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

To reduce download time, the ITU Library and Archives Service has divided the conference documents into sections.

- This PDF includes Document DL No. 1-79
- The complete set of conference documents includes Document No. 1-544, DT No. 1-132 and DL No. 1-79.

International Telecommunication Union

ITU-R list of document series CMR2000/DL/

activity: **meeting doc CMR2000**
doc. type: **other**

from document 1 to document 80

Doc no: CMR2000/DL/001
Title: Draft Agenda of the meeting of Heads of Delegation
Language: EFS

Doc no: CMR2000/DL/002
Title: Draft Schedule for WRC-2000
Language: EFS

Doc no: CMR2000/DL/002R1
Title: Draft Schedule for WRC-2000
Language: EFS

Doc no: CMR2000/DL/003
Title: Working Group 5D
Language: E

Doc no: CMR2000/DL/004
Title: Note by the Chairperson of the Conference
Submitter: Roger Smith
Language: EFS

Doc no: CMR2000/DL/004R1
Title: Note by the Chairperson of the Conference
Language: EFS

Doc no: CMR2000/DL/005
Title: Draft First Report to GT PLEN-1
Language: E

Doc no: CMR2000/DL/006
Title: Appendice S3
Language: EFS

Doc no: CMR2000/DL/007
Title: Organization of Sub-Working Groups
Language: E

Doc no: CMR2000/DL/008
Title: Chairperson, Working Group 5D
Language: E

Doc no: CMR2000/DL/009
Title: Proposed modification to Article S5 (Working Group 5D)
Language: E

Doc no: CMR2000/DL/010
Title: List of proposals and indentifcation of responsible groups
Submitter: S. Peic
Language: E

Doc no: CMR2000/DL/010R1
Title: List of proposals and indentifcation of responsible groups
Language: E

Doc no: CMR2000/DL/010R2
Title: List of proposals and indentification of responsible groups
Language: E

Doc no: CMR2000/DL/010R3
Title: List of proposals and indentifcation of responsible groups
Language: E

Doc no: CMR2000/DL/011
Title: Resolution 124 - Article S5 462A

Language: E

Doc no: CMR2000/DL/012
Title: Chairperson, SWG 4B4 - Resolution 20 - Technical cooperation with developing countries in the field of aeronautical telecommunications
Language: E

Doc no: CMR2000/DL/013
Title: Changes to the Radio Regulations
Language: EFS

Doc no: CMR2000/DL/014
Title: Proposals over satellite comptents for IMT-2000
Language: E

Doc no: CMR2000/DL/015
Title: Note by the Chairperson of SWG 1 of GT PLEN-1
Language: E

Doc no: CMR2000/DL/016
Title: SWG 4A-1
Language: E

Doc no: CMR2000/DL/017
Title: Proposals for the work of the Conference
Language: E

Doc no: CMR2000/DL/018
Title: SWG 5A-2
Language: E

Doc no: CMR2000/DL/019
Title: SWG 5A-2
Language: E

Doc no: CMR2000/DL/020
Title: Note by the Chairman of Sub-Working Group 4A4 Resolution 127
Language: E

Doc no: CMR2000/DL/021
Title: Resolution 51
Language: EFS

Doc no: CMR2000/DL/022
Title: Resolution 49
Language: E

Doc no: CMR2000/DL/023
Title: Resolution 80
Language: E

Doc no: CMR2000/DL/024
Title: Chairperson, Drafting Group 5A1B
Language: E

Doc no: CMR2000/DL/025
Title: 5A-2A
Language: E

Doc no: CMR2000/DL/026
Title: Chairperson Ad hoc 1 of SWG 5C-2
Language: E

Doc no: CMR2000/DL/027
Title: Chairperson, Drafting Group 5A-1
Language: E

Doc no: CMR2000/DL/028
Title: Chairperson, Sub-Working Group 5C-2, ad-hoc 1
Language: E

Doc no: CMR2000/DL/029
Title: Resolution 716
Language: E

Doc no: CMR2000/DL/030
Title: Resolution 46
Language: E

Doc no: CMR2000/DL/031
Title: Review of Resolutions
Language: E

Doc no: CMR2000/DL/032
Title: Review of Resolutions and Recommendations
Language: E

Doc no: CMR2000/DL/033
Title: Resolution 53
Language: E

Doc no: CMR2000/DL/033R1
Title: Resolution 53
Language: E

Doc no: CMR2000/DL/034
Title: Resolution 533
Language: E

Doc no: CMR2000/DL/034R1
Title: Resolution 533
Submitter: P. Berrod
Language: E

Doc no: CMR2000/DL/034R2
Title: Resolution 533
Language: E

Doc no: CMR2000/DL/035
Title: PFD masks for 1 per cent, 4 per cent and 6 per cent of DT/T are attached for consideration by the Group
Language: E

Doc no: CMR2000/DL/036
Title: 5A1-1 PROPOSED NEW RESOLUTION FOR THE USE OF HAPS IN IMT-2000
Language: E

Doc no: CMR2000/DL/037
Title: PROPOSED FOOTNOTE FOR THE USE OF HAPS IN IMT-2000
Language: E

Doc no: CMR2000/DL/038
Title: Draft text for footnote for additional spectrum above 1 GHz for IMT-2000
Language: E

Doc no: CMR2000/DL/039
Title: Elements for footnote/Resolution on the Satellite component of IMT-2000
Language: E

Doc no: CMR2000/DL/040
Title: Review of Resolutions and Recommendations
Language: E

Doc no: CMR2000/DL/041
Title: 4B
Language: E

Doc no: CMR2000/DL/042
Title: Incorporation of Recommendations by reference
Language: E

Doc no: CMR2000/DL/043
Title: Report from ad hoc group 1-A
Language: E

Doc no: CMR2000/DL/043R1
Title: Report from ad hoc group 1-A
Language: E

Doc no: CMR2000/DL/044
Title: Draft Resolution for IMT-2000 extension bands
Language: E

Doc no: CMR2000/DL/045
Title: 4b4 to 4b4 Resolution 95
Language: E

Doc no: CMR2000/DL/046
Title: Issues to be considered in revising Res. 533
Language: E

Doc no: CMR2000/DL/047
Title: 5A2 to 5A2

Language: E

Doc no: CMR2000/DL/048
Title: 5A1
Language: E

Doc no: CMR2000/DL/049
Title: Resolution COM 4/2
Language: E

Doc no: CMR2000/DL/050
Title: Resolution 86 Group 4A-6
Language: E

Doc no: CMR2000/DL/051
Title: 5C-1 to 5C-1
Language: E

Doc no: CMR2000/DL/052
Title: 5C-1 to 5C-1
Language: E

Doc no: CMR2000/DL/053
Title: 5C-1 to 5C-1
Language: E

Doc no: CMR2000/DL/054
Title: 5C3 Ad Hoc A to 5C3
Language: E

Doc no: CMR2000/DL/055
Title: 5A1 to 5A1
Language: E

Doc no: CMR2000/DL/056
Title: Application of Article 5
Language: E

Doc no: CMR2000/DL/057
Title: Drafting Group 5A1
Language: E

Doc no: CMR2000/DL/058
Title: 5B3A to 5B3
Language: E

Doc no: CMR2000/DL/059
Title: 5A2A
Language: EFS

Doc no: CMR2000/DL/060
Title: Waiting for details from Sibyl
Language: EFS

Doc no: CMR2000/DL/061
Title: Draft Resolution RP (WRC-2000)
Language: E

Doc no: CMR2000/DL/062
Title: Draft new Resolution
Language: E

Doc no: CMR2000/DL/063
Title: List of the GSO FSS networks using the frequency band 11.7-12.5 GHz...
Language: E

Doc no: CMR2000/DL/063R1
Title: List of the GSO FSS networks using the frequency band 11.7-12.5 GHz in the orbital arc
Language: E

Doc no: CMR2000/DL/064
Title: Drafting Group 5A1
Language: EFS

Doc no: CMR2000/DL/065
Title: DG 5A-3
Language: E

Doc no: CMR2000/DL/066
Title: Informal Group GT PLEN-1 1B
Language: E

Doc no: CMR2000/DL/067
Title: Title to be determined
Language: E

Doc no: CMR2000/DL/068
Title: Modification of Resolution 53
Language: E

Doc no: CMR2000/DL/068R1
Title: Modification of Resolution 53
Language: E

Doc no: CMR2000/DL/069
Title: Modification of Annex 5 to Appendix S30
Language: E

Doc no: CMR2000/DL/070
Title: Modification of Annex 3 to Appendix S30A
Language: E

Doc no: CMR2000/DL/071
Title: Resolution [COM5/27] (WRC-2000)
Language: E

Doc no: CMR2000/DL/072
Title: Updating of Annex 1 of APS 30
Language: E

Doc no: CMR2000/DL/073
Title: Updating of Annex 1 of APS 30A
Language: E

Doc no: CMR2000/DL/074
Title: Working draft for 5C-3
Language: E

Doc no: CMR2000/DL/075
Title: Final days of the Conference
Language: EFS

Doc no: CMR2000/DL/076
Title: Review of Resolutions and Recommendations
Language: E

Doc no: CMR2000/DL/077
Title: Note by the Chairperson, DG 1
Language: E

Doc no: CMR2000/DL/078
Title: Draft timetable for the last days of the conference
Language: E

Doc no: CMR2000/DL/079
Title: Informal APT-CEPT drafting Group
Language: E

End of list

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

Document DL/1-E
8 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

HEADS OF DELEGATION

DRAFT AGENDA

OF THE

MEETING OF HEADS OF DELEGATION

Monday, 8 May 2000, at 0930 hours

(ICEC - Anadolu)

		Documents
1	Approval of the agenda	DL/1
2	Proposal for the structure of the Conference	DT/2
3	Proposals for the election of the Chairperson and Vice-Chairpersons of the Conference	-
4	Proposals for the election of the Chairpersons and Vice-Chairpersons of the Committees	-
5	Draft agenda of the first Plenary Meeting	DT/3
6	Other business	-

Yoshio UTSUMI
Secretary-General

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS

CMR-2000 CONFÉRENCE MONDIALE DES RADIOCOMMUNICATIONS

Document DL/1-F
8 mai 2000
Original: anglais

ISTANBUL, 8 MAI – 2 JUIN 2000

CHEFS DE DÉLÉGATION

PROJET D'ORDRE DU JOUR

DE LA

RÉUNION DES CHEFS DE DÉLÉGATION

Lundi 8 mai 2000 à 9 h 30

(ICEC - Anadolu)

		Documents
1	Adoption de l'ordre du jour	DL/1
2	Proposition relative à la structure de la Conférence	DT/2
3	Propositions relatives à l'élection du Président et des Vice-Présidents de la Conférence	-
4	Propositions relatives à l'élection du Président et des Vice-Présidents des Commissions	-
5	Projet d'ordre du jour de la première séance plénière	DT/3
6	Divers	-

Yoshio UTSUMI
Secrétaire général

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

CMR-2000 CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES

Documento DL/1-S
8 de mayo de 2000
Original: inglés

ESTAMBUL, 8 DE MAYO – 2 DE JUNIO DE 2000

JEFES DE DELEGACIÓN

PROYECTO DE ORDEN DEL DÍA

DE LA

REUNIÓN DE JEFES DE DELEGACIÓN

Lunes 8 de mayo de 2000, a las 09.30 horas

(ICEC, Anadolu)

		Documentos
1	Aprobación del orden del día	DL/1
2	Propuesta para la estructura de la Conferencia	DT/2
3	Propuestas para la elección del Presidente y Vicepresidentes de la Conferencia	-
4	Propuestas para la elección de los Presidentes y Vicepresidentes de las Comisiones	-
5	Proyecto de orden del día de la primera sesión plenaria	DT/3
6	Otros asuntos	-

Yoshio UTSUMI
Secretario General

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS

CMR-2000 CONFÉRENCE MONDIALE DES RADIOCOMMUNICATIONS

Révision 1 au
Document DL/2-F/E/S
10 mai 2000
Original: français
anglais
espagnol

ISTANBUL, 8 MAI – 2 JUIN 2000

COMMISSION DE DIRECTION/
STEERING COMMITTEE/
COMISIÓN DE DIRECCIÓN

PROJET DE CALENDRIER POUR LA CMR-2000/ DRAFT SCHEDULE FOR WRC-2000/ PROYECTO DE CALENDARIO PARA LA CMR-2000

Le projet de calendrier est joint en annexe.

The draft schedule is annexed.

Se adjunta el proyecto de calendario.

Annexe/Annex/Anexo: 1

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/2-E
8 May 2000
Original: English

STEERING COMMITTEE

DRAFT SCHEDULE FOR WRC-2000

The draft schedule is annexed.

Annex: 1

ANNEX

WORLD RADIOCOMMUNICATION CONFERENCE
ISTANBUL 8 MAY - 2 JUNE 2000

WEEK 1
From Monday, 8 May 2000
To Sunday, 14 May 2000

Monday - 8	Tuesday - 9	Wednesday - 10	Thursday - 11	Friday - 12	Saturday - 13	Sunday - 14
0930 hours Formal meeting of Heads of delegations	0930 hours – COM 4 and 5 working groups	0930 hours – COM 4 and 5 working groups – GT PLEN-2	0930 hours – COM 4 and 5 working groups and parent subgroups	0930 hours – GT PLEN-2 – COM 4 and 5 working groups and parent subgroups		
1030 hours Opening ceremony	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break		
1130 hours Coffee break	1100 hours – GT PLEN-1 – COM 4 and 5 working groups	1100 hours – COM 4 and 5 working groups – **COM 3**	1100 hours – **COM 2** – COM 4 and 5 working groups and parent subgroups	1100 hours COM 4 and 5 working groups and parent subgroups		
1145 hours **FIRST PLENARY MEETING**						
1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break		
1430 hours **FIRST PLENARY MEETING** (Continued)	1430 hours – COM 4 and 5 working groups	1430 hours **COM 4**	1430 hours – GT PLEN-1 – COM 4 and 5 working groups and parent subgroups	1430 hours – **COM 4** – COM 4 and 5 working groups and parent subgroups		
1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break		
1600 hours – 1st meeting, COM 4 – 1st meeting, COM 5	1600 hours – COM 4 and 5 working groups	1600 hours **COM 5**	1600 hours **SECOND PLENARY MEETING**	1600 hours – **COM 5** – COM 4 and 5 working groups and parent subgroups		
1730 hours Break		1730 hours Break		1730 hours Break		
1745 hours – Steering Committee		1745 hours – Steering Committee		1745 hours – Steering Committee		

NOTE - This draft weekly schedule is subject to revisions made by the Steering Committee.

WORLD RADIOCOMMUNICATION CONFERENCE
ISTANBUL 8 MAY - 2 JUNE 2000

WEEK 2
From Monday, 15 May 2000
To Sunday, 21 May 2000

Monday - 15	Tuesday - 16	Wednesday - 17	Thursday - 18	Friday - 19	Saturday - 20	Sunday - 21
0930 hours – COM 4 and 5 working groups and parent subgroups	0930 hours – **COM 4** – GT PLEN-2	0930 hours – COM 4 and 5 working groups and parent subgroups	0930 hours – COM 4 and 5 working groups and parent subgroups	0930 hours **COM 5**		
1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break		
1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-2		
1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break		
1430 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-1	1430 hours – **COM 5**	1430 hours – COM 4 and 5 working groups and parent subgroups	1430 hours – COM 4 and 5 working groups and parent subgroups	1430 hours **COM 4**		
1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break		
1600 hours – COM 4 and 5 working groups and parent subgroups	1600 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-1	1600 hours – COM 4 and 5 working groups and parent subgroups	1600 hours **THIRD PLENARY MEETING**	1600 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-1		
1730 hours Break		1730 hours Break		1730 hours Break		
1745 hours – Steering Committee		1745 hours – Steering Committee		1745 hours – Steering Committee		

NOTE - This draft weekly schedule is subject to revisions made by the Steering Committee.

WORLD RADIOCOMMUNICATION CONFERENCE
ISTANBUL 8 MAY - 2 JUNE 2000

WEEK 3
From Monday, 22 May 2000
To Sunday, 28 May 2000

Monday - 22	Tuesday - 23	Wednesday - 24	Thursday - 25	Friday - 26	Saturday - 27	Sunday - 28
0930 hours – COM 4 and 5 working groups and parent subgroups	0930 hours – **COM 4** – GT PLEN-2	0930 hours **FOURTH PLENARY MEETING**	0930 hours **COM 4**	0930 hours **COM 4**		
1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break		
1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups – **COM 3**	1100 hours – COM 4 and 5 working groups and parent subgroups	1100 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-2		
1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break		
1430 hours – COM 4 and 5 working groups and parent subgroups	1430 hours – **COM 5**	1430 hours – COM 4 and 5 working groups and parent subgroups	1430 hours **COM 5**	1430 hours **COM 5** (Final)		
1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break		
1600 hours – COM 4 and 5 working groups and parent subgroups	1600 hours – COM 4 and 5 working groups and parent subgroups – GT PLEN-1	1600 hours – COM 4 and 5 working groups and parent subgroups	1600 hours – COM 4 and 5 working groups and parent subgroups	1600 hours – COM 4 working groups and parent subgroups – GT PLEN-1		
1730 hours Break		1730 hours Break		1730 hours Break		
1745 hours – Steering Committee		1745 hours – Steering Committee		1745 hours – Steering Committee		

NOTE - This draft weekly schedule is subject to revisions made by the Steering Committee.

WORLD RADIOCOMMUNICATION CONFERENCE
ISTANBUL 8 MAY - 2 JUNE 2000

WEEK 4
From Monday, 29 May 2000
To Friday, 2 June 2000

Monday - 29	Tuesday - 30	Wednesday - 31	Thursday - 1	Friday - 2	Saturday - 3	Sunday - 4
0930 hours – **COM 4** – GT PLEN-2 (Final)	0930 hours **FIFTH PLENARY MEETING**	0930 hours **SEVENTH PLENARY MEETING**	0930 hours **NINTH PLENARY MEETING**	0930 hours		
1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break	1045 hours Coffee break			
1100 hours – **COM 2** (Final) – **COM 3** (Final) – **COM 4**	1100 hours **FIFTH PLENARY MEETING** (Continued)	1100 hours **SEVENTH PLENARY MEETING** (Continued)	1100 hours **NINTH PLENARY MEETING** (Continued)	1100 hours **ELEVENTH PLENARY MEETING**		
1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break	1230 hours Lunch break		
1430 hours – **COM 4** (Final)	1430 hours **SIXTH PLENARY MEETING**	1430 hours **EIGHTH PLENARY MEETING**	1430 hours **TENTH PLENARY MEETING**	1430 hours **TWELFTH PLENARY MEETING**		
1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break	1545 hours Coffee break		
1600 hours – GT PLEN-1 (Final)	1600 hours **SIXTH PLENARY MEETING** (Continued)	1600 hours **EIGHTH PLENARY MEETING** (Continued)	1600 hours **TENTH PLENARY MEETING** (Continued)	1600 hours **Closing ceremony**		
1730 hours Break		1730 hours Break				
1745 hours – Steering Committee		1745 hours – Steering Committee				

NOTE - This draft weekly schedule is subject to revisions made by the Steering Committee.

UNION INTERNATIONALE DES
TÉLÉCOMMISSIONMUNICATIONS

CMR-2000 CONFÉRENCE MONDIALE DES RADIOCOMMISSIONMUNICATIONS

ISTANBUL, 8 MAI – 2 JUIN 2000

Document DL/2-F
8 mai 2000
Original: anglais

COMMISSION DE DIRECTION

PROJET DE CALENDRIER DES TRAVAUX DE LA CMR-2000

Le projet de calendrier des travaux de la CMR-2000 est reproduit en annexe.

Annexe: 1

ANNEXE

CONFERENCE MONDIALE DES RADIOCOMMUNICATIONS
ISTANBUL, 8 MAI - 2 JUIN 2000

1ÈRE SEMAINE
lundi 8 mai - dimanche 14 mai 2000

Lundi - 8	Mardi - 9	Mercredi - 10	Jeudi - 11	Vendredi - 12	Samedi - 13	Dimanche - 14
9 h 30 Réunion officielle des Chefs de délégation	9 h 30 – Groupes de travail des Commissions 4 et 5	9 h 30 – Groupes de travail des Commissions 4 et 5 – GT PLEN-2	9 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	9 h 30 – GT PLEN-2 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5		
10 h 30 Cérémonie d'ouverture	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café		
11 h 30 Pause café	11 heures – GT PLEN-1 – Groupes de travail des Commissions 4 et 5	11 heures – Groupes de travail des Commissions 4 et 5 **– Commission 3**	11 heures **– Commission 2** – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures Groupes de travail et sous-groupes relevant des Commissions 4 et 5		
11 h 45 **PREMIÈRE SÉANCE PLÉNIÈRE**						
12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner		
14 h 30 **PREMIÈRE SÉANCE PLÉNIÈRE** (Suite)	14 h 30 – Groupes de travail des Commissions 4 et 5	14 h 30 **Commission 4**	14 h 30 – GT PLEN-1 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	14 h 30 **– Commission 4** – Groupes de travail et sous-groupes relevant des Commissions 4 et 5		
15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café		
16 heures – 1ère séance, Commission 4 – 1ère séance, Commission 5	16 heures – Groupes de travail des Commissions 4 et 5	16 heures **Commission 5**	16 heures **DEUXIÈME SÉANCE PLÉNIÈRE**	16 heures **– Commission 5** – Groupes de travail et sous-groupes relevant des Commissions 4 et 5		
17 h 30 Pause		17 h 30 Pause		17 h 30 Pause		
17 h 45 – Commission de direction		17 h 45 – Commission de direction		17 h 45 – Commission de direction		

NOTE - Ce projet de calendrier hebdomadaire pourra être modifié par la Commission de direction.

CONFERENCE MONDIALE DES RADIOCOMMUNICATIONS
ISTANBUL, 8 MAI - 2 JUIN 2000

2ÈME SEMAINE
lundi 15 mai - dimanche 21 mai 2000

Lundi 15	Mardi 16	Mercredi 17	Jeudi 18	Vendredi 19	Samedi 20	Dimanche 21
9 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	9 h 30 – **Commission 4** – GT PLEN-2	9 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	9 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	9 h 30 **Commission 5**		
10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café		
11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-2		
12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner		
14 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-1	14 h 30 – **Commission 5**	14 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	14 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	14 h 30 **Commission 4**		
15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café		
16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-1	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	16 heures **TROISIEME SEANCE PLENIERE**	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-1		
17 h 30 Pause		17 h 30 Pause		17 h 30 Pause		
17 h 45 – Commission de direction		17 h 45 – Commission de direction		17 h 45 – Commission de direction		

NOTE: Ce projet de calendrier hebdomadaire pourra être modifié par la Commission de direction.

CONFERENCE MONDIALE DES RADIOCOMMUNICATIONS
ISTANBUL, 8 MAI - 2 JUIN 2000

3ÈME SEMAINE
lundi 22 mai - dimanche 28 mai 2000

Lundi 22	Mardi 23	Mercredi 24	Jeudi 25	Vendredi 26	Samedi 27	Dimanche 28
9 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	9 h 30 – **Commission 4** – GT PLEN-2	9 h 30 **QUATRIEME SEANCE PLENIERE**	9 h 30 **Commission 4**	9 h 30 **Commission 4**		
10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café		
11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – **Commission 3**	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	11 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-2		
12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner		
14 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	14 h 30 – **Commission 5**	14 h 30 – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	14 h 30 **Commission 5**	14 h 30 **Commission 5** (dernière séance)		
15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café		
16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5 – GT PLEN-1	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	16 heures – Groupes de travail et sous-groupes relevant des Commissions 4 et 5	16 heures – Groupes de travail et sous-groupes relevant de la Commission 4 – GT PLEN-1		
17 h 30 Pause		17 h 30 Pause		17 h 30 Pause		
17 h 45 – Commission de direction		17 h 45 – Commission de direction		17 h 45 – Commission de direction		

NOTE: Ce projet de calendrier hebdomadaire pourra être modifié par la Commission de direction.

CONFERENCE MONDIALE DES RADIOCOMMUNICATIONS
ISTANBUL, 8 MAI - 2 JUIN 2000

4ÈME SEMAINE

lundi 29 mai – vendredi 2 juin 2000

Lundi 29	Mardi 30	Mercredi 31	Jeudi 1	Vendredi 2	Samedi 3	Dimanche 4
9 h 30 – **Commission 4** – GT PLEN-2 (Dernière séance)	9 h 30 **CINQUIEME SEANCE PLENIERE**	9 h 30 **SEPTIEME SEANCE PLENIERE**	9 h 30 **NEUVIEME SEANCE PLENIERE**	9 h 30		
10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café	10 h 45 Pause café			
11 heures – **Commission 2** (Dernière séance) – **Commission 3** (Dernière séance) – **Commission 4**	11 heures **CINQUIEME SEANCE PLENIERE** (Suite)	11 heures **SEPTIEME SEANCE PLENIERE** (Suite)	11 heures **NEUVIEME SEANCE PLENIERE** (Suite)	11 heures **ONZIEME SEANCE PLENIERE**		
12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner	12 h 30 Déjeuner		
14 h 30 – **Commission 4** (Dernière séance)	14 h 30 **SIXIEME SEANCE PLENIERE**	14 h 30 **HUITIEME SEANCE PLENIERE**	14 h 30 **DIXIEME SEANCE PLENIERE**	14 h 30 **DOUZIEME SEANCE PLENIERE**		
15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café	15 h 45 Pause café		
16 heures – GT PLEN-1 (Dernière séance)	16 heures **SIXIEME SEANCE PLENIERE** (Suite)	16 heures **HUITIEME SEANCE PLENIERE** (Suite)	16 heures **DIXIEME SEANCE PLENIERE** (Suite)	16 heures **Cérémonie de clôture**		
17 h 30 Pause		17 h 30 Pause				
17 h 45 – Commission de direction		17 h 45 – Commission de direction				

NOTE: Ce projet de calendrier hebdomadaire pourra être modifié par la Commission de direction.

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

CMR-2000 CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES

Documento DL/2-S
8 de mayo de 2000
Original: inglés

ESTAMBUL, 8 DE MAYO – 2 DE JUNIO DE 2000

COMISIÓN DE DIRECCIÓN

PROYECTO DE PROGRAMA DE TRABAJO PARA LA CMR-2000

El proyecto de programa de trabajo figura en el anexo.

Anexos: 1

ANEXO

CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES
ESTAMBUL 8 DE MAYO - 2 DE JUNIO DE 2000

SEMANA 1
Del lunes 8 de mayo de 2000
al domingo 14 de mayo de 2000

Lunes - 8	Martes - 9	Miércoles - 10	Jueves - 11	Viernes - 12	Sábado - 13	Domingo - 14
09.30 horas Reunión oficial de los Jefes de Delegación	09.30 horas – Grupos de Trabajo de las COM 4 y 5	09.30 horas – Grupos de Trabajo de las COM 4 y 5 – GT PLEN-2	09.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	09.30 horas – GT PLEN-2 – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5		
10.30 horas Ceremonia de apertura	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café		
11.30 horas Pausa café	11.00 horas – GT PLEN-1 – Grupos de Trabajo de las COM 4 y 5	11.00 horas – Grupos de Trabajo de las COM 4 y 5 **– COM 3**	11.00 horas **– COM 2** – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5		
11.45 horas **PRIMERA SESIÓN PLENARIA**						
12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo		
14.30 horas **PRIMERA SESIÓN PLENARIA** (continuación)	14.30 horas – Grupos de Trabajo de las COM 4 y 5	14.30 horas **COM 4**	14.30 horas – GT PLEN-1 – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	14.30 horas **– COM 4** – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5		
15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café		
16.00 horas – 1ª reunión de la COM 4 – 1ª reunión de la COM 5	16.00 horas – Grupos de Trabajo de las COM 4 y 5	16.00 horas **COM 5**	16.00 horas **SEGUNDA SESIÓN PLENARIA**	16.00 horas **– COM 5** – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5		
17.30 horas Pausa		17.30 horas Pausa		17.30 horas Pausa		
17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		

NOTA - Este proyecto de programa de trabajo semanal está sujeto a revisiones por parte de la Comisión de Dirección.

CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES
ESTAMBUL 8 DE MAYO - 2 DE JUNIO DE 2000

SEMANA 2
Del lunes 15 de mayo de 2000
al domingo 21 de mayo de 2000

Lunes - 15	Martes - 16	Miércoles - 17	Jueves - 18	Viernes - 19	Sáb. - 20	Dom. - 21
09.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	09.30 horas – **COM 4** – GT PLEN-2	09.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	09.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	09.30 horas **COM 5**		
10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café		
11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-2		
12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo		
14.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-1	14.30 horas – **COM 5**	14.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	14.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	14.30 horas **COM 4**		
15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café		
16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-1	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	16.00 horas **TERCERA SESIÓN PLENARIA**	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-1		
17.30 horas Pausa		17.30 horas Pausa		17.30 horas Pausa		
17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		

NOTA - Este proyecto de programa de trabajo semanal está sujeto a revisiones por parte de la Comisión de Dirección.

CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES
ESTAMBUL 8 DE MAYO - 2 DE JUNIO DE 2000

SEMANA 3
Del lunes 22 de mayo de 2000
al domingo 28 de mayo de 2000

Lunes - 22	Martes - 23	Miércoles - 24	Jueves - 25	Viernes - 26	Sáb. - 27	Dom. - 28
09.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	09.30 horas – **COM 4** – GT PLEN-2	09.30 horas **CUARTA SESIÓN PLENARIA**	09.30 horas **COM 4**	09.30 horas **COM 4**		
10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café		
11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – **COM 3**	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	11.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-2		
12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo		
14.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	14.30 horas – **COM 5**	14.30 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	14.30 horas **COM 5**	14.30 horas **COM 5** (final)		
15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café		
16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5 – GT PLEN-1	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	16.00 horas – Grupos de Trabajo y subgrupos correspondientes COM 4 y 5	16.00 horas – Grupos de Trabajo y subgrupos correspondientes de la COM 4 – GT PLEN-1		
17.30 horas Pausa		17.30 horas Pausa		17.30 horas Pausa		
17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección		

NOTA - Este proyecto de programa de trabajo semanal está sujeto a revisiones por parte de la Comisión de Dirección.

CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES
ESTAMBUL 8 DE MAYO - 2 DE JUNIO DE 2000

SEMANA 4
Del lunes 29 de mayo de 2000
al viernes 2 de junio de 2000

Lunes - 29	Martes - 30	Miércoles - 31	Jueves - 1	Viernes - 2	Sábado - 3	Domingo - 4
09.30 horas – **COM 4** – GT PLEN-2 (final)	09.30 horas **QUINTA SESIÓN PLENARIA**	09.30 horas **SÉPTIMA SESIÓN PLENARIA**	09.30 horas **NOVENA SESIÓN PLENARIA**	09.30 horas		
10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café	10.45 horas Pausa café			
11.00 horas – **COM 2** (final) – **COM 3** (final) – **COM 4**	11.00 horas **QUINTA SESIÓN PLENARIA (continuación)**	11.00 horas **SÉPTIMA SESIÓN PLENARIA (continuación)**	11.00 horas **NOVENA SESIÓN PLENARIA (continuación)**	11.00 horas **DÉCIMA SESIÓN PLENARIA**		
12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo	12.30 horas Pausa para el almuerzo		
14.30 horas – **COM 4** (final)	14.30 horas **SEXTA SESIÓN PLENARIA**	14.30 horas **OCTAVA SESIÓN PLENARIA**	14.30 horas **DÉCIMA SESIÓN PLENARIA**	14.30 horas **DUODÉCIMA SESIÓN PLENARIA**		
15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café	15.45 horas Pausa café		
16.00 horas – GT PLEN-1 (final)	16.00 horas **SEXTA SESIÓN PLENARIA (continuación)**	16.00 horas **OCTAVA SESIÓN PLENARIA (continuación)**	16.00 horas **DÉCIMA SESIÓN PLENARIA (continuación)**	16.00 horas **Ceremonia de clausura**		
17.30 horas Pausa		17.30 horas Pausa				
17.45 horas – Comisión de Dirección		17.45 horas – Comisión de Dirección				

NOTA - Este proyecto de programa de trabajo semanal está sujeto a revisiones por parte de la Comisión de Dirección.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/3-E
9 May 2000
English only

WORKING GROUP 5D

Chairperson, WG 5D

The following is the updated list of documents for the work of WG 5D (agenda items 1.12, 1.13 and 1.14) within contributions 1-140.

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	IAP/14/48 CAN/24/22
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	IAP/14/49 CAN/24/22 ASP/20/107 EUR/13/371 RUS/33/12 RCC/45/12 UZB/30/ CME/122/9
Rec. XXX	ADD	CME/122/8

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.
S5.441	MOD	ASP/20/143 B/35/72 EUR/13/134 MRC/25/1 USA/12/198
S5.484A	MOD	ASP/20/144 B/35/73 EUR/13/135 MRC/25/2 USA/12/199
S5.487A	MOD	ASP/20/145 B/35/74 EUR/13/136 MRC/25/3 USA/12/200
S5.488	MOD	ASP/20/146 CUB/31/65, 66 EUR/13/138 EUR/13/377
S5.491	MOD	ASP/20/147 CUB/31/67, 68 EUR/13/139
S5.502	MOD	ASP/20/152 AUS/56/1 E/93/2 EUR/13/140,(387 ?) MLA/46/1 USA/98/1 E/93/2

S5.502A	ADD	USA/98/2
S5.503	MOD	EUR/13/141 USA/98/3
S5.515	MOD	CUB/31/70
S9 (A.S9.5)	MOD	EUR/13/142
S9.5B	MOD	IAP/14/271
S9.5B.2	ADD	IAP/14/272
S9.7A	ADD	ASP/20/126 AUS/KOR/55/1 EUR/13/125 IAP/14/277 J/133/31
S9.7.A.1 and 9.7.B.1	ADD	ASP/20/128 AUS/KOR/55/3 EUR/13/127 IAP/14/280 J/133/33*bis*
S9.7.A.2 and S9.7.B.2	ADD	ASP/20/129 AUS/KOR/55/4 EUR/13/128 J/133/34
S9.7B	ADD	ASP/20/127 EUR/13/126 AUS/KOR/55/2 IAP/14/278 J/133/32
S9.8.1 and S9.9.1	MOD	ASP/20/130 AUS/KOR/55/5 IAP/14/281
S9.10	MOD	IAP/14/273
S9.12	MOD	EUR/13/143
S9.12.1	ADD	EUR/13/143*bis*
S9.40B	ADD	J/133/29
A.S11.3	MOD	EUR/13/144
S11.31	MOD	IAP/14/274
S11.31.2*bis*	ADD	IAP/14/275

S11.32A	MOD	ASP/20/131 AUS/KOR/55/7 EUR/13/129 EUR/13/335 (repeated in /372) IAP/14/282 J/133/36
S11.32A.1	MOD	ASP/20/132 AUS/KOR/55/8 EUR/13/130 EUR/13/337 (repeated in /374) IAP/14/283 J/133/37
S11.33	MOD	EUR/13/336
S11.35	MOD	EUR/13/338
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
S15.47	ADD	IAP/14/288
S15 (Section VII)	ADD	EUR/13/339
S15.47	ADD	EUR/13/340
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.1	ADD	ASP/20/156
S15A.2	ADD	ASP/20/157
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
S15A.10	ADD	ASP/20/165
S15A.11	ADD	ASP/20/166
S15A Section II	ADD	ASP/20/167
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.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
S21-4	MOD	EUR/13/79 CUB/31/52, 53, 54, 55, 56, 57, 58
S21 (Table S21-4)	MOD	ASP/20/136 B/35/27 CAN/24/23 EUR/13/378 IAP/14/118
S21.16.6	MOD	ASP/20/137 B/35/28 CAN/24/24 CUB/31/59 EUR/13/80 IAP/14/120
S21.16.6*bis*	ADD	ASP/20/138 B/35/29 CAN/24/25 CUB/31/60 EUR/13/81 IAP/14/119
S21.16.7	NOC	ASP/20/139 CUB/31/61 EUR/13/82
S21.16.8	SUP	ASP/20/140 B/35/30 CAN/24/26 CUB/31/62 EUR/13/83 IAP/14/121
S21.16.9	SUP	ASP/20/141 B/35/31 CAN/24/27 CUB/31/63 EUR/13/84 IAP/14/122
S22 (Section II)	MOD	J/133/15

S22 (Table S22-1)	SUP	ASP/20/110*ter* B/35/35 EUR/13/88 IAP/14/246
S22 (Table S22-1A)	ADD	ASP/20/111 B/35/36 EUR/13/89 IAP/14/247
S22(Table S22-1A')	ADD	ASP/20/111*bis*
S22 (Table S22-1B)	ADD	ASP/20112 B/35/37 EUR/13/90 IAP/14/248
S22 (Table S22-1C)	ADD	ASP/20/113 B/35/38 EUR/13/91 IAP/14/249 J/133/22
S22 (Table S22-1D)	ADD	ASP/20/114 B/35/39 EUR/13/92 IAP/14/250 J/133/18,19
S22 (Table S22-1E)	ADD	J/133/20
S22 (Tables S22-1B and 1C footnote)	ADD	J/133/21
S22 (Table S22-2)	MOD	CUB/31/69 EUR/13/94 EUR/13/150
S22 (Table S22-2)	SUP	B/35/42 IAP/14/252
S22 (Table S22-2)	ADD	B/35/43 IAP/14/254 J/133/23
S22 (Table S22-2)	MOD	ASP/20/116*bis*
S22 (Table S22-3)	MOD	ASP/20/116*quat* EUR/13/97
S22 (Table S22-3)	ADD	B/35/49 IAP/14/258 J/133/24

S22 (Table S22-3 Part A)	SUP	B/35/46 IAP/14/256
S22 (Table S22-3 Part B)	SUP	B/35/46*bis* IAP/14/256*bis*
S22 (Table S22-4)	SUP	EUR/13/101
S22 (Table22-4)	MOD	AUS/KOR/55/5*bis*, 6
S22 (Table S22-4 Part A)	SUP	ASP/20/117*bis* B/35/50 IAP/14/259
S22 (Table S22-4 Part B)	SUP	ASP/20/117*ter* B/35/50*bis* IAP/14/260
S22 (Table S22-4A)	ADD	ASP/20/120 B/35/54 EUR/13/102 IAP/14/265 J/133/26,27,28 RUS/33/20
S22 (Table S22-4A1)	ADD	ASP/20/121 B/35/54*bis* EUR/13/103
S22 (Table S22-4A2)	ADD	ASP/20/122 EUR/13/104
S22 (Table S22-4B)	ADD	ASP/20/123 B/35/55 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	ASP/20/109 B/35/32 EUR/13/86 IAP/14/243
S22.5C, 5C1	MOD	ASP/20/110, 110*bis* B/35/33, 34 EUR/13/87, 87*bis* IAP/14/244, 245 J/133/16
S22.5CA	ADD	ASP/20/115

S22.5D	MOD	ASP/20/116 B/35/40 EUR/13/93 IAP/14/251
S22.5.D1	SUP	B/35/41 EUR/13/93 IAP/14/253
S22.5E, 5E1	SUP	ASP/20/116*ter* B/35/44, 45 EUR/13/95, 96 IAP/14/255
S22.5F	MOD	ASP/20/117 B/35/47 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 J/133/25
S22.5G	SUP	ASP/20/115*bis* IAP/14/262
S22.5H	ADD	ASP/20/118 EUR/13/99 B/35/52 IAP/14/267
S22.5I	ADD	ASP/20/119 B/35/53 EUR/13/100 IAP/14/268
S22.5J	ADD	ASP/20/124 B/35/56 EUR/13/107

Section VI of S22	MOD	B/35/57 EUR/13/108 USA/12/183 J/133/13
		AUS/53/1
S22.26	MOD	B/35/58 EUR/13/109 USA/12/184 J/133/14*bis*
S22.26	SUP	KOR/87/3
S22.27	MOD	B/35/59 EUR/13/110
S22.27	SUP	KOR/87/3 USA/12/185 J/133/14
S22.28	MOD	B/35/60 EUR/13/111
S22.28	SUP	KOR/87/3 USA/12/185 J/133/14
S22.29	NOC	EUR/13/112
S22.29	SUP	KOR/87/3 USA/12/185 J/133/14
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*bis*
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
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, 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	ASP/20/133 AUS/KOR/55/9 EUR/13/131 IAP/14/284 J/133/38
App. S4 (Annex 2B-D)	MOD	ASP/20/134 AUS/KOR/55/10 EUR/13/132 IAP/14/285 J/133/39
App. S5 (Table S5)	ADD	IAP/14/276
App. S5 (Table S5-1A)	MOD	CUB/31/73
App. S5 (Table S5-1)	ADD	ASP/20/135 AUS/KOR/55/11 EUR/13/133 IAP/14/286 J/133/40
App. S10	MOD	EUR/13/370
Res. 130	SUP	IAP/14/289 ASP/20/142 J/133/8
Res. 130	MOD	EUR/13/152

Res. 130	MOD	USA/12/202-252
Res. 130	MOD	RUS/33/19
Res. 131	SUP	CAN/24/28 CUB/31/64 EUR/13/151 IAP/14/123 J/133/9
Res.538	MOD	EUR/13/153 KOR/87/1 USA/12/163-181
Res. 538	SUP	J/133/10
Res. 538 (Annex)	SUP	IAP/14/290
Res. QQQ	ADD	AUS/54/1
Res. WWW	ADD	ASP/20/125 CAN/24/29 IAP/14/124 IAP/14/287
Res.[EUR/13/6]	ADD	EUR/13/124
Res. XXX	ADD	E/93/1
Res. RRR	ADD	RUS/33/18
Res. CEA	ADD	USA/12/182
Res. FSS	ADD	J/133/30
General		RCC/45/13 KEN/115/11, 12 AFR/37/5 SEN/42/21, 22 CME/122/ CAN/24/.....

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 EUR/13/137 EUR/13/149 KOR/87/2 MRC/25/4 J/133/11 USA/12/201
S5.516A	ADD	CUB/31/72
		RCC/45/13
S5.520	MOD	KOR/87/4 J/133/12 USA/12/197
Res. EEE	ADD	CAN/24/115
General		CME/122/

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	IAP/14/50 CAN/24/30
S5.511A	MOD	IAP/14/52 CAN/24/30
Res. 123	SUP	ASP/20/181 IAP/14/51 CAN/24/30
General		UZB/30/ RCC/45/14

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

COMMITTEE 1

NOTE BY THE CHAIRPERSON OF THE CONFERENCE

INFORMATION DOCUMENTS AND ORAL INTERVENTIONS BY OBSERVERS

Committee 1 of the Conference (Steering Committee) has agreed on the following principles relating to the handling of information documents and statements submitted by observers.

✧ ✧ ✧

In accordance with Nos. CV278 to CV280, the United Nations, regional telecommunication organizations, intergovernmental organizations operating satellite systems, the specialized agencies of the United Nations, international organizations admitted by the Conference and Sector Members of the Radiocommunication Sector have observer status at the Conference.

Several organizations are able to participate in the Conference in two ways (for instance, as an intergovernmental organization operating satellite systems **and** as a Sector Member). However, this does not affect their observer status.

In accordance with No. 1002 of the ITU Convention, observers from the United Nations, regional telecommunication organizations, intergovernmental organizations operating satellite systems, the specialized agencies of the United Nations and the international organizations may participate in a conference or a meeting of the Union **but only** in an **advisory capacity**.

The right to submit proposals to the Conference is, pursuant to No. CV320, **exclusively reserved for Member States**. However, in line with the practice of ITU and also of the common system as a whole, observers may submit written contributions in the form of information documents only.

Information documents do not constitute proposals and should not therefore be listed as documents allocated to items of the agenda of a meeting. Information documents should be referenced at the bottom of the page of an agenda for information purposes only. The agenda item could be annotated with a footnote or an asterisk to indicate that an information document listed at the bottom of the page contains information related to that agenda item.

The right to express opinions freely and fully on any subject under debate, which is provided for in No. 16 of the ITU Rules of Procedure of Conferences and other Meetings, is **granted solely** to Member States. Accordingly, observers in their advisory capacity, may be given the floor only at the discretion of the chairperson. When given the floor, the observer should not make any proposals but provide information relevant to the item under discussion.

As far as Sector Members are concerned, No. 31A of the ITU Rules of Procedure of Conferences and other Meetings provides, for the sake of clarity, that "*Representatives of Sector Members of the Radiocommunication Sector may, with the authorization of the chairman, make statements but shall not be authorized to participate in debates*". This provision simply implies that Sector Members even if they are Members of the Union are only observers during WRC and thus may, as any other observer, only make statements with the prior authorization of the chairperson.

✧ ✧ ✧

The chairperson, when presiding over the meetings, directing the discussions and ensuring observance of the Rules of Procedure, should respect the principles mentioned in this note.

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

CMR-2000 CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES

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ESTAMBUL, 8 DE MAYO – 2 DE JUNIO DE 2000

COMISIÓN 1

NOTA DEL PRESIDENTE DE LA CONFERENCIA

DOCUMENTOS DE INFORMACIÓN E INTERVENCIONES ORALES DE LOS OBSERVADORES

La Comisión 1 de la Conferencia (Comisión de Dirección) ha acordado los siguientes principios en relación con la tramitación de los documentos de información y las declaraciones de los observadores.

✧ ✧ ✧

De conformidad con los números 278 a 280 del Convenio, las organizaciones regionales de telecomunicaciones, las organizaciones intergubernamentales que exploten el sistema de satélites, los organismos especializados de las Naciones Unidas, las organizaciones internacionales admitidas por la Conferencia y los Miembros del Sector de Radiocomunicaciones tienen la condición de observadores en la Conferencia.

Algunas organizaciones pueden participar en la Conferencia en dos calidades (por ejemplo, como organización intergubernamental que explote sistemas de satélite **y** como Miembro del Sector). Sin embargo, ello no afecta su condición de observadoras.

De conformidad con el número 1002 del Convenio de la UIT, los observadores de las Naciones Unidas, las organizaciones regionales de telecomunicaciones, las organizaciones intergubernamentales que explotan sistemas de satélite, los organismos especializados de las Naciones Unidas y las organizaciones internacionales pueden participar en una conferencia o reunión de la Unión, pero **sólo** con **carácter consultivo**.

El derecho a presentar propuestas a la Conferencia, de conformidad con el número 320 del Convenio, está **exclusivamente reservado a los Estados Miembros**. Sin embargo, de conformidad con las prácticas de la UIT y del sistema común en su conjunto, los observadores pueden presentar contribuciones escritas sólo en forma de documentos de información.

Los documentos de información no constituyen propuestas y por consiguiente no deben indicarse como documentos atribuidos a puntos del orden del día de una reunión. Los documentos de información deben figurar al pie de la página del orden del día, exclusivamente con fines de información. El punto del orden del día podrá estar anotado con una nota o un asterisco para indicar que el documento de información enunciado al pie de la página contiene información relativa a ese punto del orden del día.

El derecho de las delegaciones a expresar libre y plenamente su opinión sobre la materia en debate, que está protegido en el número 16 del Reglamento interno de las conferencias y de otras reuniones de la UIT, se concede exclusivamente a los Estados Miembros. Por consiguiente, los observadores, que participan sólo con carácter consultivo, pueden hacer uso de la palabra solamente a discreción del Presidente. Cuando se les concede la palabra, el observador no debe formular ninguna propuesta, sino aportar información pertinente al punto que se examina.

En lo que se refiere a los Miembros de los Sectores, el número 31A del Reglamento interno de las conferencias y de otras reuniones de la UIT estipula, en aras de la claridad, que "*los representantes de Miembros del Sector de Radiocomunicaciones podrán hacer declaraciones, con la autorización del Presidente, pero no estarán autorizados a participar en los debates*". Esta disposición simplemente significa que los Miembros de los Sectores, aun cuando sean Miembros de la Unión, tienen exclusivamente la calidad de observadores durante la CMR, y por ende pueden, como cualquier otro observador, sólo hacer declaraciones con autorización previa del Presidente.

✧ ✧ ✧

El Presidente, cuando presida las sesiones, dirija los debates y vele por la observancia del Reglamento interno, deberá respetar los principios mencionados en esta nota.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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NOTE BY THE CHAIRPERSON OF THE CONFERENCE

INFORMATION DOCUMENTS AND STATEMENTS BY OBSERVERS

Committee 1 of the Conference (Steering Committee) has established principles relating to the handling of information documents and requests from the floor by observers (CV278-280).

Information documents do not constitute proposals to the Conference (see CV320) and should not therefore be listed as documents allocated to items on the agenda of a meeting of the Plenary, Committees, Working Groups or any subordinate group. Information documents should be referenced at the bottom of the page of an agenda for information purposes only.

In accordance with the provisions of Nos. 31A and 48 of the Rules of Procedure of Conferences and other meetings of ITU, an observer may speak only with the authorization of the Chairperson but shall not be authorized to participate in debates. An observer may also provide information to a meeting on request.

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS

CMR-2000 CONFÉRENCE MONDIALE DES RADIOCOMMUNICATIONS

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NOTE DU PRÉSIDENT DE LA CONFÉRENCE

DOCUMENTS D'INFORMATION ET DÉCLARATIONS DES OBSERVATEURS

La Commission 1 de la Conférence (Commission de direction) a établi des principes relatifs au traitement des documents d'information et aux demandes d'intervention de la part des observateurs (CV 278 à 280).

Les documents d'information ne constituent pas des propositions à la Conférence (voir CV 320) et ne devraient donc pas figurer comme documents attribués aux différents points de l'ordre du jour des séances de la plénière, des Commissions, des Groupes de travail ou des sous-groupes. Il convient de citer les documents d'information au bas de la page des ordres du jour à titre d'information seulement.

Conformément aux dispositions des numéros 31A et 48 du Règlement intérieur des conférences et autres réunions de l'UIT, un observateur ne peut prendre la parole qu'avec l'autorisation du Président mais n'est pas autorisé à participer aux débats. Un observateur peut aussi, sur demande, fournir des informations aux participants.

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

CMR-2000 CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES

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ESTAMBUL, 8 DE MAYO – 2 DE JUNIO DE 2000

NOTA DEL PRESIDENTE DE LA CONFERENCIA

DOCUMENTOS DE INFORMACIÓN Y DECLARACIONES DE LOS OBSERVADORES

La Comisión 1 de la Conferencia (Comisión de Dirección) ha fijado principios en cuanto a la tramitación de los documentos de información y las peticiones de los observadores presentes en la Conferencia (números 278-280 del Convenio).

Los documentos de información no constituyen propuestas a la Conferencia (véase el número 320 del Convenio) y, en consecuencia, no deberían clasificarse como documentos atribuidos a puntos del orden del día de una sesión de la Plenaria, las Comisiones, los Grupos de Trabajo y cualesquiera grupo subordinado. Los documentos de información deberían referenciarse al pie de página de los órdenes del día como propósitos de información exclusivamente.

De conformidad con lo dispuesto en los números 31A y 48 del Reglamento interno de las conferencias y de otras reuniones de la UIT, un observador puede hablar únicamente con la autorización del Presidente pero no está autorizado a participar en los debates. Asimismo, un observador puede proporcionar información a una sesión, si así se solicita.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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Ad-Hoc Group 1 of
WORKING GROUP 1
OF THE PLENARY

DRAFT

FIRST REPORT TO GT-PLEN 1

1. Basic BSS-to-BSS methodology, assumptions and criteria for Re-planning according to IRG conclusions

Methodology, technical assumptions and criteria as described in Document CMR2000/34 and its Corrigenda 1 and 2 and its Addendum 1 should be applied in the re-planning study of WRC-2000.

Note: Subject to the further study in reviewing the sharing criteria listed in Document 37, a redution of the orbital separation limits may possibly be recommended in order to facilitate the re-planning process. At least, the current limits of 15° and 9°, respectively, for co-polar and cross-polar situations, should also be applied to the feeder-link re-planning process.

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 are put forward for approval by GT Plen-1.

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

2.2 Extended national beams for JOR, LBN and SYR (see Addendum 6 to Document CMR2000/34)

2.3 Use 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)

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 CMR2000/34)**

2.5 **Use separate beams for USA at the orbital positions 170°E and 122°E, (see Addendum 9 to Document CMR2000/34)**

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 CMR2000/34)**

2.7 **Use a channel bandwidth value of 33MHz for LAO instead of the standard value of 27 MHz (see Addendum 11 to Document CMR2000/34)**

2.8 **Use orbital position 20°E instead of 17°E for QAT (see Addendum 12 to Document CMR2000/34)**

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 CMR2000/34)**

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 CMR2000/34)**

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 CMR2000/34)**

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

3. Additional BSS-to-BSS studies between the Part B Networks identified at the last IRG meeting and the Results of the feasibility studies (according to 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 Networks identified at the last IRG meeting and the Results of the feasibility studies (according to 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 re-planning process.

5. Issues for which further WRC decisions are required for re-planning

5.1 Establish an updated list of "existing" systems 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

5.2 Consideration of the Networks subject to Part B publication

5.2.1 "Part B" Networks included in the Appendices S30 and S30A Plans at WRC-97

To be included in the re-planning process, subject to due diligence information received by the Radiocommunication Bureau.

5.2.2 "Part B" Networks included in the Appendices S30 and S30A Plans after WRC-97

To be included in the re-planning process, subject to due diligence information received by the Radiocommunication Bureau.

5.2.3 "Part B" Networks examined, but yet to be published

To be included in the re-planning process provisionally on the basis of a successful BSS-to-BSS compatibility analysis. Their remaining in the plan (or the list to the plan, depending on WRC-2000) decision, is subject to successful and timely completion of all coordination and due diligence requirements.

5.2.4 "Part B" Networks received, but yet to be examined

To be included in the re-planning process provisionally on the basis of a successful BSS-to-BSS compatibility analysis. Their remaining in the plan (or the list to the plan, depending on WRC-2000 decision) is subject to successful and timely completion of all coordination and due diligence requirements.

5.3 Methodology, technical parameters and sharing criteria associated to "Part B" Networks

5.3.1 Channel bandwidth:

As specified by 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: 20 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 re-planning process, if necessary, on a case-by-case basis, as in the case of "existing" systems.

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.

5.3.5 Receiving earth station antenna

Antenna diameter of 60 cm associated with antenna patterns described in Rec. ITU-R BO.1213. However, for "Part B" Network(s) of e.i.r.p below [58.9 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 ±0.2° in order to resolve incompatibilities.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SUB-WORKING GROUP 4B-1

SUB-WORKING GROUP 4B-1

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** EUR/13/258, IAP/14/1, CAN/24/3, B/35a2/3, ASP/20/6

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.

CUB/31/1

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,~~Radar systems are exempt from spurious emission limits under this section. In all cases, 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 EUR/13/259, IAP/14/2, CAN/24/3, B/35a2/4

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 measure the power supplied to the antenna transmission line, or for specific applications, such as radar, 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.

CUB/31/2

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 measure the power supplied to the antenna transmission line, or where it is advisable in view of the antenna attenuation characteristics at the spurious emission 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 EUR/13/260, IAP/14/3, CAN/24/3, ASP/20/7, CUB31/3

11*bis* 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, ±250% of necessary bandwidth (generally recognized 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 (in calculating the regions where

spurious emissions apply).

ADD 11*ter*

EUR/13/261

11 *ter* For satellites employing more than one transponder, and when considering the limits for spurious emission 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 or in the guardband between two transponders. In these situations, if it can be shown that the level of spurious emission from the first transponder is below the fundamental emissions of the second transponder or below its out-of-band emissions, then the limits of Appendix **S3** should not apply to those spurious emissions.

