL	ISL04900	CL																				1.5		-0.1		-0.1		1.8		7.5		2.8		1.8		1.8		1.8		2.8		14.1							
-33.50	ISL	ISL05000	CR																					1.1		1.1		1.1																						
-33.50	LBR	LBR24400	CR	10.6		7.7		7.7		7.7		7.7		7.7		7.7		7.7		7.7		7.7																												
-33.50	SRL	SRL25900	CR																				10.1		11.8		11.8		11.4		13.1		13.7		11.4		11.4		13.7		17.0									
-30.00	BFA	BFA10700	CL																					12.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0		14.9				
-30.00	E	E_100	CR	14.0		13.7		13.7		13.7		13.7		13.7		13.7		13.7		13.7		13.7																												
-30.00	E	HISPASA4	CR	10.2				10.1				10.1				10.1				10.1																														
-30.00	E	HISPASA6	CR	11.2				11.1				11.1				11.1				11.1																														
-30.00	GNB	GNB30400	CL	15.6		16.9		15.2		16.9		15.2		16.9		15.2		16.9		15.2		16.9																												
-25.20	DNK	DNK_100	CL	1.3		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		-0.2																												
-25.20	MRC	MRC20900	CR		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		0.0																											
-25.20	TUN	TUN15000	CR																					-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.4		-0.2				
-25.20	TUN	TUN27200	CR																																															
-24.80	AGL	AGL29500	CR	9.2		6.8		6.8		6.8		6.8		6.8		6.8		6.8		6.8		6.8																												
-24.80	ALG	ALG25152	CL																					0.2		0.2		0.2		0.2		0.2		0.2		0.1		0.2		0.1		0.2		0.1		0.0				
-24.80	CTI	CTI23700	CR																					6.5		5.5		5.5		5.5		5.5		5.5		5.5		5.3		5.2		5.3		5.2		5.2				
-24.80	LBY	LBY28021	CL		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.6																													
-19.20	BEN	BEN23300	CL																					4.4		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1				
-19.20	COD	COD_100	CL	4.5		2.1		2.1		2.1		2.1		2.1		2.1		2.1		2.1		2.1																												
-19.20	MLI	MLI_100	CR		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		5.1																											
-18.80	AUT	AUT01600	CR																					0.1		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0				
-18.80	D	D 08700	CR	2.5		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0																												

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)																																							
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
-18.80	GNE	GNE30300	CR																					13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		14.7	
-18.80	LIE	LIE25300	CL																					0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		3.1	
-18.80	SUI	SUI14000	CL			0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3																					
-13.20	CAF	CAF25800	CR			1.1		0.0		1.1		0.0		1.1		0.0		1.1		1.0																							
-13.20	COG	COG23500	CR																					12.3		12.3		12.3		12.3		12.3		12.3		12.3		12.3		12.3		11.7	
-13.20	GAB	GAB26000	CL	4.9		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7																							
-13.20	PSE	YYY00001	CL																				8.6		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		
-12.80	CZE	CZE14401	CR	2.8							0.8							0.8									0.0							0.0									
-12.80	CZE	CZE14402	CL											0.1																-0.2							-0.2						
-12.80	CZE	CZE14403	CL			0.1*																		-0.2*		-0.2*																	
-12.80	HNG	HNG10601	CR			0.8						0.8						0.8									0.0						0.0										
-12.80	HNG	HNG10602	CL					0.1																								-0.2						-0.2					
-12.80	HNG	HNG10603	CL			0.1*																		-0.2*		-0.2*																	
-12.80	HRV	HRV14801	CR					0.8						0.8								0.8							0.0						0.0								
-12.80	HRV	HRV14802	CL									0.1																					-0.2							2.1			
-12.80	HRV	HRV14803	CL			0.1*																		-0.2*		-0.2*																	
-12.80	SVK	SVK14401	CR					0.8						0.8											0.0				0.0										0.0				
-12.80	SVK	SVK14402	CL																0.1								-0.2						-0.2										
-12.80	SVK	SVK14403	CL			0.1*																		-0.2*		-0.2*																	
-7.00	EGY	EGY02600	CR			27.4		28.1		27.4		28.1		27.4		28.1		27.4		28.7		27.8		10.0																			
-7.00	F	F 09300	CR																						0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		
-7.00	F	F____100	CL	17.5		16.6		16.6		16.6		16.6		16.6		16.6		17.2		18.0		18.0																					
-7.00	STP	STP24100	CL																						14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.1		
-7.00	YUG	YUG14800	CL																						1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5		2.0		
-4.00	ISR	ISR11000	CR																						18.2		18.2		18.2		18.2		18.2		18.2		18.2		18.2		20.9		
-1.20	BUL	BUL02000	CL	3.5		1.6		1.6		1.6		1.6		1.6		3.2		5.6		5.5																							
-1.20	CVA	CVA08300	CR			1.7		2.3		1.7		2.3		1.7		2.3																											
-1.20	CVA	CVA08500	CR											1.7																													
-1.20	CYP	CYP08600	CL																				7.7		4.6		4.7		4.6		4.7		4.6		4.7		4.6		4.7		4.6		
-1.20	GRC	GRC10500	CR																						0.2		0.3		0.2		0.3		0.2		0.3		0.2		0.3		0.2		
-0.80	BOT	BOT29700	CL																					3.2		0.0		0.8		0.0		0.8		0.0		0.8		0.0		0.8			
-0.80	KEN	KEN24900	CR			1.4		2.4		1.4		2.5		1.4		2.5		1.4		3.3		1.9		5.3																			
-0.80	NOR	NOR12000	CR	1.7		0.1		0.1		0.1		0.1		0.1		0.2		0.9		4.2		4.6																					
-0.80	NOR	NOR12100	CL																								4.4				4.4												
-0.80	ZMB	ZMB31400	CR																						0.2		0.0		0.2		0.0		0.2		0.0		0.2		0.0		0.2		
-0.80	ZWE	ZWE13500	CL	10.1		7.6		7.6		7.6		7.6		7.6		7.6		7.8		7.9		7.9																					
4.80	LSO	LSO30500	CL			6.3		6.2		6.3		6.2		6.3		6.2		6.1		6.1		5.8		10.2																			
4.80	MWI	MWI30800	CR																					10.6		11.1		11.1		11.1		6.9		6.9		6.9		6.9		5.4			