IAP/14/4, CAN/24/3

11*ter* For satellites employing more than one transponder, and when considering the limits for spurious emission 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 or in the guardband between two transponders. In this situation, the level of spurious emission from the first transponder is well exceeded by fundamental emissions of the second transponder or within the guard bands between the different transponders. Therefore, limits in this Appendix do not apply to those spurious emissions on a satellite which fall within the bands where there are transmissions from the same satellite into the same service area.

ASP/20/8

11*ter* For satellites employing more than one transponder, and when considering the limits for spurious emission as indicated by Headnote 11 to Appendix **S3**, spurious emission from one transponder may fall on a frequency at which a companion, second transponder is transmitting, or in the guardband between two transponders. In this situation, the level of spurious emission from the first transponder is well exceeded by fundamental emissions of the second transponder or by out-of-band emissions into the guardband. Therefore, limits in this section do not apply to those spurious emissions on a satellite which fall either within the bands where there are transmissions from different transponders on the same satellite, into the same service area or within the guardbands between the different transponders.

CUB/31/4

11*ter* For satellites employing more than one transponder, and when considering the limits for spurious emission as indicated by § 11 to Appendix **S3**, spurious emissions from one transponder may fall on a frequency at which a companion, second transponder is transmitting or in the guardband between two transponders. In these situations, if it can be demonstrated that the level of spurious emission from the first transponder is well exceeded by fundamental emissions from a second transponder transmitting from the same satellite into the same service area, or by its out-of-band emissions into the guardband, then the limits of Appendix **S3** should not apply to those spurious emissions.

NOC 12

MOD TABLE II

EUR/13/262

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 type ~~15~~14	**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, 14~~	~~43 + 10 log (*P*), or 60 dBc, whichever is less stringent~~
Mobile earth stations [10, 15]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Fixed earth stations [10, 15]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
~~Space services (space stations)~~ ~~10, 14~~	~~43 + 10 log (*P*), or 60 dBc, whichever is less stringent~~
FSS space stations [10]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
MSS space stations [10]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
RNSS, ARNSS, RDSS and RLSS space stations [10]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Space stations of the space research service [10, 16]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Space stations (other than those in services mentioned above) [10]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Radiodetermination ~~17~~	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 *PEP*
Amateur services operating below 30 MHz (including with SSB) ~~12~~15	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

MOD The end of TABLE II (The text in the table and in the footnote has been agreed on within WG4B1)

Emergency transmitters[AAA] ~~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

[AAA] Emergency position-indicating radio beacon", "emergency locator transmitters", "personal location beacons", "search and rescue transponders", "ship emergency and survival craft transmitters".

NOC Definitions of P, PEP and dBc.

NOC Notes 10 to 13.

SUP Note 14 EUR/13/263, ASP/20/9

MOD Note 14 IAP/14/6, CAN/24/3, CUB/31/6, B/35a2/6

14 ~~These values are "design objectives". This note will not be applicable after WRC-99~~Radiodetermination (Radar) 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 EUR/13/265, IAP/14/7, CAN/24/3, CUB/31/7, ASP/20/9

16 Amateur earth stations operating below 30 MHz are in the service category "Amateur services operating below 30 MHz (including with SSB)".

ADD Note 17 EUR/13/266, IAP/14/8, CAN/24/3, CUB/31/8, ASP/20/9

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 EUR/13/267, ASP/20/9

17 Radiodetermination (radar) 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.

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WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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WORKING GROUP 5C

Chairperson, Working Group 5C

ORGANIZATION 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

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WORKING GROUP 5D

Chairperson, Working Group 5D

PROPOSALS RELATING TO FOOTNOTE S5.502

MOD AUS/56/1

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service ~~shall~~should be at least 68 dBW, and should not exceed 85 dBW~~.~~. The earth station shall transmit with a minimum antenna diameter of 4.5 m. The fixed-satellite service shall not claim protection against harmful interference caused by the radiolocation service where the fixed-satellite service uses an e.i.r.p. of less than +68 dBW. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD ASP/20/152

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service ~~shall~~should be at least 68 dBW, and should not exceed 85 dBW~~.~~. The earth station shall transmit with a minimum antenna diameter of 4.5 m. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD USA/98/1

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 m. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD EUR/13/140

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service ~~shall be at least 68 dBW, and~~ should not exceed 85 dBW, ~~with~~and a minimum antenna diameter of 4.5 m shall be used. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards ~~the geostationary-satellite orbit~~any direction of space shall not exceed 59 dBW.

MOD E/93/2

S5.502 In the band 13.75-14 GHz, ~~the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 m. In addition~~ the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD MLA/46/1

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service ~~shall~~ should be at least 68 dBW~~, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 m~~. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD UAE/143/2

S5.502 In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed satellite service ~~shall be at least 68 dBW, and~~ should not exceed 85 dBW, ~~with a minimum antenna diameter of 4.5 metres~~. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

Issues to be resolved :

(a) Mandatory FSS minimum e.i.r.p. of 68dBW to be removed ?

(b) Recommended FSS maximum e.i.r.p. to be retained ?

(c) Mandatory minimum FSS antenna diameter of 4.5m to be retained ?

(d) Other proposals.

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WORKING GROUP 5D

Chairperson, Working Group 5D

PROPOSED MODIFICATIONS TO ARTICLE S5

MOD

Allocation to services		
Region 1	**Region 2**	**Region 3**
15.43-15.63	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) MOD S5.511A AERONAUTICAL RADIONAVIGATION S5.511C	

MOD

S5.511A **The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-toEarth) on a primary basis.** Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth ~~(see Resolution 123 (WRC-97))~~ and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **S9.11A**. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to non-GSO MSS feeder-link systems for which advanced publication information has been received by the Bureau prior to the end of WRC-2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. ~~Also in the space-to-Earth direction, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35-15.4 GHz. The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service are given in Recommendation ITU-R RA.769-1. Special measures will need to be employed.~~ In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-dencity radiated in the 15.35-15.4 GHz band shall not exceed the level of –156 dB(W/m2) in a 50MHz bandwidth, which is given in Recommendation ITU-R RA.769-1, into any radio astronomy observatory site for more than 2% of the time.

The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service (service (a level of –156 dB(W/m^2) in a 50 MHz bandwidth, not to be exceeded for more than 2% of the time) are given in Recommendation ITU-R RA.769. Special measures will need to be employed to protect the radio astronomy service in the band 15.35-15.4 GHz.

SUP

RESOLUTION 123 (WRC-97)

INTERNATIONAL TELECOMMUNICATION UNION

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Chairman, Sub-Working Group 4B-4

GENERAL REVIEW OF RESOLUTIONS AND RECOMMENDATIONS OF WARC/WRC

Progress report

Working Group 4B is responsible for the 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.

Annex1 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 include SUP or MOD. Responsible groups are not shown for the texts which are explicitly on the WRC-2000 agenda.

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 5 Recommendations to be abrogated;
- draft notes to Committee 5 and Working Groups 1 and 2 of the Plenary.

Chairman of Sub-Working Group 4B-4 would like express sincere appreciation for active participation and 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
Chairman, Sub-Working Group 4B-4

• For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked • to bring their copies to the meeting since no others can be made available.

ANNEX 1

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 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			WG4B	**MOD**
26	Review of footnotes	NOC		1.1		
27	Incorporation by reference/principles	MOD		2	**Sub-WG 4B2**	
28	Revision of references to ITU-R Recommendations	NOC		2	**Sub-WG 4B2**	
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	

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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		

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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 in 41 GHz	-		1.4		
130	Use of non-GSO FSS in certain bands	-		1.13		
131	pfd 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)	**COM 5 (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				

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
312	Group channels for Morse telegraphy	MOD			**COM 5 (WG 5B)**	
331	Transition arrangements for the GMDSS	NOC/ (MOD)			**COM 5 (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)			**COM 5 (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**	

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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			**COM 5 (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 the WRC-2000	SUP			WG 4B	**SUP**

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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				
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**	

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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)	**Sub-WG 4B1**	
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)	**COM 5 (WG 5C)**	
707	Sharing in 32-33 GHz	NOC				

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 4B-4 proposal
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**

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Chairperson, Sub-Working Group 4B-4

GENERAL REVIEW OF RESOLUTIONS AND RECOMMENDATIONS OF WARC/WRC

Progress report

Working Group 4B is responsible for the 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.

Annex1 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 include SUP or MOD. Responsible groups are not shown for the texts which are explicitly on the WRC-2000 agenda.

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 certain Resolutions and Recommendations;
- lists of Resolutions and Recommendations to be abrogated;
- draft notes to Committee 5 and Working Groups 1 and 2 of the Plenary.

Chairman of Sub-Working Group 4B-4 would like express sincere appreciation for active participation and good cooperation of many delegates. It is believed that this work has made some contribution to the success of WRC-2000.

M. MUROTANI

Chairperson, Sub-Working Group 4B-4

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ANNEX 1

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 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			WG4B	
26	Review of footnotes	NOC		1.1		
27	Incorporation by reference/principles	MOD		2	**Sub-WG 4B2**	
28	Revision of references to ITU-R Recommendations	NOC		2	**Sub-WG 4B2**	
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	
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 in 41 GHz	-		1.4		
130	Use of non-GSO FSS in certain bands	-		1.13		
131	pfd 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)	**COM 5 (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			**COM 5 (WG 5B)**	
331	Transition arrangements for the GMDSS	NOC/ (MOD)			**COM 5 (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)			**COM 5 (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	
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	
712	Allocation to space services	MOD			**COM 5 (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	
721	Agenda for the WRC-2000	SUP			WG 4B	
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	

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	Sub-WG 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)	**Sub-WG 4B1**	
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	
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)	**COM 5 (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**

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Chairman, Sub-Working Group 4B4

GENERAL REVIEW OF RESOLUTIONS AND RECOMMENDATIONS OF WARC/WRC

Progress report

Working Group 4B is responsible for the WRC-2000 agenda item 4 in general. However, other groups should be responsible for the following Resolutions and Recommendations:

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Annex1 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 include SUP or MOD. Responsible groups are not shown for the texts which are explicitly on the WRC-2000 agenda.

Responsible groups other than Working Groups 4A and 4B are as follows:

GT PLEN-1: Resolutions 53, 507, 518, 524, 531, 534, 535

Recommendation 521

Committee 5: Resolutions 212, 312, 331, 347, 712

Recommendation 706

GT PLEN-1 and Committee 5 are requested to review Resolutions and Recommendations for which they are responsible and to take appropriate action.

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ANNEX 1

Res. No.	Subject	Possible follow-up (Doc.15)	Proposal from Member States	WRC-2000 agenda	Responsible group	Sub-WG 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 [see Doc. DL/12]		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			WG4B	
26	Review of footnotes	NOC		1.1		
27	Incorporation by reference/principles	MOD		2	**Sub-WG 4B2**	
28	Revision of references to ITU-R Recommendations	NOC		2	**Sub-WG 4B2**	
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	-			**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	
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	
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 in 41 GHz	-		1.4		
130	Use of non-GSO FSS in certain bands	-		1.13		
131	pfd limits for non-GSO FSS in 11/18 GHz	-		1.13		
132	FSS in 18/28 GHz	MOD	NOC ASP/20/317		WG 4B	
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	-				
209	Enlarging the scope of GMDSS	SUP			WG 4B	
212	Implementation of IMT-2000	-		(1.6)	**COM 5 (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/12/		WG 4B	
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			**COM 5 (WG 5B)**	
331	Transition arrangements for the GMDSS	NOC/ (MOD)			**COM 5 (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)			**COM 5 (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	
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		
533	Implementation of certain provisions relating to APS30/S30A	-				

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			WG 4B	
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	
705	Protection of services in 70-130 kHz	MOD			WG 4B	
706	Operation of FX/MOB in 90-110 kHz	MOD			WG 4B	
712	Allocation to space services	MOD			**COM 5 (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	
721	Agenda for the WRC-2000	SUP			WG 4B	
722	Preliminary agenda for WRC-01	-		(7.2)		
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	
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	Sub-WG 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				
32	Space monitoring	MOD	SUP ASP/20/322		WG 4B	
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	
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	-			**WG 4A**	
316	Use of SES within harbours	SUP /MOD	SUP ASP/20/324		WG 4B	
318	Improved APS18	-				
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	
503	HFBC	SUP	SUP ASP/20/325		WG 4B	
506	Harmonics in BSS	NOC				
507	Spurious emissions in BSS	-	[SUP]		**Sub-WG 4B1**	

515	Other modulation in HFBC	NOC				
517	SSB PR in HFBC	MOD			WG 4B	
518	HFBC receivers	SUP	SUP ASP/20/326		WG 4B	
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	
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	-			**COM 5 (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	

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Source: Documents 15 and 133 **SWG 4B4**

Chairman, Sub-WG 4B4

RESOLUTION 124 (WRC-97) AND RR No. S5.462A

[Committee 4] proposes the following action to the Plenary (see NOTES 1 and 2):

SUP Resolution 124 (WRC-97)

MOD S5.462A In Regions 1 and 3, in the band 8025-8400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density at the surface of the Earth under free space propagation conditions in excess of the following values for angles of arrival (θ):

-135	dB(W/m^2) in any 1 MHz band	for $0° \le \theta < 5°$
$-135 + 0.5(\theta-5)$	dB(W/m^2) in any 1 MHz band	for $5° \le \theta < 25°$
-125	dB(W/m^2) in any 1 MHz band	for $25° \le \theta \le 90°$

For the background of these values, see Recommendation ITU-R F. 1502.

NOTE 1- This action is the amendments to the RR through a non-CPM process. This exceptional situation arose because WRC-97 adopted Resolution 124 (WRC-97) calling for an urgent ITU-R study, but did not place this Resolution on the agenda of WRC-2000. However, this action is justified by either of the following two processes provided in the WRC-2000 agenda:

Process 1:

- in response to Resolution 124 (WRC-97), Study Group 9 in cooperation with Study Group 7 developed draft new Recommendation ITU-R F.[Doc.9/1019], "Protection of the fixed service in the frequency band 8025-8400 MHz sharing with geostationary-satellite systems of the Earth exploration-satellite service (space-to-Earth)", which recommends the power flux-density limits in MOD S5.462A;

- RA-2000 approved the above draft new Recommendation, which is now Recommendation ITU-R F.1502;
- in accordance with agenda item 5, WRC-2000 reviewed Recommendation ITU-R F. 1502 in the report from RA-2000 (see Document 160) submitted in accordance with No.135 of the Convention and took an appropriate action.

Process 2:

- no change in the first two indents in Process 1;
- in accordance with agenda item 4, WRC-2000 reviewed Resolution 124 (WRC-97) and decided that it should be abrogated;
- in accordance with agenda item 3, WRC-2000 decided that No. S5.462A should be modified.

NOTE 2- If WRC-2000 feels a difficulty in amending the RR through a non-CPM process, an alternative process will be as follows:

- Committee 4 will modify Resolution 124 (WRC-97), which will include the power flux-density limits as presented in Recommendation ITU-R F.1502 (see MOD S5.462A above) and request the next WRC to incorporate them into No. S5.462A;
- GT PLEN-2 will place the revised Resolution on the agenda of the next WRC;
- Study Groups 7 and 9 will prepare a draft CPM text, without carrying out further study, because the study on this issue has been completed.

However, this alternative process will lead to additional cost and waste of time, without any advantage. Therefore, it is not recommended.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SWG 4B4

Chairperson, Sub-Working Group 4B4

RESOLUTION 20 (~~Mob-87~~Rev.WRC-2000)

Technical cooperation with developing countries in the field of aeronautical telecommunications

The World ~~Administrative~~ Radiocommunication Conference (Istanbul, 2000) ~~for the Mobile Services, Geneva, 1987~~,

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 support ~~are intended for~~ 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) provided 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;~~

34 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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SUB-WORKING GROUP 5A-1

Chairperson, Sub-Working Group 5A-1

PROPOSALS ON THE SATELLITE COMPONENT FOR IMT-2000

1 Document 12(Add.3)

MOD USA/12/188

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 525-1 530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Mobile except aeronautical mobile S5.349 S5.341 S5.342 S5.350 S5.351 S5.352A S5.354 MOD S5.388	**1 525-1 530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354 MOD S5.388	**1 525-1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite Mobile S5.349 S5.341 S5.351 S5.352A S5.354 MOD S5.388
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354 MOD S5.388	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354 MOD S5.388	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.353A S5.354 S5.355 S5.356 S5.357 S5.357A S5.359 S5.362A MOD S5.388	

MOD USA/12/189

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372 MOD S5.388	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372 MOD S5.388	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372 MOD S5.388
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372 MOD S5.388	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372 MOD S5.388	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372 MOD S5.388
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372 MOD S5.388	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372 MOD S5.388	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372 MOD S5.388
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.355 S5.357A S5.359 S5.362A S5.374 S5.375 S5.376 MOD S5.388	

MOD USA/12/190

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 MOD S5.388	
1 930-1 970 FIXED MOBILE MOD S5.388	**1 930-1 970** FIXED MOBILE Mobile-satellite (Earth-to-space) MOD S5.388	**1 930-1 970** FIXED MOBILE MOD S5.388
1 970-1 980	FIXED MOBILE MOD S5.388	
1 980-2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) MOD S5.388 S5.389A S5.389B S5.389F	
2 010-2 025 FIXED MOBILE MOD S5.388	**2 010-2 025** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) MOD S5.388 S5.389C S5.389D S5.389E S5.390	**2 010-2 025** FIXED MOBILE MOD S5.388
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) MOD S5.388	
2 120-2 160 FIXED MOBILE MOD S5.388	**2 120-2 160** FIXED MOBILE Mobile-satellite (space-to-Earth) MOD S5.388	**2 120-2 160** FIXED MOBILE MOD S5.388
2 160-2 170 FIXED MOBILE MOD S5.388 S5.392A	**2 160-2 170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) MOD S5.388 S5.389C S5.389D S5.389E S5.390	**2 160-2 170** FIXED MOBILE MOD S5.388

MOD USA/12/191

S5.388 The bands 698-960 MHz, 1 525-1 559 MHz, 1 610-1 660.5 MHz, 1 710~~-1 885~~-2 025 MHz, ~~and~~ 2 110-2 200 MHz and 2 483.5-2 690 MHz, or portions thereof that are allocated to the mobile and mobile-satellite services, are ~~intended~~ identified for use, ~~on a worldwide basis,~~ by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) and other advanced communication applications, (see Resolution **IMT (WRC-2000)**). Such use is based on the equality of rights between all allocated radio services and does not ~~preclude the use~~ establish priority of assignments in these bands ~~by~~ among stations of the primary other services to which they are allocated. In accordance with Resolution **YYY (WRC-2000)**, studies regarding the possible use of the 698-960 MHz, 1 710-1 885 MHz and 2 500-2 690 MHz bands for IMT-2000 and other advanced communication applications are being conducted in many countries and in ITU-R, the results of which may impact the availability of those bands in those countries. ~~The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-97)**~~.

MOD USA/12/192

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 170-2 200	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) MOD S5.388 S5.389A S5.389F S5.392A	
2 200-2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	
2 290-2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	
2 300-2 450 FIXED MOBILE Amateur Radiolocation S5.150 S5.282 S5.395	**2 300-2 450** FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.393 S5.394 S5.396	

2 450-2 483.5 FIXED MOBILE Radiolocation S5.150 S5.397	**2 450-2 483.5** FIXED MOBILE RADIOLOCATION S5.150 S5.394	
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402 MOD S5.388	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402 MOD S5.388	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402 MOD S5.388
2 500-2 520 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.405 S5.407 S5.408 S5.412 S5.414 MOD S5.388	**2 500-2 520** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.404 S5.407 S5.414 S5.415A MOD S5.388	

MOD USA/12/193

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 MOD S5.388	**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 MOD S5.388	**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 MOD S5.388
2 655-2 670 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.412 S5.417 S5.420 MOD S5.388	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420 MOD S5.388	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420 MOD S5.388
2 670-2 690 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 MOD S5.388	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 MOD S5.388	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 S5.420A MOD S5.388

SUP USA/12/194

RESOLUTION 212 (Rev.WRC-97)

Implementation of International Mobile Telecommunications-2000 (IMT-2000)*

ADD USA/12/195

RESOLUTION IMT (WRC-2000)

Global advanced communication applications including International Mobile Telecommunications-2000 (IMT-2000)

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that IMT-2000 is the ITU vision of global mobile access and is scheduled to start service around the year 2000;

b) that IMT-2000 is an advanced communication applications concept intended to provide telecommunications services on a worldwide scale regardless of location, network or terminal used;

c) that inevitable changes in technology will lead to other advanced communication applications beyond IMT-2000;

d) that through integration of terrestrial mobile and mobile-satellite systems, different types of wireless access will be provided globally, including services available through the fixed telecommunication networks and those specific to mobile users;

e) that global roaming and the economies of scale of a global market are desirable and can be best achieved through the availability of worldwide spectrum for IMT-2000 and other advanced communication applications, in particular for the satellite component, because of their global/international nature and their diverse technical characteristics;

f) that when such alignment is not possible, multi-band phones and other new technologies may assist in achieving global roaming;

g) that technological advancement and market demand encourage the use of flexible regulatory approaches that will promote innovation and accelerate the delivery of advanced communication applications to consumers;

h) that ITU Recommendations accommodate the transition from earlier technologies to future technologies;

i) that for technical reasons, such as propagation factors and equipment design, the ITU-R has determined that consideration of additional spectrum requirements for the mobile users of IMT-2000 be focused on the frequency range below 3 GHz, however, the existing applications below 3 GHz were implemented in their current bands for similar technical reasons;

j) that ITU-R Report M.[IMT.SPEC] Spectrum Requirements for IMT-2000, forecasts a need for additional spectrum on a global basis for the terrestrial and satellite components in the year 2010;

k) that the radio specifications for IMT-2000, as well as their various technical characteristics, as presented in ITU-R Recommendations, support the evolution of first- and second-generation mobile systems to IMT-2000;

l) that there have been high levels of investment in existing systems that may not evolve to or be able to share with IMT-2000 systems. These systems may continue to operate in the bands or portions of the bands identified for IMT-2000 and other advanced communication applications, thereby reducing the amount of global spectrum potentially available to support those new applications;

m) that No. **S5.388** identifies bands for use by IMT 2000 systems,

noting

a) that administrations may implement IMT-2000 in any frequency band allocated to the mobile or mobile-satellite service;

b) that the identification of spectrum for IMT-2000 does not convey any status under the Radio Regulations of ITU but does provide uniform guidance to administrations, operators and manufacturers in terms of deploying IMT-2000 and other advanced communication applications;

c) that the implementation of the terrestrial component of IMT-2000 and other advanced communication applications, within the bands identified, is expected to commence in some bands as early as the year 2000, subject to market and technical considerations;

d) that the implementation of the satellite component of IMT-2000 and other advanced communication applications, in the bands identified and allocated to the MSS, could commence in some bands as early as the year 2000, subject to market and technical considerations;

e) that administrations who use all or parts of the frequency bands identified for IMT-2000 for first- and second-generation mobile systems may ultimately want to deploy IMT-2000 and other advanced communication applications in these bands;

f) that administrations who use the frequency bands identified for IMT-2000 for applications other than mobile systems as specified in *noting e)* may want to give the operators of these systems the flexibility to either continue to provide the current services or to evolve their systems to the provision of other terrestrial services such as IMT-2000;

g) that some administrations will be conducting studies prior to making decisions on their implementation of certain bands;

h) that, in accordance with Resolution **YYY (WRC-2000)**, studies will be conducted in many countries and in ITU-R regarding the possible implementation of IMT-2000 and other advanced communication applications in portions of the identified bands,

invites administrations

1 to adopt regulatory and spectrum decisions that protect the existing investment in mobile telecommunication systems and facilitate the ability for existing operators to evolve their systems towards IMT-2000 and beyond based on marketplace needs;

2 to adopt regulatory and spectrum decisions that ensure operators have the flexibility to provide the services and use the diverse technologies that best meet marketplace needs;

3 to give due consideration to protecting the investment in other existing radio services and to lessening the impact on existing users;

4 to adopt appropriate and reasonable mechanisms to address the cost of relocation and to ensure provision of comparable replacement spectrum in those cases where relocation is deemed necessary,

urges

that, administrations deploying IMT-2000 systems should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations,

resolves

1 that administrations planning to implement terrestrial IMT-2000 and other advanced communication applications, consider the use of the bands or portions thereof: 698-960 MHz, 1 710-2 025 MHz, 2 110-2 200 MHz and 2 500-2 690 MHz (noting that the bands 2 500-2 520 MHz and 2 670-2 690 MHz are also identified for the satellite component);

2 that administrations planning to implement satellite IMT-2000 and other advanced communication applications, consider the use of the bands or portions thereof: 1 525-1 559/1 626.5-1 660.5 MHz, 1 610-1 626.5/2 483.5-2 500 MHz, 1 980-2 010/2 170-2 200 MHz, 2 500-2 520/2 670-2 690 MHz, and where appropriate within regional mobile satellite allocations consider the use of the bands or portion thereof: 2 520-2 535/2 655-2 670 MHz and 2 010-2 025/2 160-2 170 MHz (noting that the bands 2 500-2 690 MHz are also identified for the terrestrial component)[1].

2 Document 13(Add.1)

MOD EUR/13/3

For allocations at 2 500-2 690 MHz

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 500-2 520	**2 500-2 520**	
FIXED S5.409 S5.410 S5.411	FIXED S5.409 S5.411	
MOBILE except aeronautical mobile	FIXED-SATELLITE (space-to-Earth) S5.415	
MOBILE-SATELLITE (space-to-Earth) S5.403	MOBILE except aeronautical mobile	
S5.405 S5.407 S5.408 S5.412 S5.414 ADD S5.AAA	MOBILE-SATELLITE (space-to-Earth) S5.403	
	S5.404 S5.407 S5.414 S5.415A ADD S5.AAA	

[1] The 2 500-2 520 MHz and 2 670-2 690 MHz bands are also identified for use by the IMT-2000 terrestrial component. When considering such use prior to 1 January 2005 (see Nos. **S5.414** and **S5.419**), administrations should recognize that this may limit the use of these MSS allocations by the satellite component of IMT-2000.

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 ADD S5.AAA	**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 ADD S5.AAA	**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 ADD S5.AAA
		2 535-2 655 FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418 ADD S5.AAA
2 655-2 670 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.412 S5.417 S5.420 ADD S5.AAA	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420 ADD S5.AAA	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420 ADD S5.AAA
2 670-2 690 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 ADD S5.AAA	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 ADD S5.AAA	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 S5.420A ADD S5.AAA

ADD EUR/13/4

S5.AAA The band 2 500-2 690 MHz is intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of this band for other services to which the band is allocated. This band should be made available for IMT-2000 in accordance with Resolution **ZZZ** [EUR/13/1]. Transitional arrangements between existing services and the mobile-satellite service (including satellite component of IMT-2000) in the bands 2 500-2 520 MHz and 2 670-2 690 MHz shall be in accordance with Resolution **TTT** [EUR/13/2].

ADD EUR/13/8

RESOLUTION TTT (WRC-2000) [EUR/13/2]

Frequency bands for the satellite component of IMT-2000 and appropriate transitional arrangements

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the bands 1 980-2 010 MHz and 2 170-2 200 MHz are identified for use by the satellite component of IMT-2000 through RR **S5.388** and Resolution **212**;

b) that the band 2 500-2 690 MHz is identified for use by IMT-2000 through RR **S5.AAA**;

c) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz are allocated on a primary basis to the mobile-satellite service;

d) that the bands 2 500-2 520 MHz and 2 670-2 690 MHz are allocated to the mobile-satellite service, these allocations being co-primary with fixed and mobile service allocations in all three Regions and with the fixed-satellite service in Regions 2 and 3,

resolves

1 that the bands 2 500-2 520 MHz and 2 670-2 690 MHz, identified in **S5.AAA** for IMT-2000 and allocated to the mobile-satellite service, are intended to be used for the satellite component of IMT-2000, however, depending on market developments it may be possible in the longer term for these bands to be used by the terrestrial component of IMT-2000;

2 that, in addition to the frequency bands indicated in *considering a)* and *resolves* 1, the frequency bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz may be used by the satellite component of IMT-2000, subject to the provisions related to the mobile-satellite service in these frequency bands,

further resolves

1 that taking into account **S5.AAA**, to facilitate the introduction and future use of the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz by the satellite component of IMT-2000, (not precluding the use of these bands for other MSS applications):

a) administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after [1 January 2002], do not overlap with the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz;

b) administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz to non-overlapping bands, giving priority to the transfer of their frequency assignments from the MSS uplink band 2 670-2 690 MHz, considering the technical, operational and economic aspects.

3 Document 20

MOD ASP/20/78

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 525-1 530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS Earth exploration-satellite Mobile except aeronautical mobile S5.349 S5.341 S5.342 S5.350 S5.351 S5.352A S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS Earth exploration-satellite Mobile S5.349 S5.341 S5.351 S5.352A S5.354
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A ADD S5.SSS Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A ADD S5.SSS Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS S5.341 S5.351 S5.353A S5.354 S5.355 S5.356 S5.357 S5.357A S5.359 S5.362A	

MOD ASP/20/79

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS S5.341 S5.351 S5.353A S5.354 S5.355 S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD ASP/20/80

1 660-1 710 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 660-1 660.5	MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.362A S5.376A	

MOD ASP/20/81

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SSS RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402
2 500-2 520 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 ADD S5.SSS S5.405 S5.407 S5.408 S5.412 S5.414	**2 500-2 520** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 ADD S5.SSS S5.404 S5.407 S5.414 S5.415A	

MOD ASP/20/82

2 520-2 700 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 670-2 690	**2 670-2 690**	**2 670-2 690**
FIXED S5.409 S5.410 S5.411	FIXED S5.409 S5.411	FIXED S5.409 S5.411
MOBILE except aeronautical mobile	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415	FIXED-SATELLITE (Earth-to-space) S5.415
MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS	MOBILE except aeronautical mobile	MOBILE except aeronautical mobile
Earth exploration-satellite (passive)	MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS	MOBILE-SATELLITE (Earth-to-space) ADD S5.SSS
Radio astronomy	Earth exploration-satellite (passive)	Earth exploration-satellite (passive)
Space research (passive)	Radio astronomy	Radio astronomy
	Space research (passive)	Space research (passive)
S5.149 S5.419 S5.420	S5.149 S5.419 S5.420	S5.149 S5.419 S5.420 S5.420A

ADD ASP/20/83

S5.SSS The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 2 483.5-2 500 MHz, 2 500-2 520 MHz and 2 670-2 690 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the satellite component of International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. (See also **S5.353A** and **S.357A**.)

4 Document 24

MOD CAN/24/8

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372

MOD CAN/24/9

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 MOD S5.388		
1 930-1 970 FIXED MOBILE MOD S5.388	**1 930-1 970** FIXED MOBILE Mobile-satellite (Earth-to-space) MOD S5.388	**1 930-1 970** FIXED MOBILE MOD S5.388
1 970-1 980 FIXED MOBILE MOD S5.388		
1 980-2 010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX MOD S5.388 S5.389A S5.389B S5.389F		
2 010-2 025 FIXED MOBILE MOD S5.388	**2 010-2 025** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) ADD S5.XXX MOD S5.388 S5.389C S5.389D S5.389E S5.390	**2 010-2 025** FIXED MOBILE MOD S5.388
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) MOD S5.388		
2 120-2 160 FIXED MOBILE MOD S5.388	**2 120-2 160** FIXED MOBILE Mobile-satellite (space-to-Earth) MOD S5.388	**2 120-2 160** FIXED MOBILE MOD S5.388
2 160-2 170 FIXED MOBILE MOD S5.388 S5.392A	**2 160-2 170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.XXX MOD S5.388 S5.389C S5.389D S5.389E S5.390	**2 160-2 170** FIXED MOBILE MOD S5.388

MOD CAN/24/10

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 170-2 200	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.XXX MOD S5.388 S5.389A S5.389F S5.392A	
2 200-2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	
2 290-2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	
2 300-2 450 FIXED MOBILE Amateur Radiolocation S5.150 S5.282 S5.395	**2 300-2 450** FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.393 S5.394 S5.396	
2 450-2 483.5 FIXED MOBILE Radiolocation S5.150 S5.397	**2 450-2 483.5** FIXED MOBILE RADIOLOCATION S5.150 S5.394	
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.XXX Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.XXX RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.XXX RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402

ADD CAN/24/12

S5.XXX The bands 1 610-1 626.5 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, and 2 483.5-2 500 MHz allocated to the MSS on a worldwide basis and the bands 2 010-2 025 MHz, and 2 160-2 170 MHz allocated to MSS in Region 2, are available for use for the satellite component of IMT-2000. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-2000)**.

MOD CAN/24/13

RESOLUTION 212 (Rev.WRC-~~97~~2000)

Implementation of International Mobile Telecommunications-2000 (IMT-2000)*

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

considering

a) that ITU-R has recommended the 1-3 GHz band as the most suitable for IMT-2000;

~~*b)* that ITU-R has recommended approximately 60 MHz for use by personal stations and approximately 170 MHz for use by mobile stations;~~

~~*c)* that ITU-R has recognized that space techniques are an integral part of IMT-2000;~~

~~*d)* that, in No. **S5.388**, this Conference has identified bands to accommodate this future service,~~

b) that WARC-92 identified 230 MHz for IMT-2000 by regulatory provision of **S5.388**;

c) that ITU-R identified a further requirement of 160 MHz in addition to the spectrum identified in **S5.388** and also the spectrum currently used by earlier generations of personal communications;

d) that ITU-R has recognized that space techniques are an integral part of IMT-2000;

e) that WARC-92 identified the worldwide allocations for the mobile-satellite service as part of the satellite component of IMT-2000;

f) that ITU-R has completed the development of recommendations on detailed specifications of the radio interface of IMT-2000;

g) that harmonized worldwide bands for IMT-2000 are desirable to achieve benefits of economies of scale,

considering further

~~*a)* that ITU-R has not completed its studies regarding duplexing methods, modulation techniques, channelling arrangements, signalling or communication protocols;~~

~~*b)* that no worldwide intersystem numbering plan currently exists that would facilitate worldwide roaming,~~

h) that WRC-2000 identified XXX MHz of additional spectrum for the terrestrial component of IMT-2000;

i) that WRC-2000 identified the bands for the satellite component of IMT-2000,

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* IMT-2000 was previously known as Future Public Land Mobile Telecommunication Systems (FPLMTS).

noting

a) that the implementation of the terrestrial component of IMT-2000 ~~in the bands 1 885-2 025 MHz and 2 110-2 200 MHz~~ is expected to commence around the year 2000, subject to market and technical considerations;

b) that the availability of the satellite component of IMT-2000 ~~in the bands 1 980-2 010 MHz and 2 170-2 200 MHz simultaneously with the terrestrial component of IMT-2000 in the bands identified in No. S5.388~~ would improve the overall implementation and the attractiveness of IMT-2000 to both developed and developing countries~~,~~;

c) that ITU-R has identified additional work to address further developments in advanced mobile systems including IMT-2000 applications and applications beyond IMT-2000,

~~*invites administrations*~~

~~to give due consideration to the accommodation of other services currently operating in these bands when implementing IMT-2000,~~

invites ITU-R

to continue its studies ~~with a view to developing suitable and acceptable technical characteristics for IMT-2000 that will facilitate worldwide use and roaming,~~ on further enhancements of IMT-2000 including the provision of Internet Protocol (IP) based applications and optimized arrangements for the harmonized use of spectrum identified for IMT-2000, and ensure that IMT-2000 can also meet the telecommunication needs of the developing countries and rural areas,

invites ITU-T

a) to complete its studies of signalling and communication protocols;

b) to develop a common worldwide intersystem numbering plan and associated network capabilities that will facilitate worldwide roaming,

resolves

that administrations which implement IMT-2000:

a) should make the necessary ~~frequencies~~spectrum available for system development;

b) should use those frequencies when IMT-2000 is implemented;

c) should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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SWG 1 OF WORKING GROUP 1 OF THE PLENARY

NOTE BY CHAIRPERSON OF SUB-WORKING GROUP 1 OF GT PLEN-1

COORDINATED PROPOSALS

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

Source: DT/1

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		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. 3 (3.1 *1)*)	MOD	ARB/25/14
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, 4.3	SUP	ARB/25/21
App. S30 Art. 4, 4.3	SUP	ARB/25/22
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 Art. 4, 4.3.1.3	SUP	ARB/25/27
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 Art. 4, 4.3.1.6	SUP	ARB/25/30
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, 4.3	SUP	ARB/25/33
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, 4.3.3.7	SUP	ARB/25/43
App. S30 Art. 4, Section II N4.10 (ex-4.3.4)	MOD	ARB/25/44
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, 4.3.9	SUP	ARB/25/56
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 (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, 4.5.2	SUP	ARB/25/79
App. S30 Art. 4, Section V N4.38	ADD	ARB/25/80
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
BSS replanning		RUS/33/16
BSS replanning		B/35/76
BSS replanning		AFR/137/10
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
• 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
BSS replanning		CAN/24/66 IAP/14/229
BSS replanning		KEN/UGA/TZA/1 15/18, 19, 20
BSS replanning		RCC/45/20
BSS replanning		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 CUB/31/76,77,78

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. S5 (1 *f)*)	MOD	EUR/13/205
App. S5 (1 *f)bis*)	ADD	EUR/13/206
App. S5 (1 *f)ter*)	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. 30, Article 6	SUP	EUR/13/215
App. S30 Art. 6 (2.2)	ADD	CAN/24/71 IAP/14/313

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. 30, Article 7	SUP	EUR/13/217
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*bis*)	ADD	CAN/24/71 IAP/14/347
App. S30A Art. 4 (4.2.1*ter*)	ADD	CAN/24/71 IAP/14/348
App. S30A Art. 4 (4.2.3*bis*)	ADD	CAN/24/71 IAP/14/349
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. 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
App. S30 (Annex 1, 5 *b)*)	MOD	USA/12/134
App. S30 (Annex 1, 5 *c)*)	SUP	USA/12/135
App. S30 (Annex 1, *5 d)*)	NOC	USA/12/136
App. S30 (Annex 4)	MOD	CAN/24/71 IAP/14/344, 345
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. 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

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

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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APT-CITEL Administrations

PROPOSALS FOR THE WORK OF THE CONFERENCE

WRC-2000 agenda item 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

After joint consideration of the agenda item, APT and CITEL Administrations present this common proposal.

Proposal for communications by earth stations on board vessels using frequencies allocated to the fixed-satellite service in the 4/6 GHz bands and used by existing space segment in the fixed-satellite service

Background information

This item concerns provision of communications by earth stations on board vessels (ESVs) using frequencies allocated to the fixed-satellite service and used by existing space segment in the fixed-satellite service. These stations operate in three distinct modes: at sea; while stationary in or near port; and in motion approaching or departing from port.

Operations at sea (beyond a certain distance for near-shore coordination) by ESVs in the fixed-satellite service do not present a potential for interference to stations in the fixed service operating in accordance with the 6 GHz FS allocation, and therefore need not be coordinated. Operations while these earth stations are stationary at pre-determined points can be coordinated bilaterally with fixed service systems. Technical and regulatory issues concern the potential for interference between in-motion operations by these ESVs operating within a certain distance from shore and stations in the fixed service both on and offshore.

The studies that have been conducted in ITU-R have illustrated that the values for the minimum distance are principally affected by the interference criteria required to protect the fixed service and the number of passages per unit time by vessels equipped with earth stations. Based on different values for these assumptions, the results of these preliminary studies yielded a range of values for the minimum distance from 100 km to 540 km. It should be noted that studies submitted to the CPM by some administrations suggested values for the minimum distance of 150 km to 370 km. Upon further review APT and CITEL Administrations are of the opinion that 200km is sufficiently conservative to protect the fixed service systems operating in the same band from interference. However, if the use of automatic transmit power control by FS stations is considered for coordination between FS and FSS systems, then the value could be up to 370 km.

MOD APT-IAP/XX/01

2 700-4 800 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
	3 500-3 700	
3 600-~~4 200~~3 700 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation S5.433 S5.435	
3 700-4 200 FIXED FIXED-SATELLITE (space-to-Earth) ADD S5.ESV Mobile	**3 700-4 200** FIXED FIXED-SATELLITE (space-to-Earth) ADD S5.ESV MOBILE except aeronautical mobile	

Reasons: To establish regulatory and technical provisions for operations of earth stations on board vessels in the fixed-satellite service.

MOD APT-IAP/XX/02

5 830-7 550 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
5 925-~~6 700~~6 425	FIXED FIXED-SATELLITE (Earth-to-space) ADD S5.ESV MOBILE S5.149 S5.440 S5.458	
6 425-6 700	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.149 S5.440 S5.458	

Reasons: To establish regulatory and technical provisions for operations of earth stations on board vessels in the fixed-satellite service.

ADD APT-IAP/XX/03

S5.ESV In the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz, transponders on space stations in the fixed-satellite service may be used, additionally, by earth stations on vessels. Such use is subject to the provisions specified in Resolution **ZZZ (WRC-2000)**.

Reasons: To establish regulatory and technical provisions for operations of earth stations on board vessels in the fixed-satellite service and protection for terrestrial stations operating in the FS in the band 5 925-6 425 MHz.

ADD APT-IAP/XX/04

RESOLUTION ZZZ (WRC-2000)

Provisions to enable earth stations located on board vessels to 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 must 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 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;

b) that operation of earth stations on vessels from specified fixed points at locations outside the territorial sea but for which an administration has territorial jurisdiction is fully within the FSS,

recognizing

that studies within ITU-R have not been completed;

resolves

1 that the administration that issues the radio licence 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;

2 that licensing administrations shall ensure that ESVs are capable of operating in compliance with the requirements of this Resolution;

3 that operators of ESVs shall comply with the conditions listed in the Annex to this Resolution and as may be established by the licensing administration(s);

4 that ESVs shall not claim protection from fixed service station transmissions;

5 that any transmissions from ESVs within a distance of 200 km* of any given coast shall be based upon the prior agreement of that coastal administration;

6 that ESV operators shall provide any assistance necessary to the coastal administration in order to facilitate the agreement;

7 that coastal administrations, in determining the contour with the distance referred to in *resolves* 5, are encouraged to exclude those parts of their territory, such as remote small islands, where FS systems in the band 5925-6425 MHz are neither operating nor planned;

8 that if a coastal administration changes its actual or planned deployment of FS stations, it may require revision of the agreement with the ESV licensing administration(s);

9 that the ESV system shall include means of identification and automatic mechanisms to terminate transmissions whenever the station operates outside its pre-authorized geographic (see *resolves* 5) or operational limits;

10 that ESVs shall be equipped so as to enable the licensing administration under the provisions of Article **S18** to verify earth station performance and to accomplish the switch off of the ESV transmission immediately upon request by an administration whose services may be affected;

11 that when ESVs operating beyond the territorial sea but within the distance (as referred to in *resolves* 5) of the coast of an administration fail to comply with the terms required by that administration pursuant to *resolves* 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 that any licensing authority that licenses ESVs shall agree to maintain at all times a point of contact, which shall be published in a circular of the ITU, that may be contacted by an affected administration seeking assistance pursuant to *resolves* 3 and 5 above,

13 that this resolution should be considered as provisional and should be placed on the agenda of the next world radiocommunication conference for review;

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* If a coastal administration takes into account the use of automatic transmit power control (ATPC) by FS stations (see Rec. ITU-R F.1101) for coordination purposes between FSS and FS stations, then values up to 370 km may be used. It should be noted that an FS station employing ATPC normally operates at a lower power level, thus being more susceptible to interference.

requests ITU-R as a matter of urgency

1 to continue its studies to determine the optimum technical and operational constraints to be applied to ESV operations and, in particular, to determine the minimum operational 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;

2 to develop recommendations on methods for coordination between terrestrial stations in the fixed service and ESVs while in motion at less than the minimum distance specified in *resolves* 5;

3 to study, as a complement, the use of the entire 4/6 GHz band and the feasibility of an ESV system operating in the 12/14 GHz band and/or a dual-band ESV system operating in either band depending on the local requirements, including the relevant sharing criteria;

4 to report the results of the above studies to the next world radiocommunication conference through the conference preparatory meeting.

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

requests

WRC-[03] to take appropriate action based on those studies.

ANNEX TO RESOLUTION ZZZ (WRC-2000)

Provisional technical constraints 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 other ESV stations.

Reasons: To establish regulatory and operational provisions for ESV operations in the fixed-satellite service and to avoid the uncontrolled deployment of, and communications by ESVs and ensure the protection of the fixed service.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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SUB-WORKING GROUP 5A-2

Chairperson, Sub-Working Group 5A-2

PROPOSALS ON AGENDA ITEM 1.10 (MSS IN 1.5/1.6 GHz BANDS)

Summary of proposals:

Document	**Article S5**	**Resolution 218 (WRC-97)**	**New Resolution (WRC-2000)**
13(Add.2)	MOD S5.353A and S5.357A	SUP	[EUR/13/4]
14, 24			[XXX]
20			[XXX]
21			[XXX]
35(Add.7)	MOD 357A	-	-

Note: See also CUB/31/40, RCC/45/10, and IRN/126/15.

Detailed proposals: see attachment.

Attachment: 1

ATTACHMENT

1 Document 13(Add.2)

MOD EUR/13/38

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD S5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD S5.353A Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 MOD S5.353A S5.354 S5.355 S5.356 S5.357 MOD S5.357A S5.359 S5.362A	

MOD EUR/13/39

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 MOD S5.353A S5.354 S5.355 MOD S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD EUR/13/40

1 660-1 710 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 660-1 660.5	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 MOD S5.357A S5.362A S5.376A	

MOD EUR/13/41

S5.353A In applying the procedures of ~~No. S9.11A~~Section II of Article **S9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See~~The provisions of Resolution ~~218~~**[EUR/13/4] (WRC-~~97~~2000)** shall apply.)

MOD EUR/13/42

S5.357A In applying the procedures of ~~No. **S9.11A**~~Section II of Article **S9** to the mobile-satellite service in the bands 1 545-~~1 555~~1 559 MHz and 1 646.5-~~1 656.5~~1 660.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See~~The provisions of Resolution ~~**218**~~**[EUR/13/4] (WRC-~~~~97~~~~2000)** shall apply.)

Resolutions

SUP EUR/13/43

RESOLUTION 218 (WRC-97)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

ADD EUR/13/44

RESOLUTION [EUR/13/4] (WRC-2000)

Assignment of frequencies for maritime distress, urgency and safety communications of the GMDSS and communications of priority 1 to 6 of the AMS(R)S services in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the World Radiocommunication Conference 1997 allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS);

b) that prior to WRC-97 these bands were segmented between the maritime, aeronautical and land mobile-satellite service;

c) that the World Radiocommunication Conference 1997 adopted footnotes **S5.353A** and **S5.357A** giving priority in the application of the procedure of **S9.11A** to accommodating the spectrum requirements for distress, urgency and safety communications of the global maritime distress and safety system (GMDSS) and the aeronautical mobile-satellite (R) service communications with priority 1 to 6 of Article **S44**,

considering also

a) that global and regional mobile-satellite systems are being coordinated in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz and that Article **S9** provides the international framework for coordination agreements;

b) that such coordination agreements are currently based on the capacity planning approach, under which several administrations periodically coordinate access to the amount of spectrum needed to accommodate their validated requirements;

c) that the GMDSS and AMS(R)S spectrum requirements are currently satisfied through the capacity planning approach;

d) that in the long term, to ensure that the spectrum requirements of GMDSS and AMS(R)S are met, it might become necessary to enforce the coordination priority provided to distress, urgency and safety communications under footnotes **S5.353A** and **S5.357A**;

e) that the GMDSS distress, urgency and safety communications traffic and the AMS(R)S communications traffic with priority 1 to 6 of Article **S44** in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz is expected to increase over time,

recognizing

a) that Table **S15-2** of Appendix **S15** to the Radio Regulations identifies the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime mobile-satellite service as well as for routine non-safety purposes;

b) that priority access and immediate availability of spectrum for maritime distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is of vital importance for the safety of life,

recognizing also

a) that maritime general communications is defined under the International Convention for the Safety of Life at Sea (SOLAS) as operational and public correspondence, other than distress, urgency and safety, conducted by radio;

b) that some parts of maritime general communications, such as communications on medical advice, maritime assistance, navigational and meteorological message are related to safety at sea;

c) that maritime distress, urgency and safety communications of the GMDSS in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz include communications with priority 1 to 3 and safety related communications carried under priority 4 of Article **S53**;

d) that the ICAO has adopted standards and recommended practices (SARPs) addressing satellite communications equipment in aircraft in accordance with the Convention on International Civil Aviation;

e) that all air traffic communications as defined in the ICAO Annex 10 fall within categories 1 to 6 of Article **S44**;

f) that aircraft flying along international air routes must maintain watch and carry out continuous safety communications as required by the appropriate authority,

resolves

that in frequency coordination agreements for the mobile-satellite services in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz, administrations shall ensure accommodation of the spectrum requirements for all distress, urgency and safety communications of the global maritime distress and safety system (GMDSS) as defined in Articles **S32** and **S33** in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz and the aeronautical mobile-satellite (R) service communications with priority 1 to 6 of Article **S44** in the bands 1 545-1 559 MHz and 1 646.5-1 660.5 MHz.

2 Document 14

MOD IAP/14/112

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 MOD S5.353A S5.354 S5.355 S5.356 S5.357 MOD S5.357A S5.359 S5.362A	

MOD IAP/14/113

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 MOD S5.353A S5.354 S5.355 MOD S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD IAP/14/114

S5.353A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. (See also Resolution **XXX (WRC-2000)**.) Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. ~~(See Resolution **218 (WRC-97)**.)~~

MOD IAP/14/115

S5.357A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. (See also Resolution **XXX (WRC-2000)**.) Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. ~~(See Resolution **218 (WRC-97)**.)~~

SUP IAP/14/116

RESOLUTION 218 (WRC-97)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

ADD IAP/14/117

RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that WRC-97 allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS) to facilitate the assignment of spectrum to multiple mobile-satellite systems in a flexible and efficient manner;

b) that prior to WRC-97 there was a generic allocation by footnote provisions in some countries for the use of the bands 1 530-1 544 MHz and 1 631.5-1 645.5 MHz by the MSS, on condition that maritime mobile-satellite distress and safety communications have priority access over all other communications;

c) that in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) allocated to the mobile-satellite service (MSS), footnotes **S5.353A** and **S5.357A** give priority to the spectrum requirements for distress, urgency and safety communications of GMDSS and for transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S and provides protection to GMDSS and AMS(R)S from harmful interference by other mobile-satellite services;

d) that the results of the studies conducted by ITU-R pursuant to WRC-97 Resolution **218** provide for spectrum estimates for the requirement of AMS(R)S traffic;

e) that the spectrum prioritization and pre-emption methods identified in the ITU-R studies can provide for the long-term spectrum requirements of GMDSS and AMS(R)S;

f) that the technical standards which would provide for prioritization and real-time pre-emptive capabilities in future MSS systems in order to meet the long-term requirements of GMDSS and AMS(R)S services need to be developed by ITU-R;

g) that technical considerations for sharing satellite network resources between MSS (other than the aeronautical mobile-satellite (R) service) and the aeronautical mobile-satellite (R) service have been developed by and are included in ITU-R Recommendation ITU-R M.1233;

h) that global and regional mobile-satellite systems are being multilaterally coordinated in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) and that the ITU Radio Regulations provide the international framework for multilateral agreements,

further considering

i) that the Convention on International Civil Aviation requires that stations of the aeronautical mobile-satellite (R) service shall be in compliance with the internationally agreed Standards and Recommended Practices and Procedures for Air Navigation Services;

j) that the ICAO has developed a global Air Traffic Management system which requires interoperability between stations operating in accordance with the ICAO Convention for those mobile-satellite systems providing aeronautical mobile-satellite (R) service communications with the priority message structure of Article **S44**;

k) that WRC-97 modified provisions for the operational use of the GMDSS which is fully defined in the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (see MOD No. **S30.1**);

l) that in these bands GSO satellite system operators presently use a capacity planning approach at multilateral coordination meetings, with the guidance and support of their administrations, to periodically coordinate access to the spectrum needed to accommodate their requirements. However, outside the multilateral process, coordination problems have occurred in some cases;

m) that in the bands to which RR Nos. **S5.353A** or **S5.357A** applies, the capacity planning approach, and other methods such as intra- and inter-system prioritization, pre-emption and interoperability may assist to accommodate the expanding spectrum requirements of GMDSS and AMS(R)S;

n) that the feasibility of prioritization, real-time pre-emptive access and interoperability between different mobile-satellite systems and systems providing GMDSS and AMS(R)S has yet to be adequately determined,

recognizing

a) that Table **S15-2** of Appendix **S15** identifies the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime MSS as well as for routine non-safety purposes;

b) that the coordination process currently allows for the orderly development of MSS systems and applications while meeting the requirements for distress, urgency and safety communications of GMDSS and for the transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S;

c) that in the future there may be a need for more flexible sharing methodologies to accommodate more systems and applications, and that ITU-R has identified two possible sharing methodologies;

d) that such methodologies shall comply with the safety and regularity of flight requirements of ICAO and the safety at sea requirements of IMO,

resolves

that technical and operational standards be developed to allow prioritization and real-time pre-emptive access both within a single MSS system offering AMS(R)S communications, and between MSS systems which may or may not offer AMS(R)S communications,

requests ITU-R

to develop the technical standards which would enable the use of prioritization and real-time pre-emption, within a single system and pre-emption between MSS systems, in order to achieve the most flexible and practical use of the MSS allocation,

requests the next [competent] world radiocommunication conference

to take into account the outcome of ITU-R studies and take appropriate action on this subject,

invites

ICAO, IMO, IATA and administrations concerned to participate in the studies identified in *requests ITU-R.*

3 Document 20

SUP ASP/20/100

RESOLUTION 218 (WRC-97)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

ADD ASP/20/101

DRAFT NEW RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that prior to the World Radiocommunication Conference 1997 the bands 1 530-1 544 MHz, 1 545-1 555 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz, 1 646.5-1 656.5 MHz (Earth-to-space) were allocated on an exclusive basis in most administrations to the mobile maritime satellite service and the aeronautical mobile-satellite (route) service (AMS(R)S);

b) that the World Radiocommunication Conference (Geneva, 1997) allocated these bands to the generic mobile-satellite service (MSS);

c) that the World Radiocommunication Conference (Geneva, 1997) adopted footnotes No. **S5.353A** giving priority to accommodating the spectrum requirements for distress, urgency and safety communications, and protection from unacceptable interference, to the global maritime distress and safety service (GMDSS) in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz and No. **S5.357A** giving priority to accommodating the spectrum requirements, and protection from unacceptable interference, to the AMS(R)S providing transmission of messages with priority 1 to 6 in Article **S44** in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz,

considering further

d) that global and regional mobile-satellite systems are being coordinated in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz and that Section IIA of Article **S9** provides the international framework for coordination agreements;

e) that in these bands GSO satellite system operators presently use a capacity planning approach at multilateral coordination meetings, with the guidance and support of their administrations, to periodically coordinate access to the spectrum needed to accommodate their requirements, however, outside the multilateral process, coordination problems have occurred in some cases;

f) that in the bands to which Nos. **S5.353A** or **S5.357A** applies, the capacity planning approach, and other methods such as intra- and inter-system prioritization, pre-emption and interoperability may assist to accommodate the expanding spectrum requirements of the GMDSS and AMS(R)S;

g) that, as spectrum saturation is reached, MSS systems that do not carry GMDSS or AMS(R)S traffic and MSS systems that do not have the ability to provide prioritization, pre-emption within or between their networks or do not have interoperability with other MSS systems that are carrying GMDSS or AMS(R)S traffic, will be required to vacate these bands to conform with the requirements of Nos. **S5.353A** and **S5.357A**;

h) that the feasibility of prioritization, real-time pre-emptive access and interoperability between different mobile-satellite systems and systems providing GMDSS and AMS(R)S has yet to be adequately determined,

recognizing

a) that the Convention on International Civil Aviation requires that stations of the AMS(R)S shall be in compliance with the internationally agreed Standards and Recommended Practices and procedures for Air Navigation Services and that the ICAO has developed a global air traffic management system which requires interoperability between stations providing AMS(R)S communications with the priority message structure of Article **S44** and that each of these messages are safety related;

b) that the IMO may also place similar requirements of interoperability for those mobile-satellite systems providing GMDSS communications with the priority message structure of Article **S53**;

c) that Appendix **S15** of the Radio Regulations identifies the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz for distress and safety purposes in the GMDSS as well as for routine non-safety purposes;

d) that priority access and immediate availability of spectrum for maritime distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is of vital importance for the safety of life,

noting

a) that maritime general communications is defined under the International Convention for the Safety of Life at Sea (SOLAS) as operational and public correspondence, other than distress, urgency and safety, conducted by radio;

b) that maritime distress, urgency and safety communications of the GMDSS in the bands 1 530-1 545 MHz and 1 626.5-1 645.5 MHz include communications with priority 1 to 3 and safety-related communications carried under priority 4 of Article **S53**,

resolves

1 that in frequency coordination procedures and agreements for the mobile-satellite services in the bands 1 530-1 544, 1 545-1 555 MHz and 1 626.5-1 645.5, 1 646.5-1 656.5 MHz, administrations shall ensure prompt and equitable allocation of spectrum between operators in order to meet the spectrum requirements for all distress, urgency and safety communications of the GMDSS as defined in Articles **S32** and **S33** in the bands where No. **S5.353A** applies and the AMS(R)S communications with priority 1 to 6 of Article **S44** in the bands where No. **S5.357A** applies;

2 that techniques such as prioritization and real-time pre-emptive access within a mobile-satellite network and between different mobile-satellite networks and interoperability between different mobile-satellite networks, for GMDSS or AMS(R)S communications over all other communications should be determined and, when necessary and where feasible, implemented in order to achieve the most flexible and practical use of the generic allocations;

3 administrations shall ensure that mobile-satellite service operators carrying non-safety related traffic yield capacity as and when necessary to accommodate the needs of the GMDSS communications as defined in Articles **S32** and **S33** and AMS(R)S communications with priority 1 to 6 of Article **S44**. This could be achieved in advance by the coordination process at *resolves* 1 above or through the implementation of techniques at *resolves* 2 above,

requests ITU-R

1 to complete studies as a matter of urgency, to determine the feasibility of prioritization and real-time pre-emptive access between different networks of mobile-satellite systems and interoperability between different mobile-satellite networks as referred to in *resolves* 2 above;

2 to study and establish the conditions and requirements for prioritization, pre-emption and interoperability within and between mobile-satellite networks operating in bands where Nos. **S5.353A** and **S5.357A** applies,

requests WRC-02/03

to take into account the outcome of ITU-R studies and take appropriate action on this subject,

invites

ICAO, IMO, IATA, administrations and other organizations concerned to participate in the studies identified in *requests ITU-R* 1 and 2 above.