* This assignment shall only be used by the Administrations of CZE, HNG, HRV and SVK on the basis of equal access subject to mutual agreement between them.

[illegible]

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)																																									
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
36.00	RUS	RSTRED12	CL																											0.3				0.3				0.3				-0.4			
36.00	RUS	RSTRSD11	CR																								0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.4		
36.00	RUS	RSTRSD12	CL																									0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2	
37.80	BLR	BLR06200	CL	2.1		0.4		0.2		0.4		0.2		0.4		0.4		0.4		0.4																									
38.00	TJK	TJK06900	CL		1.9		1.9		1.9		1.9		1.9		1.9		1.9		1.9		4.4																								
38.20	BEL	BEL01800	CR																				0.1		0.6		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		4.2
38.20	HOL	HOL21300	CL																			-0.1		0.1		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3	
38.20	UKR	UKR06300	CR		0.5		0.5		0.5		0.5		0.5		0.5		0.6		0.6		0.3																								
42.00	TUR	TUR14500	CL		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9																								
42.50	SEY	SEY00000	CR																			19.9		20.1		20.2		20.2		20.2		20.2		20.2		20.2		20.2		20.2		20.2		21.0	
44.50	EST	EST06100	CR	14.4		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8																									
50.00	AFG	AFG24501	CL																											1.5		1.5		1.5		1.5		1.5		1.5		1.5		1.5	
50.00	AFG	AFG24502	CR																												1.5		1.5		1.5		1.5		1.5		1.5		1.5		4.0
50.00	CLN	CLN21900	CL	0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		0.9		5.1		5.1																					
50.00	KGZ	KGZ07000	CR		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.4																								
50.00	MDA	MDA06300	CR																			3.2		0.8		1.0		1.0		0.7		0.5		0.5		0.5		0.5		0.5		0.5			
50.00	MLD	MLD30600	CR	5.5		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.6		5.8																					
50.00	POL	POL13200	CR	5.9		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5																									
50.00	ROU	ROU13600	CL																				0.4		0.5		0.7		0.1		-0.1		-0.1		-0.1		-0.1		-0.1		-0.1		2.0		
50.00	TKM	TKM06800	CL	0.0		-0.7		-0.7		-0.7		-0.7		-0.7		-0.7		-0.7		-0.7																									
52.50	UAE	UAE27400	CR																			28.2		28.8		34.7		35.0		26.8		26.2		26.2		26.2		26.2		26.2		26.2		26.2	
56.00	BIH	BIH14800	CR	12.7		12.3		12.3		12.3		12.3		12.3		12.3		12.3		12.3																									
56.00	IND	INDA_100	CL		1.3		1.3		1.3		1.3		1.3		1.3		1.3		1.3		2.5		10.5		11.1																				
56.00	IND	INDB_100	CR	2.8		1.1		1.1		1.1		1.1		1.1		1.1		1.1		1.1		3.2		3.2																					
56.00	RUS	RSTRSD21	CR																									11.0		17.6		17.2		17.1		17.1		17.1		17.1		17.1		17.1	
56.00	RUS	RSTRSD22	CL																										17.7		17.6		17.2		17.2		17.2		17.2		17.2		17.2		18.2
56.40	KAZ	KAZ06600	CL	2.6		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0																									
62.00	ALB	ALB29600	CL																				12.8		14.1		46.6		46.5		46.3		46.3		46.3		46.3		46.3		46.3		46.3		47.4
62.00	CHN	CHN15400	CR		14.4		14.4		14.4		14.4		14.4		14.4		14.4		14.4		14.7		2.5		2.5																				
62.00	CHN	CHN15500	CL	14.7		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		2.4		0.1																					
68.00	IND	IND03700	CL		5.2		5.2		5.2		5.2		5.2		5.2		5.2		5.2		5.2		5.2		10.2																				
68.00	IND	IND04701	CR																										40.8		40.8		40.8		40.8		40.8		40.8		40.8		40.8		
68.00	IND	IND04702	CL																											44.2		44.2		44.2		44.2		44.2		44.2		44.2		47.1	
68.00	IND	INDD_100	CR	12.6		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1		10.1																			
74.00	BGD	BGD22000	CR	4.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		0.9		0.9																					
74.00	BRU	BRU3300A	CR		12.1		12.1		12.1		12.1		12.1		12.1		12.1		12.1		11.7		11.3		13.6																				
74.00	MNG	MNG24800	CL																			8.1		8.1		15.8		999.9		48.6		48.1		48.1		48.1		48.1		48.1		48.1			
80.20	INS	INS02800	CR	16.0		14.6		14.6		14.6		14.6		14.6		14.6		14.6		14.6		14.5		14.5																					
86.00	BTN	BTN03100	CR	10.8		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6		5.6																			
86.00	CBG	CBG29900	CR		2.1		2.1		2.1		2.1		2.1		2.1		2.1		2.1		2.1		2.1		4.0																				
86.00	RUS	RSTRSD31	CR																							1.9		999.9		999.9		999.9		999.9		999.9		999.9		999.9		999.9			