MOD ASP/20/102

S5.353A In applying the procedures of ~~No. **S9.11A**~~frequency coordination under Section IIA of Article **S9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) as defined in Articles **S32** and **S33**. Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile satellite communications operating within ~~a network~~these bands. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See Resolution **218 (WRC-97)**~~The provisions of Resolution **XXX (WRC-2000)** shall apply.)

MOD ASP/20/103

S5.357A In applying the procedures of ~~No. **S9.11A**~~frequency coordination under Section IIA of Article **S9** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within ~~a network~~these bands. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See Resolution **218 (WRC-97)**~~The provisions of Resolution **XXX (WRC-2000)** shall apply.)

4 Document 21

MOD UAE/21/1

S5.353A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See Resolution **218 (WRC-97)**.~~)The provisions of Resolution **XXX (WRC-2000)** shall apply.)

MOD UAE/21/2

S5.357A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See Resolution **218 (WRC-97)**.~~)The provisions of Resolution **XXX (WRC-2000)** shall apply.)

ADD UAE/21/3

RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the World Radiocommunication Conference (Geneva, 1997) allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS) to facilitate the assignment of spectrum to multiple mobile-satellite systems in a flexible and efficient manner;

b) that the World Radiocommunication Conference (Geneva, 1997) adopted footnotes Nos. **S5.353A** and **S5.357A** giving priority to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) and the aeronautical mobile-satellite (R) service communications AMS(R)S with priority 1 to 6 of Article **S44**;

c) that the results of the studies conducted by ITU-R pursuant to Resolution **218 (WRC-97)** were inconclusive with regard to the spectrum needed for future AMS(R)S traffic;

d) that the technical considerations for sharing satellite network resources between the MSS (other than the AMS(R)S) and the AMS(R)S service have been developed by ITU-R (see Recommendation ITU-R M.1233),

further considering

e) that global and regional mobile-satellite systems are being multilaterally coordinated in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) and that the ITU Radio Regulations provide the framework for such multilateral agreements;

f) that such coordination agreements are currently based on the capacity planning approach, under which administrations periodically coordinate access to the amount of spectrum needed to accommodate their validated requirements;

g) that the capacity planning approach is currently satisfying the spectrum requirements of the GMDSS and the AMS(R)S and will continue to do so in the future;

h) that in the long term, to ensure that the actual validated spectrum requirements of the GMDSS and the AMS(R)S are met, it might be necessary to enforce the coordination priority provided to accommodate the spectrum requirements for distress, urgency and safety communications of GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44**, under footnotes **S5.353A** and **S5.357A** by the provisions of a resolution,

recognizing

a) that Appendix **S15.2** identifies the use of the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime mobile-satellite service as well as for routine non-safety purposes;

b) that priority access and immediate availability of spectrum for distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is important for the safety of life;

c) that setting aside dedicated spectrum segments for distress, urgency and safety communications will lead to the inefficient usage of spectrum, since the allocated spectrum would only be used on rare occasions;

d) that the coordination process currently allows for the orderly development of MSS systems and applications while meeting the requirements for distress, urgency and safety communications of GMDSS and for the transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S;

e) that administrations are urged during the coordination to limit the spectrum used to the minimum needed to provide in a satisfactory manner the necessary services and that Members shall endeavour to apply the latest technical advances as soon as possible, as stated in No. 195 of the Constitution of the International Telecommunication Union (Geneva, 1992),

resolves

1 that in the frequency coordination of the mobile-satellite services in the bands 1 525-1 559 and 1 626.5-1 660.5 MHz, administrations will ensure accommodation of the verified spectrum needed for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) of Article **S32** and **S33** in the bands where **S5.353A** applies and the aeronautical-mobile-satellite (R) service AMS(R)S communications with priority 1 to 6 of Article **S44** in the bands where **S5.357A** applies;

2 that administrations will ensure the use of the latest technical advances in order to reduce the total spectrum required and thus maximize the spectral efficiency of the MSS.

SUP UAE/21/4

RESOLUTION 218 (WRC-97)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

5 Document 35(Add.7)

MOD B/35/24

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.353A S5.354 S5.355 S5.356 S5.357 MOD S5.357A S5.359 S5.362A	

MOD B/35/25

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353A S5.354 S5.355 MOD S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD B/35/26

S5.357A In applying the procedures of No. **S9.11A** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. The mobile-satellite service shall not impose restrictions, during the coordination process, to the implementation of new systems or to expansion of the existing systems of the aeronautical mobile-satellite (R) service. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (See Resolution **218 (WRC-97)**.)

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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SUB-WORKING GROUP 5A-2

Chairperson, Sub-Working Group 5A-2

PROPOSALS ON AGENDA ITEM 1.11 (MSS BELOW 1 GHz)

Summary of proposals:

Document	Radio Regulations	Resolution 214 (Rev. WRC-97)	Resolution 219 (WRC-97)
12+ Add.13 + Add.14	**NOC**	**MOD**	**MOD**
13(Add.2), 31, 45, 77, 126		-	**SUP**
14(Add.1), 24, 115, 137		-	-
20		-	**(MOD)**
60		**MOD**	**MOD**

Attachments: 2

ATTACHMENT 1

Proposed modifications to Resolution 214 (Rev. WRC-97)

MOD USA/12/257

RESOLUTION 214 (Rev.WRC-97)

Sharing studies relating twnsideration of the allocation of bands below 1 GHz to the non-geostationary mobile-satellite service

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

considering

a) that the agenda of this Conference included consideration of additional allocations on a worldwide basis for the non-geostationary mobile-satellite service (non-GSO MSS) below 1 GHz;

b) that the 1997~~9~~ Conference Preparatory Meeting, in its Report, indicated that for the non-GSO MSS below 1 GHz there is not enough spectrum currently allocated to allow development of all the systems currently in coordination, and that, in order to meet projected MSS requirements below 1 GHz, a range of an additional 7 to 10 MHz will be required in the near future although, as well, it recognized that a number of these systems may not be implemented for reasons not connected with spectrum availability;

c) that there is an urgent need to make usable spectrum available on a worldwide basis for non-GSO MSS systems operating below 1 GHz;

d) that some non-GSO MSS systems are already operated by some administrations in existing MSS allocations and are at an advanced stage of consideration for operation in many other administrations, and that studies have been conducted within ITU-R on sharing between non-GSO MSS and certain terrestrial services which demonstrate the feasibility of sharing in the cases studied;

e) that issues concerning the technical and operational means to facilitate sharing between the terrestrial services and non-GSO MSS in the bands below 1 GHz remain to be studied;

f) that the requirements for the introduction of these new technologies have to be balanced with the needs of other services having allocations below 1 GHz;

g) that the bands below 1 GHz are extensively used by administrations for many services, although the extent to which they are used by each administration varies throughout the world,

noting

MOD USA/12/258

a) that additional studies may identify ~~other~~suitable bands below 1 GHz ~~which could also~~and appropriate sharing techniques to be considered ~~suitable~~ for ~~a~~ worldwide allocations to non-GSO MSS;

SUP USA/12/259

b)

MOD USA/12/260

e~~b~~b) that constraints on the duration of any single transmission from an individual MSS mobile earth station and constraints on the period between consecutive transmissions from an individual MSS mobile earth station operating on the same frequency may facilitate sharing with terrestrial services;

MOD USA/12/261

~~d~~c) that interference mitigation techniques, such as the dynamic channel activity assignment system described in Recommendation ITU-R M.1039~~-1~~, may be used by non-GSO MSS systems below 1 GHz in the Earth-to-space direction to promote compatibility with terrestrial systems when operating in the same frequency band;

MOD USA/12/262

e~~d~~d) that new technologies employed by some radiocommunication services, especially within the terrestrial mobile and broadcasting services, which require spectrum below 1 GHz, may have an impact on the sharing possibilities;

ADD USA/12/263

e) that substantial progress has been made by the completion of ITU-R studies to date of sharing between the non-GSO MSS below 1 GHz and existing specific services, however, studies on some important issues remain to be completed;

MOD USA/12/264

f) that non-GSO MSS systems operating below 1 GHz have undergone advance publication by the Radiocommunication Bureau and that administrations may seek to implement further such systems~~;~~,

SUP USA/12/265

g)

resolves

1 that further studies are urgently required on operational and technical means to facilitate sharing between the non-GSO MSS and other radiocommunication services having allocations and operating below 1 GHz;

MOD USA/12/266

2 that WRC-~~99~~03 be invited to consider, on the basis of the results of the studies conducted within ITU-R and the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO MSS below 1 GHz;

MOD USA/12/267

3 that relevant entities and organizations be invited to participate in these sharing studies~~;~~,

SUP USA/12/268

4

invites ITU-R

MOD USA/12/269

1 to study and develop Recommendations on, as a matter of urgency, the performance requirements, sharing criteria and technical and operational issues relating to sharing between ~~both~~ existing ~~and planned~~ services and non-GSO MSS below 1 GHz;

SUP USA/12/270

2

MOD USA/12/271

~~3~~2 as a matter of urgency, to carry out studies in preparation for WRC-~~99~~03 with respect to interference mitigation techniques, such as the dynamic channel activity assignment system described in Recommendation ITU-R M.1039-~~1~~, necessary to permit the continued development of all of the services to which the bands are allocated;

SUP USA/12/272

4

MOD USA/12/273

~~5~~3 to bring the results of these studies to the attention of WRC-~~99~~03 and the relevant preparatory meetings,

urges administrations

1 to participate actively in these studies, with the involvement of both terrestrial and satellite interests;

2 to submit to ITU-R reports on their technical studies and on their operational and frequency sharing experience with non-GSO MSS systems operating below 1 GHz,

encourages administrations

MOD USA/12/274

to consider the use of dynamic channel assignment techniques, such as those described in Recommendation ITU-R M.1039-~~1~~.

MOD INS/60/2

RESOLUTION 214 (Rev.WRC-~~97~~2000)

Sharing studies relating to consideration of the allocation of bands below 1 GHz to the non-geostationary mobile-satellite service

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

resolves

2 that WRC-~~99~~02/03 be invited to consider, on the basis of the results of the studies conducted within ITU-R and the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO MSS below 1 GHz;

~~4 that WRC-99 be invited to consider a review of the technical and regulatory constraints on non-GSO MSS allocations in the bands below 1 GHz, taking into account *considering d)*,~~

invites ITU-R

2 as a matter of urgency, to carry out studies in preparation for WRC-~~99~~02/03, ~~including a review of the operating constraints referred to in *noting c)* necessary to protect the existing and planned development of all of the services to which the bands below 1 GHz are allocated,~~ having regard to *noting d)*;

3 as a matter of urgency, to ~~carry out~~ continue studies in preparation for WRC-~~99~~02/03 with respect to interference mitigation techniques, such as the dynamic channel activity assignment system described in Recommendation ITU-R M.1039-1, necessary to permit the continued development of all of the services to which the bands are allocated;

5 to bring the results of these studies to the attention of WRC-~~99~~02/03 and the relevant preparatory meetings,

ATTACHMENT 2

Proposed modifications to Resolution 219 (WRC-97)

MOD USA/12/275

RESOLUTION 219 (Rev.WRC-~~97~~2000)

Studies relating to consideration of the allocation to the non-geostationary mobile-satellite service in the meteorological aids band 405-406 MHz and the impact on primary services allocated in the adjacent bands

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

considering

a) that there is a significant shortfall of spectrum for the non-geostationary (non-GSO) mobile-satellite service (MSS) below 1 GHz, and there is an urgent need to make additional spectrum available on a worldwide basis for such non-GSO MSS systems;

MOD USA/12/276

b) that the Report of the ~~1997~~1999 Conference Preparatory Meeting (CPM-~~97~~9) to ~~this Conference~~WRC-2000 states~~d~~ that the Radiocommunication Bureau has identified ~~23~~5 non-GSO MSS networks, at frequencies below 1 GHz, at some state of coordination under Resolution **46 (Rev.WRC-97)**/No. **S9.11A** of the Radio Regulations, that it is likely that a number of these systems may not be implemented for reasons not connected with spectrum availability and that several administrations have indicated in their information submitted to the Bureau that they plan on implementing these non-GSO MSS systems by the year 2002 or earlier. However, CPM also recognized that many of the proposed networks cannot be implemented in the existing allocation;

SUP USA/12/277

c)

ADD USA/12/278

c) that the CPM Report for WRC-2000 identified a need for spectrum beyond the current allocations, identifying a spectrum requirement for service links of about 17 MHz on a shared basis, and an additional 4 MHz of shared spectrum for feeder links; and that recent reports carried out in 1997-1998 support these original 1996 study estimates;

d) that meteorological aids systems are essential to produce the upper air measurements required by the World Meteorological Organization (WMO), as summarized in Recommendation ITU-R SA.1165, and that systems using the band 400.15-406 MHz constitute the majority of the mobile and fixed observation stations worldwide;

e) that meteorological aids systems are also essential to produce the upper air measurements required for civilian and other applications;

f) that the amount of spectrum required by meteorological users, including WMO (station spacing requirement of 250 km), civilian users and other related users, in most geographical areas is about 5 MHz in the band 401-406 MHz using the currently employed technology;

MOD USA/12/279

g) that since ~~this Conference~~WRC-97 upgraded the allocation to the Earth exploration-satellite service and the meteorological-satellite service to primary in the band 401-403 MHz, this is likely to impose constraints on the meteorological aids service in this band in certain geographical areas;

ADD USA/12/280

h) that the CPM Report for WRC-2000 stated that in the long term, improved technology and operational techniques may result in more efficient use of the band 401-406 MHz by the existing services, which may enable future review of requirements for this band;

MOD USA/12/281

~~*h*~~*i)* that the development of more spectrum-efficient meteorological aids systems is continuing in order to minimize the bandwidth required by these systems, as outlined in Recommendation ITU-R SA.1165, and that recent development of these related technologies has been rapid;

~~*i*~~*j)* that sharing studies to date have shown that co-channel sharing between currently proposed non-GSO MSS systems and meteorological aids in the band 401-406 MHz is not generally feasible, that any sharing would require band segmentation and that the band 405-406 MHz has been named by some administrations as a possible candidate band for such a new allocation;

~~*j*~~*k)* that any transition of meteorological aids from the band 405-406 MHz should not increase the operational costs of meteorological aids networks beyond the available financial resources, and should not constrain the future development of the meteorological aids service, while using more spectrum-efficient systems;

~~*k*~~*l)* that the COSPAS-SARSAT system operates within an exclusive allocation in the band 406-406.1 MHz, that the radio astronomy service has a primary allocation in the band 406.1-410 MHz and that these services need to be protected from MSS transmissions including unwanted emissions,

noting

a) that the possible use of the band 405-406 MHz by the MSS should be limited to systems using narrow-band modulation techniques until further ITU-R studies conclude that other modulation techniques can protect COSPAS-SARSAT (406-406.1 MHz) and the radio astronomy service (406.1-410 MHz);

b) that Resolution **214 (Rev.WRC-97)** also addresses sharing studies relating to consideration of the allocation of bands below 1 GHz to the non-GSO MSS,

resolves to invite ITU-R

ADD USA/12/282

1 as a matter of urgency, to study improved technology and operational techniques which may result in more efficient use of the band 401-406 MHz by the existing services;

MOD USA/12/283

~~1~~2 as a matter of urgency, upon completion of the studies in *resolves* 1, with the participation of WMO, to assess further the current and future requirements of the meteorological aids service in the band 401-406 MHz, taking into account the requirements of the earth exploration-satellite service and the meteorological-satellite service in the band 401-403 MHz;

~~2~~3 as a matter of urgency, upon completion of the studies in *resolves* 1, with the participation of WMO, to consider the possible transition of the meteorological aids service out of a portion of the band 405-406 MHz, which would minimize the impact on the meteorological aids service, while taking into account requirements for the implementation of non-GSO MSS;

MOD USA/12/284

~~3~~4 to consider, based on the outcome of § 1 and 2 above, a possible transition plan, including a transition date at which time meteorological aids could migrate their operations out of a portion of the band 405-406 MHz and MSS operations could commence;

~~4~~5 as a matter of urgency, to study, with the participation of the Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (IUCAF) and other relevant entities, the impact of unwanted emissions on the COSPAS-SARSAT system in the band 406-406.1 MHz and the radio astronomy service in the band 406.1-410 MHz, and identify appropriate protection measures for these services,

resolves

MOD USA/12/285

that ~~WRC-99~~the World Radiocommunication Conference (WRC-06) be invited to consider, based on the outcome of *resolves to invite ITU-R* above, the possibility of allocating a portion of the band 405-406 MHz to the ~~MSS~~, including any appropriate transition plan,

urges administrations

1 to assess their current and future requirements for meteorological aids systems in the band 401-406 MHz taking into account the requirements of the Earth exploration-satellite service and the meteorological-satellite service in the 401-403 MHz band;

MOD USA/12/286

2 to, either individually or on a subregional or regional basis, report to WMO and ITU-R on whether the whole of the band 401-406 MHz will be needed for meteorological aids, and the possibility of transition out of a portion of the band 405-406 MHz;

3 to submit to ITU-R the most up-to-date information on their plans for possible implementation of non-GSO MSS systems and the associated spectrum requirements,

instructs the Secretary-General

to bring this Resolution to the attention of WMO.

MOD INS/60/6

RESOLUTION 219 (Rev.WRC-~~97~~2000)

Studies relating to consideration of the allocation to the non-geostationary mobile-satellite service in the meteorological aids band 405-406 MHz and the impact on primary services allocated in the adjacent bands

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

noting

b) that Resolution **214 (Rev.WRC-~~97~~2000)** also addresses sharing studies relating to consideration of the allocation of bands below 1 GHz to the non-GSO MSS,

resolves

that WRC-~~99~~02/03 be invited to consider, based on the outcome of *resolves to invite ITU-R* above, the possibility of allocating the band 405-406 MHz to the MSS, including any appropriate transition plan,

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Note by the Chairman of Sub-Working Group 4A4

RESOLUTION 127

MOD USA/12/287

RESOLUTION 127 (WRC-~~97~~2000)

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

MOD USA/12/288

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);

MOD USA/12/289

b) that the Report of the 1997~~9~~ Conference Preparatory Meeting (CPM-9~~7~~9) stated that the Radiocommunication Bureau has identified ~~at least 23~~25 non-GSO MSS networks as of 26 November 1999 at frequencies below 1 GHz, at some stage of coordination under [Resolution **46**] **(Rev.WRC-97)**, 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;

SUP USA/12/290

d)

MOD USA/12/291

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;

MOD USA/12/292

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~~;~~;

MOD USA/12/293

df) that, since CPM-97, ~~one administration has~~ITU 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~~;

ADD USA/12/294

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;

ADD USA/12/295

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;

ADD USA/12/296

i) that such additional tests and measurements will be completed prior to WRC-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;

SUP USA/12/297

b)

c)

MOD USA/12/298

~~*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

MOD USA/12/299

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;

MOD USA/12/300

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;

MOD USA/12/301

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;

MOD USA/12/302

4 to invite ~~a future competent conference~~*[WRC-03] to consider, on the basis of completion of studies referred to in *resolves* 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.

Reasons: To take account of the current status of ITU-R studies on the compatibility of non-GSO MSS feeder links in bands around 1.4 GHz with services in the same and nearby bands, and to invite [WRC-03] to include in its agenda consideration of allocations to non-GSO MSS feeder links in bands around 1.4 GHz.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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RESOLUTION 51 (WRC-97)

Provisional application of certain provisions of the Radio Regulations as modified by WRC-97 and transitional arrangements

The World Radiocommunication Conference (Geneva, 1997),

considering

a) that as a result of the review under Resolution 18 (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 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, 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 that Conference, shall be applied by the Bureau and by administrations on a provisional basis 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~~1 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~~2 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** (see also Resolution **49 (WRC-97)**);

~~4~~3 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.~~

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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16 May 2000
Original: English

ISTANBUL, 8 MAY – 2 JUNE 2000

RESOLUTION 49 (Rev. WRC-~~97~~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;

b) that the Director of the Radiocommunication Bureau provided a comprehensive report to this Conference 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 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, 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 orbit, taking into account the needs of developing countries,

considering further

that this Conference has decided to reduce the regulatory time-frame for bringing a satellite network into use,

resolves

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

Document DL/23-E
16 May 2000
Original: Spanish

ISTANBUL, 8 MAY – 2 JUNE 2000

SUB-WORKING GROUP 4A-9

RESOLUTION 80 (Rev.WRC-~~97~~2000)

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) lay down the basic principles for the use of the radio-frequency spectrum and the geostationary-satellite orbit;

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] with a contribution from the [Radio Regulations Board] to carry out studies and draw up joint 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 study by 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),

instructs

~~2~~1 ~~that~~ the ~~Board~~Bureau ~~shall~~to circulate the draft ~~of these rules of procedure~~ to administrations by 31 ~~October 1998~~December 2001 with a view to receiving comments by 31 March ~~1999~~2002;

~~3~~2 ~~that~~ the ~~Board~~Bureau ~~shall~~ to submit to WRC-~~99~~03 a detailed report on the action taken on this Resolution.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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DRAFTING GROUP 5A-1B

Chairperson, Drafting Group 5A-1B

IDENTIFICATION OF ADDITIONAL SPECTRUM FOR IMT-2000 SATELLITE COMPONENT BASED ON PROPOSALS SUBMITTED BY ADMINISTRATIONS

Frequency Band (MHz)	Proposals
[1525-1559/1626.5-1660.5] **[1525-1544 ,1545-1559/** **1626.5-1645.5,1646.5-1660.5]**	USA(12) EU(13) APT(20) Kenya, Uganda, Tanzania(115): 1.6GHz only
1610-1626.5/ **2483.5-2500**	USA(12), APT(20), K/U/T(115), Pakistan(146), EU(13), CAN(24), IRAN(126), Ethiopia(193)
1980-2010/ **2170-2200**	WARC-92 Identified
2500-2520/ **2670-2690**	USA(12), NZL(96) EU(13), IRAN(126) APT(20), Ethiopia(193)
2520-2535/ **2655-2670**	USA(12) regional
2010-2025/ **2160-2170**	USA(12) regional CAN(24) Region 2

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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DRAFTING GROUP 5A-2a

Chairperson, Drafting Group 5A-2a

COMPARISON OF PROPOSALS FOR A NEW RESOLUTION ON AGENDA ITEM 1.10

ADD EUR/13/44

RESOLUTION [EUR/13/4] (WRC-2000)

Assignment of frequencies for maritime distress, urgency and safety communications of the GMDSS and communications of priority 1 to 6 of the AMS(R)S services in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz

The World Radiocommunication Conference (Istanbul, 2000),

ADD IAP/14/117

RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

ADD ASP/20/101

DRAFT NEW RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

ADD UAE/21/3

RESOLUTION XXX (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

CEPT

considering

a) that the World Radiocommunication Conference 1997 allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS);

b) that prior to WRC-97 these bands were segmented between the maritime, aeronautical and land mobile-satellite service;

c) that the World Radiocommunication Conference 1997 adopted footnotes **S5.353A** and **S5.357A** giving priority in the application of the procedure of **S9.11A** to accommodating the spectrum requirements for distress, urgency and safety communications of the global maritime distress and safety system (GMDSS) and the aeronautical mobile-satellite (R) service communications with priority 1 to 6 of Article **S44**,

CITEL

considering

a) that WRC-97 allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS) to facilitate the assignment of spectrum to multiple mobile-satellite systems in a flexible and efficient manner;

b) that prior to WRC-97 there was a generic allocation by footnote provisions in some countries for the use of the bands 1 530-1 544 MHz and 1 631.5-1 645.5 MHz by the MSS, on condition that maritime mobile-satellite distress and safety communications have priority access over all other communications;

c) that in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) allocated to the mobile-satellite service (MSS), footnotes **S5.353A** and **S5.357A** give priority to the spectrum requirements for distress, urgency and safety communications of GMDSS and for transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S and provides protection to GMDSS and AMS(R)S from harmful interference by other mobile-satellite services;

d) that the results of the studies conducted by ITU-R pursuant to WRC-97 Resolution **218** provide for spectrum estimates for the requirement of AMS(R)S traffic;

e) that the spectrum prioritization and pre-emption methods identified in the ITU-R studies can provide for the long-term spectrum requirements of GMDSS and AMS(R)S;

f) that the technical standards which would provide for prioritization and real-time pre-emptive capabilities in future MSS systems in order to meet the long-term requirements of GMDSS and AMS(R)S services need to be developed by ITU-R;

g) that technical considerations for sharing satellite network resources between MSS (other than the aeronautical mobile-satellite (R) service) and the aeronautical mobile-satellite (R) service have been developed by and are included in ITU-R Recommendation ITU-R M.1233;

h) that global and regional mobile-satellite systems are being multilaterally coordinated in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) and that the ITU Radio Regulations provide the international framework for multilateral agreements,

APT

considering

a) that prior to the World Radiocommunication Conference 1997 the bands 1 530-1 544 MHz, 1 545-1 555 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz, 1 646.5-1 656.5 MHz (Earth-to-space) were allocated on an exclusive basis in most administrations to the mobile maritime satellite service and the aeronautical mobile-satellite (route) service (AMS(R)S);

b) that the World Radiocommunication Conference (Geneva, 1997) allocated these bands to the generic mobile-satellite service (MSS);

c) that the World Radiocommunication Conference (Geneva, 1997) adopted footnotes No. **S5.353A** giving priority to accommodating the spectrum requirements for distress, urgency and safety communications, and protection from unacceptable interference, to the global maritime distress and safety service (GMDSS) in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz and No. **S5.357A** giving priority to accommodating the spectrum requirements, and protection from unacceptable interference, to the AMS(R)S providing transmission of messages with priority 1 to 6 in Article **S44** in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz,

UAE

considering

a) that the World Radiocommunication Conference (Geneva, 1997) allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS) to facilitate the assignment of spectrum to multiple mobile-satellite systems in a flexible and efficient manner;

b) that the World Radiocommunication Conference (Geneva, 1997) adopted footnotes Nos. **S5.353A** and **S5.357A** giving priority to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) and the aeronautical mobile-satellite (R) service communications AMS(R)S with priority 1 to 6 of Article **S44**;

c) that the results of the studies conducted by ITU-R pursuant to Resolution **218 (WRC-97)** were inconclusive with regard to the spectrum needed for future AMS(R)S traffic;

d) that the technical considerations for sharing satellite network resources between the MSS (other than the AMS(R)S) and the AMS(R)S service have been developed by ITU-R (see Recommendation ITU-R M.1233),

CEPT

considering also

a) that global and regional mobile-satellite systems are being coordinated in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz and that Article **S9** provides the international framework for coordination agreements;

b) that such coordination agreements are currently based on the capacity planning approach, under which several administrations periodically coordinate access to the amount of spectrum needed to accommodate their validated requirements;

c) that the GMDSS and AMS(R)S spectrum requirements are currently satisfied through the capacity planning approach;

d) that in the long term, to ensure that the spectrum requirements of GMDSS and AMS(R)S are met, it might become necessary to enforce the coordination priority provided to distress, urgency and safety communications under footnotes **S5.353A** and **S5.357A**;

e) that the GMDSS distress, urgency and safety communications traffic and the AMS(R)S communications traffic with priority 1 to 6 of Article **S44** in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz is expected to increase over time,

CITEL

further considering

i) that the Convention on International Civil Aviation requires that stations of the aeronautical mobile-satellite (R) service shall be in compliance with the internationally agreed Standards and Recommended Practices and Procedures for Air Navigation Services;

j) that the ICAO has developed a global Air Traffic Management system which requires interoperability between stations operating in accordance with the ICAO Convention for those mobile-satellite systems providing aeronautical mobile-satellite (R) service communications with the priority message structure of Article **S44**;

k) that WRC-97 modified provisions for the operational use of the GMDSS which is fully defined in the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (see MOD No. **S30.1**);

l) that in these bands GSO satellite system operators presently use a capacity planning approach at multilateral coordination meetings, with the guidance and support of their administrations, to periodically coordinate access to the spectrum needed to accommodate their requirements. However, outside the multilateral process, coordination problems have occurred in some cases;

m) that in the bands to which RR Nos. **S5.353A** or **S5.357A** applies, the capacity planning approach, and other methods such as intra- and inter-system prioritization, pre-emption and interoperability may assist to accommodate the expanding spectrum requirements of GMDSS and AMS(R)S;

n) that the feasibility of prioritization, real-time pre-emptive access and interoperability between different mobile-satellite systems and systems providing GMDSS and AMS(R)S has yet to be adequately determined,

APT

considering further

d) that global and regional mobile-satellite systems are being coordinated in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz and that Section IIA of Article **S9** provides the international framework for coordination agreements;

e) that in these bands GSO satellite system operators presently use a capacity planning approach at multilateral coordination meetings, with the guidance and support of their administrations, to periodically coordinate access to the spectrum needed to accommodate their requirements, however, outside the multilateral process, coordination problems have occurred in some cases;

f) that in the bands to which Nos. **S5.353A** or **S5.357A** applies, the capacity planning approach, and other methods such as intra- and inter-system prioritization, pre-emption and interoperability may assist to accommodate the expanding spectrum requirements of the GMDSS and AMS(R)S;

g) that, as spectrum saturation is reached, MSS systems that do not carry GMDSS or AMS(R)S traffic and MSS systems that do not have the ability to provide prioritization, pre-emption within or between their networks or do not have interoperability with other MSS systems that are carrying GMDSS or AMS(R)S traffic, will be required to vacate these bands to conform with the requirements of Nos. **S5.353A** and **S5.357A**;

h) that the feasibility of prioritization, real-time pre-emptive access and interoperability between different mobile-satellite systems and systems providing GMDSS and AMS(R)S has yet to be adequately determined,

UAE

further considering

e) that global and regional mobile-satellite systems are being multilaterally coordinated in the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) and that the ITU Radio Regulations provide the framework for such multilateral agreements;

f) that such coordination agreements are currently based on the capacity planning approach, under which administrations periodically coordinate access to the amount of spectrum needed to accommodate their validated requirements;

g) that the capacity planning approach is currently satisfying the spectrum requirements of the GMDSS and the AMS(R)S and will continue to do so in the future;

h) that in the long term, to ensure that the actual validated spectrum requirements of the GMDSS and the AMS(R)S are met, it might be necessary to enforce the coordination priority provided to accommodate the spectrum requirements for distress, urgency and safety communications of GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44**, under footnotes **S5.353A** and **S5.357A** by the provisions of a resolution,

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CEPT

recognizing

a) that Table **S15-2** of Appendix **S15** to the Radio Regulations identifies the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime mobile-satellite service as well as for routine non-safety purposes;

b) that priority access and immediate availability of spectrum for maritime distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is of vital importance for the safety of life,

CITEL

recognizing

a) that Table **S15-2** of Appendix S15 identifies the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime MSS as well as for routine non-safety purposes;

b) that the coordination process currently allows for the orderly development of MSS systems and applications while meeting the requirements for distress, urgency and safety communications of GMDSS and for the transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S;

c) that in the future there may be a need for more flexible sharing methodologies to accommodate more systems and applications, and that ITU-R has identified two possible sharing methodologies;

d) that such methodologies shall comply with the safety and regularity of flight requirements of ICAO and the safety at sea requirements of IMO,

APT

recognizing

a) that the Convention on International Civil Aviation requires that stations of the AMS(R)S shall be in compliance with the internationally agreed Standards and Recommended Practices and procedures for Air Navigation Services and that the ICAO has developed a global air traffic management system which requires interoperability between stations providing AMS(R)S communications with the priority message structure of Article **S44** and that each of these messages are safety related;

b) that the IMO may also place similar requirements of interoperability for those mobile-satellite systems providing GMDSS communications with the priority message structure of Article **S53**;

c) that Appendix **S15** of the Radio Regulations identifies the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz for distress and safety purposes in the GMDSS as well as for routine non-safety purposes;

d) that priority access and immediate availability of spectrum for maritime distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is of vital importance for the safety of life,

UAE

recognizing

a) that Appendix **S15.2** identifies the use of the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime mobile-satellite service as well as for routine non-safety purposes;

b) that priority access and immediate availability of spectrum for distress, urgency and safety communications of the GMDSS and AMS(R)S communications with priority 1 to 6 of Article **S44** is important for the safety of life;

c) that setting aside dedicated spectrum segments for distress, urgency and safety communications will lead to the inefficient usage of spectrum, since the allocated spectrum would only be used on rare occasions;

d) that the coordination process currently allows for the orderly development of MSS systems and applications while meeting the requirements for distress, urgency and safety communications of GMDSS and for the transmission of messages with priority 1 to 6 of Article **S44** of AMS(R)S;

e) that administrations are urged during the coordination to limit the spectrum used to the minimum needed to provide in a satisfactory manner the necessary services and that Members shall endeavour to apply the latest technical advances as soon as possible, as stated in No. 195 of the Constitution of the International Telecommunication Union (Geneva, 1992),

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CEPT

recognizing also

a) that maritime general communications is defined under the International Convention for the Safety of Life at Sea (SOLAS) as operational and public correspondence, other than distress, urgency and safety, conducted by radio;

b) that some parts of maritime general communications, such as communications on medical advice, maritime assistance, navigational and meteorological message are related to safety at sea;

c) that maritime distress, urgency and safety communications of the GMDSS in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz include communications with priority 1 to 3 and safety related communications carried under priority 4 of Article **S53**;

d) that the ICAO has adopted standards and recommended practices (SARPs) addressing satellite communications equipment in aircraft in accordance with the Convention on International Civil Aviation;

e) that all air traffic communications as defined in the ICAO Annex 10 fall within categories 1 to 6 of Article **S44**;

f) that aircraft flying along international air routes must maintain watch and carry out continuous safety communications as required by the appropriate authority,

APT

noting

a) that maritime general communications is defined under the International Convention for the Safety of Life at Sea (SOLAS) as operational and public correspondence, other than distress, urgency and safety, conducted by radio;

b) that maritime distress, urgency and safety communications of the GMDSS in the bands 1 530-1 545 MHz and 1 626.5-1 645.5 MHz include communications with priority 1 to 3 and safety-related communications carried under priority 4 of Article **S53**,

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CEPT

resolves

that in frequency coordination agreements for the mobile-satellite services in the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz, administrations shall ensure accommodation of the spectrum requirements for all distress, urgency and safety communications of the global maritime distress and safety system (GMDSS) as defined in Articles **S32** and **S33** in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz and the aeronautical mobile-satellite (R) service communications with priority 1 to 6 of Article **S44** in the bands 1 545-1 559 MHz and 1 646.5-1 660.5 MHz.

CITEL

resolves

that technical and operational standards be developed to allow prioritization and real-time pre-emptive access both within a single MSS system offering AMS(R)S communications, and between MSS systems which may or may not offer AMS(R)S communications,

APT

resolves

1 that in frequency coordination procedures and agreements for the mobile-satellite services in the bands 1 530-1 544, 1 545-1 555 MHz and 1 626.5-1 645.5, 1 646.5-1 656.5 MHz, administrations shall ensure prompt and equitable allocation of spectrum between operators in order to meet the spectrum requirements for all distress, urgency and safety communications of the GMDSS as defined in Articles **S32** and **S33** in the bands where No. **S5.353A** applies and the AMS(R)S communications with priority 1 to 6 of Article **S44** in the bands where No. **S5.357A** applies;

2 that techniques such as prioritization and real-time pre-emptive access within a mobile-satellite network and between different mobile-satellite networks and interoperability between different mobile-satellite networks, for GMDSS or AMS(R)S communications over all other communications should be determined and, when necessary and where feasible, implemented in order to achieve the most flexible and practical use of the generic allocations;

3 administrations shall ensure that mobile-satellite service operators carrying non-safety related traffic yield capacity as and when necessary to accommodate the needs of the GMDSS communications as defined in Articles **S32** and **S33** and AMS(R)S communications with priority 1 to 6 of Article **S44**. This could be achieved in advance by the coordination process at *resolves* 1 above or through the implementation of techniques at *resolves* 2 above,

UAE

resolves

1 that in the frequency coordination of the mobile-satellite services in the bands 1 525-1 559 and 1 626.5-1 660.5 MHz, administrations will ensure accommodation of the verified spectrum needed for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS) of Article **S32** and **S33** in the bands where **S5.353A** applies and the aeronautical-mobile-satellite (R) service AMS(R)S communications with priority 1 to 6 of Article **S44** in the bands where **S5.357A** applies;

2 that administrations will ensure the use of the latest technical advances in order to reduce the total spectrum required and thus maximize the spectral efficiency of the MSS.

CITEL

requests ITU-R

to develop the technical standards which would enable the use of prioritization and real-time pre-emption, within a single system and pre-emption between MSS systems, in order to achieve the most flexible and practical use of the MSS allocation,

APT

requests ITU-R

1 to complete studies as a matter of urgency, to determine the feasibility of prioritization and real-time pre-emptive access between different networks of mobile-satellite systems and interoperability between different mobile-satellite networks as referred to in *resolves* 2 above;

2 to study and establish the conditions and requirements for prioritization, pre-emption and interoperability within and between mobile-satellite networks operating in bands where Nos. **S5.353A** and **S5.357A** applies,

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CITEL

requests the next [competent] world radiocommunication conference

to take into account the outcome of ITU-R studies and take appropriate action on this subject,

APT

requests WRC-02/03

to take into account the outcome of ITU-R studies and take appropriate action on this subject,

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CITEL

invites

ICAO, IMO, IATA and administrations concerned to participate in the studies identified in *requests ITU-R.*

APT

invites

ICAO, IMO, IATA, administrations and other organizations concerned to participate in the studies identified in *requests ITU-R* 1 and 2 above.

CEPT

Reasons: The coordination process satisfactorily provides spectrum for GMDSS and AMS(R)S today and is expected to continue to do so in the future. Strengthening of current provisions would ensure that spectrum will be made available in the future, as required, to satisfy the spectrum requirements of AMS(R)S communications with priority 1 to 6 of Article S44 and of distress, urgency and safety GMDSS communications. The best way to strengthen the provisions and achieving the most flexible and practical use of the generic allocations in 1.5/1.6 GHz would be in the form of a resolution (Resolution [EUR/13/4]) to be incorporated by reference to the present footnotes. This would avoid the need to modify the footnotes and allows all the relevant background information to be explained.

As a result, Resolution 218 is no longer required since the effectiveness of the coordination process, appropriately reinforced by the proposed Resolution [EUR/13/4], eliminates the need to determine the future spectrum requirements of GMDSS and AMS(R)S or to further study the feasibility of inter-system prioritization and pre-emption.

Extension of S5.357A is expected to improve the long-term assurance that spectrum will be available for the AMS(R)S and may enable the suppression of S5.362A.

The protection of the radio astronomy service in ensured by S5.376A.

The applicable procedures to be referenced in the two footnotes are those of Section II of Article S9 instead of S9.11A to take into account the coordination of GSO systems vis-à-vis other GSO systems.

CITEL

Reasons: This Resolution calls for ITU-R to study and develop the technical and operational requirements and specifications for intra-system and inter-system prioritization and pre-emption methods.

APT

Reasons: The proposed draft Resolution XXX (WRC-2000) redefines the studies requested in Resolution 218 and clarifies and strengthens the provisions of the Radio Regulations S5.353A and S5.357A.

[**UAE**

Reasons: One option identified by CPM-99 to ensure that future spectrum requirements for the AMS(R)S and the GMDSS will be available is by adding or modifying the relevant regulatory provisions. Strengthening the provisions (S5.353A and S5.357A) through the incorporation by reference of the new resolution (Resolution XXX) would achieve the most efficient use of the generic allocations in 1.5/1.6 GHz.

Considering the effect of strengthening of current provisions by the proposed Resolution XXX and the workable procedure of capacity planning, the need to determine the spectrum requirements of the GMDSS and AMS(R)S or to further study the feasibility of inter-system prioritization and pre-emption becomes no longer required. Therefore, Resolution 218 is suppressed.]

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SUB-WORKING GROUP 5C-2

NOTE

Chairperson, Sub-Working Group 5C-2, Ad Hoc 1

ALLOCATION ABOVE 71 GHZ

The Ad Hoc group 1 of the sub working group 5C2 considered contributions to the 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),

and has succesfully created the modified allocation table above 71 GHz and related footnotes and resolutions (see ANNEX 1).

Mr. Masatoshi OHISHI (Japan)
Box # 961
Chairperson, Ad Hoc 1 of Sub-Working Group 5C-2

ANNEX 1

Modfied Allocation Table and Footnotes Above 71 GHz

66-86 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
71-74	FIXED FIXED-SATELLITE (~~Earth-to-space~~space-to-Earth) MOBILE MOBILE-SATELLITE (~~Earth-to-space~~space-to-Earth) ~~S5.149 S5.556~~	
74-75.5	BROADCASTING SATELLITE FIXED FIXED-SATELLITE (~~Earth-to-space~~space-to-Earth) MOBILE Space research (space-to-Earth) S5.561	
75.5-76	~~AMATEUR~~ ~~AMATEUR SATELLITE~~ BROADCASTING-SATELLITE FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) S5.561 S5.EEE	
76-~~81~~77.5	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) S5.149 ~~S5.560~~	
~~**76-81**~~**77.5-78**	AMATEUR AMATEUR SATELLITE ~~RADIOLOCATION~~ ~~Amateur~~ ~~Amateur-satellite~~ Radio astronomy Space research (space-to-Earth) ~~S5.560~~ S5.149	

Allocation to services		
Region 1	**Region 2**	**Region 3**
~~76~~78-79	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) S5.149 S5.560	

79-81	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) S5.149 ~~S5.560~~

81-84	FIXED FIXED-SATELLITE (~~space-to-Earth~~Earth-to-space) MOBILE MOBILE-SATELLITE (~~space-to-Earth~~Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) S5.149 S5.DDD

84-86	FIXED FIXED-SATELLITE (Earth-to-space) S5.PPP MOBILE BROADCASTING ~~BROADCASTING-SATELLITE~~ RADIO ASTRONOMY S5.149 ~~S5.561~~

86-119.98 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
86-92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) MOD S5.340	
92-94	FIXED ~~FIXED-SATELLITE (Earth-to-space)~~ MOBILE RADIO ASTRONOMY RADIOLOCATION MOD S5.149 ~~S5.556~~	
94-94.1	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy S5.562 S5.FFF	
94.1-95	FIXED ~~FIXED-SATELLITE (Earth-to-space)~~ MOBILE RADIO ASTRONOMY RADIOLOCATION S5.149	
95-100	FIXED MOBILE ~~S5.553~~ ~~MOBILE-SATELLITE~~ RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE ~~Radiolocation~~ MOD S5.149 MOD S5.554 ~~S5.555~~	
100-102	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	

Allocation to services		
Region 1	**Region 2**	**Region 3**
102-105	FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIO ASTRONOMY S5.149 S5.341	
105-~~116~~109.5	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 ~~S5.340~~ S5.341	
109.5-111.8	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) MOD S5.340 S5.341	
111.8-114.25	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 ~~S5.340~~ S5.341	
~~105~~114.25-116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) MOD S5.340 S5.341	
116-119.98	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.XXX ~~MOBILE S5.558~~ SPACE RESEARCH (passive) S5.341	

119.98-158 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
119.98-120.02	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.XXX ~~MOBILE S5.558~~ SPACE RESEARCH (passive) ~~Amateur~~ S5.341	
120.02-~~126~~122.25	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.XXX ~~MOBILE S5.558~~ SPACE RESEARCH (passive) S5.138	
122.25-123	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED INTER-SATELLITE MOBILE MOD S5.558 ~~SPACE RESEARCH (passive)~~ Amateur S5.138	
~~120.02~~123-126	~~EARTH EXPLORATION-SATELLITE (passive)~~ ~~FIXED~~ FIXED-SATELLITE (space-to-Earth) ~~INTER-SATELLITE~~ ~~MOBILE S5.558~~ MOBILE-SATELLITE(space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE ~~SPACE RESEARCH (passive)~~ Radio astronomy ~~S5.138~~ S5.554	
126-~~134~~130	~~FIXED~~ FIXED SATELLITE (space-to-Earth) ~~INTER-SATELLITE~~ ~~MOBILE S5.558~~ MOBILE SATELLITE(space-to-Earth) ~~RADIOLOCATION S5.559~~ RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy S5.QQQ S5.149 S5.554	

Allocation to services		
Region 1	**Region 2**	**Region 3**
~~126~~130-134	EARTH EXPLORATION-SATELLITE (active) S5.LLL FIXED INTER-SATELLITE MOBILE MOD S5.558 RADIO ASTRONOMY ~~RADIOLOCATION S5.559~~ S5.149 S5.FFF	
134-~~142~~136	AMATEUR AMATEUR-SATELLITE ~~MOBILE S5.553~~ ~~MOBILE-SATELLITE~~ ~~RADIONAVIGATION~~ ~~RADIONAVIGATION-SATELLITE~~ Radio astronomy ~~Radiolocation~~ ~~S5.149 S5.340 S5.554 S5.555~~	
136-141	~~MOBILE S5.553~~ ~~MOBILE-SATELLITE~~ RADIO ASTRONOMY RADIOLOCATION ~~RADIONAVIGATION~~ ~~RADIONAVIGATION-SATELLITE~~ Amateur Amateur-satellite ~~Radiolocation~~ MOD S5.149 ~~S5.340 S5.554 S5.555~~	
~~134~~141-142	FIXED MOBILE ~~S5.553~~ ~~MOBILE-SATELLITE~~ RADIO ASTRONOMY RADIOLOCATION ~~RADIONAVIGATION~~ ~~RADIONAVIGATION-SATELLITE~~ ~~Radiolocation~~ MOD S5.149 ~~S5.340 S5.554 S5.555~~	
142-144	~~AMATEUR~~ ~~AMATEUR-SATELLITE~~ FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION S5.149	

Allocation to services		
Region 1	**Region 2**	**Region 3**
144-~~149~~148.5	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION ~~Amateur~~ ~~Amateur-satellite~~ MOD S5.149 ~~S5.555~~	
~~144~~148.5-149	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY ~~RADIOLOCATION~~ SPACE RESEARCH (passive) ~~Amateur~~ ~~Amateur-satellite~~ ~~S5.149~~ S5.340 ~~S5.555~~	
149-150	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~FIXED-SATELLITE (space-to-Earth)~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
150-151	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~FIXED-SATELLITE (space-to-Earth)~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) ~~S5.149~~ S5.340 ~~S5.385~~	
151-156~~1~~.5	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~FIXED-SATELLITE (space-to-Earth)~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
151.5-156~~5~~.5	FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIO ASTRONOMY RADIOLOCATION S5.149	

Allocation to services		
Region 1	**Region 2**	**Region 3**
~~151~~155.5-156	EARTH EXPLORATION-SATELLITE (passive) S5.AAA FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 S5.BBB	

156-158	EARTH EXPLORATION-SATELLITE (passive) S5.AAA FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 S5.BBB	

158-202 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
158-16458.5	EARTH EXPLORATION-SATELLITE (passive) S5.AAA FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 S5.BBB	
158.5-164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	
164-1687	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
1647-168	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE S5.558 ~~RADIO ASTRONOMY~~ ~~SPACE RESEARCH (passive)~~	
168-170	FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE S5.558 S5.149	
170-174.5	FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE MOD S5.558 MOD S5.149 S5.QQQ ~~S5.385~~	

Allocation to services		
Region 1	**Region 2**	**Region 3**
174.5-176.~~5~~4.8	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED INTER-SATELLITE MOBILE MOD S5.558 ~~SPACE RESEARCH (passive)~~ ~~S5.149 S5.385~~	
174.~~5~~8-176.5	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.YYY ~~MOBILE S5.558~~ SPACE RESEARCH (passive) ~~S5.149 S5.385~~	
176.5-182	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.YYY ~~MOBILE S5.558~~ SPACE RESEARCH (passive) ~~S5.149 S5.385~~	
182-185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) MOD S5.340 S5.563	
185-190	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ INTER-SATELLITE S5.YYY ~~MOBILE S5.558~~ SPACE RESEARCH (passive) ~~S5.149 S5.385~~	
190-~~200~~191.8	EARTH EXPLORATION-SATELLITE (passive) ~~MOBILE S5.553~~ ~~MOBILE SATELLITE~~ ~~RADIONAVIGATION~~ ~~RADIONAVIGATION SATELLITE~~ SPACE RESEARCH (passive) ~~S5.341 S5.554~~ S5.340	

Allocation to services		
Region 1	**Region 2**	**Region 3**
1901.8-200	FIXED INTER-SATELLITE MOBILE ~~S5.553~~ MOD S5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.149 S5.341 MOD S5.554	

200-202	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341 S5.RRR	

202-~~400~~1 000 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
202-~~21~~709	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~FIXED-SATELLITE (Earth-to-space)~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341 S5.RRR	
~~202~~209-217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY S5.149 S5.341	
217-~~231~~226	~~EARTH EXPLORATION-SATELLITE (passive)~~ FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) S5.CCC S5.149 ~~S5.340~~ S5.341	
~~217~~226-231	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) MOD S5.340 ~~S5.341~~	
231-~~235~~231.5	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ ~~FIXED-SATELLITE (space-to-Earth)~~ ~~MOBILE~~ RADIO ASTRONOMY SPACE RESEARCH (passive) ~~Radiolocation~~ S5.340	

Allocation to services		
Region 1	**Region 2**	**Region 3**
231.5-232	FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE Radiolocation	
~~231~~232-235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235-238	EARTH EXPLORATION-SATELLITE (passive) ~~FIXED~~ FIXED-SATELLITE (space-to-Earth) ~~MOBILE~~ SPACE RESEARCH (passive) S5.RRR S5.NNN	
238-~~241~~240	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE ~~Radiolocation~~	
~~238~~240-241	FIXED ~~FIXED-SATELLITE (space-to-Earth)~~ MOBILE RADIOLOCATION ~~Radiolocation~~	
241-248	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite S5.138 S5.149	

Allocation to services		
Region 1	**Region 2**	**Region 3**
248-250	AMATEUR AMATEUR-SATELLITE Radio astronomy S5.149	
250-252	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) ~~S5.149 S5.555~~ S5.340 S5.RRR	
252-265	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE MOD S5.149 ~~S5.385 S5.553~~ S5.554 ~~S5.555 S5.564~~	
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY MOD S5.149 S5.RRR	
275-~~400~~1 000	(Not allocated) MOD S5.565	

NOC **5C2/S5.138**

S5.138 The following bands:

6 765-6 795 kHz	(centre frequency 6 780 kHz),
433.05-434.79 MHz	(centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **S5.280**,
61-61.5 GHz	(centre frequency 61.25 GHz),
122-123 GHz	(centre frequency 122.5 GHz), and
244-246 GHz	(centre frequency 245 GHz)

are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

MOD **5C2/S5.149**

S5.149 In making assignments to stations of other services to which the bands:

13 360-13 410 kHz,	23.07-23.12 GHz*,	~~150-151 GHz*,~~
25 550-25 670 kHz,	31.2-31.3 GHz,	151.5-158.5 GHz,
37.5-38.25 MHz,	31.5-31.8 GHz in Regions 1 and 3,	168.59-168.93 GHz,
73-74.6 MHz in Regions 1 and 3,	36.43-36.5 GHz*,	171.11-171.45 GHz,
150.05-153 MHz in Region 1,	42.5-43.5 GHz,	172.31-172.65 GHz,
322-328.6 MHz*,	42.77-42.87 GHz*,	173.52-173.85 GHz,
406.1-410 MHz,	43.07-43.17 GHz*,	~~174.42-175.02 GHz*,~~
608-614 MHz in Regions 1 and 3,	43.37-43.47 GHz*,	~~177-177.4 GHz*,~~
1 330-1 400 MHz*,	48.94-49.04 GHz*,	~~178.2-178.6 GHz*,~~
1 610.6-1 613.8 MHz*,	~~72.77-72.91 GHz*,~~	~~181-181.46 GHz*,~~
1 660-1 670 MHz,	76-86 GHz,	~~186.2-186.6 GHz*,~~
1 718.8-1 722.2 MHz*,	~~93.07-93.27 GHz*,~~	195.75-196.15 GHz,
2 655-2 690 MHz,	92-94 GHz,	209-226 GHz,
3 260-3 267 MHz*,	94.1-100 GHz,	241-250 GHz,
3 332-3 339 MHz*,	~~97.88-98.08 GHz*,~~	~~250-251 GHz*,~~
3 345.8-3 352.5 MHz*,	102-109.5 GHz,	252-275 GHz
4 825-4 835 MHz*,	111.8-114.25 GHz,	~~257.5-258 GHz*,~~
4 950-4 990 MHz,	128.33-128.59 GHz,	~~261-265 GHz,~~
4 990-5 000 MHz,	129.23-129.49 GHz,	~~262.24-262.76 GHz*,~~
6 650-6 675.2 MHz*,	130-134 GHz,	~~265-275 GHz,~~
10.6-10.68 GHz,	136-148.5 GHz,	~~265.64-266.16 GHz*,~~
14.47-14.5 GHz*,	~~140.69-140.98 GHz*,~~	~~267.34-267.86 GHz*,~~
22.01-22.21 GHz*,	~~144.68-144.98 GHz*,~~	~~271.74-272.26 GHz*~~
22.21-22.5 GHz,	~~145.45-145.75 GHz*,~~	
22.81-22.86 GHz*,	~~146.82-147.12 GHz*,~~	

are allocated ~~(* indicates radio astronomy use for spectral line observations)~~, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **S4.5** and **S4.6** and Article **S29**).

MOD **5C2/S5.340**

S5.340 All emissions are prohibited in the following bands:

1 400-1 427 MHz,	
2 690-2 700 MHz,	except those provided for by Nos. **S5.421** and **S5.422**,
10.68-10.7 GHz,	except those provided for by No. **S5.483**,
15.35-15.4 GHz,	except those provided for by No. **S5.511**,
23.6-24 GHz,	
31.3-31.5 GHz,	
31.5-31.8 GHz,	in Region 2,
48.94-49.04 GHz,	from airborne stations,
50.2-50.4 GHz[2],	except those provided for by No. **S5.555A**,
52.6-54.25 GHz,	
86-92 GHz,	
100-102 GHz,	
~~105-116 GHz,~~	
109.5-111.8 GHz,	
114.25-116 GHz	
~~140.69-140.98 GHz,~~	~~from airborne stations and from space stations in the space-to-Earth direction,~~
148.5-151.5 GHz,	
164-167 GHz,	
182-185 GHz,	except those provided for by No. **S5.563**,
190-191.8 GHz,	
200-209 GHz,	
~~217-231 GHz.~~	
226-231.5 GHz,	
250-252 GHz.	

NOC **5C2/S5.340**

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.

MOD **5C2/S5.385**

S5.385 *Additional allocation:* the bands 1 718.8-1 722.2 MHz~~, 150-151 GHz, 174.42-175.02 GHz, 177-177.4 GHz, 178.2-178.6 GHz, 181-181.46 GHz, 186.2-186.6 GHz and 257.5-258 GHz are~~ is also allocated to the radio astronomy service on a secondary basis for spectral line observations.

MOD **5C2/S5.553**

S5.553 In the bands 43.5-47 GHz,and 66-71 GHz,~~95-100 GHz, 134-142 GHz, 190-200 GHz and 252-265 GHz,~~ stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **S5.43**).

MOD **5C2/S5.554**

S5.554 In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, ~~134-142 GHz,~~ ~~190~~191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

MOD **5C2/S5.555**

S5.555 *Additional allocation:* the bands 48.94-49.04 GHz~~, 97.88-98.08 GHz, 140.69-140.98 GHz, 144.68-144.98 GHz, 145.45-145.75 GHz, 146.82-147.12 GHz, 250-251 GHz and 262.24-262.76 GHz are~~ is also allocated to the radio astronomy service on a primary basis.

MOD **5C2/S5.556**

S5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz~~,~~ and 64-65 GHz~~, 72.77-72.91 GHz and 93.07-93.27 GHz,~~ radio astronomy observations may be carried out under national arrangements.

MOD **5C2/S5.558**

S5.558 In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, ~~116-134 GHz,~~ 122.25-123 GHz, 130-134 GHz, ~~170-182 GHz and~~ 167-174.8 GHz ~~185-190 GHz,~~and 191.8-200 GHz stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).

MOD **5C2/S5.559**

S5.559 In the bands 59-64 GHz ~~and 126-134 GHz~~, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).

NOC **5C2/S5.560**

S5.560 In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.

MOD 5C2/S5.561

S5.561 In the band ~~84-86~~ 74-76 GHz, stations in the fixed~~,~~ and mobile ~~and broadcasting~~ services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

NOC 5C2/S5.562

S5.562 The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars.

SUP 5C2/S5.564

~~**S5.564** *Additional allocation:* in Germany, Argentina, Spain, Finland, France, India, Italy and the Netherlands, the band 261 - 265 GHz is also allocated to the rado astronomy service on a primary basis. (WRC-97)~~

MOD 5C2/S5.565

S5.565 The frequency band 275-~~400~~1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:

- radio astronomy service: ~~278-280 GHz and 343-348 GHz~~275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, ~~300-302 GHz, 324-326 GHz, 345-347 GHz, 363-365 GHz and 379-381 GHz~~ 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the ~~next competent world radiocommunication conference~~ date when the allocation table is established in the frequency band mentioned above.

ADD 5C2/S5.AAA

S5.AAA In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018.

ADD 5C2/S5.BBB

S5.BBB The date of entry for the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018.

ADD 5C2/S5.CCC

S5.CCC Use of this allocation is limited to space-based radio astronomy only.

ADD 5C2/S5.DDD

S5.DDD The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis.

ADD 5C2/S5.EEE

S5.EEE The band 75.5-76 GHz is also allocated to the amateur and amateur-satellite services on a primary basis until the year 2006.

ADD 5C2/S5.FFF

S5.FFF Transmission from space stations of the EESS (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the concerned radio astronomy stations should mutually plan their operations to avoid, to the maximum extent possible, such occurrences.

ADD 5C2/S5.LLL

S5.LLL The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz.

ADD 5C2/S5.NNN

S5.NNN The frequency band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only.

ADD 5C2/S5.PPP

S5.PPP In Japan, use of the band 84-86 GHz, as the fixed-satellite service (Earth-to-space) is limited to the feeder link by the broadcasting-satellite service in the geostationary-satellite.

ADD 5C2/S5.QQQ

S5.QQQ *Additional allocation*: In Korea (Republic of), the bands 128-130 GHz, 171-171.6 GHz, 172.2-172.8 GHz and 173.3-174 GHz are allocated to the radio astronomy service in a primary basis until 2015.

ADD 5C2/S5.RRR

S5.RRR In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.

ADD 5C2/S5.XXX

S5.XXX Use of the bands 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –148 dBW/m^2/MHz for all angles of arrival.

ADD 5C2/S5.YYY

S5.YYY Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –144 dBW/m^2/MHz for all angles of arrival.

ADD 5C2/RES1

RESOLUTION [5C2-1] (WRC-2000)

Consideration by a future competent world radiocommunication conference of issues dealing with sharing and adjacent band compatibility between passive and active services above 71 GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the changes made to the table of allocations by WRC-2000 in bands above 71 GHz were based on the requirements known at the time of the Conference;

b) that the passive service spectrum requirements above 71 GHz are based on physical phenomena and therefore are well known. These requirements are reflected in the changes made to the table of allocations by WRC-2000;

c) that several bands above 71 GHz are already used by EESS (passive) and SR (passive) because they are unique bands to measure specific atmospheric parameters;

d) that currently there is only limited knowledge of requirements and implementation plans for the active services that will operate in bands above 71 GHz;

e) that in the past, technological developments have led to viable communication systems operating at increasingly higher frequencies and that this can be expected to continue so as to make communication technology available in the future for the frequency bands above 71 GHz;

f) that in the future, there should be accommodation of alternative spectrum needs of the active and passive services when the new technologies become available;

g) that, following the revisions to the table of allocations by WRC-2000, sharing studies may be required for services in some bands above 71 GHz;

h) that interference criteria for passive sensors have been developed and are given in Recommendation ITU-R SA.1029;

i) that protection criteria for radio astronomy have been developed and are given in Recommendation ITU-R RA.769;

j) that several satellite downlink allocations have been made within bands adjacent to those allocated to the radio astronomy service;

k) that sharing criteria for active and passive services in bands above 71 GHz have not yet been fully developed within ITU-R;

l) that in order to ensure protection of passive services above 71 GHz, WRC-2000 avoided co-allocations of active and passive services in some bands such as 100-102 GHz, 116-122.25 GHz, 148.5-151.5 GHz, 174.8-191.8 GHz, 226-231.5 GHz and 235-238 GHz, to prevent potential sharing problems,

recognizing

that to the extent practicable, the burden of sharing among active and passive services should be equitably distributed amongst the allocated services,

invites ITU-R

1 to continue its studies to determine if and under what conditions sharing is possible between active and passive services in the bands above 71 GHz, such as, but not limited to, 100-102 GHz, 116-122.25 GHz, 148.5-151.5 GHz, 174.8-191.8 GHz, 226-231.5 GHz and 235-238 GHz;

2 to study means of avoiding adjacent-band interference from space services (downlinks) into radio astronomy bands above 71 GHz;

3 to take into account the principles of burden sharing to the extent practicable in their studies;

4 to complete the necessary studies, when the technical characteristics of the active services in these bands are known;

5 to develop Recommendations specifying sharing criteria for those bands where sharing is feasible,

resolves

that a future competent conference should consider the results of ITU-R studies with a view to revise as appropriate the Radio Regulations in order to accommodate the emerging requirements of the active services taking into account the requirements of the passive services, in bands above 71 GHz;

instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

ADD 5C2/RES2

RESOLUTION [5C2-2] (WRC-2000)

Consideration by a future competent world radiocommunication conference of issues dealing with sharing between active services above 71 GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that WRC-2000 made changes to the Table of Frequency Allocations above 71 GHz, following consideration of science service issues;

b) that there are several co-primary active services in some bands above 71 GHz in the Table of Frequency Allocations as revised by WRC-2000;

c) that there is limited knowledge of characteristics of active services that may be developed to operate in bands above 71 GHz;

d) that sharing criteria for sharing between active services in bands above 71 GHz have not yet been fully developed within ITU-R;

e) that sharing between multiple co-primary active services may hinder the development of each active service in bands above 71 GHz;

f) that the technology for some active services may be commercially available earlier than for some other active services;

g) that adequate spectrum should be available for the active services for which the technology is available at a later time,

noting

that sharing criteria need to be developed, to be used by a future competent conference, for determining to what extent sharing between multiple co-primary active services is possible in each of the bands,

resolves

1 that appropriate measures should be taken to fulfill the spectrum requirements for active services for which the technology is commercially available at a later time;

2 that sharing criteria be developed for co-primary active services in bands above 71 GHz;

3 that the sharing criteria developed should form a basis for a review of active service allocations above 71 GHz at a future competent conference, if necessary,

requests ITU-R

to complete the necessary studies with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of a future competent conference,

instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

ADD 5C2/S4.XXX

S4.XXX Regarding frequency bands above 71 GHz, administrations should consider Resolutions **[5C2-1]** and **[5C2-2]** in the development of domestic policies and regulations which would permit the use of specific bands by an allocated radio service. Administrations should note the possibility of changes to Article **S5** to accommodate emerging requirements of active services, as indicated in Resolutions **[5C2-1]** and **[5C2-2]**.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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DRAFTING GROUP 5A-1

Chairperson, Drafting Group 5A-1

IDENTIFICATION OF ADDITIONAL SPECTRUM BELOW 1 GHz FOR IMT-2000 (TERRESTRIAL COMPONENT)

Terms of reference:

Consider various proposals for identification of additional spectrum for IMT-2000 terrestrial component and develop an agreed text for a footnote and a Resolution, only if required, based on guidelines agreed upon by WG5A.

Guidelines:

1. Endorse the principle that existing 1st and 2nd generation mobile systems should be able to evolve to IMT-2000.

2. Flexibility of administrations to use current or planned 1st and 2nd generation bands for IMT-2000.

3. Make manufacturers aware of potential opportunities for IMT-2000 applications in 1st/2nd generation bands.

4. Consideration of the non-harmonized worldwide band use for 1st and 2nd generation systems.

5. Consideration of the needs of developing countries.

6. Consideration to regional and individual administrations' concerns regarding current use of spectrum below 1 GHz for other services (e.g., BS, FS).

7. Some administrations do not wish this Conference to identify any additional spectrum for IMT-2000 below 1 GHz.

Summary of Input proposals:

1 Include bands in the existing footnote S5.388.

2 New footnote with reference to a Resolution listing the bands.

3 New footnote with no reference to bands.

4 No change.

Proposed text for a footnote:

S5.XXX This band or parts thereof, when used or planned to be used for high-density mobile systems, are available for IMT-2000, as per the requirements of individual administrations.

Options for referencing the footnote:

1 Reference footnote in every mobile allocation entry in the Table of Article S5 between 470 and 960 MHz.

2 Reference the footnote only in primary allocations to the mobile service between 470 and 960 MHz and revise country footnotes to include similar text.

Sabah TOWAIJ
Chairperson, Drafting Group 5A-1

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SUB-WORKING GROUP 5C-2

NOTE

Chairperson, Sub-Working Group 5C-2, Ad Hoc 1

MODIFICATION OF BRINGING INTO USE AND ADMINISTRATIVE DUE DILIGENCE REQUIREMENTS AS A CONSEQUENCE OF ALLOCATION CHANGES ABOVE 71 GHZ

Agenda item 1.16 for WRC-2000 is "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)." The purpose is to adjust allocations above 71 GHz to satisfy science service requirements and to relieve, to the extent possible, interference from active radio services in the same or adjacent allocations. Section 4.1 of the CPM Report identifies requirements for each of the science services and reports the results of sharing studies between the science services and other active services. Methods to satisfy the agenda item are reflected in the many proposals on this agenda item and require many changes to the allocations for both passive and active radio services.

Many of these modified active bands are satellite bands. Space stations with frequencies in these modified bands 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 should be given consideration in light of these events in the following manner:

1) Responsible administrations should be able to resubmit the relevant Appendix S4 information, while retaining the original date of the receipts;

2) The resubmitted Appendix S4 coordination information or notification information shall be excluded from the Cost-Recovery Procedures;

3) The Bureau should allow sufficient time to the responsible administration for the preparation required to resubmit the Appendix S4 coordination information or notification information.

To accomplish this modification see draft new Resolution [5C2-3].

Attachment: Draft New Resolution [5C2-3]

Mr. Masatoshi OHISHI (Japan)
Box # 961
Chairperson, Ad Hoc 1 of Sub-Working Group 5C-2

RESOLUTION 5C2-3 (WRC-2000)

Modification of bringing into use and administrative due diligence requirements as a consequence of allocation changes above 71 GHz

The World Radiocommunication Conference (Istanbul, 2000)

considering

a) that pursuant to agenda item 1.16 identified in Resolution 721 (WRC-97), the preparatory work for WRC-2000 considered the allocation of frequency bands above 71 GHz to the Earth exploration-satellite (passive) and radio astronomy services;

b) that agenda item 1.16 took into account Resolution 723 (WRC-97), which also included consideration of the allocation of frequency bands above 71 GHz to the space research (passive) service;

c) that changes made to the allocations for these passive science services were accompanied by consequential changes to allocations above 71 GHz to active services;

d) that the allocation changes have caused delays in the design and development of space stations planning to use these allocations;

e) that the delays also impact transmitters and receivers, on the same space stations, planning to use frequencies below 71 GHz;

f) that advance publication or request for coordination information for satellite networks in the fixed-satellite, mobile-satellite, or broadcasting-satellite services which included the use of frequencies above 71 GHz may have been received by the Bureau;

g) that this advance publication or request for coordination information for satellite networks in the fixed-satellite, mobile-satellite, or broadcasting-satellite services would be based upon the frequency allocations in force at the time the information was submitted;

h) that No. **S11.44** requires that the notified date of bringing into use of any space station of a satellite network be no later than six years (for advance publication information received prior to 22 November 1997) or five years (for advance publication information received on or after 22 November 1997) following the date of receipt by the Bureau of the advance publication information under No. **S9.1**;

i) that No. **S11.44B** allows the notified date of bringing into use to be extended by the Bureau only if the due diligence information required by Resolution 49 (WRC-97) is provided for the satellite network; if the procedure for effecting coordination has commenced; and if the notifying administration certifies that the reason for the extension is one or more specific circumstances listed in Nos. **S11.44C** through **S11.44I**;

j) that none of the specific circumstances listed in Nos. **S11.44C** through **S11.44I** includes changes to the frequency allocations as a result of World Radiocommunication Conference decisions,

k) that in order to provide the necessary protection to the passive science services, satellite networks in the fixed-satellite, mobile-satellite, or broadcasting-satellite services employing frequencies above 71 GHz with advanced publication or request for coordination information which is considered as having been received by the Bureau prior to [2 June 2000], must adhere to the revised Table of Allocations resulting from WRC-2000,

resolves

1 that, for satellite networks employing frequencies above 71 GHz in the fixed-satellite, mobile-satellite, or broadcasting-satellite services, with advance publication or request for coordination information which is considered as having been received by the Bureau prior to [2 June 2000], the Bureau will extend the notified date of bringing into use under No. S11.44 up to [2 June 2005] at the request of the notifying administration;

2 that, notwithstanding the notified date of bringing into use in *resolves* 1, there shall be no change in the date that the advance publication or request for coordination information is considered as having been received by the Bureau;

3 that, for any satellite network subject to this Resolution, the notifying administration shall have until [31 December 2000] to inform the Bureau of a new date of bringing into use for the space station, subject to the requirement that the new date be not later than [2 June 2005];

4 that the provisions contained in **S11.44B** through **S11.44I** are applicable with respect to the date of bringing into use communicated to the Bureau under *resolves* 3;

5 that, for any satellite network subject to this Resolution and Resolution 49 (WRC-97), the notifying administration shall have until the new date of bringing into use under *resolves 3* to send the administrative due diligence information to the Bureau, including any revision of administrative due diligence information submitted before [2 June 2000];

6 that the foregoing *resolves* apply to any satellite network qualified under *resolves* 1, including transmitters and receivers in the same network employing frequencies below 71 GHz;

7. that any extension of the bringing into use date or due diligence requirements granted under the conditions specified in this resolution shall be revoked and the date requirements in effect prior to the extension shall apply to all frequency bands utilized by any satellite network that does not bring into use the frequency bands above 71 GHz within the time limitations;

8. that [six] months before the expiry date specified in *resolves 3*, the Bureau will provide administrations with a list of the networks to which this Resolution applies and the options under the foregoing *resolves*;

9. that satellite networks employing frequencies above 71 GHz with advanced publication or request for coordination information which is considered as having been received by the Bureau prior to [2 June 2000], shall adhere to the revised Table of Allocations resulting from WRC-2000.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Sub-Working Group 4B4

Note by the Chairman of Drafting Group 4B4-A

RESOLUTION 716 (REV.WRC-~~95~~2000)

Use of the frequency bands 1980-2010 MHz and 2170-2200 MHz in all three Regions and 2010-2025 MHz and 2160-2170 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 1980-2010 MHz and 2170-2200 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 1980-2010 MHz and 2170-2200 MHz in all three Regions and 2010-2025 MHz and 2160-2170 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 or 1 January 2005, in accordance with the provisions of Nos. **S5.389A**, **S5.389C**[1] and **S5.389D** of the Radio Regulations, as adopted by ~~this Conference~~WRC-95;

c) that these bands are shared with the fixed and mobile[2] 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;

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1 ~~*Note by the Secretariat:* WRC-97 modified the date referred to in No. **S5.389C.**~~

2 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**.

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),

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;

c) that ITU-R has completed the studies on the question of sharing between MSS and MS resulting Recommendations addressing the sharing and intereference assessment methodologies;

d) that some administrations have developed tools in response to recognizing *c)* and the same have been made available to the Bureau~~;~~

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 typical[4] 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

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~~* This Resolution was abrogated by WRC-97.~~

[3] ITU-R replaced this term by the term "International Mobile Telecommunication-2000 (IMT-2000)".

[4] With respect to the notification of frequency assignments to stations in the fixed and mobile services, 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.

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;

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, in conjunction with the Bureau, to:~~

~~1.1 develop and provide to administrations the necessary tools in a timely manner to assess the impact of interference in the detailed coordination of mobile-satellite systems;~~

1 the ITU-R to conduct, as a matter or urgency, further studies, as required, in conjunction with the Bureau, to:

1.1 refine and complete the necessary tools in a timely manner to facilitate their access to the 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Drafting Group 4B4-A

Note by the Chairman of Drafting Group 4B4-A

RESOLUTION 716 (WRC-95)

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 or 1 January 2005, in accordance with the provisions of Nos. **S5.389A**, **S5.389C**[1] and **S5.389D** of the Radio Regulations, as adopted by ~~this~~ the 1995 Conference;

c) that these bands are shared with the fixed and mobile[2] services on a primary basis and that they are widely used by the fixed service in many developing 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;

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1 *Note by the Secretariat:* WRC-97 modified the date referred to in No. **S5.389C**.

2 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**.

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),

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 typical[4] 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;

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* This Resolution was abrogated by WRC-97.

[3] ITU-R replaced this term by the term "International Mobile Telecommunication-2000 (IMT-2000)".

[4] With respect to the notification of frequency assignments to stations in the fixed and mobile services, 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 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;

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, in conjunction with the Bureau, to:

1.1 develop and provide to administrations the necessary tools in a timely manner to assess the impact of interference in the detailed coordination of mobile-satellite systems not later than WRC-02/03;

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 3* by encouraging joint activities between the relevant Study Groups ob 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/30-E
17 May 2000
Original: English

Sub-Working Group 4B-4

Sub-Working Group 4B-4

RESOLUTION 46 (Rev. WRC-97)

Add the following editorial footnote against the title and retain the title and text unchanged:

"*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."

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Sub-Working Group 4B-4

REVIEW OF RESOLUTIONS

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 63
SUP	RESOLUTION 70 (WARC-92)
SUP	RESOLUTION 406
SUP	RESOLUTION 411 (WARC-92)
SUP	RESOLUTION 412 (WARC-92)
[SUP]	RESOLUTION 703 (Rev. WARC-92)

INTERNATIONAL TELECOMMUNICATION UNION

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Sub-Working Group 4B-4

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 (Doc.15 suggests SUP and ASP/20/319 proposes SUP)

Resolution 519 (Doc.15 suggests NOC)

Resolution 524 (Doc.15 suggests SUP and ASP/20/320 proposes SUP)

Resolution 531 (Doc.15 suggests SUP)

Resolution 534 (Doc.15 suggests SUP and ASP/20/321 proposes SUP)

Resolution 535 (Doc.15 suggests MOD)

Resolution 536 (Doc.15 suggests NOC)

Recommendation 521 (Doc.15 suggests SUP and ASP/20/327 proposes SUP)

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Revision 1 to
Document DL/33-E
19 May 2000
Original: English

DRAFTING GROUP 1 OF GT PLEN-1

Please find attached a working draft for a revision to Resolution 53 for consideration.

~~RESOLUTION 53 (WRC-97)~~
RESOLUTION GT/PLEN-1 YYY (WRC-2000)

Results of the compatibility analysis between (to and from) the WRC-2000 Regions 1 and 3 BSS Plans (feeder link and down-link) and other services having allocations in the planned bands in all three Regions and the Region 2 BSS Plan

~~Updating of the~~ "Remarks" columns in the tables of Article 9A of Appendix S30A (WRC-2000) and Article 11 of Appendix S30 (WRC-2000) to the Radio Regulations

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

considering

a) that this 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 on the basis of BSS-BSS (feeder link/down link) compatibility analysis only;

b) that this Conference has also adopted 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;

~~*b)*~~*c)* 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;~~also adopted new sharing criteria and associated calculation methods;

d) that in order to identify the affected/affecting administrations and their respective networks it is necessary to fully analyse the impact of the new Plans on other services as well as the Region 2 BSS Plan, and vice versa, using criteria and calculations method(s) adopted by this Conference,

considering further

~~*c)*~~*a)* that studies of compatibility between the ~~revised~~new 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~~Regions including the Region 2 BSS Plan, were not performed during this Conference due to:

- adoption by this Conference of new sharing conditions between these services;
- the short-time frame available to perform a complete compatibility analysis;
- ~~using data~~some of the data, which are required for this analysis and which had been received~~and published~~ by the Radiocommunication Bureau at the time of

this Conference under relevant provisions of the Radio Regulations were not yet processed;

~~*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~~WRC-2000 Regions 1 and 3 Plans must be compatible with the Region 2 ~~Plans and with the~~BSS Plan and other services which have primary allocations in the planned bands in all three Regions in accordance with principles adopted at this Conference;

b) ~~*b)*~~ that the Bureau requires clear instructions from this Conference on how to complete the analyses and to ~~finalize the entries to be included~~insert appropriate notes in the "Remarks" column of both Article 9A of Appendix **S30A** and Article 11 of Appendix **S30**;

c) ~~*c)*~~ that the instructions to the Bureau shall take effect on ~~22 November 1997,~~2 June 2000,

resolves

1 that the Bureau shall ~~complete~~carry out the required analyses based on the~~new~~ Notes ~~3~~X to ~~7~~Y in Section 9A.2 of Article 9A of Appendix **S30A** and Notes ~~5~~X' to ~~7~~Y' in Section 11.2 of Article 11 of Appendix **S30** ~~added during~~adopted by this Conference, taking into account criteria and calculations method(s) adopted by this Conference;

2 that the Radiocommunication Bureau shall publish the results of its analyses after this Conference, together with ~~a modified~~the inclusion of the relevant notes in the "Remarks" column of Article 9A of Appendix **S30A** and Article 11 of Appendix **S30**, in the form of a circular-letter;

3 that once the circular-letter referred to in *resolves* 2 has been sent, administrations will have a period of ~~60~~120 days counted from the date of the circular-letter to decide whether they do or do not wish ~~to go on appearing as~~continue appear as an "affected administrations" in the relevant table. The Bureau shall send a ~~remark~~ to all administrations 45 days before the expiry of the above-mentionned dead line in the form of a circular telegram, 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; reminder

4 that the new coordination requirements identified in the above-mentioned circular-letter shall apply provisionally from the expiry date of the above-mentioned circular-letter until a decision is taken by ~~WRC-99;~~WRC-2003;

5 ~~5~~ that the Bureau shall report the results of its analyses ~~and~~to WRC-2003 as the final lists of administrations to be included in the~~modified~~ "Remarks" columns ~~to WRC-99,~~of the Regions 1 and 3 Plans;

6 that any request for notification of an assignment included in the new Regions 1 and 3 BSS Plans adopted by WRC-2000, which would be received by the BR before the expiry date of the above-mentioned circular-letter, would be subject to an examination by the BR with respect to its compatibility with the other services having primary allocations in the planned bands in all three Regions and the Region 2 BSS Plan.

instructs the Secretary-General

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.~~WRC-2003.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/33-E

Original: English

DRAFTING GROUP 1 OF GT PLEN-1

Please find attached Resolution 53 for revision.

RESOLUTION 53 (WRC-97)

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),

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;

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;

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;

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;

b) 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**;

c) that the instructions to the Bureau shall take effect on 22 November 1997,

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;

2 that the Radiocommunication Bureau shall publish the results of its analyses after this Conference, together with a modified "Remarks" column of Article 9A of Appendix **S30A** and Article 11 of Appendix **S30**, in the form of a circular-letter;

3 that once the circular-letter referred to in *resolves* 2 has been sent, administrations will have a period of 60 days to decide whether they do or do not wish to go on appearing as "affected administrations" in the relevant table. If no reply is received from administrations within that period, it will be taken that there is no need to make any change;

4 that the new coordination requirements identified in the above-mentioned circular-letter shall apply provisionally from the date of the above-mentioned circular-letter until a decision is taken by WRC-99;

5 that the Bureau shall report the results of its analyses and the final lists of administrations to be included in the modified "Remarks" columns to WRC-99,

instructs the Secretary-General

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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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22 May 2000
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DRAFTING GROUP 1 OF GT PLEN-1

RESOLUTION 533 (WRC-~~97~~2000)

Implementation of the decisions of the WRC-~~97~~2000 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**;~~

~~*b)* that these technical parameters were used for the establishment of the revised Plans for Regions 1 and 3,~~

a) 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**/List[1];

b) 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;

d) that compatibility between the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) and other services and the Region 2 Plan must be ensured;

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[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**.

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 during WRC-2000 the R1/R3-downlink Plan (and the associated R1/R3-feeder-link Plan) were not analysed to ensure compatibility 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 and with the Region 2 Plan;

j) that Articles 4 of Appendices **S30/S30A** (as adopted by WRC-2000) define the modification procedure by which additional assignments can be added to the R1/R3-downlink List and the R1/R3-feeder-link List which will evolve over time;

k) that Articles 5 of Appendices **S30/S30A** (as adopted by WRC-2000) define the notification procedure by which assignments 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 may be brought into use,

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*~~*a)* 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*~~*b)* that the instructions to Bureau should take effect as of the close of this Conference (~~22 November 1997~~[3 June 2000]),

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];

~~1~~2 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 received under Articles 4 and 5 of Appendices **S30** and **S30A**.~~: In particular, the following technical parameters shall be applied:~~

~~– 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 initial R1/R3-downlink List

~~* The orbital position at 31° W shall no longer be considered as an orbital position in the Plan.~~

and the initial R1/R3-feeder-link List [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 ~~s~~Special ~~s~~Sections (see Resolution **53 (WRC-~~97~~2000)**);

– 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 and any new 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:~~

~~– 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;~~

~~6~~4 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 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~~ criteria and ~~reference situation~~methodology now included in 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 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 republished Special Section as 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 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 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/34(Rev.1)-E
18 May 2000
English only

Drafting Group 1 of GT PLEN-1

Please find attached revised Resolution 533 for consideration.

MOD

RESOLUTION [533 (Rev.WRC-~~97~~2000)]

Implementation of the decisions of the WRC-~~97~~2000 relating to Appendices S30 and S30A to the Radio Regulations

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

considering

a) that WRC-~~97~~2000 has adopted revisions to the Appendices **S30/S30A** Plans of Regions 1 and 3 and that WRC-2000 adopted revisions to the values for various technical parameters relating to Appendices **S30** and **S30A**;

b) that these technical parameters were used for the establishment of the revised Plans for Regions 1 and 3,

recognizing

a) that the compatibility of 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 will be/has been defined in the remarks columns of Tables 9A of Appendix **S30** and Table 11 of Appendix **S30A** (see also Resolution [53(Rev.)]);

b) that, in revising the Regions 1 and 3 Plans, the orbital position or other characteristics of assignments 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 *considering a) or 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;

e) that the instructions to Bureau should take effect as of the close of this Conference (~~22 November 1997~~3 June 2000),

resolves

1 that as of ~~22 November 1997~~3 June 2000 the Bureau shall use the values of technical parameters 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:

– protection ratios used for the equivalent protection margin (EPM) analyses as defined in ~~Recommendation ITU-R BO.1297~~Annex 5 of Appendix **S30** and Annex 3 of Appendix **S30A** instead of the protection ratios applied at ~~WARC SAT-77 and WARC Orb-88~~WRC-97;

– [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];

– [...any other essential technical assumptions];

2 that the ~~following~~ revisions to the Regions 1 and 3 Plans contained in ... [tables containing the Plan]:

~~– 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 and a new reference situation for the assignments contained in the Lists of additional uses [to be attached/being attached to the Master Register]. ~~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**;

4 that the Bureau shall review all ~~s~~Special ~~s~~Sections already published in order to determine the requirement for coordination with the revised Regions 1 and 3 Plans, the Lists, 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 (Rev.] (WRC-~~97~~2000)**);

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. previously published APS30 (Resolution 533)/C/.. [and APS30A (Resolution 533)/C/..] previously published, and publish corrigenda where required.

~~* The orbital position at 31° W shall no longer be considered as an orbital position in the Plan.~~

– 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~~[IFIC publication]. 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~~[IFIC publication]. The administration responsible for the terrestrial assignments shall then initiate coordination with the affected assignments in the revised Plans;

6 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, as follows:

– 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, identify for each pending modification the list of administrations whose agreement is required and publish this list of affected administrations in a new Special Section (APS30/E/Plan or APS30A/E/Plan and APS30/E/List or APS30A/E/List;

– 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;

– 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 contained in the Lists 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 by the Bureau pertaining to the request for modification [plus the processing time for each network between WRC-2000 and the re-publication of the network];

– any assignments in the Lists~~modifications or additions involving new frequencies or orbit positions, or both,~~ which have not been brought into service within this five + three-year [plus processing time] period shall be cancelled by the Bureau after it has informed the notifying administrations.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/34-E

Original: English

DRAFTING GROUP 1 OF GT PLEN-1

Please find attached Resolution 533 for revision.

RESOLUTION 533 (WRC-97)

Implementation of the decisions of the WRC-97 relating to Appendices S30 and S30A to the Radio Regulations

The World Radiocommunication Conference (Geneva, 1997),

considering

a) that WRC-97 has adopted values for various technical parameters relating to Appendices **S30** and **S30A**;

b) that these technical parameters were used for the establishment of the revised Plans for Regions 1 and 3,

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;

e) that the instructions to Bureau should take effect as of the close of this Conference (22 November 1997),

resolves

1 that as of 22 November 1997 the Bureau shall use the values of technical parameters 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:

- 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**;

4 that the Bureau shall review all special sections 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)**);

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.

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* The orbital position at 31° W shall no longer be considered as an orbital position in the Plan.

– 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;

6 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, as follows:

– 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, 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 agreements which have been obtained previously 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;

– 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

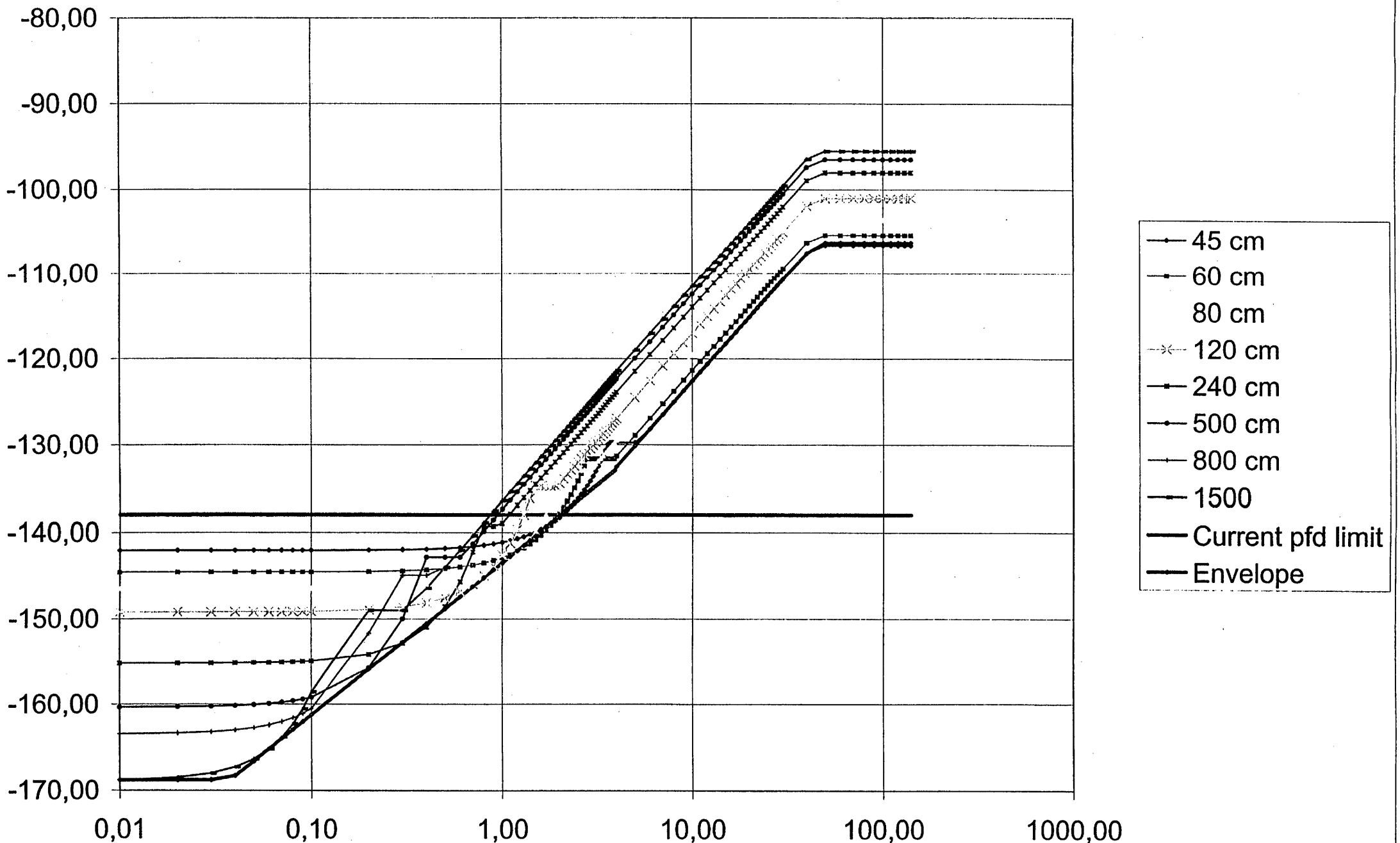
Document DL/35-E

Original: English

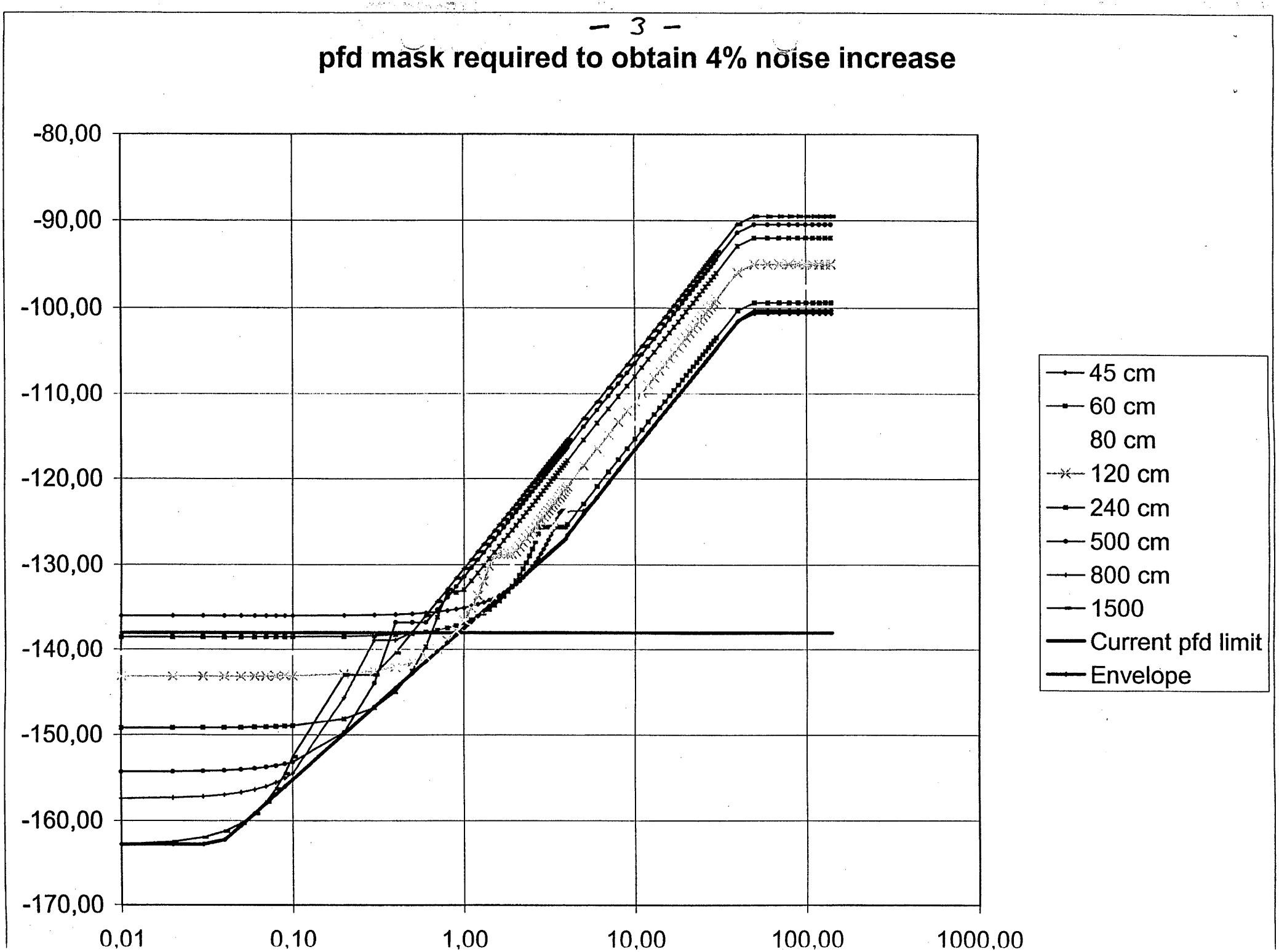
AD-HOC GROUP 1A TO GT PLEN-1

Pfd masks for 1%, 4% and 6% of DT/T are attached for consideration by the Group.

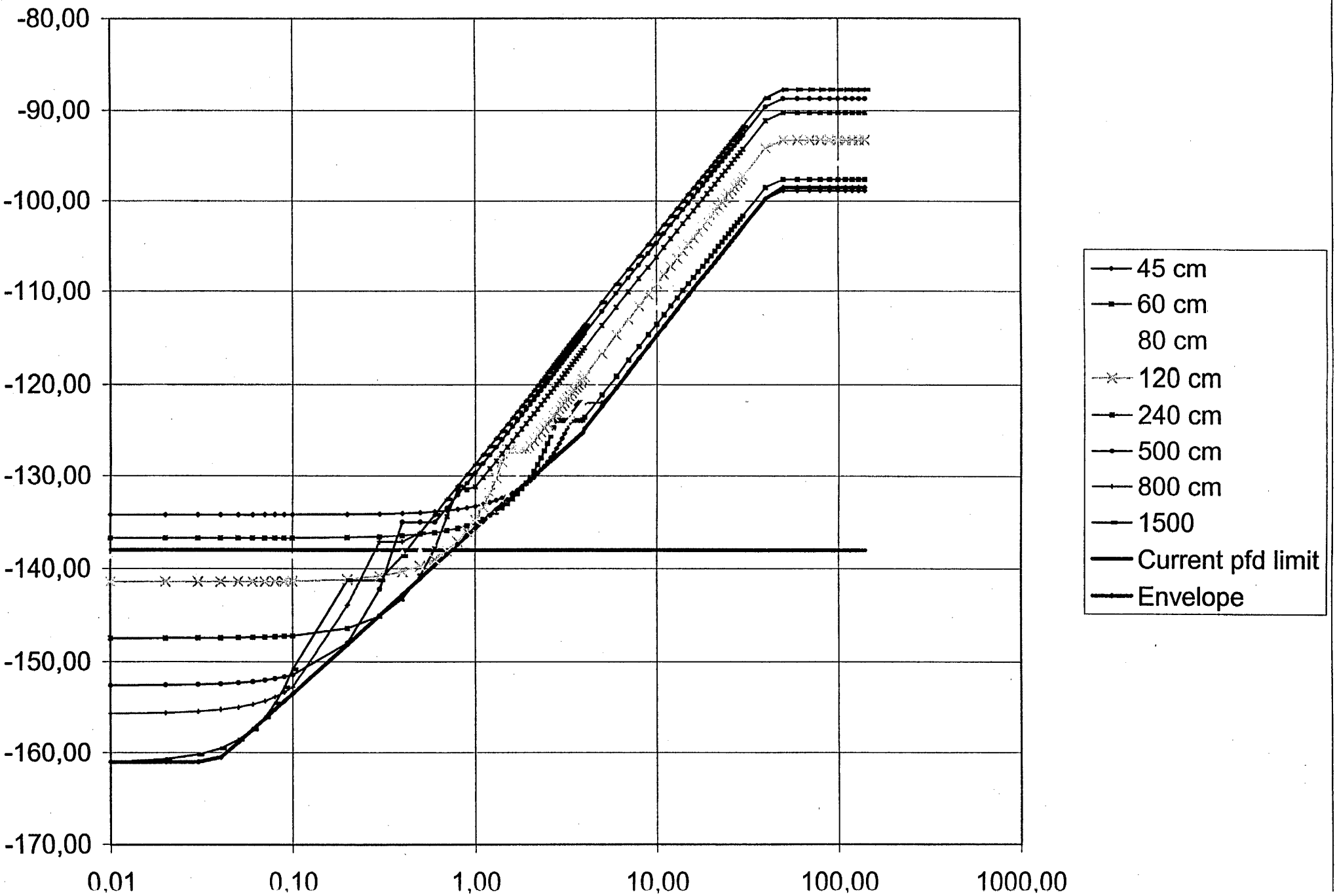
pfd mask required to obtain 1% noise increase



pfd mask required to obtain 4% noise increase



pfd mask required to obtain 6% noise increase



INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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19 May 2000
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ISTANBUL, 8 MAY – 2 JUNE 2000

SUB-WORKING GROUP 5A1

Chairperson, Sub-Working Group 5A1a

PROPOSED NEW RESOLUTION FOR THE USE OF HAPS IN IMT-2000

ADD

RESOLUTION XXX (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 the bands 1 885-2 025 MHz and 2 110-2 200 MHz, are identified as 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** of the Radio Regulations;

b) that a high altitude platform station (HAPS) is defined in RR **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 the use of HAPS as base stations of terrestrial IMT-2000 is optional for administrations and that such use should not have any priority over other terrestrial IMT-2000 use,

e) [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];

f) that these bands are allocated to the fixed and mobile services on a co-primary basis;

g) that ITU-R has studies sharing and coordination between HAPS and other stations within IMT-2000, and has established Recommendation ITU-R M.1456;

h) that ITU-R did not address sharing and coordination between HAPS and some existing systems, particularly PCS and MMDS, which are currently operating in some administrations in the bands 1 885-2 025 MHz and 2 110-2 200 MHz;

i) that in accordance with **S5.BBB**, HAPS may be used as base stations 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. [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][1];

resolves

1 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system [see Recommendation ITU-R M.1457[2]] [shall] give due consideration to the minimum performance characteristics and operational conditions given in Recommendation ITU-R M.1456, in particular:

a) 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:

$G(\psi) = G_m - 3(\psi/\psi_b)^2$	dBi	for	$0 \le \psi \le \psi_1$
$G(\psi) = G_m + L_N$	dBi	for	$\psi_1 < \psi \le \psi_2$
$G(\psi) = X - 60\log(\psi)$	dBi	for	$\psi_2 < \psi \le \psi_3$
$G(\psi) = L_F$	dBi	for	$\psi_3 < \psi \le 90°$

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)

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

$\psi_2 = 3.745\ \psi_b$ degrees

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[1] Statement from the US Delegation: The bracketed text originating from USA/12/161 contains language and principles that are fundamental to the US proposal on IMT-2000 under consideration in WG5A. The United States is unable to agree to modifications of the bracketed text until WG5A reaches an agreement on Footnote and Resolution language for the terrestrial component of IMT2000 and other advanced communications applications. This is a matter to be taken up at a higher lever, such as Working Group 5A.

[2] Reservation from France

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

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

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 operating as a base station to provide IMT-2000 shall not exceed a co-channel power flux-density (pfd) level of –121.5 dB (W/(m^2/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][3];

c) 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 pfd level of –165 dB (W/(m^2/4 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;

d) 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/(m^2/MHz)) for angles of arrival (θ) less than 5° above the horizontal plane;

–165 + 1.75 (θ - 5) dB (W/(m^2 /MHz)) for angles of arrival between 5° and 25° above the horizontal plane; and

–130 dB(W/(m^2/MHz)) for angles of arrival between 25° and 90° above the horizontal plane,

invites ITU-R

to complete as a matter of urgency 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, and to report on the results of these studies on time for consideration of WRC-2002/03,

[resolves

that applications using HAPS as an IMT-2000 base station 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-

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3 both the EUR and APT have suggested that this concern may be addressed by putting an appropriate text in a separate point under a "noting" .

2 160 in Region 2 shall not constrain the use of these bands by other stations of the primary services to which they are allocated].[4]

[resolves

that the coordination of high altitude platform stations between neighbouring administrations shall take into account the operation and grouth of existing systems in the mobile service, and systems in the other services allocated on a primary basis.]

[4] All delegations participating in DG5A1a opposed the inclusion of the text proposed by one delegation (CAN) since they interpreted the words "shall not constrain" as meaning considering HAPS as having a secondary allocation. Such an interpretation/suggestion was rejected by all present at the meeting. Canada accepted its inclusion in square brackets.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/36-E
18 May 2000
Original: English only

SUB-WORKING GROUP 5A-1

Chairperson, Drafting Group 5A1a

PROPOSED NEW RESOLUTION FOR THE USE OF HAPS IN IMT-2000

ADD

RESOLUTION XXX (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 the use of HAPS as base stations of terrestrial IMT-2000 is optional for administrations and that such use should not have any priority over other terrestrial IMT-2000 use,

e) [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];

f) [that these bands are allocated to the fixed and mobile services on a co-primary basis];

g) that ITU-R did not fully address sharing and coordination between HAPS and some existing systems, particularly PCS and MMDS, which are currently operating in some administrations in the bands 1 885-2 025 MHz and 2 110-2 200 MHz;

h) that in accordance with **S5.BBB**, HAPS may be used as base stations 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 and mobile services on a co-primary basis]. [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][1];

resolves

1 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system [see ITU –R Recommendation M.IMT RSPC[2]] [shall] give due consideration 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 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:

$G(\psi) = G_m - 3(\psi/\psi_b)^2$	dBi	for	$0 \le \psi \le \psi_1$
$G(\psi) = G_m + L_N$	dBi	for	$\psi_1 < \psi \le \psi_2$
$G(\psi) = X - 60\log(\psi)$	dBi	for	$\psi_2 < \psi \le \psi_3$
$G(\psi) = L_F$	dBi	for	$\psi_3 < \psi \le 90°$

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)

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

$\psi_2 = 3.745\ \psi_b$ degrees

---

1 Statement from the US Delegation: The bracketed text originating from USA/12/161 contains language and principles that are fundamental to the US proposal on IMT-2000 under consideration in WG5A. The United States is unable to agree to modifications of the bracketed text until WG5A reaches an agreement on Footnote and Resolution language for the terrestrial component of IMT2000 and other advanced communications applications. This is a matter to be taken up at a higher lever, such as Working Group 5A.

2 Reservation from France

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

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

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

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

where G_m is the peak aperture gain (dBi);

b) that a HAPS operating as a base station to provide IMT-2000 shall not exceed a co-channel power flux-density (pfd) level of –121.5 dB (W/(m^2/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][3];

c) 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 pfd level of –165 dB (W/(m^2/4 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;

d) 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/(m^2/MHz)) for angles of arrival (θ) less than 5° above the horizontal plane;

–165 + 1.75 (θ - 5) dB (W/(m^2/MHz)) for angles of arrival between 5° and 25° above the horizontal plane; and

–130 dB(W/(m^2/MHz)) for angles of arrival between 25° and 90° above the horizontal plane,

invites ITU-R

to complete as a matter of urgency 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, so as to allow WRC 2002 to review the results of these studies

[resolves

that applications using HAPS as an IMT 2000 base station 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

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3 both the EUR and APT have suggested that this concern may be addressed by putting an appropriate text in a separate point under a "noting" .

Region 2 shall not constrain the use of these bands by other stations of the primary services to which they are allocated].[4]

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[4] All delegations participating in DG5A1a opposed the inclusion of the text proposed by one delegation (CAN) since they interpreted the words "shall **not** constrain" as meaning considering HAPS as having a secondary allocation. Such an interpretation/suggestion was rejected by all present at the meeting. Canada accepted its inclusion in square brackets.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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19 May 2000
Original: English only

SUB-WORKING GROUP 5A1

Chairperson, Sub-Working Group 5A1

PROPOSED MODIFICATIONS TO THE RADIO REGULATIONS FOR THE USE OF HAPS IN IMT-2000

MOD

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 ADD S5.BBB	
1 930-1 970 FIXED MOBILE S5.388 ADD S5.BBB	**1 930-1 970** FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 ADD S5.BBB	**1 930-1 970** FIXED MOBILE S5.388 ADD S5.BBB
1 970-1 980	FIXED MOBILE S5.388 ADD S5.BBB	
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 ADD S5.BBB	**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 ADD S5.BBB

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 ADD S5.BBB	
2 120-2 160 FIXED MOBILE S5.388 ADD S5.BBB	**2 120-2 160** FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388 ADD S5.BBB	**2 120-2 160** FIXED MOBILE S5.388 ADD S5.BBB
2 160-2 170 FIXED MOBILE S5.388 S5.392A ADD S5.BBB	**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 ADD S5.BBB

ADD **S5.BBB** In Regions 1 and 3, the bands 1885-1980 MHz , 2010-2025 MHZ and 2110-2170 MHz, and in Region 2, the bands 1885-1980 and 2110-2160 MHz, may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000) [in accordance with] Resolution XXX[1]. [These bands are allocated to the fixed, mobile and 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.][2]

[**ADD** **S11.8A** g) if that assignment is to be used for a high altitude platform station]

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[1] There may be general IMT 2000 Resolutions which are developed and which may be applicable and therefore would also need to be referred to.

[2] Statement from the US Delegation: The bracketed text originating from USA/12/161 contains language and principles that are fundamental to the US proposal on IMT-2000 under consideration in WG5A. The United States is unable to agree to modifications of the bracketed text until WG5A reaches an agreement on Footnote and Resolution language for the terrestrial component of IMT2000 and other advanced communications applications. This is a matter to be taken up at a higher lever, such as Working Group 5A.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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DRAFTING GROUP 5A1a

Chairperson, Drafting Group 5A1a

PROPOSED FOOTNOTE FOR THE USE OF HAPS IN IMT-2000

MOD

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 ADD S5.BBB	
1 930-1 970 FIXED MOBILE S5.388 ADD S5.BBB	**1 930-1 970** FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388 ADD S5.BBB	**1 930-1 970** FIXED MOBILE S5.388 ADD S5.BBB
1 970-1 980	FIXED MOBILE S5.388 ADD S5.BBB	
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 ADD S5.BBB	**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 ADD S5.BBB

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 ADD S5.BBB	
2 120-2 160 FIXED MOBILE S5.388 ADD S5.BBB	**2 120-2 160** FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388 ADD S5.BBB	**2 120-2 160** FIXED MOBILE S5.388 ADD S5.BBB
2 160-2 170 FIXED MOBILE S5.388 S5.392A ADD S5.BBB	**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 ADD S5.BBB

ADD

S5.BBB In Regions 1 and 3, the bands 1885-1980 MHz , 2010-2025 MHZ and 2110-2170 MHz, and in Region 2, the bands 1885-1980 and 2110-2160 MHz, may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT 2000) in accordance with Resolution HAPS[1]. [These bands are allocated to the fixed, mobile and 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.][2]

[ADD

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

---

[1] There may be general IMT 2000 Resolutions which are developed and which may be applicable and therefore would need to be referred.

[2] Statement from the US Delegation: The bracketed text originating from USA/12/161 contains language and principles that are fundamental to the US proposal on IMT-2000 under consideration in WG5A. The United States is unable to agree to modifications of the bracketed text until WG5A reaches an agreement on Footnote and Resolution language for the terrestrial component of IMT2000 and other advanced communications applications. This is a matter to be taken up at a higher lever, such as Working Group 5A.