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)																																													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40						
86.00	RUS	RSTRSD32	CL																									999.9		999.9		999.9		999.9		999.9		999.9		999.9		999.9		999.9					
88.00	SNG	SNG15100	CL	15.4		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0																							
91.50	MLA	MLA__100	CR		11.5		11.5		11.5		11.5		11.5		11.5		11.5		11.5		11.5		11.5		11.5		13.8																						
92.20	CHN	CHN16000	CR	7.7		4.9		4.9		4.9		4.9		4.9		4.9		4.9		4.9		4.9		4.9		4.9																							
92.20	CHN	CHN16100	CL		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.1		11.2																				
98.00	PHL	PHL28500	CL		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		5.1		7.9																				
98.00	THA	THA14200	CR	8.1		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3		5.3																					
104.00	BRM	BRM29800	CR	15.4		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8		13.8																					
104.00	INS	INS03501	CL																																														
104.00	INS	INS03502	CR																																														
107.00	VTN	VTN32500	CR		14.2		14.2		14.2		14.2		14.2		14.2		14.2		14.2		14.2		14.2		14.3		14.4		17.1																			45.1	
109.85	J	000BS-3N	CR	21.6		19.4		19.2		19.2		19.2		19.2		19.9		21.0																															
109.85	J	J 10985	CR	23.9		21.6		21.4		21.4		21.4		21.4		22.1		23.1		21.7		21.4		21.4		21.4																							
110.00	J	J 11100	CR	23.7		21.4		21.2		21.2		21.2		21.2		22.0		23.0		21.6		21.2		21.3		21.3																							
110.00	J	J 1110E	CR	21.4		19.2		19.0		19.0		19.0		19.0		19.8		20.8																															
110.00	RUS	RUS00401	CR																									29.2		999.9		14.1		13.2		13.2		13.2		13.2		13.2		13.2		13.2			
110.00	RUS	RUS00402	CL																										999.9		20.8																		
116.00	KOR	KOR11201	CL																																														
116.00	KOR	KOR11202	CR																																														
121.80	USA	MRA33200	CR	17.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2																					
122.00	CHN	MAC00000	CL		13.8		13.8		13.8		13.8		13.8		13.8		13.9		13.9		13.8		13.8		13.8		15.9																						
122.00	USA	GUM33101	CR																																														
122.00	USA	GUM33102	CL																																														
122.20	LAO	LAO28400	CR		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.3		0.4		0.4		1.6																						
128.00	SLM	SLM00000	CL	16.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4		13.4																					
128.00	TMP	TMP00000	CR		19.6		19.6		19.6		19.6		19.6		19.6		19.6		19.6		19.6		19.6		19.6		19.6		22.6																				
134.00	CHN	CHN15800	CL		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		0.6		3.6																				
134.00	CHN	CHN15900	CR	2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0		2.0																					
134.00	NRU	NRU30900	CL	18.8		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6																					
140.00	F	F___200	CL		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		3.4		5.9																				
140.00	F	F___300	CR	4.0		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4		1.4																					
140.00	KRE	KRE28600	CL	13.6		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2		12.2																					
140.00	PLW	PLW00000	CR		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.5		10.0																				
140.00	RUS	RSTRSD51	CR																									0.1		999.9		3.0		1.6		1.6		1.6		1.6		1.6		1.6		1.6		1.6	
140.00	RUS	RSTRSD52	CL																										999.9		10.1		1.6		1.6		1.6		1.6		1.6		1.6		1.6		3.0		
140.00	VUT	VUT12801	CL																																														
140.00	VUT	VUT12802	CR																																														
146.00	MHL	MHL00000	CR		41.3		40.8		41.3		40.8		41.3		41.1		41.6		41.1		41.6		41.1		41.6		41.8																						
152.00	AUS	AUS00400	CL			0.1				0.1				0.1				0.1				0.1				0.1																							
152.00	AUS	AUS00401	CL			6.0				6.0				6.0				6.0				6.0				6.0																							
152.00	AUS	AUS00402	CL			6.0				6.0				6.0				6.0				6.0				6.0																							