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DRAFTING GROUP 5A-2

Chairperson, Drafting Group 5A-2

DRAFT TEXT FOR FOOTNOTE FOR ADDITIONAL SPECTRUM ABOVE 1 GHz FOR IMT-2000

Draft Text

S5.AAA The bands or portions of the bands, 1710-1885 MHz and 2500-2690 MHz, which are allocated to the mobile service on a primary basis, [could be made available for] [are intended for] [are identified for] use by administrations intending to implement International Mobile Telecommunications-2000 (IMT-2000) [and other advanced [mobile] communications applications]. Such use does not preclude the use of these bands for other services, nor does such use have regulatory priority over other services operating in accordance with a primary allocation in these bands. For the implementation of IMT-2000 in these bands, and related studies, see Resolution **[Com 5 ZZZ]**.

Principles to be included

1) Include frequency bands.
2) Bands are available for administrations that want to implement IMT-2000, however, implementation is not mandatory.
3) Inclusion in footnote does not preclude use of the band for other services.
4) Include reference to resolution.

Other Concerns

1) Studies related to IMT-2000.
2) No priority in use of the bands.

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DRAFTING GROUP 5A1b

Chairperson, Drafting Group 5A1b

ELEMENTS FOR FOOTNOTE/RESOLUTION ON THE SATELLITE COMPONENT OF IMT-2000

The following identified frequency bands for the satellite component of IMT-2000:

[1 525-1 559/1 626.5-1 660.5 MHz

or 1 525-1 544, 1545-1559/1626.5-1645.5, 1646.5-1660.5 MHz][1]

1 610-1 626.5/2 483.5-2 500 MHz,

1 980-2 010/2 170-2 200 MHz,(WARC-92 identified)

2 500-2 520/2 670-2 690 MHz,(to be considered in 5A for terrestrial components as well)

2010-2 025/2 160-2 170 MHz (identified in WRC-95 for Region 2 only)

2520-2535/2655-2670 MHz(regional)

[1] S5.356/S5.375 The use of the bands 1544-1545/1645.5-1646.5MHz by the MSS is limited to distress and safety communications

MOD USA/12/191

S5.388 The bands 698-960 MHz, 1 525-1 559 MHz, 1 610-1 660.5 MHz, 1 710~~-1 885~~-2 025 MHz, ~~and~~ 2 110-2 200 MHz and 2 483.5-2 690 MHz, or portions thereof that are allocated to the mobile and mobile-satellite services, are ~~intended~~ identified for use, ~~on a worldwide basis,~~ by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) and other advanced communication applications, (see Resolution **IMT (WRC-2000)**). Such use is based on the equality of rights between all allocated radio services and does not ~~preclude the use~~ establish priority of assignments in these bands ~~by~~ among stations of the primary other services to which they are allocated. In accordance with Resolution **YYY (WRC-2000)**, studies regarding the possible use of the 698-960 MHz, 1 710-1 885 MHz and 2 500-2 690 MHz bands for IMT-2000 and other advanced communication applications are being conducted in many countries and in ITU-R, the results of which may impact the availability of those bands in those countries. ~~The bands should be made available for IMT-2000 in accordance with Resolution 212 (Rev.WRC-97)~~.

ADD EUR/13/4

S5.AAA The band 2 500-2 690 MHz is intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of this band for other services to which the band is allocated. This band should be made available for IMT-2000 in accordance with Resolution **ZZZ** [EUR/13/1]. Transitional arrangements between existing services and the mobile-satellite service (including satellite component of IMT-2000) in the bands 2 500-2 520 MHz and 2 670-2 690 MHz shall be in accordance with Resolution **TTT** [EUR/13/2].

ADD ASP/20/83

S5.SSS The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 2 483.5-2 500 MHz, 2 500-2 520 MHz and 2 670-2 690 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the satellite component of International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. (See also **S5.353A** and **S.357A**.)

ADD CAN/24/12

S5.XXX The bands 1 610-1 626.5 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, and 2 483.5-2 500 MHz allocated to the MSS on a worldwide basis and the bands 2 010-2 025 MHz, and 2 160-2 170 MHz allocated to MSS in Region 2, are available for use for the satellite component of IMT-2000. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC-2000)**.

invites administration

proposal	contents
CANADA	~~*invites administrations*~~ ~~to give due consideration to the accommodation of other services currently operating in these bands when implementing IMT-2000,~~ *invites ITU-R* to continue its studies ~~with a view to developing suitable and acceptable technical characteristics for IMT-2000 that will facilitate worldwide use and roaming,~~ on further enhancements of IMT-2000 including the provision of Internet Protocol (IP) based applications and optimized arrangements for the harmonized use of spectrum identified for IMT-2000, and ensure that IMT-2000 can also meet the telecommunication needs of the developing countries and rural areas, *invites ITU-T* *a)* to complete its studies of signalling and communication protocols; *b)* to develop a common worldwide intersystem numbering plan and associated network capabilities that will facilitate worldwide roaming,
APT/EUR	NOC RESOLUTION 212
USA	*invites administrations* 1 to adopt regulatory and spectrum decisions that protect the existing investment in mobile telecommunication systems and facilitate the ability for existing operators to evolve their systems towards IMT-2000 and beyond based on marketplace needs; 2 to adopt regulatory and spectrum decisions that ensure operators have the flexibility to provide the services and use the diverse technologies that best meet marketplace needs; 3 to give due consideration to protecting the investment in other existing radio services and to lessening the impact on existing users; 4 to adopt appropriate and reasonable mechanisms to address the cost of relocation and to ensure provision of comparable replacement spectrum in those cases where relocation is deemed necessary,
	-

urges

proposal	contents
CANADA	-
APT	-
USA	that, administrations deploying IMT-2000 systems should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations,
EUR	-

resolves

proposal	contents
CANADA	that administrations which implement IMT-2000: *a)* should make the necessary ~~frequencies~~spectrum available for system development; *b)* should use those frequencies when IMT-2000 is implemented; *c)* should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations.
APT/EUR	NOC RESOLUTION 212
USA	1 that administrations planning to implement terrestrial IMT-2000 and other advanced communication applications, consider the use of the bands or portions thereof: 698-960 MHz, 1 710-2 025 MHz, 2 110-2 200 MHz and 2 500-2 690 MHz (noting that the bands 2 500-2 520 MHz and 2 670-2 690 MHz are also identified for the satellite component); 2 that administrations planning to implement satellite IMT-2000 and other advanced communication applications, consider the use of the bands or portions thereof: 1 525-1 559/ 1 626.5-1 660.5 MHz, 1 610-1 626.5/2 483.5-2 500 MHz, 1 980-2 010/2 170-2 200 MHz, 2 500-2 520/2 670-2 690 MHz, and where appropriate within regional mobile satellite allocations consider the use of the bands or portion thereof: 2 520-2 535/2 655-2 670 MHz and 2 010-2 025/2 160- 2 170 MHz (noting that the bands 2 500-2 690 MHz are also identified for the terrestrial component)[1].
EUR	1 that the bands 2 500-2 520 MHz and 2 670-2 690 MHz, identified in **S5.AAA** for IMT-2000 and allocated to the mobile-satellite service, are intended to be used for the satellite component of IMT-2000, however, depending on market developments it may be possible in the longer term for these bands to be used by the terrestrial component of IMT-2000; 2 that, in addition to the frequency bands indicated in *considering a)* and *resolves* 1, the frequency bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz may be used by the satellite component of IMT-2000, subject to the provisions related to the mobile-satellite service in these frequency bands,

1 The 2 500-2 520 MHz and 2 670-2 690 MHz bands are also identified for use by the IMT-2000 terrestrial component. When considering such use prior to 1 January 2005 (see Nos. **S5.414** and **S5.419**), administrations should recognize that this may limit the use of these MSS allocations by the satellite component of IMT-2000.

further resolves

proposal	contents
CANADA	-
APT	-
USA	-
EUR	1 that taking into account **S5.AAA**, to facilitate the introduction and future use of the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz by the satellite component of IMT-2000, (not precluding the use of these bands for other MSS applications): a) administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after [1 January 2002], do not overlap with the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz; b) administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz to non-overlapping bands, giving priority to the transfer of their frequency assignments from the MSS uplink band 2 670-2 690 MHz, considering the technical, operational and economic aspects.

considering/EUR

a) that the bands 1 980-2 010 MHz and 2 170-2 200 MHz are identified for use by the satellite component of IMT-2000 through RR **S5.388** and Resolution **212**;

b) that the band 2 500-2 690 MHz is identified for use by IMT-2000 through RR **S5.AAA**;

c) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz are allocated on a primary basis to the mobile-satellite service;

d) that the bands 2 500-2 520 MHz and 2 670-2 690 MHz are allocated to the mobile-satellite service, these allocations being co-primary with fixed and mobile service allocations in all three Regions and with the fixed-satellite service in Regions 2 and 3,

considering/CANADA

a) that ITU-R has recommended the 1-3 GHz band as the most suitable for IMT-2000;

~~*b)* that ITU-R has recommended approximately 60 MHz for use by personal stations and approximately 170 MHz for use by mobile stations;~~

~~*c)* that ITU-R has recognized that space techniques are an integral part of IMT-2000;~~

~~*d)* that, in No. **S5.388**, this Conference has identified bands to accommodate this future service,~~

b) that WARC-92 identified 230 MHz for IMT-2000 by regulatory provision of **S5.388**;

c) that ITU-R identified a further requirement of 160 MHz in addition to the spectrum identified in **S5.388** and also the spectrum currently used by earlier generations of personal communications;

d) that ITU-R has recognized that space techniques are an integral part of IMT-2000;

e) that WARC-92 identified the worldwide allocations for the mobile-satellite service as part of the satellite component of IMT-2000;

f) that ITU-R has completed the development of recommendations on detailed specifications of the radio interface of IMT-2000;

g) that harmonized worldwide bands for IMT-2000 are desirable to achieve benefits of economies of scale,

considering further/CANADA

~~*a)* that ITU-R has not completed its studies regarding duplexing methods, modulation techniques, channelling arrangements, signalling or communication protocols;~~

~~*b)* that no worldwide intersystem numbering plan currently exists that would facilitate worldwide roaming,~~

h) that WRC-2000 identified XXX MHz of additional spectrum for the terrestrial component of IMT-2000;

i) that WRC-2000 identified the bands for the satellite component of IMT-2000,

considering/USA

a) that IMT-2000 is the ITU vision of global mobile access and is scheduled to start service around the year 2000;

b) that IMT-2000 is an advanced communication applications concept intended to provide telecommunications services on a worldwide scale regardless of location, network or terminal used;

c) that inevitable changes in technology will lead to other advanced communication applications beyond IMT-2000;

d) that through integration of terrestrial mobile and mobile-satellite systems, different types of wireless access will be provided globally, including services available through the fixed telecommunication networks and those specific to mobile users;

e) that global roaming and the economies of scale of a global market are desirable and can be best achieved through the availability of worldwide spectrum for IMT-2000 and other advanced communication applications, in particular for the satellite component, because of their global/international nature and their diverse technical characteristics;

f) that when such alignment is not possible, multi-band phones and other new technologies may assist in achieving global roaming;

g) that technological advancement and market demand encourage the use of flexible regulatory approaches that will promote innovation and accelerate the delivery of advanced communication applications to consumers;

h) that ITU Recommendations accommodate the transition from earlier technologies to future technologies;

i) that for technical reasons, such as propagation factors and equipment design, the ITU-R has determined that consideration of additional spectrum requirements for the mobile users of IMT-2000 be focused on the frequency range below 3 GHz, however, the existing applications below 3 GHz were implemented in their current bands for similar technical reasons;

j) that ITU-R Report M.[IMT.SPEC] Spectrum Requirements for IMT-2000, forecasts a need for additional spectrum on a global basis for the terrestrial and satellite components in the year 2010;

k) that the radio specifications for IMT-2000, as well as their various technical characteristics, as presented in ITU-R Recommendations, support the evolution of first- and second-generation mobile systems to IMT-2000;

l) that there have been high levels of investment in existing systems that may not evolve to or be able to share with IMT-2000 systems. These systems may continue to operate in the bands or portions of the bands identified for IMT-2000 and other advanced communication applications, thereby reducing the amount of global spectrum potentially available to support those new applications;

m) that No. **S5.388** identifies bands for use by IMT 2000 systems,

noting

proposal	contents
CANADA	*a)* that the implementation of the terrestrial component of IMT-2000 ~~in the bands 1 885-2 025 MHz and 2 110-2 200 MHz~~ is expected to commence around the year 2000, subject to market and technical considerations; *b)* that the availability of the satellite component of IMT-2000 ~~in the bands 1 980-2 010 MHz and 2 170-2 200 MHz simultaneously with the terrestrial component of IMT-2000 in the bands identified in No. S5.388~~ would improve the overall implementation and the attractiveness of IMT-2000 to both developed and developing countries~~,~~; *c)* that ITU-R has identified additional work to address further developments in advanced mobile systems including IMT-2000 applications and applications beyond IMT-2000,
APT/EUR	NOC RESOLUTION 212
USA	*a)* that administrations may implement IMT-2000 in any frequency band allocated to the mobile or mobile-satellite service; *b)* that the identification of spectrum for IMT-2000 does not convey any status under the Radio Regulations of ITU but does provide uniform guidance to administrations, operators and manufacturers in terms of deploying IMT-2000 and other advanced communication applications; *c)* that the implementation of the terrestrial component of IMT-2000 and other advanced communication applications, within the bands identified, is expected to commence in some bands as early as the year 2000, subject to market and technical considerations; *d)* that the implementation of the satellite component of IMT-2000 and other advanced communication applications, in the bands identified and allocated to the MSS, could commence in some bands as early as the year 2000, subject to market and technical considerations; *e)* that administrations who use all or parts of the frequency bands identified for IMT-2000 for first- and second-generation mobile systems may ultimately want to deploy IMT-2000 and other advanced communication applications in these bands; *f)* that administrations who use the frequency bands identified for IMT-2000 for applications other than mobile systems as specified in *noting e)* may want to give the operators of these systems the flexibility to either continue to provide the current services or to evolve their systems to the provision of other terrestrial services such as IMT-2000; *g)* that some administrations will be conducting studies prior to making decisions on their implementation of certain bands; *h)* that, in accordance with Resolution **YYY (WRC-2000)**, studies will be conducted in many countries and in ITU-R regarding the possible implementation of IMT-2000 and other advanced communication applications in portions of the identified bands,
Chair	*that in the bands 1610-1626.5MHz and 2483.5-2500MHz the radiodetermination satellite service is allocated on a primary basis according to **S5.369** and **S5.400**, that in the bands 1525-1530MHz mobile service is allocated on a primary basis according to **S5.349**,*

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COMMITTEE 5

Sub-Working Group 4B-4

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 (Doc.15 suggests MOD) [WG 5B]

Resolution 331 (Doc.15 suggests NOC/(MOD)) [WG 5B]

Resolution 347 (Doc.15 suggests NOC/(MOD)) [WG 5B]

Resolution 602 (Doc.15 suggests MOD) [WG 5B]

Resolution 712 (Doc.15 suggests MOD) [WG 5C]

Recommendation 14 (Doc.15 suggests MOD) [WG 5B]

Recommendation 316 (Doc.15 suggests SUP/(MOD) and ASP/20/324 proposes SUP) [WG 5B]

Recommendation 706 [WG 5C]

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SUB-WORKING GROUP 4A5

Chairperson, Drafting Group 4A5a

REPORT FROM DRAFTING GROUP 4A5A TO SUB-WORKING GROUP 4A5

~~**2 Proposals**~~

~~It is proposed to modify Appendix S4 Annex 2A, item A.2 (the explanation of the date of bringing into use) as follows as well as similar changes to Annexes of Appendices S30, S30A and S30B:~~

MOD ~~EUR/13/306~~ Appendix S4 Annex 2A, item A.2a

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[1] 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).

~~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.~~

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.

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.

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.

MOD **Appendix S30B, 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Adhoc Group 1 of GT PLEN-1

Chairperson Report

RESULTS OF AD-HOC GROUP 1A OF GT PLEN-1

1. Terms of reference

To produce a draft report for the consideration of GT PLEN-1 Ad-Hoc Group 1 related to the following items:

a) Compatibility analysis of the proposed revised Appendices 30&30A Plans with other services and the Region 2 Plans as prepared by the IRG.

b) Review of the sharing situation described in item a) above, considering relevant proposals to the WRC-2000.

2. Identification of documents considered by the Group

Addenda 1 and 2 to Document 14 (IAP)

Document 20 + Addendum (APT)

Document 34 + Corrigendum 3 + Addendum 4 (&Corr. 1) + Addendum 17 (SG)

Addendum 12 to Document 35 (B)

Document 37 (F)

Document 130 (INT, for information)

Document 154 (CEPT + Arabs League)

Document 185 (APT)

3. Results of the Group

See Appendix to this document

APPPENDIX

1. COMPATIBILITY ANALYSIS OF THE PROPOSED REVISED APPENDICES 30&30A PLANS WITH OTHER SERVICES AND THE REGION 2 PLANS AS PREPARED BY THE IRG.

1.1 Methodology

Document WRC2000/34 and its Corrigendum 3 describe the methodology applied by the IRG for the required compatibility analysis of the proposed revised Region 1 and 3 Plans with other services and Region 2 BSS Plans. The Group noted this document and supports the use of this methodology but with updated sharing criteria (see Sect. 2 of this Annex).

During the revision of the Region 1 and Region 3 BSS and Feeder-link Plans by WRC-2000, where assignments from the WRC-97 Plans were included with a conversion of modulation from analog to digital or a change from normal roll-off to fast roll-off antenna characteristics, the coordination status afforded by the WRC-97 Plan should be preserved, since in such cases the assignments do not cause more interference or request more protection. In all other cases, the compatibility of the assignments included in the Region 1 and Region 3 BSS and Feeder-link Plans shall be checked by using the criteria in this document.

1.2 Results of compatibility studies

Addendum 4 and Corrigendum 1 to Document CMR2000/34 provide the results of the compatibility studies carried out by the Bureau as required by the IRG. It was felt that, as a consequence of the need of considering the new Article 4 entries in the Plans ("existing systems" and "Part B") in the re-planning process, the sharing situation described in this document may be worsen. These are:

- interregional BSS-BSS compatibility
- compatibility with terrestrial services
- compatibility with non-planned FSS and other non-planned space services.

Consequently, it was agreed that some improvements should be made, either in the sharing criteria or through bilateral discussions between the concerned Administrations during WRC-2000

2. REVIEW OF THE SHARING SITUATION DESCRIBED IN SECTION 1 ABOVE, CONSIDERING RELEVANT PROPOSALS TO THE WRC-2000.

2.1 Broadcasting Satellite Services/ Down-link

2.1.1 Regions 1&3 BSS into Region 2 BSS (Section 3 of Annex 1 of APS30)

There are three Region 2 Administrations (GUY, DNK/GRL and JMC) which are potentially affected by two Region 1 Administrations (ISL and NGR) as a results of compatibility analysis carried out by the Bureau related to the IRG Region 1 and 3 proposed Plan. For the case of Iceland, the excesses with respect to the current

criteria are lower than 2 dB (0.4 dB in case of GUY, 1.9 for DNK/GRL and 1.1 for JMC). For Niger, the relevant excesses are 8.8 dB towards GUY and 6.4 dB towards JMC. It is considered that these cases may be able to be solved on a case-by-case basis before the end of the WRC-2000 in order to avoid the need for coordination with Region-2 BSS when taking this assignment into operation.

In addition, it was agreed that a WRC2000 Resolution (still to be drafted) should request ITU-R to conduct further studies on the current sharing criteria between the Regions 1&3 and Region 2 BSS Plans (Section 3 of Annex 1 of APS30) taking into account that these criteria have not been reviewed since WRC-77 in spite of the fact that WRC-97 had revised and WRC-2000 is about revising the Region 1 and 3 BSS Plans, each time using new parameters.

2.1.2 Regions 2 BSS into Region 1&3 BSS (Section 3 of Annex 1 of APS30)

No potentially affected Administrations were identified in the compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4). However, it was noted that modifications to Region 2 Plan have been recently received by the Bureau for their inclusion in the "Part B" of Region 2 Plan and shall be protected in accordance with Resolution 532 (WRC-97).

The new Resolution to be drafted (identified in Section 2.1.1 above) would also include the criteria for the interference of Region 2 BSS into Region 1&3 BSS.

2.1.3 Regions 1&3, as well as Region 2, BSS into Terrestrial Services (Sections 4, 5, 8 of Annex 1 of APS30)

The compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4) shows that a high number of potentially affected Administrations are identified when using the current limits contained in Sections 4, 5 and 8 of Annex 1 to APS30. It was felt that there is a need to harmonise these values and bringing them in line with the current usage of these bands by terrestrial services. Therefore, it was agreed that the following limits shall be applied instead of the current Sections 4, 5 and 8 of Annex 1 to APS30 to protect terrestrial services in the band 11.7-12.7 GHz, over the territories of those countries in the three Regions where these services are allocated on a primary basis, from interference caused by the BSS in the bands subject to APS30:

-148 dB(W/m²/4 kHz)	for $\theta \leq 5°$
$-148 + 0.5\ (\theta-5)$ dB(W/m²/4 kHz)	for $5° < \theta \leq 25°$
-138 dB(W/m²/4 kHz)	for $25° < \theta \leq 90°$

where θ represents the angle of arrival.

Note: In addition, the 0.25 dB allowed increase over the PFD resulting from the original plan assignments in Region 2 should be maintained.

2.1.4 Terrestrial Services into Region 1&3 BSS (Annex 3 of APS30)

It was noted that the current footnotes in Annex 3 are based on the technical characteristics of the 1977 Plan (-103 dB(w/m2/27 MHz) pfd wanted for BSS and 35 dB C/I protection ratios). It was agreed that these parameters would need to be updated to reflect the new technical characteristics of the Plans in Regions 1, 2 and 3. It was agreed that additional studies conducted by the ITU-R are required for this case and it was proposed to include them into the new Resolution identified in Section 2.1.1 above.

2.1.5 Regions 1&3 BSS into FSS and other non-planned Space Services (space-to-Earth) (Section 6 of Annex 1 of APS30)

[-F/37/4, F/37/5, F/37/6, IAP/ , INT/14,]

Numerous potentially affected Administrations were identified in the compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4). It was felt that in view of the sharing conditions which are currently applied to the assessment of this sharing situation, some actions need to be taken. The following was agreed:

(a) Instead of the flat PFD limit of –138 dBW/m²/27 MHz, apply new PFD limits to protect FSS in all Regions from BSS in all Regions, as given below:

For Region 1 and 3 BSS → Region 2 FSS:

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 11.54°$
-115 dB(W/m²/27 MHz)	$11.54° \leq \theta$

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:

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$	
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$	
[(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 24.12°$	*(see Note 1)*
-107 dB(W/m²/27 MHz)	$24.12° \leq \theta$	*(see Note 1)*]
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 16.69°$	*(see Note 2)*
-111 dB(W/m²/27 MHz)	$16.69° \leq \theta$	*(see Note 2)*

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.

Note 2: For the purpose of analysing modification requests after WRC-2000

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

For Region 2 BSS → Region 1 and 3 FSS and into Region 3 non-planned BSS:

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 11.54°$
-115 dB(W/m²/27 MHz)	$11.54° \leq \theta$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

The new Resolution to be drafted (identified in Section 2.1.1 above) would also include these criteria above for further studies by ITU-R to be conclude in time for consideration by the next World Radio Conference.

It is understood that in the implementation of these criteria of section a), the Bureau should take into account the pertinent station keeping accuracy of the BSS and FSS space stations as filed by the notifying administration.

(b) Modify Section A3 of Annex 7 of APS30 to read as follows

3) The purpose of the following orbital position and e.i.r.p limitations is to preserve access to the GSO by Region 2 fixed-satellite service in the frequency band 11.7 – 12.5 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.

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

Orbital position	37° W to 36° W	33.5° W to 32.5°W	30° W to 29° W	26° W to 24° W	20° W to 18° W	14° W to 12° W	8° W to 6° W	2° W to 0°	4° E to 6° E

Table 2

Nominal positions in the orbital arc between 37° W and 10° E at which the 56 dBW e.i.r.p. limit does not apply

Orbital position	37° W	33.5° W	30° W	25° W ± 0.2°	19° W ± 0.2°	13° W ± 0.2°	7° W ± 0.2°	1° W ± 0.2°	5° E ± 0.2°

It is understood that this new text supersedes also the current text of the Rules of Procedure on Annex 7 of APS30.

(c) The assignments in the FSS for which, as of 31 July 2000, complete Appendix S4 data (or Appendix 3 data, as appropriate) will have been received by the Bureau under the relevant provisions of Section 2 of Article S9 (or Article 11, as appropriate) shall be taken into account in the pertinent compatibility analyses to be carried out by the Bureau after WRC-2000 by applying the PFD criteria of Section 2.1.5 (a) above.

However, assignments for which complete coordination information according to APS4 has been received by the Bureau after 12 May 2000, 17:00 hours, shall be taken into account, by applying the PFD criteria of Section 2.1.5 (a) above, only if the orbital location is not changed from that contained in the corresponding API, or if the orbital position is changed and does then not lie within ± 1° of a position used

in the R1/R3-Plans as established by WRC-2000. But if the orbital position is changed with respect to that contained in the corresponding API, and then lies within ± 1° of a position used in the R1/R3-Plans as established by WRC-2000, a sharing criteria of –138 dB(W/m²/27MHz) will be applied.

Note: The final adoption of this Section 2.1.5 (c) is subject to the review of the updated list of filed FSS networks as of 12 May 2000 (the list in Doc. 37 covers all filed FSS networks as of March 2000). The Bureau announced to undertake every effort to provide that list by 23 May 2000.

2.1.6 FSS and other non-planned Space Services (space-to-Earth) into Region 1&3 BSS (Annex 4 of APS30)

[IAP/344&345, F/37/2&3, INT/13]

[not yet discussed in Adhoc Group 1A]

This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

2.2 Associated Feeder-links

2.2.1 Regions 1&3 Feeder-links (planned) into Region 2 Feeder-links (non-planned) and vice versa

The group noted the proposal IAP/359 (Doc. CMR2000/14(Add.2) which requests to add a new section 6 to Annex 1 of APS30A concerning the 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). In addition, it was concluded to include a new section in Annex 4 of APS30A in order to encompass also the reverse interference situation, i. e. Region 2 Feeder-links (non-planned) into Regions 1&3 Feeder-links (planned). The applicability of 3% of ΔT/T criterion (calculated in accordance with the method contained in APS8 but averaged over the total RF bandwidth) for the protection of unplanned feeder-links requires further study.

This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

2.2.2 Regions 2 Feeder-links (planned) into Region 1&3 Feeder-links (planned) and vice versa (APS8 (section 5 of Annex 1 of APS30A))

[- No proposals]

This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

2.2.3 Regions 1&3 Feeder-links into Terrestrial Services (APS7 (section 2 of Annex 1 of APS30A))

[- No proposals]

2.2.4 Regions 1&3 Feeder-links into FSS and other non-planned Space Services (space-to-Earth) (Section 3 of Annex 4 of APS30A referred to in Section 1 of Annex 1)

To be replaced by APS7 as agreed by the CPM

This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

2.2.5 FSS and other non-planned Space Services into Region 1&3 Feeder-links (space station into space station) (Section 1 of Annex 4 of APS30A modified*)

*to take into consideration the noise temperature of the satellite system to be 600 K and $\Delta T/T$ of 6%

[-No proposals but conclusions in Doc. 34 and its Corr. 3]

This method should be applied by the Bureau in its analyses of the WRC-2000 Feeder-link Plan with respect to the compatibility with other services (and not the PFD level of –137 dB(W/m²/MHz) as given in the current version of Section 1 of Annex 4 of APS30A). After the Conference, the Bureau should continue to apply this method.

This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

AHG1/GTPlen1 DL-43
18 May 2000

Adhoc Group 1 of GT PLEN-1

Chairperson Report

RESULTS OF AD-HOC GROUP 1A OF GT PLEN-1

1. Terms of reference

To produce a draft report for the consideration of GT PLEN-1 Ad-Hoc Group 1 related to the following items:

a) Compatibility analysis of the proposed revised Appendices 30&30A Plans with other services and the Region 2 Plans as prepared by the IRG.

b) Review of the sharing situation described in item a) above, considering relevant proposals to the WRC-2000.

2. Identification of documents considered by the Group

Addenda 1 and 2 to Document 14 (IAP)

Document 20 + Addendum (APT)

Document 34 + Corrigendum 3 + Addendum 4 (&Corr. 1) + Addendum 17 (SG)

Addendum 12 to Document 35 (B)

Document 37 (F)

Document 130 (INT, for information)

Document 154 (CEPT + Arabs League)

Document 185 (APT)

3. Results of the Group

See Appendix to this document

APPPENDIX

1. COMPATIBILITY ANALYSIS OF THE PROPOSED REVISED APPENDICES 30&30A PLANS WITH OTHER SERVICES AND THE REGION 2 PLANS AS PREPARED BY THE IRG.

1.1 Methodology

Document WRC2000/34 and its Corrigendum 3 describe the methodology applied by the IRG for the required compatibility analysis of the proposed revised Region 1 and 3 Plans with other services and Region 2 BSS Plans. The Group noted this document and supports the use of this methodology but with updated sharing criteria (see Sect. 2 of this Annex).

The Group also accepted that where assignments included in the revised Plan are essentially identical to assignments of the WRC-97 Plan (i.e. except for changing the emissions type from analogue to digital, or ± 0.2° orbital position shifts), the coordination status afforded by the WRC-97 Plan should be preserved.

1.2 Results of compatibility studies

Addendum 4 and Corrigendum 1 to Document CMR2000/34 provide the results of the compatibility studies carried out by the Bureau as required by the IRG. It was felt that, as a consequence of the need of considering the new Article 4 entries in the Plans ("existing systems" and "Part B") in the re-planning process, the sharing situation described in this document may be worsen. These are:

- interregional BSS-BSS compatibility
- compatibility with terrestrial services
- compatibility with non-planned FSS and other non-planned space services.

Consequently, it was agreed that some improvements should be made, either in the sharing criteria or through bilateral discussions between the concerned Administrations during WRC-2000

2. REVIEW OF THE SHARING SITUATION DESCRIBED IN SECTION 1 ABOVE, CONSIDERING RELEVANT PROPOSALS TO THE WRC-2000.

~~1.1~~2.1 Broadcasting Satellite Services/ Down-link

2.1.1 Regions 1&3 BSS into Region 2 BSS (Section 3 of Annex 1 of APS30)

There are three Region 2 Administrations (GUY, DNK/GRL and JMC) which are potentially affected by two Region 1 Administrations (ISL and NGR) as a results of compatibility analysis carried out by the Bureau related to the IRG Region 1 and 3 proposed Plan. For the case of Iceland, the excesses with respect to the current criteria are lower than 2 dB (0.4 dB in case of GUY, 1.9 for DNK/GRL and 1.1 for JMC). For Niger, the relevant excesses are 8.8 dB towards GUY and 6.4 dB towards JMC. It is considered that these cases can be solved on a case-by-case basis before

the end of the WRC-2000 in order to avoid the need for coordination with Region-2 BSS when taking this assignment into operation.

In addition, it was agreed that a WRC2000 Resolution (still to be drafted) should request ITU-R to conduct further studies on the current sharing criteria between the Regions 1&3 and Region 2 BSS Plans (Section 3 of Annex 1 of APS30) taking into account that these criteria have not been reviewed since WRC-77 in spite of the fact that WRC-97 had revised and WRC-2000 is about revising the Region 1 and 3 BSS Plans, each time using new parameters.

~~1.1.2~~2.1.2 Regions 2 BSS into Region 1&3 BSS (Section 3 of Annex 1 of APS30)

No potentially affected Administrations were identified in the compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4). However, it was noted that modifications to Region 2 Plan have been recently received by the Bureau for their inclusion in the "Part B" of Region 2 Plan and shall be protected in accordance with Resolution 532 (WRC-97).

The new Resolution to be drafted (identified in Section 2.1.1 above) would also include the criteria for the interference of Region 2 BSS into Region 1&3 BSS.

~~1.1.3~~2.1.3 Regions 1&3, as well as Region 2, BSS into Terrestrial Services (Sections 4, 5, 8 of Annex 1 of APS30)

The compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4) shows that a high number of potentially affected Administrations are identified when using the current limits contained in Sections 4, 5 and 8 of Annex 1 to APS30. It was felt that there is a need to harmonise these values and bringing them in line with the current usage of these bands by terrestrial services. Therefore, it was agreed that the following limits shall be applied instead of the current Sections 4, 5 and 8 of Annex 1 to APS30 to protect terrestrial services in the band 11.7-12.7 GHz, over the territories of those countries in the three Regions where these services are allocated on a primary basis, from interference caused by the BSS in the bands subject to APS30:

-148 dB(W/m²/4 kHz)	for $\theta \leq 5°$
-148 + 0.5 (θ-5) dB(W/m²/4 kHz)	for $5° < \theta \leq 25°$
-138 dB(W/m²/4 kHz)	for $25° < \theta \leq 90°$

2.1.4 Terrestrial Services into Region 1&3 BSS (Annex 3 of APS30)

It was noted that the current footnotes in Annex 3 are based on the technical characteristics of the 1977 Plan (-103 dB(w/m2/27 MHz) pfd wanted for BSS and 35 dB C/I protection ratios). It was agreed that these parameters would need to be updated to reflect the new technical characteristics of the Plans in Regions 1 and 3. It was agreed that additional studies conducted by the ITU-R are required for this case and it was proposed to include them into the new Resolution identified in Section 2.1.1 above.

2.1.5 Regions 1&3 BSS into FSS and other non-planned Space Services (space-to-Earth)

[Section 6 of Annex 1 of APS30 -F/37/4, F/37/5, F/37/6, IAP/ , INT/14,]

Numerous potentially affected Administrations were identified in the compatibility analysis carried out by the Radiocommunication Bureau (ref. Doc. 34, Add.4). It

was felt that in view of the sharing conditions which are currently applied to the assessment of this sharing situation, some actions need to be taken. The following was agreed:

(a) Instead of the flat PFD limit of –138 dBW/m²/27 MHz, apply new PFD limits to protect FSS in Regions 2 and 3 from BSS in Region 1 as given below:

For Region 1 BSS → Region 2 FSS:

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 4°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$4° \leq \theta < 9.6°$
-117 dB(W/m²/27 MHz)	$9.6° \leq \theta$

where γ corresponds to the geocentric angular separation between the interfering BSS and the interfered with FSS space station.

For Region 1 BSS → Region 3 FSS:

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 4°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$4° \leq \theta < 16.69°$
-111 dB(W/m²/27 MHz)	$16.69° \leq \theta$

where γ corresponds to the geocentric angular separation between the interfering BSS and the interfered with FSS space station.

The new Resolution to be drafted (identified in Section 2.1.1 above) would also include these criteria above for further studies by ITU-R.

It is understood that in the implementation of these criteria of section a), the Bureau should take into account the pertinent station keeping accuracy of the BSS and FSS space stations as filed by the notifying administration.

(b) Modify Section A3 of Annex 7 of APS30 to read as follows

3) ~~3)~~ Any new orbital position in the Regions 1 and 3 Plan and the List 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 or the List, shall be coincident with~~, or within 1° to the east of,~~ a nominal orbital position in the Region 1 and 3 Plan and the List at the date of entry into force of the Final Acts of the ~~1977 Conference (in force on 1 January 1979).~~ WRC-2000 with the following exceptions:

a) In the case of the nominal positions at 37°W, 33.5°W and 30°W, any new assignment shall be within one degree to the East of the position.

b) In the case of the nominal position at 25°W, 19°W, 13°W, 7°W, [4°W], 1°W, and 5°E, the new assignment shall be within 1° of the position, either to the East or to the West.

~~In the event of a modification to an assignment in the Regions 1 and 3 Plan, the~~ The use of a new nominal orbital position in the orbital arc between 37°W and 10°E 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)~~ WRC-2000 shall involve ~~an 8~~ a 3 dB reduction in the e.i.r.p. compared to

~~that appearing in the Regions 1 and 3 Plan for the assignment before modification.~~ the average e.i.r.p of assignment at the nearest nominal orbital position.

(c) The assignments in the FSS for which, as of 15 July 2000, complete Appendix S4 data will have been received by the Bureau under the relevant provisions of Section 2 of Article S9 shall be taken into account in the pertinent compatibility analyses to be carried out by the Bureau after WRC-2000.

2.1.6 FSS and other non-planned Space Services (space-to-Earth) into Region 1&3 BSS

[Annex 4 of AP30 – IAP/344&345, F/37/2&3, INT/13]

[not yet discussed in Adhoc Group 1A]

2.2 Associated Feeder-links

2.2.1 Regions 1&3 Feeder-links into Region 2 Feeder-links

The group noted the proposal IAP/359 (Doc. CMR2000/14(Add.2) which requests to add a new section 6 to Annex 1 of APS30A concerning the 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). The applicability of 3% of $\Delta T/T$ criterion (calculated in accordance with the method contained in APS8 but averaged over the total RF bandwidth) for the protection of unplanned feeder-links requires further study. This subject should be included in the draft new Resolution mentioned in Section 2.1.1 above.

2.2.2 Regions 2 Feeder-links into Region 1&3 Feeder-links

[APS8 (section 5 of Annex 1 of APS30A) - No proposals]

2.2.3 Regions 1&3 Feeder-links into Terrestrial Services

[APS7 (section 2 of Annex 1 of APS30A) - No proposals]

2.2.4 [Regions 1&3 Feeder-links into FSS (Section 3 of Annex 4 of APS7)] [see CPM Report Section xxxx] [Note: to be checked with J. Chartier]

2.2.5 Regions 1&3 Feeder-links into FSS and other non-planned Space Services (Earth-to-space)

[Annex 4 of AP30A (section 1 of Annex 1 of APS30A) – IAP/358 requests to modify Section 1 of Annex1 of APS30A in order to include the band 17.3 – 17.8 GHz and to apply 4.2.1bis and 4.2.3.4bis of Article 4 of APS30A, to be checked with Jean Chartier]

2.2.6 FSS and other non-planned Space Services into Region 1&3 Feeder-links
[Annex 4 of APS30A modified to take into consideration the noise temperature of the satellite system to be 600 K -No proposals]

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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DRAFTING GROUP 5A-2

Chairperson, Drafting Group 5A-2

RESOLUTION COM 5/ZZ (WRC-2000)

[Additional Frequency Bands Identified for IMT-2000 and Advanced Communication Applications]

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that IMT-2000 is the ITU vision of global mobile access and is scheduled to start service around the year 2000 subject to market and other considerations;

b) that IMT-2000 is an advanced mobile communication applications concept intended to provide telecommunications services on a worldwide scale regardless of location, network or terminal used;

c) that IMT-2000 will provide access to a wide range of telecommunication services supported by the fixed telecommunication networks (e.g. PSTN/ISDN), and to other services which are specific to mobile users;

d) 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;

e) that the evolution of IMT-2000 is being studied within ITU-R;

f) [that consideration of [additional] spectrum requirements at WRC-2000 for IMT-2000 concentrated on the bands below 3 GHz;]

g) [that the existing applications in the bands identified for IMT-2000 may also require spectrum below 3 GHz for technical reasons;]

h) that at WARC-92, 230 MHz of spectrum was identified for IMT-2000 in the bands 1885-2025 MHz and 2110 -2200 MHz, 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** and under the provisions of Resolution **212 (Rev.WRC-97)**; *{editor's note – ref. may change depending on outcome of work at WG-5A level}*

i) [that since WARC-92 there has been a tremendous growth in mobile communications including an increasing demand for wideband multimedia capability;]

j) that ITU-R studies forecasted that spectrum on the order of 160 MHz, in addition to that identified already for [initial] IMT-2000 bands in No. **S5.388** at [WARC-92] and in addition to the spectrum used in the three Regions for the first and second generation mobile systems in all 3 ITU Regions, will be needed to meet the projected requirements of IMT 2000 in those areas where the traffic is the highest by 2010;

k) that WRC-2000 has [identified] [additional] frequency bands in No. **S5.AAA** for IMT-2000 in order to meet the ITU-R projected additional spectrum requirement (us);

l) that the bands [identified] for IMT-2000 are currently used by either first or second generation mobile systems or applications of other radio communications services;

m) [that in some cases the only way for implementing of IMT-2000 would be spectrum refarming requiring significant financial investment (rus),]

n) [that it is necessary in some cases to protect the existing systems of services to which the bands are allocated before the end of operation (rus).]

o) [that it is necessary to provide existing operators of commercial systems of services to which the bands are allocated and IMT-2000 operators with the equal market status with the aim of guarantee for investments has been made before market demand will be absent (rus),]

p) that Recommendation ITU-R M.1308 addresses the evolution of existing mobile communication systems to IMT-2000;

q) [that the use of the same frequency bands identified for IMT-2000 can assist in the evolution of first and second generation mobile systems deployed in a cellular reuse pattern to IMT-2000 (us);] **(need redraft from US)**

r) that harmonised world-wide bands fro IMT-2000 are desirable to achieve global roaming and the benefits of economies of scale;

s) that the bands 1710-1885 MHz and 2500-2690 MHz are allocated to a variety of services in accordance with the relevant provisions of the Radio Regulations;

t) that technological advancement and market demand will promote innovation and accelerate the delivery of advanced communications applications to consumers;

u) [that changes in technology may lead to the further development of advanced communications applications, including IMT-2000.]

emphasizing

a) that flexibility must be afforded to administrations:

- to determine, at a national level, how much spectrum to make available for IMT-2000 from within the identified bands,
- to develop their own transitions plans, if necessary, tailored to meet their specific deployment of existing systems,
- to have the ability for the identified bands to be used by all services allocated in those bands,

- to determine the timing of availability and use of the bands identified for IMT-2000, in order to meet particular market demand and other national considerations,
- to meet the particular needs of developing countries.

noting

a) that the sharing implications between services sharing the bands identified for IMT-2000 in [Nos. (insert footnote reference/s to the extension bands] [have not been fully studied and will need further study in the ITU-R;]

b) that studies regarding the availability of the 1710-1885 MHz and 2500-2690 MHz band for IMT-2000 are being conducted in many countries, the results of which could have implications for the use of those bands in those countries;

c) that not all administrations may need, due to differing requirements, or be able to implement, all of the IMT-2000 bands identified at this Conference due to the usgae by and investment in the existing services;

d) that the amount of spectrum for IMT-2000 identified by WRC-2000 may not completely satisfy the expected requirements of all administrations;

e) [that administrations may implement IMT-2000 in any frequency band allocated to the mobile or mobile-satellite service (us);]

f) [that all or parts of the 1710-1885 MHz bands in Regions 1 and 3 and 1850-1990 MHz in Region 2 are used for second generation mobile communication systems and the operators of such systems may wish to use these bands for IMT-2000;]

g) that services such as fixed, mobile (second generation systems), space operations, space research and aeronautical mobile are in operation, or planned in the band 1710-1885 MHz, or portions of this band;

h) that services such as broadcasting, satellite, broadcasting satellite (sound), mobile satellite and fixed including multipoint distribution/communications systems are in operation or planned, in the band 2500-2690 MHz, or in portions of this band,

i) that the identification of several bands for IMT-2000 allows administrations to choose the best band or parts of bands for their circumstances,

j) [that the availability of the satellite component of IMT-2000 would improve the overall implementation and the attractiveness of IMT-2000 to both developed and developing countries (can);]

k) that ITU-R has identified additional work to address further developments in IMT-2000 applications and beyond;

l) that the IMT-2000 radio interfaces as defined in IMT-RSPC is expected to evolve within the framework of ITU-R beyond those initially specified, to provide enhanced services and services beyond those envisaged in the initial implementation,

m) that the frequency bands identified for IMT-2000 in [No. **S5.388** at WARC-92] and No. **S5.AAA** [are intended for] those administrations implementing IMT-2000, without precluding any other use for other services in these bands,

n) that the provisions of [XXX] allows administrations the choice to implement other technologies in the frequency bands identified for IMT-2000, based on national requirements;

recognizing

a) that some administrations are planning to use the band 2300-2400 MHz for IMT-2000;

b) [that the frequency bands identified in S5.388 are the frequency bands for initial implementation of IMT-2000 (ufg)] – *{Editorial note- this does not reflect the situation and is not accurate for the U.S. and Canada}*

c) [that the frequency bands identified in S5.AAA are global frequency bands identified in addition to those in S5.388, for further implementation of IMT-2000, based on national requirements (ufg)]

resolves

a) [that administrations planning to implement IMT-2000 consider the use of the bands or portions thereof identified in XXX (us);]

b) [that this identification does not preclude the use of these bands by any applications by the services to which they are allocated and does not establish priority in the radio regulations (us);] *{Editorial Note – If this text is included in the footnote, it will not be included in the Resolution}*

c) [that administrations wishing to implement IMT-2000 in alternate bands consider bands that are allocated to the mobile services (us).]

d) [that Administrations should make available, based on market demand, additional bands identified in No. **S5.AAA** for the terrestrial component of IMT-2000 to meet the forecasted growth of these systems. Due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT-2000 (ufg)]

resolves to invite administrations

a) [to make available, based on market demand, extension bands, up to the projected requirements of 160 MHz; for the terrestrial component of IMT-2000 to meet the forecasted growth of these systems, giving due consideration to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT-2000, taking into account the use of these bands by the other services to which these bands are allocated (org),]

b) [to make available, based on market demand, adequate spectrum for the terrestrial component of IMT-2000 to meet the forecasted growth of these systems, giving due consideration to the benefits of harmonized utilization, taking into account the use of these bands by the other services to which these bands are allocated (can),]

c) [to consider the use of the bands or portions of the above mentioned bands for IMT-2000 to meet the forecasted growth of these systems giving due consideration to (india):

- benefits of harmonized utilization of the spectrum for IMT-2000
- use of these bands by other services to which these bands are allocated and plan for this growth (india).]

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d) [to adopt flexible regulatory measures that protect the existing investment of current systems in the bands as referred to in footnote XXX whilst ensuring timely introduction of new services (sa),]

e) [to adopt regulatory and spectrum decisions that protect the existing investment in mobile telecommunication systems and facilitate the ability for existing operators to evolve their systems towards IMT-2000 and beyond based on marketplace needs (us)(rus);]

f) [to give due consideration to protecting the investment in other existing radio services and to lessening the impact on existing users (us)(us2);]

g) [to adopt appropriate and reasonable mechanisms to address the cost of relocation and to ensure provision of comparable replacement spectrum in those cases where relocation is deemed necessary (rus)(us)(us2),]

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h) [to adopt regulatory and spectrum decisions that ensure operators have the flexibility to provide the services and use the diverse technologies that best meet marketplace needs (us);]

invites ITU-R

a) [to study the implementation, sharing and other implications of IMT 2000 and advanced mobile communications in the bands identified by WRC 2000 in accordance with Annex 1 (org)]

b) [to study the implementation, sharing and other implications of IMT-2000 and advanced mobile communications in the bands identified by WRC-2000 (can);]

c) [to study the implementation, sharing and frequency arrangements of IMT 2000 in the bands 1710-1885 MHz and 2500-2690 MHz in accordance with Annex 1 (ufg),]

d) [to study the implementation, sharing and other implications of IMT 2000 in the bands identified by WRC 2000 in accordance with Annex 1 (us);]

e) [to develop harmonized frequency arrangements for operation of the terrestrial component of IMT-2000 and study the feasibility of sharing between allocated services in this band (japan);]

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f) [to develop frequency arrangements for operation of IMT-2000 in the spectrum identified in [Nos. **insert fn numbers**] of this Conference, aiming to accommodate the implementation of IMT 2000 or the evolution of first and second generation mobile communication systems to IMT-2000 (org),]

g) [to develop frequency arrangements for the operation of IMT-2000 in these bands, aiming to accommodate the implementation of IMT-2000 or the evolution of first and second generation mobile communication systems to IMT-2000 (can),]

h) [to develop frequency arrangements for operation of IMT-2000 in the spectrum identified in [Nos. **insert fn number**] , aiming to accommodate the implementation of IMT 2000 and/or the evolution of first and second generation mobile communication systems to IMT-2000, taking account of current usage and/or transition of existing services (us),]

j) [to develop harmonised frequency arrangements for operation of the terrestrial component of IMT-2000 in the spectrum identified in No. **S5.AAA**, aiming to achieve compatibility with existing frequency arrangements used by the first and second generation systems and taking account of current usage and/or transition of existing services (ufg),]

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k) [to continue its studies on further enhancements of IMT-2000 including the provision of Internet Protocol (IP) based applications and optimised arrangements for the harmonized use of spectrum identified for IMT-2000, and ensure that IMT-2000 can also meet the telecommunication needs of the developing countries and rural areas (can),]

invites ITU-T (can)

a) [to complete its studies of signalling and communication protocols (can);]

b) [to develop a common worldwide intersystem numbering plan and associated network capabilities that will facilitate worldwide roaming (can),]

further resolves

a) [that these studies should be commenced forthwith (org)(us)(ufg);]

b) [that these frequency arrangements should be included in one or more ITU-R Recommendations (org)(ufg);]

c) [that administrations which implement IMT-2000 (can):

1) should make the necessary spectrum available for system development (can);

2) should use those frequencies when IMT-2000 is implemented (can);

3) should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations. (can);]

d) [that administrations may implement IMT-2000 in the bands referred to in footnote XXX (sa);]

e) [that bands referred to in footnote XXX may also be used for other advanced communication applications beyond IMT-2000 (sa).]

f) [that the bands 1885-2025 MHz and 2110-2200 MHz are identified as core bands for the use by administrations wishing to implement IMT-2000 (rus);]

g) [that the bands [.....] MHz are identified as additional bands for the use by administrations wishing to implement of terrestrial component of IMT-2000 (rus).]

f) [to maintain a database of national studies and decisions on selection of spectrum for IMT-2000 (us).]

ANNEX 1

Request for studies by the ITU

[In response to Council Resolution 1130 Agenda Item 1.6, WRC 2000 identified several bands that will be suitable for IMT 2000 and other advanced mobile applications. In identifying these bands, the Conference was aware that there are implications for services that currently utilise those bands in accordance with the current allocations. (org)]

[In response to Council Resolution 1130 Agenda Item 1.6, WRC 2000 identified several bands for IMT 2000. In identifying these bands, the Conference was aware that, when introducing IMT-2000 in all or portion of these bands, there may be implications for services that currently utilise those bands in accordance with the current allocations. (ufg)]

[In order that Administrations can be guided in their decisions regarding the use of the identified bands and confirm their suitability and adequacy to meet the longer term projections for advanced mobile applications, the ITU-R is invited to study the following matters in time for consideration of the results of those studies by WRC 2002/3]

[In order that Administrations can be guided in their decisions regarding the use of the identified bands, the ITU-R is invited to study the following matters and to develop appropriate Recommendations (ufg)]

[In response to Resolution COM5/ZZ, studies that address the following should be conducted (us):]

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1. [sharing implications and possibilities for all services allocated in the identified frequency bands, (org)(ufg)]
2. [Sharing issues related to the deployment of IMT-2000 systems in portions of the bands identified for IMT-2000 [beyond] how first and second generation mobile communication system band plans can be used to accommodate the evolution of first and second generation mobile communications systems to IMT-2000 (us).]
3. [frequency plans for the implementation of IMT 2000 in the identified bands that take into account the existing applications currently using the bands]
4. [frequency plans for the implementation of IMT-2000 in the bands mentioned in this Resolution that take into account the existing applications currently using the bands (china)]
5. [frequency plans for the implementation of IMT 2000 in the identified bands that take into account the requirements for harmonised channel arrangements, existing applications currently using the bands and the required compatibility frequency plans of second generation systems using these bands. (ufg)]
6. [Means to facilitate global roaming across different regional band plans within the bands identified for IMT-2000 [and beyond] (us) (us2).]
7. [transitional arrangements for first and second generation mobile services using the identified bands (org)(ufg)]
8. [transitional arrangements for other applications using the identified bands (org)(ufg)]

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9. [spectrum demand predictions related to population density and timing (org)]

10. [spectrum demand predictions related to traffic density and timing (ufg)]

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11. [guidance for developing countries introduction and implementation planning for advanced mobile applications]

12. [Guidance for developing countries introduction and implementation planning for advanced communications applications (us).]

13. [guidance for developing countries introduction and implementation planning for IMT-2000 (ufg)]

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14. [examination of any necessity for further spectrum to be identified beyond that identified in S5.388 and by WRC 2000, including further advanced mobile applications beyond that envisaged for IMT 2000 (org)]

15. [examination of any necessity for further spectrum to be identified for IMT-2000 and systems beyond IMT 2000, as defined by ITU-R, in addition to that identified in **S5.388** and in **S5.AAA** for IMT-2000. (ufg)]

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16. [How IMT-2000 can be implemented in bands below 1 GHz that are utilised by other applications (us).]

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

DRAFTING GROUP 5A-2

Chairperson, Drafting Group 5A-2

DRAFT RESOLUTION FOR IMT-2000 EXTENSION BANDS

RESOLUTION COM 5 ZZZ (WRC-2000)

IMT-2000 and Advanced Mobile Communication Applications

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that IMT-2000 is the ITU vision of global mobile access and is scheduled to start service around the year 2000 subject to market and other considerations;

b) that IMT-2000 is an advanced mobile communication applications concept intended to provide telecommunications services on a worldwide scale regardless of location, network or terminal used;

c) that IMT-2000 is based on characteristics specified in ITU-R and ITU-T Recommendations;

d) that Recommendation ITU-R M.1457 (IMT.RSPC) contains the detailed specifications of the radio interfaces of IMT-2000;

e) that ITU-R has recommended the 1-3 GHz range as the most suitable for IMT-2000;

f) that the bands 1 885-2 025 MHz and 2 110 -2 200 MHz, are identified as 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** of the Radio Regulations and under the provisions of Resolution **212 (Rev.WRC-97)**;

g) that ITU-R studies concluded that spectrum on 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 the first and second generation mobile systems, will be needed to meet the projected requirements of IMT-2000;

h) that WRC-2000 has identified additional frequency bands suitable for IMT-2000 including the identification of additional spectrum for advanced mobile applications in the context of IMT-2000 to meet the anticipated demands beyond 2005;

i) that all or portions of the bands identified for IMT-2000 are currently used by either first or second generation mobile systems or other radiocommunication services;

j) that Recommendation ITU-R M.1308 addresses the evolution of existing mobile communication systems to IMT-2000,

noting

a) that the sharing implications between services sharing the bands identified for IMT-2000 in [Nos. (insert footnote reference/s to the extension bands] have not been fully studied;

b) that administrations may have differing requirements for IMT-2000 spectrum utilisation and spectrum for other services sharing the bands identified;

c) that the amount of spectrum for IMT-2000 identified by WRC-2000 may not completely satisfy the expected requirements of all administrations;

d) that all or parts of the 1 710-1 785/1 805-1 885 MHz bands in Regions 1 and 3 and 1 850-1 910/1 930-1 990 in Region 2 are used by administrations for second generation mobile communication systems and the operators of such systems may wish to use these bands for IMT-2000;

e) that community sensitive services such as broadcasting and other multipoint delivery services are in operation or planned by many administrations in the band 2 500-2 690 MHz which will affect the possibility for development of that band for IMT-2000 for those administrations;

f) that the differential requirements between the areas of maximum demand and the areas outside the central business districts of large cities may offer previously untested sharing opportunities;

g) that not all administrations may need, or be able to implement, all of the IMT-2000 extension bands identified at this Conference due to the existing services,

recognizing

a) that administrations might decide to make available, according to their own market demand and using their own timeframe, only portions of the frequency bands identified for IMT-2000 and might also impose operational and technical constraints on IMT-2000 in order to facilitate co-frequency sharing with other existing services;

b) that administrations might take into account the results of the ITU-R work as mentioned in *invites ITU-R* 1 and 2 and the Annex before introducing IMT-2000 systems in the additional bands,

urges

that, administrations deploying IMT-2000 systems should use the relevant international technical characteristics, as identified by ITU-R and ITU-T Recommendations,

resolves to invite administrations

to make available, based on market demand, extension bands, up to the projected requirements of 160 MHz; for the terrestrial component of IMT-2000 to meet the forecasted growth of these systems, giving due consideration to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT-2000, taking into account the use of these bands by the other services to which these bands are allocated,

invites ITU-R

1 to study the implementation, sharing and other implications of IMT-2000 and advanced mobile communications in the bands identified by WRC-2000 in accordance with the Annex;

2 to develop frequency arrangements for operation of IMT-2000 in the spectrum identified in Nos. [**insert footnote numbers**] of this Conference, aiming to accommodate the implementation of IMT-2000 or the evolution of first and second generation mobile communication systems to IMT-2000,

further resolves

1 that these studies should be commenced forthwith;

2 that these frequency arrangements should be included in one or more ITU-R Recommendations.

ANNEX

Request for studies by the ITU

In response to ITU Council's Resolution **1130**, agenda item 1.6, WRC-2000 identified several bands that will be suitable for IMT-2000 and other advanced mobile applications. In identifying these bands, the Conference was aware that there are implications for services that currently utilise those bands in accordance with the current allocations.

In order that Administrations can be guided in their decisions regarding the use of the identified bands and confirm their suitability and adequacy to meet the longer term projections for advanced mobile applications, the ITU-R is invited to study the following matters in time for consideration of the results of those studies by WRC-2002/3

1. sharing implications and possibilities for all services allocated in the identified frequency bands;
2. frequency plans for the implementation of IMT-2000 in the identified bands that take into account the existing applications currently using the bands;
3. transitional arrangements for first and second generation mobile services using the identified bands;
4. transitional arrangements for other applications using the identified bands;
5. spectrum demand predictions related to population density and timing;
6. guidance for developing countries introduction and implementation planning for advanced mobile applications;
7. examination of any necessity for further spectrum to be identified beyond that identified in RR **S5.388** and by WRC-2000, including further advanced mobile applications beyond that envisaged for IMT-2000.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

Chairman, Sub-WG 4B4

RESOLUTION 95 (Rev. WRC-200097)

GENERAL REVIEW OF THE RESOLUTIONS AND RECOMMENDATIONS OF WORLD ADMINISTRATIVE RADIO CONFERENCES AND WORLD RADIOCOMMUNICATION CONFERENCES

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

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 Report of the Director of the Radiocommunication Bureau submitted to each~~this~~ Conference provided a useful basis for a general review of the Resolutions and Recommendations of past conferences~~which was conducted by this Conference~~,

resolves to invites future competent world radiocommunication conferences

1 to review the Resolutions and Recommendations of previous conferences with a view to 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 text,

resolves

that the Conference Preparatory Meeting may include, in its Report, the result of a general review of 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 Conference Preparatory Meeting, the Radiocommunication Advisory Group and the Chairmen of the relevant Radiocommunication Study Groups, 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 possible responsible group within the Conference for each text, based on the available information as to the possible structure of the Conference.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

SUB-WORKING GROUP 5A2

Chairperson, Sub-Working Group 5A2

CONCLUSIONS RELATING TO AGENDA ITEM 1.11

1 Suppression of Resolution 219 (WRC-97)

SUP

RESOLUTION 219 (WRC-97)

Studies relating to consideration of the allocation to the non-geostationary mobile-satellite service in the meteorological aids band 405-406 MHz and the impact on primary services allocated in the adjacent bands

2 Revision of Resolution 214 (Rev. WRC-97)

MOD

RESOLUTION 214 (Rev.WRC-~~97~~2000)

Sharing studies relating to consideration of the allocation of bands below 1 GHz to the non-geostationary mobile-satellite service

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

considering

a) that the agenda of this Conference included consideration of additional allocations on a worldwide basis for the non-geostationary mobile-satellite service (non-GSO MSS) below 1 GHz;

b) that the 1997~~9~~ Conference Preparatory Meeting, in its Report, indicated that for the non-GSO MSS below 1 GHz there is not enough spectrum currently allocated to allow development of all the systems currently in coordination, and that, in order to meet projected MSS requirements below 1 GHz, a range of an additional 7 to 10 MHz will be required in the near future although, as well, it recognized that a number of these systems may not be implemented for reasons not connected with spectrum availability;

c) that there is an urgent need to make usable spectrum available on a worldwide basis for non-GSO MSS systems operating below 1 GHz;

d) that some non-GSO MSS systems are already operated by some administrations in existing MSS allocations and are at an advanced stage of consideration for operation in many other administrations, and that studies have been conducted within ITU-R on sharing between non-GSO MSS and certain terrestrial services which demonstrate the feasibility of sharing in the cases studied;

e) that issues concerning the technical and operational means to facilitate sharing between the terrestrial services and non-GSO MSS in the bands below 1 GHz remain to be studied;

f) that the requirements for the introduction of these new technologies have to be balanced with the needs of other services having allocations below 1 GHz;

g) that the bands below 1 GHz are extensively used by administrations for many services, although the extent to which they are used by each administration varies throughout the world,

h) that the bands 410-430 MHz and 440-470 MHz are extensively used by existing services in Region 1, in many countries in Region 3, and in some countries in Region 2, and new terrestrial systems are planned to be introduced in these bands;

l) that studies of certain bands have not been completed,

noting

a) that additional studies may identify ~~other~~suitable bands below 1 GHz ~~which could also~~and appropriate sharing techniques to be considered ~~suitable~~ for ~~a~~ worldwide allocations to non-GSO MSS;

~~*b)* that, based on the sharing techniques being developed for MSS below 1 GHz and the current use of the band 138-470 MHz by terrestrial services, this range may be considered for further study;~~

~~*e*~~*b)* that constraints on the duration of any single transmission from an individual MSS mobile earth station and constraints on the period between consecutive transmissions from an individual MSS mobile earth station operating on the same frequency may facilitate sharing with terrestrial services;

~~*d*~~*c)* that interference mitigation techniques, such as the dynamic channel activity assignment system described in Recommendation ITU-R M.1039~~-1~~, may be used by non-GSO MSS systems below 1 GHz in the Earth-to-space direction to promote compatibility with terrestrial systems when operating in the same frequency band;

~~e~~*d)* that new technologies employed by some radiocommunication services, especially within the terrestrial mobile and broadcasting services, which require spectrum below 1 GHz, may have an impact on the sharing possibilities;

e) that substantial progress has been made by recently completed ITU-R studies of sharing between the non-GSO MSS below 1 GHz in the Earth-to-space direction and existing specific services, however, studies on some important issues remain to be completed;

f) that non-GSO MSS systems operating below 1 GHz have undergone advance publication by the Radiocommunication Bureau and that administrations may seek to implement further such systems;

~~*g)* that there may be a need to review constraints on the current allocations to the MSS below 1 GHz,~~

g) that the use of some sharing techniques such as those referenced in *noting c)* results in non-GSO MSS systems which have significantly greater spectrum requirements in the Earth-to-space direction than in the space-to-Earth direction,

resolves

1 that further studies are urgently required on operational and technical means to facilitate sharing between the non-GSO MSS and other radiocommunication services having allocations and operating below 1 GHz;

2 that WRC-~~99~~02/03 be invited to consider, on the basis of the results of the studies conducted within ITU-R and the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO MSS below 1 GHz;

3 that relevant entities and organizations be invited to participate in these sharing studies~~;~~,

~~4 that WRC-99 be invited to consider a review of the technical and regulatory constraints on non-GSO MSS allocations in the bands below 1 GHz, taking into account *considering d)*,~~

invites ITU-R

1 to study and develop Recommendations on, as a matter of urgency, the performance requirements, sharing criteria and technical and operational issues relating to sharing between ~~both~~ existing and planned systems of allocated services and non-GSO MSS below 1 GHz;

2 as a matter of urgency, to carry out studies in preparation for WRC-~~99~~02/03, ~~including a review of the operating constraints referred to in *noting c)* necessary to protect the existing and planned development of all of the services to which the bands below 1 GHz are allocated,~~ having regard to *noting* ~~*d)*~~*c)*;

3 as a matter of urgency, to carry out studies in preparation for WRC-~~99~~02/03 with respect to interference mitigation techniques, such as the dynamic channel activity assignment system described in Recommendation ITU-R M.1039~~-1~~, necessary to permit the continued development of all of the services to which the bands are allocated;

~~4 to carry out a review for a future competent conference of the technical and regulatory constraints on non-GSO MSS allocations in the bands below 1 GHz, having regard to *considering d)*;~~

~~5~~4 to bring the results of these studies to the attention of WRC-~~99~~02/03 and the relevant preparatory meetings,

urges administrations

1 to participate actively in these studies, with the involvement of both terrestrial and satellite interests;

2 to submit to ITU-R reports on their technical studies and on their operational and frequency sharing experience with non-GSO MSS systems operating below 1 GHz,

encourages administrations

to consider the use of dynamic channel assignment techniques, such as those described in Recommendation ITU-R M.1039-~~1~~.

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WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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DRAFTING GROUP 5A-1

Chairperson, Drafting Group 5A-1

IDENTIFICATION OF ADDITIONAL SPECTRUM BELOW 1 GHz FOR IMT-2000 (TERRESTRIAL COMPONENT)

Text for the footnote:

ADD

S5.XXX Administrations wishing to implement [IMT-2000] [IMT-2000 and other advanced [mobile] communication applications] may use those parts of the band 806-960 MHz which are allocated to mobile service on a primary basis and are used or planned to be used for cellular-based mobile systems (see Resolution **XXX (WRC-2000)**). [Such use does not preclude the use of this band by other services to which it is allocated and does not establish priority of usage within this band.]

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] [IMT-2000 and other advanced [mobile] communication applications].
- 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] [IMT-2000 and other advanced [mobile] communication applications] (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 possible need for administrations to carry out sharing studies before introducing IMT-2000.
- To note the need to take technical and procedural measures to address incompatibility between mobile systems due to their different technical characteristics.
- [This identification does not preclude the use of this band by any application of services to which they are allocated and does not establish priority in the Radio Regulation.]

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DRAFTING GROUP 5A-1

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).~~

S5.XXX Administrations wishing to implement [IMT-2000] [IMT-2000 and other advanced [mobile] communication applications] may use those parts of the band 806-960 MHz which are allocated to mobile service on a primary basis and are used or planned to be used for cellular mobile systems (see Resolution XXX (WRC-2000)). [Such use does not preclude the use of this band by other services to which it is allocated and does not establish priority of usage within this band.]

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] [IMT-2000 and other advanced [mobile] communication applications].
- 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] [IMT-2000 and other advanced [mobile] communication applications] (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 possible need for administrations to carry out sharing studies before introducing IMT-2000.
- To note the need to take technical and procedural measures to address incompatibility between mobile systems due to their different technical characteristics.
- [To consider that bands below 1 GHz are suitable for implementing IMT-2000 in rural and sparsely populated area due to their propagation characteristics.]

Sabah TOWAIJ
Chairperson, Drafting Group 5A-1

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

Document DL/49-E
19 May 2000
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ISTANBUL, 8 MAY – 2 JUNE 2000

WORKING GROUP 4A

RESOLUTION COM4/2 (WRC-2000)

Evaluation of the administrative due diligence procedure for satellite networks

The World Radiocommunication Conference 2000 (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 the 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,

considering further

a) the report of the Director of the Radiocommunication Bureau on administrative due diligence applicable to some satellite networks,

b) the proposals to this conference 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 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 (S11.44 and S11.44B to S11.44I),

e) that the effect of administrative due diligence may not, therefore, be fully apparent until at least 21 November 2003,

resolves

a) 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 produce satisfactory results,

b) that the administrative due diligence has not yet had any impact on the problem of reservation of orbit and spectrum capacity without actual use,

c) that financial due diligence procedures should not be implemented,

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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SUB-WORKING GROUP 4A-6

Chairperson, Sub-Working Group 4A-6

ATTACHMENT A

Resolution 86 (PP-98) - S11.44

Add the following Part 7F in the European common proposals.

1 Background

The above administrations have noted a problem in the application of S11.44 and the Boards Rules of Procedure for the application of this provision.

The second part of paragraph 7.1 of the Rules deals with the case in which the network has not reached the stage where its frequencies can be notified. As is well known, coordination is becoming a very complex and long drawn out process and this is complicated when there are delays by the BR in the publication of the coordination requests. It is not unusual for the coordination process to take a number of years and therefore, it may not be possible to notify before the 5-year period even though the frequencies may been brought into use. No S11.32A provides for the notification of frequencies when the coordination **could not be successfully completed** by requesting BR to do an examination for the probability of harmful interference. In many cases the coordination process has not failed, it just takes more time to complete, and administrations are reluctant to use the provisions of S11.32A, while there is still a chance to complete the bilateral coordination successfully. Another approach to this problem has been to suggest that the technical examination under S11.32A could be deleted and the frequencies could be entered in the MIFR under a revised S11.41. The proposals in this document assume that there is no change to S11.32A.

The last phrase of the 2nd last sentence for rule for paragraph 7.1 ("provided that administration request to the Bureau to apply Nos. **S11.32A** and/or **S11.41**") would seem to indicate that the frequencies will be cancelled at the end of the 5-year period unless the BR is requested to intervene-even if the concerned administrations are continuing to try to resolve the problems. Considering that the intent of the Regulations is to foster the resolution of potential problems by the administrations concerned, the last phrase of this sentence seems to be contrary to the spirit of the Regulations.

For real networks that are in operation and can submit or have submitted the Resolution 49 data, it is necessary to have a regulatory environment that recognizes the real problems and time necessary to resolve all coordination issues. On the one hand it is desirable for administrations to arrive at their own coordination agreements, however, it is necessary that the regulatory status of networks not be left uncertain forever. On the other hand, it is necessary that with the long coordination times

(including the publications delays by BR), we find a mechanism of not penalizing "real networks", therefore, it is suggested that for systems that have been brought into use with the 5-year period, a further period of 2 years be allowed to complete the coordination. This would have the effect of providing a total period of 7 years (including the publication delays by BR) for all networks to complete the coordination. For networks that have received an extension of 2 years under S11.44 they already have 7 years to complete the coordination and to notify the assignments to the BR.

A proposed change to the Rules of Procedure was submitted to the 19th meeting of the RRB and this was not accepted by the RRB, consequently in accordance with No. S13.14 it is proposed to modify No. S11.44 to clarify its application in this type of case.

2 Proposals

MOD EUR/13/381

S11.44 The notified date[1] 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 EUR/13/382

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16 **S11.44.1** [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 7 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 7-year period, the relevant frequencies shall be cancelled by the Bureau.

ATTACHMENT B

RRB consideration on this issue

5.3 Proposed modification of the Rule of Procedure in respect of S11.44 *(Document RRB2000/199)*	The RRB noted the proposal from the Administration of Germany for a modified Rule of Procedure in respect of S11.44. Having regard to the provisions of S13 and given that there had not been time between the receipt of the proposal and the 19th meeting of the RRB, the Board asked the Director to circulate the proposal to administrations for comment following which the matter would be considered at the next meeting of the RRB.	Executive Secretary

Director, Radiocommunication Bureau

PROPOSED MODIFICATION TO THE RULES OF PROCEDURE IN RESPECT OF S11.44

Attached is a letter from the Administration of Germany which includes a proposal to amend the Rule of Procedure in respect of S11.44. The letter notes that it has been prepared within the framework of CEPT.

The letter is presented for the consideration of the RRB.

ANNEX

Federal Ministry of Economics and Technology

Bonn, 19. January 2000

File No.: VII B 4
(please cite in return correspondence)

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Mr. Roger Smith
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Geneve

B.R. 20 JAN 2000
01RB(RRB) 1038/00

Subject: Rules of Procedures;
here: RoP related to No. S11.44

This document has been prepared within the framework of CEPT and is submitted by the German Administration. We have noted the Rules of procedure related to No. S11.44 and wish to present to the RRB some views on this rule and suggest a possible change to that rule.

The second part of paragraph 7.1 of the Rules deals with the case in which the network has not reached the stage where its frequencies can be notified. As is well known, coordination is becoming a very complex and long drawn out process and this is complicated when there are delays by the BR in the publication of the coordination requests. It is not unusual for the coordination process to take a number of years and therefore, it may not be possible to notify before the 5-year period even thought the frequencies may been brought into use. No. S11.32A provides for the notification of frequencies when the coordination **could not be successfully completed** by requesting BR to do an examination for the probability of harmful interference. In many cases the coordination process has not failed, it just takes more time to complete, and administrations are reluctant to use the provisions of S11.32A, while there is still a chance to complete the bilateral coordination

successfully. Another approach to this problem has been to suggest that the technical examination under S11.32A could be deleted and the frequencies could be entered in the MIFR under a revised S11.41. The proposals in this document assume that there is no change to S11.32A.

The last phrase of the 2nd last sentence for rule for paragraph 7.1 ("provided that administration request to the Bureau to apply Nos. **S11.32A** and/or **S11.41**") would seem to indicate that the frequencies will be cancelled at the end of the 5 year period unless the BR is requested to intervene- even if the concerned administrations are continuing to try to resolve the problems. Considering that the intent of the Regulations is to foster the resolution of potential problems by the administration concerned, the last phrase of this sentence seems to be contrary to the spirit of the Regulations.

For real networks that are in operation and can submit or have submitted the Res. 49 data, it is necessary to have a regulatory environment that recognises the real problems and time necessary to resolve all coordination issues. On the one hand it is desirable for administrations to arrive at their own coordination agreements, however, it is necessary that the regulatory status of networks not be left uncertain forever. On the other hand, it is necessary that with the long coordination times (including the publications delays by BR), we find a mechanism of not penalising "real networks", therefore, it is suggested that for systems that have been brought into use with the 5 year period, a further period of 2 years be allowed to complete the coordination. This would have the effect of providing a total period of 7 years (including the publication delays by BR) for all networks to complete the coordination. For networks that have received an extension of 2 years under S11.44 they already have 7 years to complete the coordination and to notify the assignments to the BR.

As a consequence of the above it is proposed that the intent of the Regulations and Resolution 49 could be satisfied if this paragraph of Section 7.1 of the Rules of Procedure for S11.44 were to read as follows:

*7.1 If the administration confirms that the assignments of the space station have been brought into use and it provides the complete "due diligence " information in accordance with Resolution **49 (WRC-97)**, the Bureau maintains the MIFR recording of the satellite network (provisional recording is changed to definitive one) or, if the network has not reached the recording status, the Bureau continues to take into account the coordination and/or advance publication files of the subject network in the applicable regulatory procedures, provided the Resolution 49 data has been submitted indicating that the frequencies have been brought into use within the prescribed period and that the administration states that the coordination is still underway. This extension to complete the coordination and notification shall not extend beyond 7 years from the data of receipt of the API data.*

By direction

Joachim Strick

WRC-97 FINAL ACTS

MOD S11.48 If, after the expiry of the period of five years, plus the extension specified in No. **S11.44**, as appropriate, from the date of receipt of the complete information referred to in No. **S9.1**, the administration responsible for the satellite network has not brought the frequency assignments to stations of the network into use, the corresponding information published under Nos. **S9.2B** and **S9.38**, as appropriate, shall be cancelled, but only after the administration concerned has been informed at least three months before the expiry date referred to in No. **S11.44**.

WRC-95 FINAL ACTS

ADD **S11.48** If after the expiry of the period of six years, plus the extension specified in No. **S11.44**, as appropriate, from the date of publication of the relevant Weekly Circular, the administration responsible for the satellite network has not submitted the Appendix **S4** information for notification under No. **S11.2** and has not brought the frequency assignments to stations of the network into use, the information published under Nos. **S9.2B** and **S9.38** shall be cancelled only after the administration concerned has been informed, at least three months before the expiry date referred to in **S11.44**.

INTERNATIONAL TELECOMMUNICATION UNION

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WORKING GROUP 5C

Chairperson, Sub-Working Group 5C-1

COUNTRY FOOTNOTE FOR USE OF HAPS IN FIXED SERVICE IN THE BANDS 27.5-28.35 GHz AND 31.0-31.3 GHz

MOD

24.75-29.9 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
27.5-28.5	FIXED ADD S5.5SSS FIXED-SATELLITE (Earth-to-space) S5.484A S5.539 MOBILE S5.538 S5.540	

MOD

29.9-34~~,~~.2 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
31-31.3	FIXED ADD S5.5RRR MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research S5.544 S5.545 S5.149	

ADD

S5.5SSS For Region 3 in Bhutan, Indonesia, Islamic Republic of Iran, Japan, Maldives, Myanmar, Pakistan, Dem. People's Rep. of Korea, Sri Lanka and Viet Nam, and in Mongolia, the allocation to the fixed service in the band 27.5-28.35 GHz may also be used by high altitude platform stations. The use of the band 27.5-28.35 GHz by high altitude platform stations is limited to ~~the~~ operation in the direction from the high altitude platform station down to the ground ~~direction~~ and shall not cause harmful interference to or claim protection from other types of fixed service systems or other co-primary services.

ADD

S5.5RRR For Region 3 in Bhutan, Indonesia, Islamic Republic of Iran, Japan, Maldives, Myanmar, Pakistan, Dem. People's Rep. of Korea, Sri Lanka and Viet Nam, and in Mongolia, the allocation to the fixed service in the band 31.0-31.3 GHz may also be used by high altitude platform stations in the direction ~~of~~ from ground up to the high altitude platform stations. The use of the band 31.0-31.3 GHz by high altitude platforms shall not cause harmful interference to or claim protection from other types of fixed service systems or other co-primary services.

INTERNATIONAL TELECOMMUNICATION UNION

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WORKING GROUP 5C

Chairperson, Sub-Working Group 5C-1

DRAFT REVISION OF RESOLUTION 122 (WRC-97)

RESOLUTION 122 (~~WRC-97~~Rev.WRC-2000)

Use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz by high altitude platform stations in the fixed service and by other services and the potential use of bands below 47 GHz by HAPS in the fixed service

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

considering

a) that the band 47.2-50.2 GHz is allocated to the fixed, mobile and fixed-satellite services on a co-primary basis;

b) that ~~this Conference has~~WRC-97 made provision for operation of high altitude platform stations, also known as stratospheric repeaters, within the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz;

c) that ITU has among its purposes "to promote the extension of the benefit of the new telecommunication technologies to all the world's inhabitants" (No. 6 of the Constitution of the ITU (Geneva, 1992));

d) that systems based on new technologies using high altitude platforms will be able to provide high-capacity, competitive services to urban and rural areas;

e) that the development of any service requires major investment and that manufacturers and operators should be given the confidence to make the necessary investment;

e~~f~~) that high altitude platform systems are in an advanced stage of development, and some countries have notified such systems to ITU in the band 47.2-47.5 GHz and 47.9-48.2 GHz ~~bands~~;

f~~g~~) that WRC-97 adopted a definition of high altitude platform stations in Article **S1**, modified No. **S11.24** and added No. **S11.26** in the Radio Regulations providing for notices relating to assignments for high altitude platform stations in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and that the Radio Regulations Board issued a provisional rule of procedure concerning notification periods in No. **S11.24/1228** in February 1997;

~~*g*~~*h)* that in spite of the urgency attached to the development of such systems, technical, sharing and regulatory issues should be further studied in order to achieve the most efficient use of the spectrum available for these systems;

i) that while the decision to deploy HAPS can be taken on a national basis, such deployment may affect neighbouring administrations, particularly in small countries;

~~*h*~~*j)* that technical studies ~~are required in order to ascertain the extent to which sharing of the~~have been undertaken on the characteristics of a HAPS system in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz ~~is feasible between systems using high altitude platforms in the fixed service and systems in the fixed, fixed satellite and mobile services, and to ascertain the requirements to protect radio astronomy services in adjacent bands from spurious emissions~~and on the coordination and sharing requirements between HAPS systems and systems in the conventional fixed service [, radio astronomy,] and in other services, but that further studies are still in progress on the potential for interference between such systems;

~~*i*~~*k)* that the radio astronomy service has primary allocations in the bands 42.5-43.5 GHz and 48.94-49.04 GHz;

~~*j) that ITU-R studies are already under way on the preferred characteristics of systems using high altitude platforms and the feasibility of sharing between these systems and systems of other services and between these systems and other systems in the fixed service (Questions ITU-R 212/9, ITU-R 218/9 and ITU-R 251/4);~~

l) that ITU-R study results have been presented which indicate that in WRC-97 designated bands at 47.2-47.5/47.9-48.2 GHz, sharing between fixed-service systems using HAPS and other conventional fixed-service systems in the same area will require appropriate interference mitigation techniques to be developed and implemented;

~~*k*~~*m)* that No. **S5.552** urges administrations to reserve fixed-satellite service use of the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service, and that ~~preliminary~~ ITU-R studies indicate that high altitude platform stations in the fixed service may share with broadcasting-satellite feeder links;

~~*l) that the development of services using high altitude platform stations in these bands requires major investment and that manufacturers and operators should be given the confidence to make the necessary investment in these applications,~~

n) that ITU-R studies in the bands 47.2-47.5 GHz and 47.9-48.2 GHz indicate that sharing between fixed-service systems using HAPS and FSS could be feasible under certain limitations, such as geographical separation between HAPS-based systems and FSS earth stations;

o) that since 47 GHz bands are more susceptible to the rain attenuation in certain areas of Region 3, the range 18-32 GHz has been proposed for possible identification of additional spectrum in ITU-R and preliminary ITU-R studies are in progress for these bands;

p) that the 18-32 GHz range is already heavily used by a number of different services, and a number of other types of applications in the fixed service;

~~*q) that this Conference has made provision for operation of HAPS within the fixed service in the bands 27.5-28.35 GHz and 31.0-31.3 GHz on a non-interference, non-protected basis for certain Region 3 countries in order to address issues of rain attenuation associated with the 300 MHz referenced in considering b) above;~~

q) that footnote number S5.5SSS and S5.5RRR permit the use of HAPS in the fixed service within the bands 27.5-28.35 and 31.0-31.3 GHz in certain countries on a non-interference,

non-protection basis in order to address issues of rain attenuation associated with the 47 GHz band referenced in *considering b)* above;

r) that technical, sharing, and regulatory issues should be studied in order to determine criteria for operation of HAPS in ~~Region 3 in~~ the band in *considering q)* above;

s) that the radio astronomy, EESS (passive), and space research (passive) services are allocated to the 31.3-31.8 GHz band and the space research (deep space) band is allocated to the 31.8-32.3 GHz band, and that there is a need to appropriately protect these services from unwanted emissions,

resolves

1 to urge administrations to facilitate coordination between high altitude platform stations in the fixed service operating in the bands 47.2-47.5 GHz and 47.9-48.2 GHz and other co-primary services in their territory and adjacent territories;

2 that, on a provisional basis, the procedures of Article **S9** shall be used for coordination between satellite systems and high altitude platform systems in the bands 47.2-47.5 GHz and 47.9-48.2 GHz ~~bands~~;

3 to request ITU-R to study the regulatory provisions that might be needed to address those cases where the deployment of HAPS in the territory of one administration may affect neighbouring administrations;

~~3~~4 to request ITU-R to continue to carry out ~~urgently~~ studies on the appropriate technical sharing criteria for the situations referred to in *considering ~~hj~~)*, ~~with priority given to the sharing with other systems in the fixed and fixed-satellite services, in particular the determination of the appropriate geographical separation from feeder links in the broadcasting-satellite service~~;

5 to request ITU-R, taking into account the requirements of other fixed-service systems and other services, to urgently conduct studies on the feasibility of identifying suitable frequencies in addition to the 2 x 300 MHz paired band at 47 GHz for the use of HAPS in the fixed service in the range 18-32 GHz in Region 3, focusing particularly, but not exclusively, on the bands 27.5-28.35 GHz and 31.0-31.3 GHz ~~frequencies~~;

~~4~~6 that WRC-~~99~~03 should review the results of these studies and consider refinement of the regulatory provisions that might facilitate a broader application of these high altitude platform technologies,

instructs the Director of the Radiocommunication Bureau

1 that notices concerning high altitude platform stations that were received by the Bureau prior to 22 November 1997, and provisionally recorded in the Master International Frequency Register in accordance with the provisional rule of procedure issued by the Board, shall be maintained;

2 that from 22 November 1997, and pending review of the sharing studies in *considering ~~hj~~)* and review of the notification process by WRC-~~99~~03, the Bureau shall accept notices in the bands 47.2-47.5 GHz and 47.9-48.2 GHz only for high altitude platform stations in the fixed service and for feeder links for the broadcasting-satellite service, shall continue to process notices for fixed-satellite service networks (except for feeder links for the broadcasting-satellite service) for which complete information for advance publication has been received prior to 27 October 1997, and shall inform the notifying administrations accordingly~~.~~;

~~3 that from 3 June 2000 notices concerning HAPS in the bands 27.5-28.35 GHz and 31.0-31.3 GHz should be on a non-interference, non-protected basis to primary services allocated in the band.~~

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WORKING GROUP 5C

Chairperson, Sub-Working Group 5C-1

RESOLUTION XXX (WRC-2000)

Feasibility of use by High altitude platform stations in the fixed and mobile services in the frequency bands above 3 GHz allocated exclusively for terrestrial radiocommunications

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that ITU has among its purposes "to promote the extension of the benefit of the new telecommunication technologies to all the world's inhabitants" (No. 6 of the Constitution of ITU, Geneva, 1992);

b) that systems based on new technologies using high altitude platform stations (HAPS) has potential applicability to various services such as high-capacity, competitive services to urban and rural areas;

c) that WRC-97 made provision for the use of HAPS within the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz;

d) that the visible area from a HAPS system is likely to be within a country or neighboring countries, considering the altitude of HAPS;

f) that some administrations intend to operate the HAPS system in the bands allocated exclusively for terrestrial radiocommunications such as the fixed and mobile service,

recognising

a) that ITU-R studied relating to geometrical coordination distance for the visible distance from HAPS, as described in Recommendation ITU-R F.[Doc. 9/1018];

resolves

to invite the ITU-R, as a matter of urgency, to carry out regulatory and technical studies to determine the feasibility of facilitating HAPS systems in the fixed and mobile services in bands above 3 GHz allocated exclusively for terrestrial radiocommunications, taking account of existing use and future requirement,

encourages administrations

to contribute actively to the sharing studies in accordance with this Resolution.

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WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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WORKING GROUP 5C

Chairperson, Sub-Working Group 5C3-ad-hoc-a

REVISION OF FOOTNOTE S5.547 AND ADDITION OF NEW FOOTNOTES

MOD

S5.547 MOD S5.547 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59, and 64-66 GHz are available for high-density applications in the fixed service ((HDFS) [~~(see Resolution 726 (WRC-97))~~. Administrations should take this into account, when considering regulatory provisions in relation to these bands. [Because of potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-[42.5] GHz, administrations should further take into account potential constraints to HDFS, as appropriate (see Resolution JJJ.).]

[ADD S5.547Y]
[The band 40-40.5GHz is identified for high-density applications in the fixed-satellite service. Administrations should take this into account, when considering regulatory provisions in relation to this band.]

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SUB-WORKING GROUP 5C-3

Chairperson, Sub-Working Group 5C3-ad-hoc-a

REVISION OF FOOTNOTE S5.547 AND ADDITION OF NEW FOOTNOTES

MOD

S5.547 The bands 31.8-33.4GHz, 37-40GHz, 40.5-43.5GHz 51.4-52.6GHz, 55.78-59GHz and 64-66GHz are available for high-density applications in the fixed service (HDFS)[~~(see Resolution 726 (WRC-97))~~]. Administrations should take this into account , when considering regulatory provisions in relation to these bands.

(1) Administrations should further take into account [potential] constraints to high-density applications in the fixed service in the band 39.5-40GHz and 40.5-42.5GHz, because of high-density applications in the fixed satellite service sharing the same frequency bands.

(2) When considering regulatory provisions for the bands 39.5-40 GHz and 40.5-42 GHz administrations should also take into account potential constraints to high-density applications in the fixed-satellite service sharing the same frequency bands.

[ADD S5.547Y]
[The band 40-40.5GHz is identified for high-density applications in the fixed-satellite service. Administrations should take this into account, when considering regulatory provisions in relation to this band.]

INTERNATIONAL TELECOMMUNICATION UNION

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SUB-WORKING GROUP 5C-3

Chairperson, Sub-Working Group 5C3-ad-hoc-a

REVISION OF FOOTNOTE S5.547 AND ADDITION OF NEW FOOTNOTES

MOD

S5.547 The bands 31.8-33.4GHz, 37-39.5GHz, [39.5-40GHz], [40.5-42.GHz], 42-42.5GHz 51.4-52.6GHz, 55.78-59GHz and 64-66GHz are available for high-density applications in the fixed service (HDFS)[(~~see Resolution 726 (WRC-97))~~]. Administrations should take this into account , when considering regulatory provisions in relation to these bands. The band 42.5-43.5 GHz is also available for HDFS. Administrations intending to use this band for this application should take into account potential constraints because of usage of the radio astronomy service sharing the same frequency band.

ADD S5.547X

[Administrations are encouraged to use the bands listed in No.S5.547 for HDFS.] The bands [39.5-40GHz] and [40.5-42GHz] can also be used for HDFS. Administrations intending to use these bands for this application should take into account potential constraints to the deployment or future use of HDFS because of usage of [high-density applications in] the fixed satellite service sharing the same frequency band[s].

[ADD S5.547Y]

[The band 40-40.5GHz is available/identified for high-density applications in the fixed-satellite service. Administrations should take this into account , when considering regulatory provisions in relation to this band.]

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SUB-WORKING GROUP 5A1

Chairperson, Sub-Working Group 5A1

CONCLUSIONS RELATING TO AGENDA ITEM 1.6.1 ON THE USE OF HAPS IN IMT-2000

Add the following text to Resolution XXX in Document DL/36(Rev.1):

ADD

RESOLUTION XXX (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

resolves

3 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system shall, pending the review by WRC-2000/03 of the studies mentioned below, for the purpose of protecting fixed service stations operating in neighbouring administrations from co-channel interference, take full account of the relevant ITU-R Recommendations relating to protection values for fixed stations (see Recommendation ITU-R **F.758**).

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Application of Article 5

During discussions within DG 1 relating to the application of Article 5 of Appendices S30/S30A an issue arose that may require an additional *resolves* to be added to the draft revision to Resolution 533 which is being considered by this Conference.

Description of the concern

There is often a time delay between the completion of coordination agreements under Article 4 of Appendices S30/S30A and the notification of networks under Article 5 of Appendices S30/S30A. In such cases a situation may arise where a network completes Article 4 coordination under one applicable set of Radio Regulations but finds that at the time of notification under Article 5 a different set of Radio Regulations is in force. It is therefore proposed, should the Conference agree, that an additional *resolves* be added to Resolution 533 to make it clear that in such cases the Regulations that should be used for the Article 5 notification examination should be those that were in force at the time the coordination agreements were successfully completed.

Proposed additional *resolves* to be added to Resolution 533 (Rev.WRC-2000)

6 that in situations where assignments complete coordination under Article 4 of Appendices S30/S30A (or Appendices 30/30A) of previously applicable Radio Regulations but which then notify those assignments at a later time when the WRC-2000 Radio Regulations related to Appendices S30/S30A are in force the Bureau shall, in performing the Article 5 notification examination, apply the same Radio Regulations that were used when the coordination was completed.

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DRAFTING GROUP 5A-1

Chairperson, Drafting Group 5A-1

FREQUENCY BANDS FOR TERRESTRIAL COMPONENT OF IMT-2000 BELOW 1 GHz

ADD

RESOLUTION COM5/XX (WRC-2000)

Frequency Bands for Terrestrial Component of IMT-2000 below 1 GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that in some countries, the band 698-806 MHz is allocated to the mobile services on a primary basis;

b) that some administrations are planning to use part of the band 698-806 MHz for IMT-2000 [and other advanced mobile communication applications];

c) that there are incompatibilities between first and second generation mobile systems due to differences in their technical characteristics;

[*e)* that the bands below 1 GHz, due to their propagation characteristics, are suitable for implementting IMT-2000 in rural and sparsely populated areas where cost considerations warrant installation of fewer base stations,]

[*e)* that the bands below 1 GHz, are generally suitable for implementing mobile systems including IMT-2000 in sparsely populated areas where cost considerations warrant installation of fewer base stations,]

[*e)* that the bands below 1 GHz are generally suitable for covering sparsely populated areas where cost considerations warrant installation of fewer base stations,]

recognizing

[*a)* that existing first and second generation mobile systems could evolve to IMT-2000 and that administration should have the flexibility to use current and planned first and second generation frequency bands for IMT-2000;

[*a)* that flexibility must be afforded to administrations:

- to determine, at a national level, how much spectrum to make available for IMT-2000 from within the isentified bands,
- to develop their own transition plans, if necessary, tailored to mett their specific deplyment of existing systems,
- to have the ability for the identified bands to be used by all services allocated in those bands,
- to determine the timing of availablility and use of the bands identified for IMT-2000, in order to mett particular market demand and other national considerations,
- to meet the particular needs of developing countries.]

[*b)* that the use of the band 806-960 MHz for IMT-2000 does not preclude usage of this band by any application by the services to which they are allocated and does not establish priority in the Radio Regulations,]

(Editorial Note- This reconizing is deleted if the text is included in the footnote.)

resolves

[1 that the identification of bands below 1 GHz for the terrestrial component of IMT-2000 does not preclude the use of these bands by any applications by the services to which they are allocated and does not establish priority in the radio regulations;]

[2 to adopt regulatory and spectrum decisions that protect the existing investment in mobile telecommunication systems and facilitate the ability for existing operators to evolve their systems towards IMT-2000 and beyond based on marketplace needs,]

invites administrations

to consider the possibility of evolution of first and second generation mobile systems to IMT-2000, in the frequency band identified in No. **S5.XXX**, based on market demands and other national considerations,

invites ITU-R

[1 to study any likely incompatibility between mobile systems due to their difrenet technical characteriustics and provide duidance on any impact on spectrum arrangements;

[2 to study transitional guidlines for first and second generation mobile services toward IMT-2000 using the identified bands below 1 GHz.]

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DRAFTING GROUP 5A-1

Chairperson, Drafting Group 5A-1

TERRESTRIAL COMPONENT OF IMT-2000 BELOW 1 GHz

ADD

RESOLUTION COM5/XX (WRC-2000)

Frequency Bands for Terrestrial Component of IMT-2000 below 1 GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that some administrations may wish to use part of the band 406-806 MHz for IMT-2000;

b) that some administrations are planning to use part of the band 698-806 MHz for IMT-2000 [and other advanced mobile communication applications]

c) that in some countries, the band 698-806 MHz is allocated to the mobile services on a primary basis;

d) that there are incompatibilities between first and second generation mobile systems due to differences in their technical characteristics;

e) that the bands below 1 GHz, due to their propagation characteristics, are suitable for implementting IMT-2000 in rural and sparsely populated areas where cost considerations warrant installation of fewer base stations,

recognizing

a) that existing first and second generation mobile systems could evolve to IMT-2000 and that administration should have the flexibility to use current and planned first and second generation frequency bands for IMT-2000;

b) that the use of the band 806-960 MHz for IMT-2000 does not preclude usage of this band by any application of services to which they are allocated and does not establish priority in the Radio regulation

resolves

a) that the identification of bands below 1 GHz for the terrestrial component of IMT-2000 does not preclude the use of these bands by any applications by the services to which they are allocated and does not establish priority in the radio regulations;

b) to adopt regulatory and spectrum decisions that protect the existing investment in mobile telecommunication systems and facilitate the ability for existing operators to evolve their systems towards IMT-2000 and beyond based on marketplace needs;]

invites the ITU-R

1 to continue to study the spectrum requirement for the broadcasting service in bands below 806 MHz and its implication on the use of these bands for IMT-2000 and report on the result of these studies on time for consideration of WRC-03;

2 to study transitional arrangements for first and second generation mobile services toward IMT-2000 using the identified bands below 1 GHz.

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SUB-WORKING GROUP 5B-3

Chairperson, Drafting Group 5B-3A

The attachment, prepared by Drafting Group 5B-3A, is submitted to Sub-Working Group 5B-3 for further consideration.

Ms. K. MOODY
Chairperson, Drafting Group 5B-3A
Box 598

MSS downlink[1] in the band 1518 – 1525 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 1518 – 1525 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, co-ordination 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 #1 No, further studies are required in relation to sharing between the MSS and these services.	View #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 1518-1525 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 the ITU-R before a conclusion can be reached as to the technical basis for an allocation for such a downlink.
			View #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 #2: ITU-R Recommendation M.1459 protection criteria leads to the conclusion that co-frequency, co-coverage operation of the mobile-satellite service (space->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

[1] Regarding the MSS uplink in the band 1675-1710 MHz please refer to Doc. 3, the CPM Report, s2.2.2

Region	Services (footnotes)	Relevant Recommendations	Technical Basis	Comments
				to Region 1 & 3. To afford protection to the aeronautical telemetry systems of Administrations in Regions 1&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 co-ordination 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 NGSO-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: -** Co-ordination methodology for mobile satellite service (space->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 co-ordination at other appropriate pfd levels in these bands should be developed through a resolution.
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.]	ITU-R M.1388 specifies a coordination threshold for protection of Mobile Services in the band 1452 – 1492 MHz. The same level is incorporated in footnote S5.348A, which relates to the band 1492 – 1525 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&3 MSS allocation as for the existing Region 2 Mobile Satellite Service allocation. 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.

Region	Services (footnotes)	Relevant Recommendations	Technical Basis	Comments
2	MOBILE aeronautical s5.343	Appendix S5 M.1459	View #1 No, further studies are required in relation to sharing between the MSS and these services. View #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 #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 1518-1525 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 the ITU-R before a conclusion can be reached as to the technical basis for an allocation for such a downlink. View #2: ITU-R Recommendation M.1459 protection criteria leads to the conclusion that co-frequency, co-coverage operation of the mobile-satellite service (space->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 & 3. To afford protection to the aeronautical telemetry systems of Administrations in Regions 1&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.
2,3	MOBILE s5.344 s5.348A	Appendix S5 M.1388	[Sharing between the MSS and the mobile service is feasible if the relevant coordination procedures are applied successfully.]	ITU-R M.1388 specifies a coordination threshold for protection of Mobile Services in the band 1452 – 1492 MHz. The same level is incorporated in footnote S5.348A, which relates to the band 1492 – 1525 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&3 MSS allocation as for the existing Region 2 Mobile Satellite Service allocation. 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.

Region	Services (footnotes)	Relevant Recommendations	Technical Basis	Comments
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 1492-1525 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. **S.9.11A** 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 dB(W/m 2) 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.

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SUB-WORKING GROUP 5A2

Chairperson, Drafting Group 5A2a

CONCLUSIONS RELATING TO AGENDA ITEM 1.10 (MSS IN 1.5/1.6 GHz BANDS)

MOD

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD S5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD S5.353A Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 MOD S5.353A S5.354 S5.355 S5.356 S5.357 MOD S5.357A S5.359 S5.362A	

MOD

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 MOD S5.353A S5.354 S5.355 MOD S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD

1 660-1 710 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 660-1 660.5	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 MOD S5.357A S5.362A S5.376A	

MOD

S5.353A In applying the procedures of ~~No. S9.11A~~Section II of Article **S9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network [these bands]. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See~~The provisions of Resolution ~~218~~ **COM5/WW (WRC-~~97~~2000)** shall apply.)

MOD

S5.357A In applying the procedures of ~~No. S9.11A~~Section II of Article **S9** to the mobile-satellite service in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **S44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network [these bands]. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **S44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (~~See~~The provisions of Resolution ~~218~~ **COM5/WW (WRC-~~97~~2000)** shall apply.)

ADD

DRAFT NEW RESOLUTION COM5/WW (WRC-2000)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that prior to the World Radiocommunication Conference (Geneva,1997) the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) were allocated to the maritime mobile satellite service and the bands 1 545-1 555 MHz (space-to-Earth) and 1 646.5-1 656.5 MHz (Earth-to-space) were allocated on an exclusive basis to the aeronautical mobile-satellite (route) service (AMS(R)S) in most countries,

b) that the World Radiocommunication Conference (Geneva, 1997) allocated the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) to the mobile-satellite service (MSS) to facilitate the assignment of spectrum to multiple mobile-satellite systems in a flexible and efficient manner,

c) that the World Radiocommunication Conference (Geneva, 1997) adopted footnotes No. **S5.353A** giving priority to accommodating the spectrum requirements for distress, urgency and safety communications, and protection from unacceptable interference, to the Global Maritime Distress and Safety Service (GMDSS) in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz and No. **S5.357A** giving priority to accommodating the spectrum requirements, and protection from unacceptable interference, to the AMS(R)S providing transmission of messages with priority 1 to 6 in Article **S44** in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz,

further considering

a) inter-satellite coordination is required on a bilateral basis in accordance with the ITU Radio Regulations. In the bands 1 525-1 559 MHz (space-to-Earth) and 1 626.5-1 660.5 MHz (Earth-to-space) coordination is partially assisted by regional multilateral meetings,

b) that in these bands GSO satellite system operators presently use a capacity planning approach at multilateral coordination meetings, with the guidance and support of their administrations, to periodically coordinate access to the spectrum needed to accommodate their requirements,

c) that the GMDSS and AMS(R)S spectrum requirements are currently satisfied through the capacity planning approach and that in the bands to which Nos. **S5.353A** or **S5.357A** applies, this approach, and other methods such as intra- and inter-system prioritization, pre-emption and interoperability may assist to accommodate the expected increase of spectrum requirements for GMDSS and AMS(R)S,

d) that the feasibility of prioritization, real-time pre-emptive access and the mechanism to transfer spectrum between different mobile-satellite systems that may or may not provide GMDSS and/or AMS(R)S has yet to be established,

recognizing

a) that priority access and immediate availability of spectrum for distress, urgency and safety communications of the GMDSS and AMS(R)S communications is of vital importance for the safety of life,

b) that the ICAO has adopted Standards And Recommended Practices (SARPs) addressing satellite communications with aircraft in accordance with the Convention on International Civil Aviation,

c) that all air traffic communications as defined in Annex 10 of the Convention on International Civil Aviation fall within categories 1 to 6 of Article **S44**,

d) that Table **S15-2** of Appendix **S15** to the Radio Regulations identifies the bands 1 530-1 544 MHz (space-to-Earth) and 1 626.5-1 645.5 MHz (Earth-to-space) for distress and safety purposes in the maritime mobile-satellite service as well as for routine non-safety purposes,

resolves

1 that in the frequency coordination of the mobile-satellite services in the bands 1 525-1 559 and 1 626.5-1 660.5 MHz, administrations shall ensure accommodation of the spectrum needed for distress, urgency and safety communications of GMDSS, as elaborated upon in Articles **S32** and **S33** in the bands where No. **S5.353A** applies and AMS(R)S communications with priority 1 to 6 of Article **S44** in the bands where No. **S5.357A** applies,

2 that administrations shall ensure the use of the latest technical advances, which may include prioritization and real-time pre-emptive access between MSS systems, when necessary and where feasible, to achieve the most flexible and practical use of the generic allocations,

3 that administrations shall ensure that mobile-satellite service operators carrying non-safety related traffic yield capacity, as and when necessary, to accommodate the spectrum requirements of the distress, urgency and safety communication of GMDSS communications, as elaborated upon in Articles **S32** and **S33**, and AMS(R)S communications with priority 1 to 6 of Article **S44**. This could be achieved in advance through the coordination process at *resolves* 1, and, when necessary and where feasible, through prioritization and real-time pre-emptive access,

requests ITU-R

to complete studies to determine the feasibility and practicality of prioritization and real time pre-emptive access between different networks of mobile satellite systems as referred to in *resolves* 2 above, whilst taking into account the latest technical advances in order to maximise spectral efficiency,

invites

ICAO, IMO, IATA, administrations and other organizations concerned to participate in the studies identified in *requests ITU-R* above.

SUP

RESOLUTION 218 (WRC-97)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service

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WORKING GROUP 5C

Chairperson, Sub-Working Group 5C-2

RESOLUTION 723 (WRC-~~97~~00)

Consideration by a future competent world radiocommunication conference of issues dealing with allocations to science services

RES723

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

considering

a) that ~~this Conference~~WRC-00 recognized the importance of proper consideration of science service issues based on technical and operational criteria developed in ~~ITU-R study groups~~Radiocommunication Study Groups;

b) that circumstances did not enable the completion of all necessary studies relating to a number of proposals concerning science services;

c) that a deficiency in telecommand (uplink) frequency allocations exists, compared to available telemetry (downlink) allocations in the 100 MHz to 1 GHz range;

d) ~~that additional frequency bands above 71 GHz are needed to satisfy user requirements for passive sensing of the Earth's environmental conditions,~~that certain existing allocations may provide the means to satisfy requirements for space research applications without the need for additional frequency allocations, subject to the determination of appropriate allocation status and/or sharing conditions,

resolves

that, on the basis of proposals from administrations and taking into account the results of studies in ~~ITU-R~~Radiocommunication Sstudy Ggroups and the ~~1999~~ [2002] Conference Preparatory Meeting, the ~~1999~~ [2003] World Radiocommunication Conference 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 operations services in the frequency range 100 MHz to 1 GHz;

2) ~~allocation of frequency bands above 71 GHz to the earth exploration-satellite (passive) and space research (passive) services and the radio astronomy service,~~to consider

incorporating the existing primary allocation to the space research service in the band 7145 – 7235 MHz, pursuant to No. S5.460, into the Table of Frequency Allocations,

3) to review the 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 facilitating satisfactory operation of these services,

4) to review existing allocations near 15 GHz and 26 GHz with a view to accommodating wideband space-to-Earth space research applications.

invites ITU-R study groups

to complete the necessary studies, as a matter of urgency, taking into account the present use 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.

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SUB-WORKING GROUP 4A-5

Chaiperson, Sub-Working Group 4A-5
Simplification and coordination procedure

DRAFT RESOLUTION RP (WRC-2000)

TEMPORARY PROCEDURES FOR IMPROVING THE SATELLITE NETWORKS COORDINATION AND NOTIFICATION PROCEDURE

DRAFT RESOLUTION RP (WRC-2000)

Temporary procedures for improving the satellite networks coordination and notification process

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 the 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 that:

1) 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) 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, 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,

or

2')

i) coordination requests pursuant to No. **S9.7** received prior to 3 June 2000 and not published by that date shall be examined by the Bureau only for completeness and for conformity with the Table of Frequency Allocations and other provisions of the Radio Regulations (Nos. **S9.35** and **S11.31**) including examinations in respect to the hard limits of the Regulations for pfd and e.i.r.p.;

ii) identification by the Bureau of administrations with which coordination may be necessary (under Nos. **S9.36, S9.37, S9.40, S9.41, S9.42** and **S9.43**) is suspended in regard to examining these networks for publication;

iii) upon subsequent publication of the coordination information in a special section of the International Frequency Information Circular, an administration not responding under No. S9.52 within the four month comment period shall be regarded as unaffected, and the provisions of Nos. **S9.38** and S9.49 shall apply. In their consideration of such publications, administrations shall use the provisions of Appendix S5 in respect to application of the coordination triggers of arc separation or noise temperature exceeding six percent, as appropriate, under No. **S9.7**.

NOTE - reference to this resolution may need to be placed in the provisions of Nos. **S9.36, S9.37** and **S9.40**.]

3) 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) 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 Bureau pursuant to No. **S9.41** to determine the need for coordination by applying the provisions of No. 9.7 (GSO/GSO) of Table S5-1 of Appendix S5, 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) starting from [3 June 2000] all notice forms (**APS4/II** and III - CR58 and 65), Radio Astronomy notification (**APS4/IV** - CR 107) and API (**APS4/V** and VI - CR 86) and Due Diligence Information (Resolution **49 (WRC-97)** - CR96) for satellite networks and Earth stations submitted to the Radiocommunication Bureau pursuant to Articles **S9** and **S11** shall be submitted in electronic format, using the latest version of the BR electronic notice form capture software (SpaceCap), in accordance with the Circular Letters identified above.

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) starting [from 3 June 2000] all graphical data associated with the submissions addressed in resolves 5 should be submitted in the graphics data format described in Attachment 2 to Circular Letter CR/58. Submission of graphics in paper form will, however, continue to be accepted.

instructs

1) the Bureau to keep Members periodically informed of the results of these measures and report them to the next competent Conference.

2) the Bureau 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) [the bureau to provide the software that permits the complete validation of notices identified in *resolves 5* by no later than 3 October 2000;]

4) the Bureau to provide the technical means, training, and manuals for the latest version of the software and along with any assistance requested by Administrations to enable them to comply with *resolves 5 and 6* above;

5) the Bureau to update the validation software so as to enable Administrations to validate their data as it is entered;

6) the Bureau to update the capture and validation software to reflect the decisions of Radio Conferences within three months of the end of the Radio Conference and to inform Administrations that this update is available by Circular Letter.

urges administrations

1) to resubmit in electronic format by [.....] notices previously submitted in paper format between [1.01.99] and 3.06.2000

2) to, as soon as practicable, submit their graphical data in the graphic data format.

DRAFT RESOLUTION COM4/X (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

recognizing

a) that there is value in continuing the Advance Publication Procedures and requirements

resolves that

1) as of 3 June 2000, the Bureau and administrations shall apply the provisions of No **S9.2** and **S9.5B**, as revised by this conference;

2) 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 Appendix S4 Annex 2A, item A.2a

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[1] 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.

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.

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.

[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.]

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 +/-12° for a space station using the geostationnary satellite orbit will require the application of the advance publication procedure for this band.

[SUP S9.5B]

[MOD

S9.5B If upon receipt of the ~~Weekly Circular~~ BR IFIC containing information published under No. **S9.2B**, any administration considers its existing or planned satellite systems or networks or terrestrial stations 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 identify in accordance with No. **S9.27** any administration with which coordination may need to be effected [14, 14 bis];

ADD

14bis **S9.36.2**

In the case of coordination under Nos. **S9.7**, **[S9.8, S9.9]**, **S9.12** and **S9.13**, 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 administration comply with this procedure.

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 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, 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**.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/62-E

Adhoc Group 1 of GT PLEN-1

Chairperson Document

DRAFT NEW RESOLUTION

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 Ad-hoc Group 1 to GT PLEN-1 as contained in Doc. [382].

Note: Further conclusions contained in Doc. [382] 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 Doc. 382 will be reflected in Article 11 of APS30.