[illegible]

Orbital Position (°)	Admin. symbol	Beam Identification	Polarization type	Channel number / Equivalent Protection Margin (dB)																																										
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
164.00	AUS	AUS00805	CL		6.0			6.0			6.0			6.0			6.0			6.0			6.0																							
164.00	AUS	AUS00806	CL		6.0			6.0			6.0			6.0			6.0			6.0			6.0																							
164.00	AUS	AUS00900	CR																							31.9		999.9		38.1		36.8				36.8				36.8						
164.00	AUS	AUS00901	CR																							65.2		999.9		63.1		61.7				61.7				61.7				61.7		
164.00	AUS	AUS00902	CR																							65.4		999.9		63.3		61.9				61.9				61.9				61.9		
164.00	AUS	AUS00903	CR																							60.5		999.9		62.1		60.8				60.8				60.8				60.8		
164.00	AUS	AUS00904	CR																							50.2		999.9		60.8		59.5				59.5				59.5				59.5		
164.00	AUS	AUS00905	CR																							56.4		999.9		59.4		58.1				58.1				58.1				58.1		
164.00	AUS	AUS00906	CR																							48.1		999.9		57.0		55.8				55.8				55.8				55.8		
164.00	AUS	AUS0090A	CR																							42.0		999.9		40.3		38.9				38.9				38.9				38.9		
164.00	AUS	AUSB0000	CL			-0.1			-0.1			-0.1																																		
164.00	AUS	AUSB0001	CL			6.0			6.0			6.0			6.0																															
164.00	AUS	AUSB0002	CL			6.0			6.0			6.0			6.0																															
164.00	AUS	AUSB0003	CL			6.0			6.0			6.0			6.0																															
164.00	AUS	AUSB0004	CL			6.0			6.0			6.0			6.0																															
164.00	AUS	AUSB0005	CL			6.0			6.0			6.0			6.0																															
164.00	AUS	AUSB0006	CL			6.0			6.0			6.0			6.0																															
170.00	USA	PLM33200	CL		10.4	10.4		10.4	10.4		10.4	10.4		10.4	10.4		10.4	10.4		10.4	10.4		10.4	10.4		10.4																				
170.00	USA	USAA_101	CR																											45.5		45.5		999.9		45.5		999.9		45.5		999.9		45.5		
170.00	USA	USAA_102	CL																											45.5		48.5		48.5		48.5		48.5		48.5		48.5		48.5		48.5
170.75	TON	TON21500	CR		11.6	11.6		11.6	11.6		11.6	11.6		11.6	11.6		11.6	11.6		11.6	11.6		11.6	11.6		11.6																				
176.00	KIR	KIR_100	CL	12.6		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7																				
176.00	TUV	TUV00000	CR		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		7.7																					