Christoph Dosch

Chairperson Ad-hoc Group 1 of GT PLEN-1

Box 751

Draft New Resolution XYZ

Application and Study of the sharing criteria contained in Appendices S30 and S30A

The World Radiocommunication Conference (2000, Istanbul)

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;

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 Region 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 modified by a subsequent WRC, the pfd limits appearing in Section 1 of 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) that, until modified by a subsequent WRC, the criteria for protecting the WRC-2000 Regions 1 and 3 Feeder-link Plan and List from FSS and other non-planned Space Services shall be applied as contained in Section 2 of the Annex to this Resolution;

3) that the sharing criteria in Annexes 1, 3 and 4 of Appendix S30 and Annexes 1 and 4 of Appendix S30A, except the criteria referred to in *considering* b), should be reviewed for possible revision at the next WRC, taking into account *considering* e) and f) and *recognising* a);

4) that the need to maintain the upper limit of 56 dBW peak e.i.r.p as specified in Section A3 of Annex 7 (MOD WRC-2000) should also be reviewed;

requests ITU-R

in accordance with *resolves* 2) and 3 above, to study further, as a matter of urgency and complete by the next WRC, the sharing criteria in Appendices S30 and S30A;

requests

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

Criteria to be applied in paragraph 3 of Section 6 of Annex 1 to Appendix S30 for analysing the compatibility of the Regions 1 and 3 WRC-2000 Plans as well as future modifications to the Region 1 and 3 Lists or the Region 2 Plan with respect to some other services[1]

1. Criteria for the protection of FSS

Instead of the flat PFD limits of –138 dB(W/m²/27 MHz) and –160 dB(W/m²/4 kHz), apply new PFD limits to protect FSS in all Regions from BSS in all Regions, as given below:

For Region 1 and 3 BSS → Region 2 FSS (space-to-Earth in the band 11.7-12.2 GHz):

-160 dB(W/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 11.54°$
-115 dB(W/m²/27 MHz)	$11.54° \leq \theta$

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/m²/27 MHz)	$0 < \theta < 0.054°$	
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$	
[(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 24.12°$	*(see Note 1)*
-107 dB(W/m²/27 MHz)	$24.12° \leq \theta$	*(see Note 1)*]
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 16.69°$	*(see Note 2)*
-111 dB(W/m²/27 MHz)	$16.69° \leq \theta$	*(see Note 2)*

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.]

Note 2: For the purpose of analysing modification requests after WRC-2000

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space station.

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[1] For those sharing situations not listed here, the provisions of Appendix S30 (MOD WRC-2000) and Appendix S30A (MOD WRC-2000) apply.

For Region 2 BSS → Region 1 and 3 FSS[and into Region 3 non-planned BSS] (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/m²/27 MHz)	$0 < \theta < 0.054°$
(-137.46 + 17.74 log θ) dB(W/m²/27 MHz)	$0.054° \leq \theta < 3.67°$
(-141.56 + 25 log θ) dB(W/m²/27 MHz)	$3.67° \leq \theta < 11.54°$
-115 dB(W/m²/27 MHz)	$11.54° \leq \theta$

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 of section a), the Bureau should take into account the pertinent station keeping accuracy of the BSS and FSS space stations as filed by the notifying administration.

Note: In addition, the 0.25 dB allowed increase over the PFD resulting from the original plan assignments [in Region 2] should be maintained.

2. Criteria for the protection of Region 1 and 3 Feeder-links

FSS and other non-planned Space Services into Region 1&3 Feeder-links (space station into space station)

Document CMR2000/34 and its Corrigendum 3 contain a method to assess the compatibility of the established WRC-2000 Feeder-link Plan with FSS and other non-planned space services (Section 1 of Annex 4 of APS30A modified to take into consideration the system noise temperature of the satellite receiver to be 600 K and to apply a ΔT/T criterion of 6 %).

The Bureau shall apply this method in its analyses of the WRC-2000 Feeder-link Plan with respect to the compatibility with other services (and not the PFD level of –137 dB(W/m²/MHz) as given in the current version of Section 1 of Annex 4 of APS30A). After the Conference, the Bureau should continue to apply this method for future modification request by using the system noise temperature of the space receive station as submitted by the administration in conjunction with ΔT/T criterion of 4 %.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Revision 1 to Document DL/63-E

Original: English

Ad-hoc Group 1 of Working Group 1 of the Plenary

RADIOCOMMUNICATION BUREAU

LIST OF GSO FSS NETWORKS USING THE FREQUENCY BAND 11.7 – 12.5 GHZ IN THE ORBITAL ARC 47°W TO 210°E

Please find attached the above-mentioned list as of 12 May 2000 as requested.

The "STAT" column indicates the status of the networks as follows:

N:	=	Notification
C:	=	Coordination request
A:	=	Advance publication
BACKLOG	=	Coordination request received, not yet processed

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
J		N-SAT-178.5W	-178.50	12200	12500	C
HOL		NSS-10	-177.00	12200	12500	A
HOL		NSS-19	-177.00	12200	12500	A
J		N-SAT-176W	-176.00	12200	12500	BACKLOG
J		N-SAT-175.5W	-175.50	12200	12500	BACKLOG
J		N-SAT-175W	-175.00	12200	12500	C
PNG		PACSTAR-4	-175.00	12238	12474	C
J		N-SAT-174.5W	-174.50	12200	12500	BACKLOG
USA		USASAT-14E	-174.30	12200	12500	BACKLOG
J		N-SAT-173W	-173.00	12200	12500	C
J		N-SAT-172W	-172.00	12200	12500	BACKLOG
J		N-SAT-169W	-169.00	12200	12500	BACKLOG
J		N-SAT-167W	-167.00	12200	12500	C
J		N-SAT-165W	-165.00	12250	12500	C
J		N-SAT-163W	-163.00	12200	12500	C
J		N-SAT-161W	-161.00	12200	12500	C
J		N-SAT-159W	-159.00	12200	12500	C
J		N-SAT-152W	-152.00	12200	12500	C
J		N-SAT-150W	-150.00	12200	12500	C
USA		USASAT-26L	-47.00	11703	12194	BACKLOG
USA		USASAT-26L	-47.00	11700	12200	A
B		B-SAT L	-45.00	11700	12200	C
USA		USASAT-13I	-45.00	11700	12200	N
USA		USASAT-13I	-45.00	11701	12197	C
USA		USASAT-25D	-45.00	11720	11920	C
USA		USASAT-26D	-45.00	11703	12187	C
B		B-SAT-X	-43.00	12104	12196	BACKLOG
USA		USASAT-26C	-43.00	11702	12196	C
HOL		INTELSAT K 319.5E	-40.50	11708	11942	C
HOL		INTELSAT7 319.5E	-40.50	11701	11946	C
HOL		INTELSAT8 319.5E	-40.50	11701	12195	C
HOL		NSS-11	-40.50	11700	12200	A
HOL		NSS-18	-40.50	11700	12200	A
HOL		NSS-6	-40.50	11700	12200	A
USA	IT	INTELSAT IBS 319.5E	-40.50	11700	11910	N
USA	IT	INTELSAT IBS 319.5E	-40.50	11701	11946	C
E		HISPASAT 39W KU	-39.00	11700	12200	A
USA		USASAT-26A	-37.50	11701	12194	C
E		HISPASAT 36W KU	-36.00	11700	12200	A
USA	IT	INTELSAT7 325.5E	-34.50	11703	11952	BACKLOG
USA	IT	INTELSAT7 325.5E	-34.50	11701	11946	C
USA	IT	INTELSAT8 325.5E	-34.50	11701	11950	BACKLOG
USA	IT	INTELSAT8 325.5E	-34.50	11701	11946	C
USA	IT	INTELSAT7 328.5E	-31.50	11703	11952	BACKLOG
USA	IT	INTELSAT7 328.5E	-31.50	11701	11946	C
USA	IT	INTELSAT8 328.5E	-31.50	11701	11950	BACKLOG
USA	IT	INTELSAT8 328.5E	-31.50	11701	11950	C
E		HISPASAT-1	-30.00	11951	12179	N
E		HISPASAT-2C3 KU	-30.00	11957	12193	C
E		HISPASAT-2D KU	-30.00	11700	11950	A
USA	IT	INTELSAT7 330.5E	-29.50	11703	11952	BACKLOG
USA	IT	INTELSAT7 330.5E	-29.50	11701	11950	C
USA	IT	INTELSAT8 330.5E	-29.50	11701	11950	BACKLOG
USA	IT	INTELSAT8 330.5E	-29.50	11701	11950	C
USA	IT	INTELSAT7 332.5E	-27.50	11703	11952	BACKLOG
USA	IT	INTELSAT7 332.5E	-27.50	11701	11946	C
USA	IT	INTELSAT8 332.5E	-27.50	11701	11950	BACKLOG
USA	IT	INTELSAT8 332.5E	-27.50	11701	11950	C
USA	IT	INTELSAT7 335.5E	-24.50	11703	11952	BACKLOG
USA	IT	INTELSAT7 335.5E	-24.50	11701	11946	C

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
USA	IT	INTELSAT8 335.5E	-24.50	11701	11950	BACKLOG
USA	IT	INTELSAT8 335.5E	-24.50	11701	11950	C
F		SMO-GEO-4A-KU	-23.00	11700	12200	A
USA	IT	INTELSAT7 338E	-22.00	11703	11952	BACKLOG
USA	IT	INTELSAT7 338E	-22.00	11701	11950	C
USA	IT	INTELSAT8 338E	-22.00	11701	11950	C
HOL		INTELSAT K 338.5E	-21.50	11708	11942	N
HOL		INTELSAT7 338.5E	-21.50	11701	11946	C
HOL		INTELSAT8 338.5E	-21.50	11701	11946	C
HOL		NSS-12	-21.50	11700	12200	A
HOL		NSS-15	-21.50	11700	12200	BACKLOG
HOL		NSS-15	-21.50	11700	12200	A
HOL		NSS-7	-21.50	11700	12200	A
F		SMO-GEO-3A-KU	-20.00	11700	12200	A
HOL		NSS-16	-20.00	11700	12200	BACKLOG
HOL		NSS-16	-20.00	11700	12200	A
USA	IT	INTELSAT7 340E	-20.00	11703	11952	BACKLOG
USA	IT	INTELSAT7 340E	-20.00	11701	11950	C
USA	IT	INTELSAT8 340E	-20.00	11701	11950	BACKLOG
USA	IT	INTELSAT8 340E	-20.00	11701	11950	C
F		SMO-GEO-1A-KU	-18.00	11700	12200	A
USA	IT	INTELSAT IBS 342E	-18.00	11701	11946	N
USA	IT	INTELSAT7 342E	-18.00	11701	11946	N
USA	IT	INTELSAT8 342E	-18.00	11701	11950	BACKLOG
USA	IT	INTELSAT8 342E	-18.00	11701	11946	C
URG		URUSAT-7	-16.00	11700	12200	A
UAE		EMARSAT-1E	-15.50	11710	12180	C
F		SMO-GEO-2A-KU	-15.00	11700	12200	A
G		GESATCOM-E2	-15.00	11700	12200	A
F	EUT	EUTELSAT 3-14.8W	-14.80	11700	12200	A
F	EUT	EUTELSAT 3-12.5W	-12.50	11700	12200	A
USA		USASAT-14L	-12.00	11701	12194	C
G		GESATCOM-E5	-10.00	11700	12200	A
F		VIDEOSAT-6	-8.00	11702	12200	BACKLOG
F		VIDEOSAT-6	-8.00	11700	12200	A
F		VIDEOSAT-6-KA	-8.00	11702	12200	BACKLOG
F		VIDEOSAT-6-KA	-8.00	11700	12200	A
F		VIDEOSAT-5	-7.00	11702	12200	BACKLOG
F		VIDEOSAT-5	-7.00	11700	12200	A
F		VIDEOSAT-5-KA	-7.00	11702	12200	BACKLOG
F		VIDEOSAT-5-KA	-7.00	11700	12200	A
BLR	IK	INTERSPUTNIK-6W-Q	-6.00	11700	12180	BACKLOG
BLR	IK	INTERSPUTNIK-6W-Q	-6.00	11700	12200	A
F		F-SAT-KU-E-5W	-5.00	11700	12200	BACKLOG
F		F-SAT-KU-E-5W	-5.00	11700	12200	A
F		VIDEOSAT-7	-5.00	11702	12200	BACKLOG
F		VIDEOSAT-7	-5.00	11700	12200	A
F		VIDEOSAT-7-KA	-5.00	11702	12200	BACKLOG
F		VIDEOSAT-7-KA	-5.00	11700	12200	A
BLR	IK	INTERSPUTNIK-3W-Q	-3.00	11700	12200	BACKLOG
BLR	IK	INTERSPUTNIK-3W-Q	-3.00	11700	12200	A
NOR		BIFROST-14	-1.00	11703	12197	BACKLOG
USA	IT	INTELSAT KA 359E	-1.00	11700	11950	A
USA	IT	INTELSAT7 359E	-1.00	11710	11946	N
USA	IT	INTELSAT7 359E	-1.00	11701	11946	C
USA	IT	INTELSAT8 359E	-1.00	11701	11950	BACKLOG
USA	IT	INTELSAT8 359E	-1.00	11701	11950	C
USA	IT	NI-ALPHA 359E	-1.00	11700	11950	A
F		VIDEOSAT-8	3.00	11700	12200	A
F		VIDEOSAT-8-KU-C	3.00	11702	12200	BACKLOG

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
F	EUT	EUTELSAT 3-4E	4.00	11700	12200	A
S	NOT	TELE-X	5.00	11706	11707	C
S		SIRIUS-3	5.20	11701	11706	N
S		SIRIUS-3	5.20	11701	11705	BACKLOG
MLA		MEASAT-SA1	5.70	11714	12186	BACKLOG
F	EUT	EUTELSAT 3-7E	7.00	11700	12200	A
USA		USASAT-41S	8.50	11700	12200	BACKLOG
USA		USASAT-41S	8.50	11700	12200	A
MLA		MEASAT-SA2	9.00	11714	12186	BACKLOG
F	EUT	EUTELSAT 3-10E	10.00	11700	12200	A
USA		USASAT-27F	10.00	11700	12200	A
F	EUT	EUTELSAT 3-13E	13.00	11700	12200	A
F	EUT	EUTELSAT 3-16E	16.00	11700	12200	A
F	EUT	EUTELSAT 3-25.5E	25.50	12200	12500	A
BLR	IK	INTERSPUTNIK-27E-Q	27.00	12200	12500	BACKLOG
BLR	IK	INTERSPUTNIK-27E-Q	27.00	12200	12500	A
F	EUT	EUTELSAT 3-29E	29.00	12200	12500	A
PAK		PAKSAT-C	30.00	12200	12500	C
F	EUT	EUTELSAT 3-33E	33.00	12200	12500	A
F	EUT	EUTELSAT 3-36E	36.00	12200	12500	A
MLA		MEASAT-SA3	37.00	12234	12466	BACKLOG
HOL		NSS-21	38.00	12200	12500	A
PAK		PAKSAT-1	38.00	12200	12500	C
PAK		PAKSAT-2	41.00	12200	12500	C
D		EUROPE*STAR-2G-2	43.00	12200	12500	BACKLOG
D		EUROPE*STAR-2G-2	43.00	12200	12500	A
F	EUT	EUTELSAT 3-44E	44.00	12200	12500	A
UAE		EMARSAT-1F	44.00	12200	12500	C
D		EUROPE*STAR-2G-1	45.00	12200	12500	BACKLOG
D		EUROPE*STAR-2G-1	45.00	12200	12500	A
F		F-SATDAB-2	45.00	12200	12500	A
HOL		NSS-22	45.00	12200	12500	A
MLA		MEASAT-SA4	46.00	12234	12466	BACKLOG
NOR		BIFROST-46E	46.00	12200	12500	A
D		EUROPE*STAR-2G-3	47.50	12200	12500	BACKLOG
D		EUROPE*STAR-2G-3	47.50	12200	12500	A
F	EUT	EUTELSAT 3-48E	48.00	12200	12500	A
IND		INSAT-EK48	48.00	12200	12500	C
NOR		BIFROST-50.2E	50.20	12200	12500	A
THA		THAICOM-C1	50.50	12255	12497	C
HOL		NSS-23	51.00	12200	12500	A
UAE		EMARSAT-1G	52.50	12200	12500	C
NOR		BIFROST-53.2	53.20	12200	12500	A
UAE		EMARSAT-1B	54.00	12200	12500	C
IND		INSAT-EK55	55.00	12212	12500	C
SNG		ST-1D	55.00	12202	12438	C
F		SMO-GEO-5A-KU	57.00	12200	12500	A
HOL		NSS-8	57.00	12200	12500	BACKLOG
HOL		NSS-8	57.00	12200	12500	A
USA	IT	INTELSAT7 57E	57.00	12200	12500	A
F		SMO-GEO-6A-KU	60.00	12200	12500	A
F		SMO-GEO-7A-KU	63.00	12200	12500	A
J		N-SAT-65.5	65.50	12200	12500	BACKLOG
J		N-SAT-65.5	65.50	12200	12500	A
USA	IT	INTELSAT7 66E	66.00	12200	12500	BACKLOG
USA		INTELSAT7 66E	66.00	12200	12500	A
SNG		ST-1E	68.00	12202	12438	C
VTN		VINASAT-3A	68.00	12200	12500	A
USA		USASAT-14I	68.50	12253	12500	C
SNG		ST-1F	70.00	12202	12438	C

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
TON		TONGASAT-H70	70.00	12200	12500	A
F	EUT	EUTELSAT 3-70.5E	70.50	12200	12500	A
INS		PALAPA-C5	71.50	12250	12500	C
AUS		DEF-R-SAT-2A	72.00	12200	12500	BACKLOG
MLA		MEASAT-4	72.00	12200	12500	A
USA		USASAT-14J	72.00	12253	12500	C
J		N-SAT-73E	73.00	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-73.5E	73.50	12206	12494	BACKLOG
IND		INSAT-EK74	74.00	12212	12500	C
J		N-SAT-74.5E	74.50	12200	12500	BACKLOG
NOR		BIFROST-74.8	74.80	12200	12500	A
BLR	IK	INTERSPUTNIK-75E-Q	75.00	12200	12500	BACKLOG
BLR	IK	INTERSPUTNIK-75E-Q	75.00	12200	12500	A
LAO		L-STAR-1	75.00	12250	12500	C
F	EUT	EUTELSAT 3-76E	76.00	12200	12500	A
INS		PALAPA-C6	76.00	12250	12500	C
CHN		APSTAR-4	76.50	12255	12500	C
J		N-SAT-76.5E	76.50	12200	12500	BACKLOG
CHN		ASIASAT-DK1	77.50	12200	12497	C
CHN		ASIASAT-DKX	77.50	12250	12500	C
THA		THAICOM-A2B	78.50	12210	12497	N
THA		THAICOM-G1K	78.50	12250	12500	C
J		N-SAT-79.5E	79.50	12200	12500	BACKLOG
G		SKYSAT-C1	80.00	12200	12500	C
F	EUT	EUTELSAT 3-80.5E	80.50	12200	12500	A
INS		PALAPA-C7	81.00	12250	12500	C
CHN		CHINASAT-13	81.50	12293	12497	C
AUS		DEF-R-SAT-1A	82.00	12200	12500	BACKLOG
J		N-SAT-82.5E	82.50	12200	12500	BACKLOG
IND		INSAT-EK83	83.00	12212	12500	C
TON		TONGASAT AP-KU-4	83.30	12200	12500	C
F	EUT	EUTELSAT 3-83.5E	83.50	12200	12500	A
J		N-SAT-84E	84.00	12200	12500	BACKLOG
USA	IT	INTELSAT KFOS 85E	85.00	12200	12500	BACKLOG
CHN		APSTAR-2 F1	85.50	12250	12500	C
F	EUT	EUTELSAT 3-86E	86.00	12206	12494	BACKLOG
J		N-SAT-86E	86.00	12200	12500	BACKLOG
LAO		L-STAR-5	87.00	12250	12500	C
CHN		DFH-3A-OA	87.50	12263	12497	C
CHN		DFH-3-OC	87.50	12254	12500	C
PAK		PAKSAT-D	88.00	12200	12500	C
SNG		ST-1A	88.00	12200	12500	C
F	EUT	EUTELSAT 3-88.5E	88.50	12200	12500	A
CHN		APSTAR-2 F2	89.50	12250	12500	C
G		SKYSAT-C2	90.00	12200	12500	C
MLA		MEASAT-1	91.50	12200	12450	C
MLA		MEASAT-91.5E	91.50	12257	12497	BACKLOG
MLA		MEASAT-91.5E	91.50	12200	12500	A
MLA		MEASAT-AK 91.5	91.50	12200	12450	C
MLA		MEASAT-IK 91.5E	91.50	12200	12450	C
AUS		DEF-R-SAT-3A	93.00	12200	12500	BACKLOG
CHN		APSTAR-3	93.00	12255	12497	C
IND		INSAT-EK93.5	93.50	12212	12500	C
J		N-SAT-94E	94.00	12200	12500	BACKLOG
HOL		NSS-9	95.00	12200	12500	BACKLOG
HOL		NSS-9	95.00	12200	12500	A
MLA		MEASAT-3	95.00	12250	12500	C
MLA		MEASAT-95E	95.00	12257	12500	BACKLOG
MLA		MEASAT-IK 95E	95.00	12200	12450	C
USA	IT	INTELSAT8 95E	95.00	12200	12500	C

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
G		GESATCOM-A1	97.00	12250	12500	C
G		SKYSAT-B2	97.50	12200	12500	C
LAO		L-STAR-6	97.50	12250	12500	C
CHN		DFH-3A-OC	98.00	12263	12497	C
PNG		PACSTAR-L1	98.00	12250	12500	BACKLOG
SNG		ST-1B	98.50	12200	12500	C
CHN		ASIASAT-EK1	100.50	12200	12497	C
CHN		ASIASAT-EKX	100.50	12202	12369	C
PAK		PAKSAT-E	101.00	12200	12500	C
CHN		DFH-4-OF	101.50	12250	12500	C
G		SKYSAT-C3	101.50	12200	12500	C
J		N-SAT-102.5E	102.50	12200	12500	BACKLOG
CHN		DFH-4-OB	103.00	12250	12500	C
IND		INSAT-EK103	103.00	12212	12500	C
KOR		KOREASAT-103KU	103.00	12250	12500	BACKLOG
LAO		L-STAR-2	103.00	12200	12500	C
J		N-SAT-103.5E	103.50	12200	12500	BACKLOG
G		SKYSAT-C4	104.80	12200	12500	C
CHN		ASIASAT-CK1	105.50	12200	12497	C
CHN		ASIASAT-CKX	105.50	12250	12500	C
J		N-SAT-106.5	106.50	12200	12500	BACKLOG
J		N-SAT-106.5	106.50	12200	12500	A
VTN		VINASAT-1C	107.00	12200	12500	A
INS		PALAPA-C2-K	108.00	12250	12500	C
G		GESATCOM-A4	108.20	12250	12500	C
J		N-SAT-110	110.00	12200	12489	C
J		N-SAT-110E	110.00	12200	12500	BACKLOG
SNG		ST-1C	110.00	12200	12500	C
SNG		ST-1C	110.00	12200	12500	C
CHN		CHINASAT-6	110.50	12293	12500	C
CHN		DFH-3A-OB	110.50	12263	12497	C
IND		INSAT-EK111.5	111.50	12212	12500	C
INS		PALAPA-C1-K	113.00	12200	12500	C
KOR		KOREASAT-2	113.00	12252	12500	BACKLOG
KOR		KOREASAT-2	113.00	12251	12252	N
KOR		KOREASAT-2	113.00	12250	12488	C
VTN		VINASAT-2A	114.50	12200	12500	A
CHN		DFH-4-OD	115.50	12274	12500	BACKLOG
CHN		DFH-4-OD	115.50	12250	12500	C
CHN		ASIASAT-BK1	116.00	12200	12497	C
CHN		ASIASAT-BKX	116.00	12202	12489	C
KOR		KOREASAT-1	116.00	12252	12500	BACKLOG
KOR		KOREASAT-1	116.00	12251	12252	N
KOR		KOREASAT-1	116.00	12250	12488	C
LAO		L-STAR-3	116.00	12200	12500	C
J		N-SAT-117	117.00	12200	12500	BACKLOG
J		N-SAT-117	117.00	12200	12500	A
INS		PALAPA-C3-K	118.00	12200	12500	C
G		SKYSAT-A1	118.30	12200	12500	C
J		N-SAT-120E	120.00	12200	12500	BACKLOG
J		SJC-2	120.00	12251	12492	C
THA		THAICOM-A3B	120.00	12210	12497	C
THA		THAICOM-AK3	120.00	12255	12497	C
THA		THAICOM-G2K	120.00	12250	12500	C
CHN		DFH-4-OE	121.00	12250	12500	C
G		SKYSAT-A2	121.50	12200	12500	C
CHN		ASIASAT-AK1	122.00	12200	12497	C
CHN		ASIASAT-AKX	122.00	12202	12489	C
PNG		PACSTAR-L2	122.00	12250	12500	BACKLOG
J		N-SAT-122.5E	122.50	12200	12500	BACKLOG

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
VTN		VINASAT-1A	122.50	12200	12500	A
J		JCSAT-TT&C-123E	123.00	12200	12255	BACKLOG
J		JCSAT-TT&C-123E	123.00	12200	12255	A
THA		THAICOM-A5B	123.00	12200	12500	C
KOR		KOREASAT-123.7KU	123.70	12250	12500	BACKLOG
J		JCSAT-3B	124.00	12200	12500	BACKLOG
J		JCSAT-3B	124.00	12247	12486	C
J		SJC-1	124.00	12247	12492	C
G		SKYSAT-A3	124.70	12200	12500	C
CHN		DFH-4-OA	125.00	12250	12500	C
J		JCSAT-TT&C-125E	125.00	12200	12255	BACKLOG
J		JCSAT-TT&C-125E	125.00	12200	12255	A
J		JCSAT-TT&C-125.5E	125.50	12200	12255	BACKLOG
J		JCSAT-TT&C-125.5E	125.50	12200	12255	A
J		N-SAT-125.5E	125.50	12200	12500	BACKLOG
J		JCSAT-TT&C-126E	126.00	12200	12255	BACKLOG
J		JCSAT-TT&C-126E	126.00	12200	12255	A
LAO		L-STAR-4	126.00	12250	12500	C
THA		THAICOM-C2	126.00	12205	12447	C
USA		USASAT-14M	126.00	12250	12496	C
J		JCSAT-TT&C-126.5E	126.50	12200	12255	BACKLOG
J		JCSAT-TT&C-126.5E	126.50	12200	12255	A
J		JCSAT-TT&C-127E	127.00	12200	12255	BACKLOG
J		JCSAT-TT&C-127E	127.00	12200	12255	A
J		JCSAT-3A	128.00	12200	12500	BACKLOG
J		JCSAT-3A	128.00	12247	12486	C
J		N-SAT-128	128.00	12200	12492	C
J		JCSAT-TT&C-129E	129.00	12200	12255	BACKLOG
J		JCSAT-TT&C-129E	129.00	12200	12255	A
J		N-SAT-129.5E	129.50	12200	12500	BACKLOG
CHN		DFH-3A-OD	130.00	12263	12497	C
PNG		PACSTAR-L3	130.00	12250	12500	BACKLOG
J		D-STAR-1	132.00	12270	12500	BACKLOG
J		D-STAR-1	132.00	12200	12270	A
J		N-STAR-A	132.00	12253	12500	N
J		N-STAR-A2	132.00	12200	12500	BACKLOG
J		N-STAR-A2	132.00	12200	12500	A
VTN		VINASAT-4A	132.00	12200	12500	A
G		SKYSAT-B1	133.50	12200	12500	C
CHN		APSTAR-2	134.00	12255	12497	C
INS		PALAPA PAC-1 CKU	134.00	12203	12479	C
J		MTSAT-135E	135.00	12200	12450	C
J		SB-SAT-135	135.00	12200	12500	BACKLOG
CHN		DFH-4-OC	135.50	12250	12500	C
J		D-STAR-2	136.00	12270	12500	BACKLOG
J		D-STAR-2	136.00	12200	12270	A
J		N-STAR-B	136.00	12255	12500	N
J		N-STAR-B2	136.00	12200	12500	BACKLOG
J		N-STAR-B2	136.00	12200	12500	A
G		SKYSAT-B3	137.50	12200	12500	C
INS		PALAPA PAC-2 CKU	139.00	12203	12479	C
MHL		ORION-AP-1	139.00	12250	12493	C
J		MTSAT-140E	140.00	12200	12450	C
J		N-SAT-141E	141.00	12200	12500	BACKLOG
G		SKYSAT-B4	141.50	12200	12500	C
THA		THAICOM-A4B	142.00	12210	12497	C
THA		THAICOM-AK4	142.00	12255	12497	C
THA		THAICOM-G3K	142.00	12250	12500	C
INS		PALAPA PAC-3 CKU	144.00	12203	12479	C
J		N-SAT-146	144.00	12250	12500	N

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
J		SB-SAT-144	144.00	12200	12500	BACKLOG
J		SUPERBIRD-C	144.00	12200	12500	C
MHL		ORION-AP-2	144.00	12250	12496	C
J		MTSAT-145E	145.00	12200	12450	C
INS		PALAPA PAC-KU 146E	146.00	12203	12500	BACKLOG
J		N-SAT-146A	146.00	12200	12500	A
J		N-SAT-147.5E	147.50	12200	12500	BACKLOG
MLA		MEASAT-148E	148.00	12257	12497	BACKLOG
MLA		MEASAT-2	148.00	12200	12450	C
J		JCSAT-1	150.00	12255	12492	N
J		JCSAT-1R	150.00	12200	12500	BACKLOG
J		JCSAT-1R	150.00	12245	12486	C
AUS		AUSSAT A 152E	152.00	12255	12492	N
AUS		AUSSAT A 152E PAC	152.00	12447	12492	C
AUS		AUSSAT B 152E	152.00	12255	12500	BACKLOG
AUS		AUSSAT B 152E MOB	152.00	12264	12278	C
AUS		AUSSAT B 152E MXL	152.00	12261	12264	C
J		N-SAT-153	153.00	12200	12500	A
BLR	IK	INTERSPUTNIK-153.5EQ	153.50	12200	12500	BACKLOG
BLR	IK	INTERSPUTNIK-153.5EQ	153.50	12200	12500	A
J		JCSAT-2	154.00	12270	12492	N
J		JCSAT-2R	154.00	12200	12500	BACKLOG
J		JCSAT-2R	154.00	12245	12486	C
J		SB-SAT-154	154.00	12200	12500	BACKLOG
AUS		AUSSAT A 156E	156.00	12255	12492	N
AUS		AUSSAT A 156E PAC	156.00	12446	12492	N
AUS		AUSSAT B 156E	156.00	12255	12497	N
AUS		AUSSAT B 156E MC	156.00	12286	12465	N
AUS		AUSSAT B 156E MOB	156.00	12264	12278	C
AUS		AUSSAT B 156E MXL	156.00	12261	12264	C
AUS		AUSSAT B 156E NZ	156.00	12255	12500	BACKLOG
AUS		AUSSAT B 156E NZ	156.00	12255	12497	C
AUS		AUSSAT B 156E R	156.00	12227	12243	N
AUS		AUSSAT C 156E FSS	156.00	12260	12500	BACKLOG
J		SUPERBIRD-A	158.00	12270	12500	N
J		SUPERBIRD-A2	158.00	12200	12500	C
AUS		AUSSAT A 160E	160.00	12255	12492	N
AUS		AUSSAT A 160E PAC	160.00	12446	12492	N
AUS		AUSSAT B 160E	160.00	12255	12500	BACKLOG
AUS		AUSSAT B 160E	160.00	12255	12497	N
AUS		AUSSAT B 160E MC	160.00	12286	12465	N
AUS		AUSSAT B 160E MOB	160.00	12264	12278	C
AUS		AUSSAT B 160E MXL	160.00	12261	12264	C
AUS		AUSSAT B 160E NZ	160.00	12255	12497	N
AUS		AUSSAT B 160E R	160.00	12227	12243	N
J		SUPERBIRD-B	162.00	12270	12500	N
J		SUPERBIRD-B2	162.00	12245	12254	BACKLOG
J		SUPERBIRD-B2	162.00	12200	12500	C
AUS		AUSSAT A 164E	164.00	12255	12492	N
AUS		AUSSAT A 164E PAC	164.00	12447	12492	N
AUS		AUSSAT B 164E	164.00	12255	12500	BACKLOG
AUS		AUSSAT B 164E	164.00	12228	12497	C
AUS		AUSSAT B 164E MOB	164.00	12264	12278	C
AUS		AUSSAT B 164E MXL	164.00	12261	12264	C
KOR		EASTSAT	164.00	12250	12500	C
J		N-SAT-166E	166.00	12200	12500	C
USA		USASAT-14H	166.00	12268	12500	BACKLOG
USA		USASAT-14H	166.00	12254	12498	C
PNG		PACSTAR-3	167.45	12238	12474	C
J		N-SAT-168E	168.00	12200	12500	C

ADM	ORG	STATION	OPOS	LOW FREQ	HIGH FREQ	STAT
USA		USASAT-14G	169.00	12314	12500	BACKLOG
USA		USASAT-14G	169.00	12254	12498	C
G		SKYSAT-C5	169.20	12200	12500	C
TON		TONGASAT C1/C1-R	170.75	12202	12478	C
USA		USASAT-14K	172.00	12202	12477	C
J		N-SAT-175.5E	175.50	12200	12500	C
J		N-SAT-178.5E	178.50	12200	12500	C
HOL		NSS-14	180.00	12200	12500	A

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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Ad-hoc Group 1 of Working Group 1 of the Plenary

RADIOCOMMUNICATION BUREAU

LIST OF THE GSO FSS NETWORKS USING THE FREQUENCY BAND 11.7 – 12.5 GHZ IN THE ORBITAL ARC 47°W TO 210°E

Please find attached the above-mentioned list.

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
J		N-SAT-178.5W	-178.50		02/05/1997	11700	12200	A
F		SMO-GEO-10A-KU	-177.00		08/04/1999	11700	12200	A
HOL		INTELSAT IBS 183E	-177.00	12/12/1990	14/11/1997	11709	11786	C
HOL		INTELSAT IBS 183E	-177.00	12/12/1990	14/11/1997	11794	11866	C
HOL		INTELSAT IBS 183E	-177.00	12/12/1990	14/11/1997	11874	11946	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11709	11786	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11709	11821	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11712	11784	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11794	11866	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11834	11946	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11874	11908	C
HOL		INTELSAT7 183E	-177.00	28/08/1991	30/11/1998	11912	11946	C
HOL		INTELSAT8 183E	-177.00	12/11/1992	30/11/1998	11709	11786	C
HOL		INTELSAT8 183E	-177.00	12/11/1992	30/11/1998	11794	11866	C
HOL		INTELSAT8 183E	-177.00	12/11/1992	30/11/1998	11874	11946	C
HOL		NSS-10	-177.00		08/12/1998	11700	12200	A
HOL		NSS-10	-177.00		08/12/1998	12200	12500	A
HOL		NSS-19	-177.00		18/11/1999	11700	12200	A
HOL		NSS-19	-177.00		18/11/1999	12200	12500	A
J		N-SAT-176W	-176.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
J		N-SAT-175.5W	-175.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
J		N-SAT-175W	-175.00		02/05/1997	11700	12200	A
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12238	12274	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12240	12312	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12278	12314	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12318	12354	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12320	12392	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12358	12394	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12398	12434	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12400	12472	C
PNG		PACSTAR-4	-175.00	23/12/1992	20/11/1997	12438	12474	C
J		N-SAT-174.5W	-174.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA		USASAT-14E	-174.30		25/07/1997	11700	12200	A
USA		USASAT-14E	-174.30	09/11/1998	09/11/1998	12200	12500	BACKLOG
J		N-SAT-173W	-173.00		02/05/1997	11700	12200	A
J		N-SAT-172W	-172.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA		USASAT-27H	-170.00		21/11/1997	11700	12200	A
J		N-SAT-169W	-169.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
J		N-SAT-167W	-167.00		02/05/1997	11700	12200	A
J		N-SAT-165W	-165.00		02/05/1997	11700	12200	A
J		N-SAT-163W	-163.00		02/05/1997	11700	12200	A
J		N-SAT-161W	-161.00		02/05/1997	11700	12200	A
J		N-SAT-159W	-159.00		02/05/1997	11700	12200	A
J		N-SAT-152W	-152.00		02/05/1997	11700	12200	A
J		N-SAT-150W	-150.00		02/05/1997	11700	12200	A
USA		USASAT-26L	-47.00		10/08/1998	11700	12200	A
USA		USASAT-26L	-47.00	10/02/1999	08/02/1999	11703	11951	BACKLOG
USA		USASAT-26L	-47.00	10/02/1999	08/02/1999	11706	12194	BACKLOG
USA		USASAT-13I	-45.00	22/07/1988	18/07/1995	11704	11776	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	11716	11770	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	11777	11831	C
USA		USASAT-13I	-45.00	22/07/1988	18/07/1995	11784	11856	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	11838	11892	C
USA		USASAT-13I	-45.00	22/07/1988	18/07/1995	11864	11936	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	11899	11953	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	11960	12014	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	12021	12075	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	12082	12136	C
USA		USASAT-13I	-45.00	27/03/1985	18/07/1995	12143	12197	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	11713	11767	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	11773	11827	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	11833	11887	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	11893	11947	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	11953	12007	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	12013	12067	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	12073	12127	C
USA		USASAT-26D	-45.00	06/08/1990	06/08/1990	12133	12187	C
B		B-SAT-X	-43.00	06/05/1999	06/05/1999	12104	12196	BACKLOG
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	11702	11756	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	11762	11816	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	11822	11876	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	11882	11946	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	11952	12006	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	12012	12066	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	12072	12126	C
USA		USASAT-26C	-43.00	09/11/1993	09/11/1993	12132	12196	C
HOL		INTELSAT K 319.5E	-40.50	27/08/1990	14/11/1997	11708	11762	C
HOL		INTELSAT K 319.5E	-40.50	27/08/1990	14/11/1997	11768	11822	C
HOL		INTELSAT K 319.5E	-40.50	27/08/1990	14/11/1997	11828	11882	C
HOL		INTELSAT K 319.5E	-40.50	27/08/1990	14/11/1997	11888	11942	C
)L		INTELSAT7 319.5E	-40.50	30/08/1990	30/11/1998	11709	11786	C
HOL		INTELSAT7 319.5E	-40.50	04/03/1993	30/11/1998	11709	11821	C
HOL		INTELSAT7 319.5E	-40.50	30/08/1990	30/11/1998	11794	11866	C
HOL		INTELSAT7 319.5E	-40.50	04/03/1993	30/11/1998	11834	11946	C
HOL		INTELSAT7 319.5E	-40.50	30/08/1990	30/11/1998	11874	11946	C
HOL		INTELSAT8 319.5E	-40.50	17/03/1994	02/10/1997	11705	11790	C
HOL		INTELSAT8 319.5E	-40.50	12/11/1992	02/10/1997	11709	11786	C
HOL		INTELSAT8 319.5E	-40.50	17/03/1994	02/10/1997	11790	11870	C
HOL		INTELSAT8 319.5E	-40.50	12/11/1992	02/10/1997	11794	11866	C
HOL		INTELSAT8 319.5E	-40.50	17/03/1994	02/10/1997	11870	11950	C
HOL		INTELSAT8 319.5E	-40.50	12/11/1992	02/10/1997	11874	11946	C
HOL		INTELSAT8 319.5E	-40.50	30/09/1994	02/10/1997	11950	12035	C
HOL		INTELSAT8 319.5E	-40.50	30/09/1994	02/10/1997	12035	12115	C
HOL		INTELSAT8 319.5E	-40.50	30/09/1994	02/10/1997	12115	12195	C
HOL		NSS-11	-40.50		08/12/1998	11700	12200	A
HOL		NSS-18	-40.50		18/11/1999	11700	12200	A
HOL		NSS-18	-40.50		18/11/1999	12200	12500	A
HOL		NSS-6	-40.50		08/12/1998	11700	12200	A
)A	IT	INTELSAT IBS 319.5E	-40.50	06/12/1984	06/12/1984	11709	11786	C
USA	IT	INTELSAT IBS 319.5E	-40.50	06/12/1984	06/12/1984	11794	11866	C
USA	IT	INTELSAT IBS 319.5E	-40.50	06/12/1984	06/12/1984	11874	11946	C
E		HISPASAT 39W KU	-39.00		04/01/1999	11700	12200	A
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11701	11755	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11764	11818	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11827	11863	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11827	11881	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11868	11904	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11890	11944	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11908	11944	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11951	11951	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	11951	12005	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	12014	12068	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	12077	12131	C
USA		USASAT-26A	-37.50	30/03/1994	30/03/1994	12140	12194	C
E		HISPASAT 36W KU	-36.00		04/01/1999	11700	12200	A
USA	IT	INTELSAT7 325.5E	-34.50	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 325.5E	-34.50	30/08/1990	03/08/1995	11709	11786	C
USA	IT	INTELSAT7 325.5E	-34.50	04/03/1993	03/08/1995	11709	11821	C
USA	IT	INTELSAT7 325.5E	-34.50	30/08/1990	03/08/1995	11794	11866	C
USA	IT	INTELSAT7 325.5E	-34.50	04/03/1993	03/08/1995	11834	11946	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
JSA	IT	INTELSAT7 325.5E	-34.50	30/08/1990	03/08/1995	11874	11946	C
JSA	IT	INTELSAT8 325.5E	-34.50	05/05/1999	05/05/1999	11705	11950	BACKLOG
JSA	IT	INTELSAT8 325.5E	-34.50	12/11/1992	07/02/1997	11709	11786	C
JSA	IT	INTELSAT8 325.5E	-34.50	12/11/1992	07/02/1997	11794	11866	C
JSA	IT	INTELSAT8 325.5E	-34.50	12/11/1992	07/02/1997	11874	11946	C
JSA	IT	INTELSAT7 328.5E	-31.50	08/06/1998	08/06/1998	11703	11952	BACKLOG
JSA	IT	INTELSAT7 328.5E	-31.50	12/07/1994	12/07/1994	11709	11786	C
JSA	IT	INTELSAT7 328.5E	-31.50	12/07/1994	12/07/1994	11709	11821	C
JSA	IT	INTELSAT7 328.5E	-31.50	12/07/1994	12/07/1994	11794	11866	C
JSA	IT	INTELSAT7 328.5E	-31.50	12/07/1994	12/07/1994	11834	11946	C
USA	IT	INTELSAT7 328.5E	-31.50	12/07/1994	12/07/1994	11874	11946	C
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11705	11790	C
USA	IT	INTELSAT8 328.5E	-31.50	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11710	11790	C
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11790	11870	C
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11870	11950	C
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11874	11908	C
USA	IT	INTELSAT8 328.5E	-31.50	12/07/1994	17/09/1997	11912	11946	C
E		HISPASAT-1	-31.00	24/07/1990	02/01/1991	11952	11952	C
E		HISPASAT-1	-31.00	12/03/1990	02/01/1991	11953	11953	C
E		HISPASAT-1	-31.00	12/03/1990	02/01/1991	11954	11954	C
E		HISPASAT-1	-31.00	12/03/1990	02/01/1991	11997	12033	C
E		HISPASAT-1	-31.00	12/03/1990	02/01/1991	12060	12096	C
E		HISPASAT-1	-31.00	24/07/1990	02/01/1991	12143	12179	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	11957	11993	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	11997	12033	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	12037	12073	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	12077	12113	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	12117	12153	C
E		HISPASAT-2C3 KU	-30.00	30/10/1995	08/10/1998	12157	12193	C
USA	IT	INTELSAT7 330.5E	-29.50	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11705	11790	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11705	11825	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11790	11870	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11830	11950	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11870	11950	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11874	11908	C
USA	IT	INTELSAT7 330.5E	-29.50	25/07/1995	25/07/1995	11912	11946	C
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11705	11790	C
USA	IT	INTELSAT8 330.5E	-29.50	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11710	11790	C
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11790	11870	C
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11870	11950	C
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11874	11908	C
USA	IT	INTELSAT8 330.5E	-29.50	12/06/1995	17/03/1997	11912	11946	C
USA	IT	INTELSAT7 332.5E	-27.50	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 332.5E	-27.50	30/08/1990	03/08/1995	11709	11786	C
USA	IT	INTELSAT7 332.5E	-27.50	04/01/1993	03/08/1995	11709	11821	C
USA	IT	INTELSAT7 332.5E	-27.50	30/08/1990	03/08/1995	11794	11866	C
USA	IT	INTELSAT7 332.5E	-27.50	04/01/1993	03/08/1995	11834	11946	C
USA	IT	INTELSAT7 332.5E	-27.50	30/08/1990	03/08/1995	11874	11946	C
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11705	11790	C
USA	IT	INTELSAT8 332.5E	-27.50	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11710	11790	C
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11790	11870	C
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11870	11950	C
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11874	11908	C
USA	IT	INTELSAT8 332.5E	-27.50	15/04/1994	14/11/1997	11912	11946	C
USA	IT	INTELSAT7 335.5E	-24.50	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 335.5E	-24.50	30/08/1990	03/08/1995	11709	11786	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA	IT	INTELSAT7 335.5E	-24.50	04/01/1993	03/08/1995	11709	11821	C
USA	IT	INTELSAT7 335.5E	-24.50	30/08/1990	03/08/1995	11794	11866	C
USA	IT	INTELSAT7 335.5E	-24.50	04/01/1993	03/08/1995	11834	11946	C
USA	IT	INTELSAT7 335.5E	-24.50	30/08/1990	03/08/1995	11874	11946	C
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11705	11790	C
USA	IT	INTELSAT8 335.5E	-24.50	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11710	11790	C
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11790	11870	C
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11870	11950	C
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11874	11908	C
USA	IT	INTELSAT8 335.5E	-24.50	15/04/1994	14/11/1997	11912	11946	C
F		SMO-GEO-4A-KU	-23.00		08/04/1999	11700	12200	A
USA	IT	INTELSAT7 338E	-22.00	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11705	11790	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11705	11825	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11790	11870	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11830	11950	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11870	11950	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11874	11908	C
USA	IT	INTELSAT7 338E	-22.00	25/07/1995	25/07/1995	11912	11946	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11705	11790	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11710	11790	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11790	11870	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11870	11950	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11874	11908	C
USA	IT	INTELSAT8 338E	-22.00	12/06/1995	17/03/1997	11912	11946	C
HOL		INTELSAT K 338.5E	-21.50	27/08/1990	30/11/1998	11708	11762	C
HOL		INTELSAT K 338.5E	-21.50	27/08/1990	30/11/1998	11768	11822	C
HOL		INTELSAT K 338.5E	-21.50	27/08/1990	30/11/1998	11828	11882	C
HOL		INTELSAT K 338.5E	-21.50	27/08/1990	30/11/1998	11888	11942	C
HOL		INTELSAT7 338.5E	-21.50	30/08/1990	14/11/1997	11709	11786	C
HOL		INTELSAT7 338.5E	-21.50	04/01/1993	14/11/1997	11709	11821	C
HOL		INTELSAT7 338.5E	-21.50	30/08/1990	14/11/1997	11794	11866	C
HOL		INTELSAT7 338.5E	-21.50	04/01/1993	14/11/1997	11834	11946	C
HOL		INTELSAT7 338.5E	-21.50	30/08/1990	14/11/1997	11874	11946	C
HOL		INTELSAT8 338.5E	-21.50	12/11/1992	14/11/1997	11709	11786	C
HOL		INTELSAT8 338.5E	-21.50	12/11/1992	14/11/1997	11794	11866	C
HOL		INTELSAT8 338.5E	-21.50	12/11/1992	14/11/1997	11874	11946	C
HOL		NSS-12	-21.50		08/12/1998	11700	12200	A
HOL		NSS-15	-21.50		10/04/2000	11700	12200	BACKLOG
HOL		NSS-7	-21.50		08/12/1998	11700	12200	A
F		SMO-GEO-3A-KU	-20.00		08/04/1999	11700	12200	A
HOL		NSS-16	-20.00		10/04/2000	11700	12200	BACKLOG
USA	IT	INTELSAT7 340E	-20.00	08/06/1998	08/06/1998	11703	11952	BACKLOG
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11705	11790	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11705	11825	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11790	11870	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11830	11950	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11870	11950	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11874	11908	C
USA	IT	INTELSAT7 340E	-20.00	25/07/1995	25/07/1995	11912	11946	C
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11705	11790	C
USA	IT	INTELSAT8 340E	-20.00	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11710	11790	C
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11790	11870	C
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11870	11950	C
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11874	11908	C
USA	IT	INTELSAT8 340E	-20.00	12/06/1995	17/03/1997	11912	11946	C
F		SMO-GEO-1A-KU	-18.00		08/04/1999	11700	12200	A
USA	IT	INTELSAT IBS 342E	-18.00	06/12/1984	06/12/1984	11709	11786	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA	IT	INTELSAT IBS 342E	-18.00	06/12/1984	06/12/1984	11794	11866	C
USA	IT	INTELSAT IBS 342E	-18.00	06/12/1984	06/12/1984	11874	11946	C
USA	IT	INTELSAT7 342E	-18.00	30/08/1990	30/05/1997	11709	11786	C
USA	IT	INTELSAT7 342E	-18.00	04/01/1993	30/05/1997	11709	11821	C
USA	IT	INTELSAT7 342E	-18.00	30/08/1990	30/05/1997	11794	11866	C
USA	IT	INTELSAT7 342E	-18.00	04/01/1993	30/05/1997	11834	11946	C
USA	IT	INTELSAT7 342E	-18.00	30/08/1990	30/05/1997	11874	11946	C
USA	IT	INTELSAT8 342E	-18.00	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 342E	-18.00	12/11/1992	07/02/1997	11709	11786	C
USA	IT	INTELSAT8 342E	-18.00	12/11/1992	07/02/1997	11794	11866	C
USA	IT	INTELSAT8 342E	-18.00	12/11/1992	07/02/1997	11874	11946	C
URG		URUSAT-7	-16.00		15/11/1999	11700	12200	A
F		SMO-GEO-2A-KU	-15.00		08/04/1999	11700	12200	A
G		GESATCOM-E2	-15.00		07/09/1998	11700	12200	A
F	EUT	EUTELSAT 3-14.8W	-14.80		28/10/1999	11700	12200	A
F	EUT	EUTELSAT 3-12.5W	-12.50		28/10/1999	11700	12200	A
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11701	11755	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11764	11818	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11827	11881	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11890	11944	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11951	11951	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	11951	12005	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	12014	12068	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	12077	12131	C
USA		USASAT-14L	-12.00	27/09/1995	21/12/1998	12140	12194	C
G		GESATCOM-E5	-10.00		07/09/1998	11700	12200	A
F		VIDEOSAT-6	-8.00		21/04/1999	11700	12200	A
F		VIDEOSAT-6	-8.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
F		VIDEOSAT-6-KA	-8.00		21/04/1999	11700	12200	A
F		VIDEOSAT-6-KA	-8.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
F		VIDEOSAT-5	-7.00		21/04/1999	11700	12200	A
F		VIDEOSAT-5	-7.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
F		VIDEOSAT-5-KA	-7.00		21/04/1999	11700	12200	A
F		VIDEOSAT-5-KA	-7.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
BLR	IK	INTERSPUTNIK-6W-Q	-6.00	15/04/1999	15/04/1999	11700	12180	BACKLOG
BLR	IK	INTERSPUTNIK-6W-Q	-6.00		07/09/1998	11700	12200	A
F		F-SAT-KU-E-5W	-5.00	21/04/2000	09/03/2000	11700	12200	BACKLOG
F		F-SAT-KU-E-5W	-5.00	21/04/2000	09/03/2000	11705	12196	BACKLOG
		F-SAT-KU-E-5W	-5.00		21/10/1999	12200	12500	A
F		VIDEOSAT-7	-5.00		21/04/1999	11700	12200	A
F		VIDEOSAT-7	-5.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
F		VIDEOSAT-7-KA	-5.00		21/04/1999	11700	12200	A
F		VIDEOSAT-7-KA	-5.00	21/10/1999	18/10/1999	11702	12200	BACKLOG
BLR	IK	INTERSPUTNIK-3W-Q	-3.00	15/04/1999	15/04/1999	11700	12200	BACKLOG
NOR		BIFROST-14	-1.00	18/10/1999	18/10/1999	11703	12197	BACKLOG
USA	IT	INTELSAT KA 359E	-1.00		01/03/1999	11700	11950	A
USA	IT	INTELSAT7 359E	-1.00	30/08/1990	30/05/1997	11709	11786	C
USA	IT	INTELSAT7 359E	-1.00	04/01/1993	30/05/1997	11709	11821	C
USA	IT	INTELSAT7 359E	-1.00	30/08/1990	30/05/1997	11794	11866	C
USA	IT	INTELSAT7 359E	-1.00	04/01/1993	30/05/1997	11834	11946	C
USA	IT	INTELSAT7 359E	-1.00	29/06/1994	29/06/1994	11874	11908	N
USA	IT	INTELSAT7 359E	-1.00	30/08/1990	30/05/1997	11874	11946	C
USA	IT	INTELSAT7 359E	-1.00	29/06/1994	29/06/1994	11912	11946	N
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11705	11790	C
USA	IT	INTELSAT8 359E	-1.00	05/05/1999	05/05/1999	11705	11950	BACKLOG
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11710	11790	C
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11790	11870	C
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11870	11950	C
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11874	11908	C
USA	IT	INTELSAT8 359E	-1.00	15/04/1994	14/11/1997	11912	11946	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA	IT	NI-ALPHA 359E	-1.00		11/10/1999	11700	11950	A
HOL		NSS-20	1.00		08/12/1999	12200	12500	A
F		VIDEOSAT-8	3.00		21/04/1999	11700	12200	A
F		VIDEOSAT-8-KU-C	3.00	21/10/1999	19/10/1999	11702	12200	BACKLOG
F	EUT	EUTELSAT 3-4E	4.00		28/10/1999	11700	12200	A
MLA		MEASAT-SA1	5.70	25/05/1998	25/05/1998	11714	12186	BACKLOG
F	EUT	EUTELSAT 3-7E	7.00		28/10/1999	11700	12200	A
USA		USASAT-41S	8.50	21/05/1998	15/05/1998	11700	12200	BACKLOG
MLA		MEASAT-SA2	9.00	25/05/1998	25/05/1998	11714	12186	BACKLOG
F	EUT	EUTELSAT 3-10E	10.00		28/10/1999	11700	12200	A
USA		USASAT-27F	10.00		21/11/1997	11700	12200	A
F		F-SATDAB-1	12.00		17/12/1998	12200	12500	A
F	EUT	EUTELSAT 3-13E	13.00		28/10/1999	11700	12200	A
F	EUT	EUTELSAT 3-16E	16.00		28/10/1999	11700	12200	A
F	EUT	EUTELSAT 3-25.5E	25.50		28/10/1999	12200	12500	A
BLR	IK	INTERSPUTNIK-27E-Q	27.00	15/04/1999	15/04/1999	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-29E	29.00		08/12/1998	12200	12500	A
F	EUT	EUTELSAT 3-33E	33.00		28/10/1999	12200	12500	A
F	EUT	EUTELSAT 3-36E	36.00		28/10/1999	12200	12500	A
MLA		MEASAT-SA3	37.00	25/05/1998	25/05/1998	12234	12466	BACKLOG
L		NSS-21	38.00		08/12/1999	12200	12500	A
D		EUROPE*STAR-2G-2	43.00	23/09/1999	21/09/1999	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-44E	44.00		28/10/1999	12200	12500	A
D		EUROPE*STAR-2G-1	45.00	23/09/1999	21/09/1999	12200	12500	BACKLOG
F		F-SATDAB-2	45.00		17/12/1998	12200	12500	A
HOL		NSS-22	45.00		08/12/1999	12200	12500	A
MLA		MEASAT-SA4	46.00	25/05/1998	25/05/1998	12234	12466	BACKLOG
NOR		BIFROST-46E	46.00		27/10/1999	12200	12500	A
D		EUROPE*STAR-2G-3	47.50	23/09/1999	21/09/1999	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-48E	48.00		28/10/1999	12200	12500	A
USA		USASAT-41Y	48.00		21/11/1997	11700	12200	A
NOR		BIFROST-50.2E	50.20		27/10/1999	12200	12500	A
THA		THAICOM-C1	50.50		09/01/1998	12255	12309	C
THA		THAICOM-C1	50.50		09/01/1998	12286	12340	C
THA		THAICOM-C1	50.50		09/01/1998	12318	12372	C
THA		THAICOM-C1	50.50		09/01/1998	12349	12403	C
THA		THAICOM-C1	50.50		09/01/1998	12380	12434	C
THA		THAICOM-C1	50.50		09/01/1998	12411	12465	C
A		THAICOM-C1	50.50		09/01/1998	12443	12497	C
HOL		NSS-23	51.00		08/12/1999	12200	12500	A
NOR		BIFROST-53.2	53.20		27/10/1999	12200	12500	A
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12202	12238	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12222	12258	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12242	12278	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12262	12298	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12282	12318	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12302	12338	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12322	12358	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12342	12378	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12362	12398	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12382	12418	C
SNG		ST-1D	55.00	21/06/1993	10/10/1997	12402	12438	C
F		SMO-GEO-5A-KU	57.00		08/04/1999	12200	12500	A
HOL		NSS-8	57.00	08/06/1999	03/06/1999	12200	12500	BACKLOG
USA	IT	INTELSAT7 57E	57.00		02/10/1997	12200	12500	A
F		SMO-GEO-6A-KU	60.00		08/04/1999	12200	12500	A
F		SMO-GEO-7A-KU	63.00		08/04/1999	12200	12500	A
USA		USASAT-42B	63.50		21/11/1997	11700	12200	A
J		N-SAT-65.5	65.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA	IT	INTELSAT7 66E	66.00	10/05/1998	17/11/1997	12200	12500	BACKLOG

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12202	12238	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12222	12258	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12242	12278	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12262	12298	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12282	12318	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12302	12338	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12322	12358	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12342	12378	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12362	12398	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12382	12418	C
SNG		ST-1E	68.00	21/06/1993	10/10/1997	12402	12438	C
VTN		VINASAT-3A	68.00		23/10/1997	12200	12500	A
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12253	12280	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12283	12310	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12313	12340	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12343	12370	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12373	12400	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12403	12430	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12438	12465	C
USA		USASAT-14I	68.50	07/08/1995	11/12/1996	12468	12495	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12202	12238	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12222	12258	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12242	12278	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12262	12298	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12282	12318	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12302	12338	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12322	12358	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12342	12378	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12362	12398	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12382	12418	C
SNG		ST-1F	70.00	21/06/1993	10/10/1997	12402	12438	C
TON		TONGASAT-H70	70.00		30/11/1998	12200	12500	A
F	EUT	EUTELSAT 3-70.5E	70.50		28/10/1999	12200	12500	A
AUS		DEF-R-SAT-2A	72.00	21/06/1999	07/06/1999	12200	12500	BACKLOG
AUS		DEF-R-SAT-2A	72.00		12/05/2000	12453	12498	BACKLOG
MLA		MEASAT-4	72.00		21/07/1998	12200	12500	A
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12253	12280	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12283	12310	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12313	12340	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12343	12370	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12373	12400	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12403	12430	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12438	12465	C
USA		USASAT-14J	72.00	07/08/1995	07/08/1995	12468	12495	C
J		N-SAT-73E	73.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-73.5E	73.50	17/02/2000	08/02/2000	12206	12494	BACKLOG
J		N-SAT-74.5E	74.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
NOR		BIFROST-74.8	74.80		27/10/1999	12200	12500	A
BLR	IK	INTERSPUTNIK-75E-Q	75.00	15/04/1999	15/04/1999	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-76E	76.00		28/10/1999	12200	12500	A
CHN		APSTAR-4	76.50	25/05/1998	25/05/1998	12255	12500	BACKLOG
J		N-SAT-76.5E	76.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12200	12215	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12203	12257	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12218	12272	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12263	12317	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12278	12332	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12323	12377	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12338	12392	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12383	12437	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12398	12452	C
CHN		ASIASAT-DK1	77.50	01/04/1992	01/04/1992	12443	12497	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12210	12210	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12210	12210	C
THA		THAICOM-A2B	78.50		09/05/1997	12245	12245	C
THA		THAICOM-A2B	78.50		09/05/1997	12251	12251	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12254	12290	C
THA		THAICOM-A2B	78.50		09/05/1997	12255	12309	C
THA		THAICOM-A2B	78.50		09/05/1997	12286	12340	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12295	12331	C
THA		THAICOM-A2B	78.50		09/05/1997	12318	12372	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12337	12373	C
THA		THAICOM-A2B	78.50		09/05/1997	12349	12403	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12378	12414	C
THA		THAICOM-A2B	78.50		09/05/1997	12380	12434	C
THA		THAICOM-A2B	78.50		09/05/1997	12411	12465	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12420	12456	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12441	12477	C
THA		THAICOM-A2B	78.50		09/05/1997	12443	12497	C
THA		THAICOM-A2B	78.50	12/06/1995	09/05/1997	12461	12497	C
A		THAICOM-G1K	78.50		24/10/1997	11700	12200	A
J		N-SAT-79.5E	79.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12200	12240	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12220	12260	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12240	12280	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12260	12300	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12280	12320	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12300	12340	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12320	12360	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12340	12380	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12360	12400	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12380	12420	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12400	12440	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12420	12460	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12440	12480	C
G		SKYSAT-C1	80.00	28/03/1995	26/01/1996	12460	12500	C
F	EUT	EUTELSAT 3-80.5E	80.50		28/10/1999	12200	12500	A
AUS		DEF-R-SAT-1A	82.00	21/06/1999	07/06/1999	12200	12500	BACKLOG
JS		DEF-R-SAT-1A	82.00		12/05/2000	12453	12498	BACKLOG
J		N-SAT-82.5E	82.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
TON		TONGASAT AP-KU-4	83.30	25/12/1990	21/11/1997	12200	12272	C
TON		TONGASAT AP-KU-4	83.30	25/12/1990	21/11/1997	12276	12348	C
TON		TONGASAT AP-KU-4	83.30	25/12/1990	21/11/1997	12352	12424	C
TON		TONGASAT AP-KU-4	83.30	25/12/1990	21/11/1997	12428	12500	C
F	EUT	EUTELSAT 3-83.5E	83.50		28/10/1999	12200	12500	A
J		N-SAT-84E	84.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA	IT	INTELSAT KFOS 85E	85.00	26/11/1999	23/11/1999	12200	12500	BACKLOG
F	EUT	EUTELSAT 3-86E	86.00	17/02/2000	09/02/2000	12206	12494	BACKLOG
J		N-SAT-86E	86.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
SNG		ST-1A	88.00	14/11/1994	13/03/1998	12200	12350	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12202	12238	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12222	12258	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12242	12278	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12262	12298	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12282	12318	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12302	12338	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12322	12358	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12342	12378	C
SNG		ST-1A	88.00	14/11/1994	13/03/1998	12350	12500	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12362	12398	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12382	12418	C
SNG		ST-1A	88.00	21/06/1993	13/03/1998	12402	12438	C
F	EUT	EUTELSAT 3-88.5E	88.50		28/10/1999	12200	12500	A
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12200	12210	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12200	12254	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12213	12267	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12261	12315	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12274	12328	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12322	12376	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12335	12389	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12383	12437	C
MLA		MEASAT-1	91.50	11/09/1992	17/04/1998	12396	12450	C
MLA		MEASAT-91.5E	91.50		11/08/1998	12200	12500	A
MLA		MEASAT-91.5E	91.50	11/02/1999	30/10/1998	12257	12497	BACKLOG
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12200	12254	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12213	12267	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12261	12315	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12274	12328	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12322	12376	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12335	12389	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12383	12437	C
MLA		MEASAT-AK 91.5	91.50	11/05/1995	20/03/1997	12396	12450	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12200	12254	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12213	12267	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12261	12315	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12274	12328	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12322	12376	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12335	12389	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12383	12437	C
MLA		MEASAT-IK 91.5E	91.50	13/03/1996	08/09/1998	12396	12450	C
AUS		DEF-R-SAT-3A	93.00	21/06/1999	07/06/1999	12200	12500	BACKLOG
AUS		DEF-R-SAT-3A	93.00		12/05/2000	12453	12498	BACKLOG
CHN		APSTAR-3	93.00	08/08/1994	30/04/1998	12255	12309	C
CHN		APSTAR-3	93.00	08/08/1994	30/04/1998	12318	12372	C
CHN		APSTAR-3	93.00	08/08/1994	30/04/1998	12380	12434	C
CHN		APSTAR-3	93.00	08/08/1994	30/04/1998	12443	12497	C
J		N-SAT-94E	94.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
HOL		NSS-9	95.00	08/06/1999	03/06/1999	12200	12500	BACKLOG
MLA		MEASAT-95E	95.00	04/07/2000	04/01/2000	12257	12500	BACKLOG
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12200	12254	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12213	12267	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12261	12315	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12274	12328	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12322	12376	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12335	12389	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12383	12437	C
MLA		MEASAT-IK 95E	95.00	18/10/1994	08/09/1998	12396	12450	C
PNG		PACSTAR-L1	98.00	20/05/1998	18/05/1998	12250	12500	BACKLOG
SNG		ST-1B	98.50	14/11/1994	13/03/1998	12200	12350	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12202	12238	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12222	12258	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12242	12278	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12262	12298	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12282	12318	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12302	12338	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12322	12358	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12342	12378	C
SNG		ST-1B	98.50	14/11/1994	13/03/1998	12350	12500	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12362	12398	C
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12382	12418	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
SNG		ST-1B	98.50	21/06/1993	13/03/1998	12402	12438	C
USA		USASAT-27G	100.00		21/11/1997	11700	12200	A
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12200	12215	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12203	12257	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12218	12272	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12263	12317	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12278	12332	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12323	12377	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12338	12392	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12383	12437	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12398	12452	C
CHN		ASIASAT-EK1	100.50	01/04/1992	01/04/1992	12443	12497	C
CHN		ASIASAT-EKX	100.50	15/11/1995	15/11/1995	12202	12218	C
CHN		ASIASAT-EKX	100.50	15/11/1995	15/11/1995	12255	12309	C
CHN		ASIASAT-EKX	100.50	15/11/1995	15/11/1995	12270	12324	C
CHN		ASIASAT-EKX	100.50	15/11/1995	15/11/1995	12315	12369	C
J		N-SAT-102.5E	102.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
KOR		KOREASAT-103KU	103.00	22/05/1998	22/05/1998	12250	12500	BACKLOG
KOR		KOREASAT-103KU	103.00	22/05/1998	22/05/1998	12252	12500	BACKLOG
J		N-SAT-103.5E	103.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12200	12215	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12203	12257	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12218	12272	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12263	12317	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12278	12332	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12323	12377	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12338	12392	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12383	12437	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12398	12452	C
CHN		ASIASAT-CK1	105.50	01/04/1992	01/04/1992	12443	12497	C
J		N-SAT-106.5	106.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA		USASAT-42H	108.00		21/11/1997	11700	12200	A
J		TAIKI-109.65	109.65		15/05/1997	11700	11714	A
J		TAIKI-109.65	109.65		15/05/1997	11702	11711	A
J		BS-3	110.00	09/03/1990	14/10/1991	11709	11712	N
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12200	12250	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12250	12250	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12250	12273	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12251	12251	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12251	12251	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12252	12252	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12253	12253	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12253	12289	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12273	12309	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12293	12329	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12313	12349	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12333	12369	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12353	12389	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12373	12409	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12393	12429	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12413	12449	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12433	12469	C
J		N-SAT-110	110.00	09/12/1991	20/05/1997	12453	12489	C
J		N-SAT-110E	110.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
SNG		ST-1C	110.00	14/11/1994	13/03/1998	12200	12350	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12202	12238	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12222	12258	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12242	12278	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12262	12298	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12282	12318	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12302	12338	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12322	12358	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12342	12378	C
SNG		ST-1C	110.00	14/11/1994	13/03/1998	12350	12500	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12362	12398	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12382	12418	C
SNG		ST-1C	110.00	21/06/1993	13/03/1998	12402	12438	C
KOR		KOREASAT-2	113.00	06/06/1995	06/06/1995	12250	12251	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12251	12252	C
KOR		KOREASAT-2	113.00	06/06/1995	01/04/1997	12251	12252	N
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12251	12252	C
KOR		KOREASAT-2	113.00	06/06/1995	06/06/1995	12252	12254	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12252	12288	C
KOR		KOREASAT-2	113.00	11/04/2000	11/04/2000	12252	12500	BACKLOG
KOR		KOREASAT-2	113.00	04/11/1991	06/06/1995	12272	12308	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12292	12328	C
KOR		KOREASAT-2	113.00	04/11/1991	06/06/1995	12312	12348	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12332	12368	C
KOR		KOREASAT-2	113.00	04/11/1991	06/06/1995	12352	12388	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12372	12408	C
KOR		KOREASAT-2	113.00	04/11/1991	06/06/1995	12392	12428	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12412	12448	C
KOR		KOREASAT-2	113.00	04/11/1991	06/06/1995	12432	12468	C
KOR		KOREASAT-2	113.00	20/08/1991	06/06/1995	12452	12488	C
VTN		VINASAT-2A	114.50		23/10/1997	12200	12500	A
CHN		DFH-3-OD	115.50		31/10/1997	11722	11758	C
CHN		DFH-3-OD	115.50		31/10/1997	11802	11838	C
CHN		DFH-3-OD	115.50		31/10/1997	11882	11918	C
CHN		DFH-3-OD	115.50		31/10/1997	11962	11998	C
CHN		DFH-3-OD	115.50		31/10/1997	12042	12078	C
CHN		DFH-3-OD	115.50		31/10/1997	12122	12158	C
CHN		DFH-4-OD	115.50	05/06/1998	05/06/1998	12274	12500	BACKLOG
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12200	12215	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12203	12257	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12218	12272	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12263	12317	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12278	12332	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12323	12377	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12338	12392	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12383	12437	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12398	12452	C
CHN		ASIASAT-BK1	116.00	01/04/1992	01/04/1992	12443	12497	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12202	12218	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12255	12309	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12270	12324	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12315	12369	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12330	12384	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12375	12429	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12390	12444	C
CHN		ASIASAT-BKX	116.00	16/11/1995	16/11/1995	12435	12489	C
KOR		KOREASAT-1	116.00	06/06/1995	07/11/1996	12250	12251	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12251	12252	C
KOR		KOREASAT-1	116.00	06/06/1995	27/02/1996	12251	12252	N
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12251	12252	C
KOR		KOREASAT-1	116.00	06/06/1995	07/11/1996	12252	12254	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12252	12288	C
KOR		KOREASAT-1	116.00	13/03/2000	13/03/2000	12252	12500	BACKLOG
KOR		KOREASAT-1	116.00	04/11/1991	07/11/1996	12272	12308	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12292	12328	C
KOR		KOREASAT-1	116.00	04/11/1991	07/11/1996	12312	12348	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12332	12368	C
KOR		KOREASAT-1	116.00	04/11/1991	07/11/1996	12352	12388	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12372	12408	C
KOR		KOREASAT-1	116.00	04/11/1991	07/11/1996	12392	12428	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12412	12448	C
KOR		KOREASAT-1	116.00	04/11/1991	07/11/1996	12432	12468	C
KOR		KOREASAT-1	116.00	20/08/1991	07/11/1996	12452	12488	C
J		N-SAT-117	117.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
USA		USASAT-42L	119.00		21/11/1997	11700	12200	A
J		N-SAT-120E	120.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
J		SJC-2	120.00	02/10/1991	20/05/1997	12251	12251	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12257	12311	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12272	12326	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12317	12371	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12332	12386	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12376	12412	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12396	12432	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12416	12452	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12436	12472	C
J		SJC-2	120.00	02/10/1991	20/05/1997	12456	12492	C
THA		THAICOM-A3B	120.00		09/01/1998	12210	12210	C
THA		THAICOM-A3B	120.00		09/01/1998	12210	12210	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12254	12290	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12295	12331	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12337	12373	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12378	12414	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12420	12456	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12441	12477	C
THA		THAICOM-A3B	120.00	12/06/1995	09/01/1998	12461	12497	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12255	12309	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12286	12340	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12318	12372	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12349	12403	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12380	12434	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12411	12465	C
THA		THAICOM-AK3	120.00	24/10/1994	07/03/1997	12443	12497	C
THA		THAICOM-G2K	120.00		24/10/1997	11700	12200	A
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12200	12215	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12203	12257	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12218	12272	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12263	12317	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12278	12332	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12323	12377	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12338	12392	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12383	12437	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12398	12452	C
CHN		ASIASAT-AK1	122.00	01/04/1992	01/04/1992	12443	12497	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12202	12218	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12255	12309	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12270	12324	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12315	12369	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12330	12384	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12375	12429	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12390	12444	C
CHN		ASIASAT-AKX	122.00	16/11/1995	16/11/1995	12435	12489	C
PNG		PACSTAR-L2	122.00	20/05/1998	18/05/1998	12250	12500	BACKLOG
J		N-SAT-122.5E	122.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
VTN		VINASAT-1A	122.50		23/10/1997	12200	12500	A
J		JCSAT-TT&C-123E	123.00	12/04/1999	12/04/1999	12200	12255	BACKLOG
KOR		KOREASAT-123.7KU	123.70	22/05/1998	22/05/1998	12250	12500	BACKLOG

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
KOR		KOREASAT-123.7KU	123.70	22/05/1998	22/05/1998	12252	12500	BACKLOG
J		JCSAT-3B	124.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
J		JCSAT-3B	124.00	03/07/1994	24/10/1997	12247	12247	C
J		JCSAT-3B	124.00		24/10/1997	12250	12286	C
J		JCSAT-3B	124.00		24/10/1997	12270	12306	C
J		JCSAT-3B	124.00		24/10/1997	12290	12326	C
J		JCSAT-3B	124.00		24/10/1997	12310	12346	C
J		JCSAT-3B	124.00		24/10/1997	12330	12366	C
J		JCSAT-3B	124.00		24/10/1997	12350	12386	C
J		JCSAT-3B	124.00		24/10/1997	12370	12406	C
J		JCSAT-3B	124.00		24/10/1997	12390	12426	C
J		JCSAT-3B	124.00		24/10/1997	12410	12446	C
J		JCSAT-3B	124.00		24/10/1997	12430	12466	C
J		JCSAT-3B	124.00		24/10/1997	12450	12486	C
J		SJC-1	124.00	24/10/1994	24/10/1997	12247	12247	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12251	12251	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12257	12311	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12270	12306	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12272	12326	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12290	12326	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12310	12346	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12317	12371	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12330	12366	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12332	12386	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12350	12386	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12370	12406	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12376	12412	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12390	12426	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12396	12432	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12410	12446	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12416	12452	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12430	12466	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12436	12472	C
J		SJC-1	124.00	03/01/1994	24/10/1997	12450	12486	C
J		SJC-1	124.00	02/10/1991	24/10/1997	12456	12492	C
J		JCSAT-TT&C-125E	125.00	12/04/1999	12/04/1999	12200	12255	BACKLOG
J		JCSAT-TT&C-125.5E	125.50	12/04/1999	12/04/1999	12200	12255	BACKLOG
J		N-SAT-125.5E	125.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
J		JCSAT-TT&C-126E	126.00	12/04/1999	12/04/1999	12200	12255	BACKLOG
THA		THAICOM-C2	126.00		09/01/1998	12205	12259	C
THA		THAICOM-C2	126.00		09/01/1998	12236	12290	C
THA		THAICOM-C2	126.00		09/01/1998	12268	12322	C
THA		THAICOM-C2	126.00		09/01/1998	12299	12353	C
THA		THAICOM-C2	126.00		09/01/1998	12330	12384	C
THA		THAICOM-C2	126.00		09/01/1998	12361	12415	C
THA		THAICOM-C2	126.00		09/01/1998	12393	12447	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11703	11739	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11744	11780	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11786	11822	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11827	11863	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11869	11905	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11910	11946	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11948	11953	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11953	11989	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	11994	12030	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	12036	12072	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	12077	12113	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	12119	12155	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	12160	12196	C
USA		USASAT-14M	126.00	15/09/1995	08/04/1997	12195	12200	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA		USASAT-14M	126.00		08/04/1997	12250	12255	C
USA		USASAT-14M	126.00		08/04/1997	12253	12289	C
USA		USASAT-14M	126.00		08/04/1997	12294	12330	C
USA		USASAT-14M	126.00		08/04/1997	12336	12372	C
USA		USASAT-14M	126.00		08/04/1997	12377	12413	C
USA		USASAT-14M	126.00		08/04/1997	12419	12455	C
USA		USASAT-14M	126.00		08/04/1997	12460	12496	C
J		JCSAT-TT&C-126.5E	126.50	12/04/1999	12/04/1999	12200	12255	BACKLOG
J		JCSAT-TT&C-127E	127.00	12/04/1999	12/04/1999	12200	12255	BACKLOG
J		JCSAT-3A	128.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12247	12247	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12250	12286	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12270	12306	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12290	12326	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12310	12346	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12330	12366	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12350	12386	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12370	12406	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12390	12426	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12410	12446	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12430	12466	C
J		JCSAT-3A	128.00	03/07/1994	24/10/1997	12450	12486	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12200	12250	C
J		N-SAT-128	128.00	24/10/1994	24/10/1997	12247	12247	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12250	12250	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12250	12273	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12251	12251	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12251	12251	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12252	12252	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12253	12253	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12257	12311	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12270	12306	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12272	12326	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12290	12326	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12310	12346	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12317	12371	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12330	12366	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12332	12386	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12350	12386	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12370	12406	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12376	12412	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12390	12426	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12396	12432	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12410	12446	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12416	12452	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12430	12466	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12436	12472	C
J		N-SAT-128	128.00	03/01/1994	24/10/1997	12450	12486	C
J		N-SAT-128	128.00	09/12/1991	24/10/1997	12456	12492	C
J		JCSAT-TT&C-129E	129.00	12/04/1999	12/04/1999	12200	12255	BACKLOG
J		N-SAT-129.5E	129.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
PNG		PACSTAR-L3	130.00	20/05/1998	18/05/1998	12250	12500	BACKLOG
J		D-STAR-1	132.00		30/10/1997	12200	12270	A
J		D-STAR-1	132.00		03/04/2000	12270	12500	BACKLOG
J		N-STAR-A	132.00	16/11/1991	16/10/1995	12253	12253	C
J		N-STAR-A	132.00	16/11/1991	16/10/1995	12255	12255	C
J		N-STAR-A	132.00	16/11/1991	16/10/1995	12270	12330	C
J		N-STAR-A	132.00	16/11/1991	16/10/1995	12330	12390	C
J		N-STAR-A	132.00	16/11/1991	16/10/1995	12390	12450	C
J		N-STAR-A2	132.00	02/11/1998	02/11/1998	12200	12500	BACKLOG

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
VTN		VINASAT-4A	132.00		23/10/1997	12200	12500	A
CHN		APSTAR-2	134.00	08/08/1994	30/04/1998	12255	12309	C
CHN		APSTAR-2	134.00	08/08/1994	30/04/1998	12318	12372	C
CHN		APSTAR-2	134.00	08/08/1994	30/04/1998	12380	12434	C
CHN		APSTAR-2	134.00	08/08/1994	30/04/1998	12443	12497	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12203	12239	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12243	12279	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12283	12319	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12323	12359	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12363	12399	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12403	12439	C
INS		PALAPA PAC-1 CKU	134.00	24/10/1995	15/12/1997	12443	12479	C
J		SB-SAT-135	135.00		02/05/2000	12200	12500	BACKLOG
J		D-STAR-2	136.00		30/10/1997	12200	12270	A
J		D-STAR-2	136.00		03/04/2000	12270	12500	BACKLOG
J		N-STAR-B	136.00	16/11/1991	16/10/1995	12253	12253	C
J		N-STAR-B	136.00	16/11/1991	16/10/1995	12255	12255	C
J		N-STAR-B	136.00	16/11/1991	16/10/1995	12270	12330	C
J		N-STAR-B	136.00	16/11/1991	16/10/1995	12330	12390	C
J		N-STAR-B	136.00	16/11/1991	16/10/1995	12390	12450	C
J		N-STAR-B2	136.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12203	12239	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12243	12279	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12283	12319	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12323	12359	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12363	12399	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12403	12439	C
INS		PALAPA PAC-2 CKU	139.00	24/10/1995	15/12/1997	12443	12479	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11703	11739	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11744	11780	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11786	11822	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11827	11863	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11869	11905	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11910	11946	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11948	11953	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11953	11989	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	11994	12030	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	12036	12072	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	12077	12113	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	12119	12155	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	12160	12196	C
MHL		ORION-AP-1	139.00	21/02/1995	05/01/1998	12195	12200	C
MHL		ORION-AP-1	139.00		05/01/1998	12253	12289	C
MHL		ORION-AP-1	139.00		05/01/1998	12294	12330	C
MHL		ORION-AP-1	139.00		05/01/1998	12336	12372	C
MHL		ORION-AP-1	139.00		05/01/1998	12377	12413	C
MHL		ORION-AP-1	139.00		05/01/1998	12419	12455	C
MHL		ORION-AP-1	139.00		05/01/1998	12460	12496	C
J		N-SAT-141E	141.00	02/11/1998	02/11/1998	12200	12500	BACKLOG
THA		THAICOM-A4B	142.00		09/05/1997	12210	12210	C
THA		THAICOM-A4B	142.00		09/05/1997	12210	12210	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12254	12290	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12295	12331	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12337	12373	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12378	12414	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12420	12456	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12441	12477	C
THA		THAICOM-A4B	142.00	12/06/1995	09/05/1997	12461	12497	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12255	12309	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12286	12340	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12318	12372	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12349	12403	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12380	12434	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12411	12465	C
THA		THAICOM-AK4	142.00	24/10/1994	24/10/1994	12443	12497	C
THA		THAICOM-G3K	142.00		24/10/1997	11700	12200	A
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12203	12239	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12243	12279	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12283	12319	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12323	12359	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12363	12399	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12403	12439	C
INS		PALAPA PAC-3 CKU	144.00	24/10/1995	15/12/1997	12443	12479	C
J		N-SAT-146	144.00	03/11/1994	03/11/1994	12250	12300	C
J		N-SAT-146	144.00	03/11/1994	03/11/1994	12300	12350	C
J		N-SAT-146	144.00	03/11/1994	03/11/1994	12350	12400	C
J		N-SAT-146	144.00	03/11/1994	03/11/1994	12400	12450	C
J		N-SAT-146	144.00	03/11/1994	03/11/1994	12450	12500	C
J		SB-SAT-144	144.00		02/05/2000	12200	12500	BACKLOG
J		SUPERBIRD-C	144.00		28/09/1998	11700	11750	C
J		SUPERBIRD-C	144.00		28/09/1998	11750	11800	C
J		SUPERBIRD-C	144.00		28/09/1998	11800	11850	C
J		SUPERBIRD-C	144.00		28/09/1998	11850	11900	C
J		SUPERBIRD-C	144.00		28/09/1998	11900	11950	C
J		SUPERBIRD-C	144.00		28/09/1998	11950	12000	C
J		SUPERBIRD-C	144.00		28/09/1998	12000	12050	C
J		SUPERBIRD-C	144.00		28/09/1998	12050	12100	C
J		SUPERBIRD-C	144.00		28/09/1998	12100	12150	C
J		SUPERBIRD-C	144.00		28/09/1998	12150	12200	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12200	12250	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12250	12300	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12300	12350	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12350	12400	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12400	12450	C
J		SUPERBIRD-C	144.00	03/11/1994	28/09/1998	12450	12500	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11703	11739	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11744	11780	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11786	11822	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11827	11863	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11869	11905	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11910	11946	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11948	11953	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11953	11989	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	11994	12030	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	12036	12072	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	12077	12113	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	12119	12155	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	12160	12196	C
MHL		ORION-AP-2	144.00	21/02/1995	12/02/1997	12195	12200	C
MHL		ORION-AP-2	144.00		12/02/1997	12250	12255	C
MHL		ORION-AP-2	144.00		12/02/1997	12253	12289	C
MHL		ORION-AP-2	144.00		12/02/1997	12294	12330	C
MHL		ORION-AP-2	144.00		12/02/1997	12336	12372	C
MHL		ORION-AP-2	144.00		12/02/1997	12377	12413	C
MHL		ORION-AP-2	144.00		12/02/1997	12419	12455	C
MHL		ORION-AP-2	144.00		12/02/1997	12460	12496	C
INS		PALAPA PAC-KU 146E	146.00	24/01/1999	24/07/1998	12203	12500	BACKLOG
J		N-SAT-146A	146.00		24/10/1997	12200	12500	A
J		N-SAT-147.5E	147.50	02/11/1998	02/11/1998	12200	12500	BACKLOG
MLA		MEASAT-148E	148.00		11/08/1998	11700	12200	A

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
MLA		MEASAT-148E	148.00	11/02/1999	30/10/1998	12257	12497	BACKLOG
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12200	12254	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12213	12267	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12261	12315	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12274	12328	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12322	12376	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12335	12389	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12383	12437	C
MLA		MEASAT-2	148.00	13/09/1996	17/04/1998	12396	12450	C
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12255	12282	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12270	12297	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12285	12312	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12300	12327	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12315	12342	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12330	12357	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12345	12372	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12360	12387	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12375	12402	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12390	12417	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12405	12432	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12420	12447	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12435	12462	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12450	12477	N
J		JCSAT-1	150.00	22/08/1988	31/05/1995	12465	12492	N
J		JCSAT-1R	150.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12245	12249	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12250	12286	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12270	12306	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12290	12326	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12310	12346	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12330	12366	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12350	12386	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12370	12406	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12390	12426	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12410	12446	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12430	12466	C
J		JCSAT-1R	150.00	28/10/1994	29/06/1999	12450	12486	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12255	12300	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12287	12332	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12319	12364	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12351	12396	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12383	12428	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12415	12460	C
AUS		AUSSAT A 152E	152.00	19/03/1991	19/03/1991	12447	12492	C
AUS		AUSSAT A 152E PAC	152.00	19/03/1991	19/03/1991	12447	12492	C
AUS		AUSSAT B 152E	152.00	24/05/1999	24/05/1999	12255	12500	BACKLOG
AUS		AUSSAT B 152E MOB	152.00	21/04/1995	21/04/1995	12264	12274	C
AUS		AUSSAT B 152E MOB	152.00	21/04/1995	21/04/1995	12274	12278	C
AUS		AUSSAT B 152E MXL	152.00	21/04/1995	21/04/1995	12261	12263	C
AUS		AUSSAT B 152E MXL	152.00	21/04/1995	21/04/1995	12263	12264	C
J		N-SAT-153	153.00		24/10/1997	12200	12500	A
BLR	IK	INTERSPUTNIK-153.5E	153.50		07/09/1998	11700	12200	A
BLR	IK	INTERSPUTNIK-153.5E	153.50	15/04/1999	15/04/1999	12200	12500	BACKLOG
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12255	12282	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12270	12297	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12285	12312	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12300	12327	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12315	12342	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12330	12357	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12345	12372	N

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12360	12387	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12375	12402	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12390	12417	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12405	12432	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12420	12447	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12435	12462	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12450	12477	N
J		JCSAT-2	154.00	05/05/1989	31/05/1995	12465	12492	N
J		JCSAT-2R	154.00	11/05/1999	11/05/1999	12200	12500	BACKLOG
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12245	12249	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12250	12286	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12270	12306	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12290	12326	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12310	12346	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12330	12366	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12350	12386	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12370	12406	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12390	12426	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12410	12446	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12430	12466	C
J		JCSAT-2R	154.00	28/10/1994	29/06/1999	12450	12486	C
J		SB-SAT-154	154.00		02/05/2000	12200	12500	BACKLOG
USA		USASAT-42Q	155.00		21/11/1997	11700	12200	A
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12255	12300	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12287	12332	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12319	12364	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12351	12396	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12383	12428	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12415	12460	N
AUS		AUSSAT A 156E	156.00	15/08/1984	28/06/1991	12447	12492	N
AUS		AUSSAT A 156E PAC	156.00	11/03/1991	11/03/1991	12447	12492	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12255	12309	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12286	12340	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12318	12372	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12349	12403	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12380	12434	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12411	12465	C
AUS		AUSSAT B 156E	156.00	11/06/1990	11/06/1990	12443	12497	C
AUS		AUSSAT B 156E MC	156.00	30/05/1990	30/05/1990	12286	12340	C
AUS		AUSSAT B 156E MC	156.00	30/05/1990	30/05/1990	12349	12403	C
AUS		AUSSAT B 156E MC	156.00	30/05/1990	30/05/1990	12411	12465	C
AUS		AUSSAT B 156E MOB	156.00	18/06/1991	18/06/1991	12264	12274	C
AUS		AUSSAT B 156E MOB	156.00	18/06/1991	18/06/1991	12274	12278	C
AUS		AUSSAT B 156E MXL	156.00	26/03/1992	18/05/1995	12261	12263	C
AUS		AUSSAT B 156E MXL	156.00	26/03/1992	18/05/1995	12263	12264	C
AUS		AUSSAT B 156E NZ	156.00	31/05/1990	31/05/1990	12255	12309	C
AUS		AUSSAT B 156E NZ	156.00	25/05/1999	25/05/1999	12255	12500	BACKLOG
AUS		AUSSAT B 156E NZ	156.00	31/05/1990	31/05/1990	12318	12372	C
AUS		AUSSAT B 156E NZ	156.00	31/05/1990	31/05/1990	12380	12434	C
AUS		AUSSAT B 156E NZ	156.00	31/05/1990	31/05/1990	12443	12497	C
AUS		AUSSAT B 156E R	156.00	31/05/1990	18/05/1995	12227	12243	C
AUS		AUSSAT C 156E FSS	156.00	25/10/1999	25/10/1999	12260	12500	BACKLOG
USA	IT	INTELSAT KA 157E	157.00		01/03/1999	11700	11950	A
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11705	11790	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11705	11825	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11790	11870	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11830	11950	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11870	11950	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11874	11908	C
USA	IT	INTELSAT7 157E	157.00	25/07/1995	25/07/1995	11912	11946	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
J		SUPERBIRD-A	158.00		10/11/1995	12250	12251	C
J		SUPERBIRD-A	158.00	24/05/1994	10/11/1995	12251	12252	C
J		SUPERBIRD-A	158.00		10/11/1995	12252	12253	C
J		SUPERBIRD-A	158.00	24/05/1994	10/11/1995	12253	12254	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12270	12310	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12290	12330	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12310	12350	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12330	12370	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12350	12390	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12370	12410	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12390	12430	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12410	12450	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12430	12470	C
J		SUPERBIRD-A	158.00	18/03/1988	10/11/1995	12450	12490	C
J		SUPERBIRD-A2	158.00		24/10/1997	11700	11750	C
J		SUPERBIRD-A2	158.00		24/10/1997	11750	11800	C
J		SUPERBIRD-A2	158.00		24/10/1997	11800	11850	C
J		SUPERBIRD-A2	158.00		24/10/1997	11850	11900	C
J		SUPERBIRD-A2	158.00		24/10/1997	11900	11950	C
J		SUPERBIRD-A2	158.00		24/10/1997	11950	12000	C
J		SUPERBIRD-A2	158.00		24/10/1997	12000	12050	C
J		SUPERBIRD-A2	158.00		24/10/1997	12050	12100	C
J		SUPERBIRD-A2	158.00		24/10/1997	12100	12150	C
J		SUPERBIRD-A2	158.00		24/10/1997	12150	12200	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12200	12250	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12250	12300	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12300	12350	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12350	12400	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12400	12450	C
J		SUPERBIRD-A2	158.00	18/05/1995	24/10/1997	12450	12500	C
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12255	12300	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12287	12332	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12319	12364	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12351	12396	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12383	12428	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12415	12460	N
AUS		AUSSAT A 160E	160.00	15/08/1984	24/01/1996	12447	12492	N
AUS		AUSSAT A 160E PAC	160.00	11/03/1991	11/03/1991	12447	12492	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12255	12309	C
AUS		AUSSAT B 160E	160.00	25/05/1999	25/05/1999	12255	12500	BACKLOG
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12286	12340	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12318	12372	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12349	12403	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12380	12434	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12411	12465	C
AUS		AUSSAT B 160E	160.00	11/06/1990	11/06/1990	12443	12497	C
AUS		AUSSAT B 160E MC	160.00	30/05/1990	30/05/1990	12286	12340	C
AUS		AUSSAT B 160E MC	160.00	30/05/1990	30/05/1990	12349	12403	C
AUS		AUSSAT B 160E MC	160.00	30/05/1990	30/05/1990	12411	12465	C
AUS		AUSSAT B 160E MOB	160.00	18/06/1991	18/06/1991	12264	12274	C
AUS		AUSSAT B 160E MOB	160.00	18/06/1991	18/06/1991	12274	12278	C
AUS		AUSSAT B 160E MXL	160.00	26/03/1992	18/05/1995	12261	12263	C
AUS		AUSSAT B 160E MXL	160.00	26/03/1992	18/05/1995	12263	12264	C
AUS		AUSSAT B 160E NZ	160.00	31/05/1990	31/05/1990	12255	12309	C
AUS		AUSSAT B 160E NZ	160.00	31/05/1990	31/05/1990	12318	12372	C
AUS		AUSSAT B 160E NZ	160.00	31/05/1990	31/05/1990	12380	12434	C
AUS		AUSSAT B 160E NZ	160.00	31/05/1990	31/05/1990	12443	12497	C
AUS		AUSSAT B 160E R	160.00	31/05/1990	18/05/1995	12227	12243	C
J		SUPERBIRD-B	162.00	24/05/1994	10/11/1995	12250	12251	C
J		SUPERBIRD-B	162.00		10/11/1995	12251	12252	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
J		SUPERBIRD-B	162.00	24/05/1994	10/11/1995	12252	12253	C
J		SUPERBIRD-B	162.00		10/11/1995	12253	12254	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12270	12310	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12290	12330	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12310	12350	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12330	12370	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12350	12390	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12370	12410	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12390	12430	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12410	12450	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12430	12470	C
J		SUPERBIRD-B	162.00	18/03/1988	10/11/1995	12450	12490	C
J		SUPERBIRD-B2	162.00		24/10/1997	11700	11750	C
J		SUPERBIRD-B2	162.00		24/10/1997	11750	11800	C
J		SUPERBIRD-B2	162.00		24/10/1997	11800	11850	C
J		SUPERBIRD-B2	162.00		24/10/1997	11850	11900	C
J		SUPERBIRD-B2	162.00		24/10/1997	11900	11950	C
J		SUPERBIRD-B2	162.00		24/10/1997	11950	12000	C
J		SUPERBIRD-B2	162.00		24/10/1997	12000	12050	C
J		SUPERBIRD-B2	162.00		24/10/1997	12050	12100	C
J		SUPERBIRD-B2	162.00		24/10/1997	12100	12150	C
J		SUPERBIRD-B2	162.00		24/10/1997	12150	12200	C
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12200	12250	C
J		SUPERBIRD-B2	162.00	08/07/1999	08/07/1999	12245	12249	BACKLOG
J		SUPERBIRD-B2	162.00	08/07/1999	08/07/1999	12250	12254	BACKLOG
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12250	12300	C
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12300	12350	C
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12350	12400	C
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12400	12450	C
J		SUPERBIRD-B2	162.00	18/05/1995	24/10/1997	12450	12500	C
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12255	12300	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12287	12332	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12319	12364	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12351	12396	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12383	12428	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12415	12460	N
AUS		AUSSAT A 164E	164.00	15/08/1984	28/06/1991	12447	12492	N
AUS		AUSSAT A 164E PAC	164.00	03/12/1986	03/12/1986	12447	12492	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12227	12243	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12255	12309	C
AUS		AUSSAT B 164E	164.00	24/05/1999	24/05/1999	12255	12500	BACKLOG
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12286	12340	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12318	12372	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12349	12403	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12380	12434	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12411	12465	C
AUS		AUSSAT B 164E	164.00	09/12/1991	08/05/1996	12443	12497	C
AUS		AUSSAT B 164E MOB	164.00	18/06/1991	08/05/1996	12264	12274	C
AUS		AUSSAT B 164E MOB	164.00	18/06/1991	08/05/1996	12274	12278	C
AUS		AUSSAT B 164E MXL	164.00	26/03/1992	08/05/1996	12261	12263	C
AUS		AUSSAT B 164E MXL	164.00	26/03/1992	08/05/1996	12263	12264	C
J		N-SAT-166E	166.00		02/05/1997	11700	12200	A
USA		USASAT-14H	166.00	30/08/1993	30/08/1993	12254	12308	C
USA		USASAT-14H	166.00	24/12/1998	24/12/1998	12268	12500	BACKLOG
USA		USASAT-14H	166.00	30/08/1993	30/08/1993	12314	12368	C
USA		USASAT-14H	166.00	30/08/1993	30/08/1993	12374	12428	C
USA		USASAT-14H	166.00	30/08/1993	30/08/1993	12434	12498	C
USA		USASAT-14H	166.00	30/03/1993	30/08/1993	12439	12493	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12238	12274	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12240	12312	C

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12278	12314	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12318	12354	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12320	12392	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12358	12394	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12398	12434	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12400	12472	C
PNG		PACSTAR-3	167.45	23/12/1992	20/11/1997	12438	12474	C
J		N-SAT-168E	168.00		02/05/1997	11700	12200	A
USA		USASAT-14G	169.00	02/11/1993	04/02/1993	12254	12308	C
USA		USASAT-14G	169.00	02/11/1993	04/02/1993	12314	12368	C
USA		USASAT-14G	169.00	18/01/2000	18/01/2000	12314	12500	BACKLOG
USA		USASAT-14G	169.00	02/11/1993	04/02/1993	12374	12428	C
USA		USASAT-14G	169.00	02/11/1993	04/02/1993	12434	12498	C
USA		USASAT-14G	169.00	02/11/1993	04/02/1993	12439	12493	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11702	11738	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11704	11776	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11742	11778	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11782	11818	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11784	11856	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11822	11858	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11862	11898	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11864	11936	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11902	11938	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11942	11978	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11944	12016	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	11982	12018	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12022	12058	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12024	12096	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12062	12098	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12102	12138	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12104	12176	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12142	12178	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12202	12238	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12204	12276	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12242	12278	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12282	12318	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12284	12356	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12322	12358	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12362	12398	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12364	12436	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12402	12438	C
TON		TONGASAT C1/C1-R	170.75	07/04/1992	21/11/1997	12442	12478	C
USA		USASAT-14K	172.00		25/07/1997	11700	12045	A
USA		USASAT-14K	172.00	01/12/1992	25/08/1997	12049	12121	C
USA		USASAT-14K	172.00	01/12/1992	25/08/1997	12128	12182	C
USA		USASAT-14K	172.00	01/12/1992	25/08/1997	12187	12197	C
USA		USASAT-14K	172.00		25/08/1997	12202	12229	C
USA		USASAT-14K	172.00		25/08/1997	12232	12259	C
USA		USASAT-14K	172.00		25/08/1997	12262	12289	C
USA		USASAT-14K	172.00		25/08/1997	12292	12319	C
USA		USASAT-14K	172.00		25/08/1997	12303	12357	C
USA		USASAT-14K	172.00		25/08/1997	12324	12396	C
USA		USASAT-14K	172.00		25/08/1997	12363	12417	C
USA		USASAT-14K	172.00		25/08/1997	12404	12476	C
USA		USASAT-14K	172.00		25/08/1997	12423	12477	C
USA	IT	INTELSAT7 174E	174.00	20/03/1990	03/08/1995	11709	11786	C
USA	IT	INTELSAT7 174E	174.00	04/01/1993	03/08/1995	11709	11821	C
USA	IT	INTELSAT7 174E	174.00	20/03/1990	03/08/1995	11794	11866	C
USA	IT	INTELSAT7 174E	174.00	04/01/1993	03/08/1995	11834	11946	C
USA	IT	INTELSAT7 174E	174.00	17/12/1993	17/12/1993	11874	11908	N

ADM	ORG	STATION	OPOS	RR1064	BRREG	LOW FREQ	HIGH FREQ	STAT
USA	IT	INTELSAT7 174E	174.00	20/03/1990	03/08/1995	11874	11946	C
USA	IT	INTELSAT7 174E	174.00	17/12/1993	17/12/1993	11912	11946	N
USA	IT	INTELSAT8 174E	174.00	12/11/1992	10/08/1995	11709	11786	C
USA	IT	INTELSAT8 174E	174.00	12/11/1992	10/08/1995	11794	11866	C
USA	IT	INTELSAT8 174E	174.00	12/11/1992	10/08/1995	11874	11946	C
J		N-SAT-175.5E	175.50		02/05/1997	11700	12200	A
USA	IT	INTELSAT7 176E	176.00		07/06/1999	11700	11950	A
USA	IT	INTELSAT8 176E	176.00		23/09/1999	11700	11950	A
USA	IT	INTELSAT9 176E	176.00		07/06/1999	11700	11950	A
F		SMO-GEO-8A-KU	177.00		08/04/1999	11700	12200	A
USA	IT	INTELSAT7 177E	177.00	20/03/1990	30/05/1997	11709	11786	C
USA	IT	INTELSAT7 177E	177.00	04/01/1993	30/05/1997	11709	11821	C
USA	IT	INTELSAT7 177E	177.00	20/03/1990	30/05/1997	11794	11866	C
USA	IT	INTELSAT7 177E	177.00	04/01/1993	30/05/1997	11834	11946	C
USA	IT	INTELSAT7 177E	177.00	20/03/1990	30/05/1997	11874	11946	C
USA	IT	INTELSAT8 177E	177.00	12/11/1992	10/08/1995	11709	11786	C
USA	IT	INTELSAT8 177E	177.00	12/11/1992	10/08/1995	11794	11866	C
USA	IT	INTELSAT8 177E	177.00	12/11/1992	10/08/1995	11874	11946	C
USA	IT	INTELSAT6 178E	178.00		07/06/1999	11700	11950	A
USA	IT	INTELSAT7 178E	178.00		07/06/1999	11700	11950	A
USA	IT	INTELSAT8 178E	178.00		23/09/1999	11700	11950	A
USA	IT	INTELSAT9 178E	178.00		07/06/1999	11700	11950	A
J		N-SAT-178.5E	178.50		02/05/1997	11700	12200	A
F		SMO-GEO-9A-KU	180.00		08/04/1999	11700	12200	A
HOL		NSS-14	180.00		16/12/1998	11700	12200	A
HOL		NSS-14	180.00		16/12/1998	12200	12500	A
USA	IT	INTELSAT7 180E	180.00	20/03/1990	30/05/1997	11709	11786	C
USA	IT	INTELSAT7 180E	180.00	04/01/1993	30/05/1997	11709	11821	C
USA	IT	INTELSAT7 180E	180.00	04/01/1993	30/05/1997	11712	11784	C
USA	IT	INTELSAT7 180E	180.00	20/03/1990	30/05/1997	11794	11866	C
USA	IT	INTELSAT7 180E	180.00	04/01/1993	30/05/1997	11834	11946	C
USA	IT	INTELSAT7 180E	180.00	20/03/1990	30/05/1997	11874	11946	C
USA	IT	INTELSAT8 180E	180.00	12/11/1992	10/08/1995	11709	11786	C
USA	IT	INTELSAT8 180E	180.00	12/11/1992	10/08/1995	11794	11866	C
USA	IT	INTELSAT8 180E	180.00	12/11/1992	10/08/1995	11874	11946	C

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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SUB-WORKING GROUP 5A1

Chairperson, Drafting Group 5A1b

DISCUSSION RESULTS ON THE ADDITIONAL SATELLITE COMPONENT

1 Methods of Identification

Option 1: One single footnote including terrestrial, satellite and all additional spectrum.

Option 2: Separate New Footnote for Satellite Component.

Separation : similar language in Resolution 212 (available for use).

Option 3: *resolves* parts in Resolution (no footnote).

1. Remarks on some administration concerns in *considering/noting/recognizing.*
2. Re-consideration by next WRC after ITU-R study on sharing and coordination issues.

2 Suggested text for inclusion in Footnote/Resolutions

- Bands for additional spectrum for satellite component

1 525-1 544, 1545-1559/1626.5-1645.5, 1646.5-1660.5 MHz

1 610-1 626.5/2 483.5-2 500 MHz,

2 500-2 520/2 670-2 690 MHz

[2520-2535/2655-2670 MHz(Region 2)]*

* Reason : Global Identification vs Experience in WRC-95.

Dual Identification of satellite component and terrestrial component.

- [Footnote]

[**S5.388** The bands 698-960 MHz, 1 525-1 559 MHz, 1 610-1 660.5 MHz, 1 710-2 025 MHz, 2 110-2 200 MHz and 2 483.5-2 690 MHz, or portions thereof that are allocated to the mobile and mobile-satellite services, are identified for use, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) and other advanced communication applications, (see Resolution **IMT (WRC-2000)**). Such use 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 other services to which they are allocated. In accordance with Resolution **YYY (WRC-2000)**, studies regarding the possible use of the 698-960 MHz, 1 710-1 885 MHz and 2 500-2 690 MHz bands for IMT-2000 and other advanced communication applications are being conducted in many countries and in ITU-R, the results of which may impact the availability of those bands in those countries.]

[**S5.SAT** The bands 1525-1544 MHz, 1545-1559 MHz, 1 610-1 626.5 MHz, 1626.5-1645.5, 1646.5-1660.5 MHz, [1 980-2 010 MHz, 2 170-2 200 MHz,] and 2 483.5-2 500 MHz allocated to the MSS on a worldwide basis and the bands 2 010-2 025 MHz, and 2 160-2 170 MHz allocated to MSS in Region 2, are available for use for the satellite component of IMT-2000, subject to the provisions related to the mobile-satellite service in these frequency bands. The bands should be made available for IMT-2000 in accordance with Resolution [**212 (Rev.WRC-2000)**].]

[editor's note : S5.SAT doesn't include the 2 500-2 520MHz and 2 670-2 690MHz]

Considering/Noting/Recognizing

that safety communications of the Global Maritime Distress and Safety System and the Aeronautical Mobile-Satellite(Route) service have priority over all other MSS communications in accordance with Nos. **S5.353A and S5.357A**;

that IMT-2000 satellite radio transmission technologies are on going study under Resolution ITU-R 47;

that services such as broadcasting-satellite, broadcasting-satellite(sound), mobile-satellite, fixed, including multipoint distribution/communication systems, are in operation or planned, in the band 2 500-2 690 MHz, or in portions of this band;

that services such as mobile services [in primary basis], mobile-satellite services and radiodetermination-satellite service are in operation or planned, in the band the bands 1 525-1 559/1626.5-1660.5 MHz and 1 610-1 626.5/2 483.5-2 500 MHz, or in portions of this band;

that potential sharing and coordination between the satellite component of IMT-2000 and the terrestrial component of IMT-2000, mobile satellite services and other high density applications in other services such as multipoint communication/distribution systems in the bands 2 500-2 520 MHz and 2 670-2 690 MHz bands.

resolves

[that administrations planning to provide additional spectrum for the satellite component of IMT-2000 can consider the use of the following bands: 1 525-1 544, 1545-1559/1626.5-1645.5, 1646.5-1660.5 MHz, 1 610-1 626.5/2 483.5-2 500 MHz and 2 500-2 520/2 670-2 690 MHz for all ITU 3 Regions and [2520-2535/2655-2670 MHz(Region 2)] taking into account the market demand and use and plans by any services to which they are allocated;]

the a future WRC should review this issues taking into account the ITU-R study results;

invites ITU-R

to study the sharing and coordination issues in the above bands related to use of the mobile-satellite allocations for the satellite component of IMT-2000 and the use of this spectrum by the other allocated services including RDSS. The results of these studies should be available for consideration of a future WRC;

- *instructs Director of BR*

to facilitate to the greatest extent possible the completion of these studies and to report the results of these studies within 3 years.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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DRAFTING GROUP 5A-3

Chairperson, Drafting Group 5A-3

CONCLUSION REGARDING AGENDA ITEM 1.6.1 ON THE USE OF HAPS IN IMT-2000

MOD

1 710-2 170 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 710-1 930	FIXED MOBILE S5.380 ADD S5.BBB S5.149 S5.341 S5.385 S5.386 S5.387 S5.388	
1 930-1 970 FIXED MOBILE ADD S5.BBB S5.388	**1 930-1 970** FIXED MOBILE ADD S5.BBB Mobile-satellite (Earth-to-space) S5.388	**1 930-1 970** FIXED MOBILE ADD S5.BBB S5.388
1 970-1 980	FIXED MOBILE ADD S5.BBB S5.388	
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 ADD S5.BBB S5.388	**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 ADD S5.BBB S5.388

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 ADD S5.BBB SPACE RESEARCH (deep space) (Earth-to-space) S5.388	
2 120-2 160 FIXED MOBILE ADD S5.BBB S5.388	**2 120-2 160** FIXED MOBILE ADD S5.BBB Mobile-satellite (space-to-Earth) S5.388	**2 120-2 160** FIXED MOBILE ADD S5.BBB S5.388
2 160-2 170 FIXED MOBILE ADD S5.BBB S5.388 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 ADD S5.BBB S5.388

ADD

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 International Mobile Telecommunications 2000 (IMT-2000) ~~[in accordance with Resolution [COM5/13] (WRC-2000).] [(See Resolution [COM5/13] (WRC-2000).)]~~ [Such use shall comply with the provisions of Resolution **[COM5/13] (WRC-2000).]** [These bands are allocated to the fixed, mobile and 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 S11.8A g) if that assignment is to be used for a high altitude platform station.]~~

ADD

RESOLUTION [COM5/13] (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 the bands 1 885-2 025 MHz and 2 110-2 200 MHz, are identified in No. **S5.388** as 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;

b) that a high altitude platform station ~~(HAPS)~~ is defined in No. **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 high altitude platform stations~~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 the use of high altitude platform stations~~HAPS~~ as base stations of terrestrial IMT-2000 is optional for administrations and that such use should not have any priority over other terrestrial IMT-2000 use;

e) that, in accordance with [No. **MOD S5.388** and Resolution **IMT (WRC-2000)**] [No. **S5.388** and Resolution **212 (Rev. WRC-97)**], 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;

f) that these bands are allocated to the fixed and mobile services on a co-primary basis;

g) that ITU-R has studied sharing and coordination between high altitude platform stations~~HAPS~~ and other stations within IMT-2000, has considered compatibility of high altitude platform stations within IMT-2000 with services allocated in the adjacent bands, and has established Recommendation ITU-R M.1456;

h) that ITU-R did not address sharing and coordination between high altitude platform stations~~HAPS~~ and some existing systems, particularly PCS (Personal Communications Service) ~~and~~, MMDS (Multichannel Multipoint Distribution Service) and systems in the fixed service, which are currently operating in some administrations in the bands 1 885-2 025 MHz and 2 110-2 200 MHz;

j) that in accordance with No. **S5.BBB**, HAPS may be used as base stations 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 [The use by HAPS 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],

recognis~~no~~ting

that the value in *resolves* 1~~b)~~ may not be appropriate for the protection of some stations operating in these bands in the fixed and mobile services,

resolves

~~b)~~1 that a high altitude platform station~~HAPS~~ operating as a base station to provide IMT-2000 ~~[~~shall~~]~~ ~~[should]~~ not exceed a provisional value co-channel power flux-density (pfd) level of –121.5 dB (W/(m^2/MHz)) on the Earth's surface outside an administration's borders unless agreed otherwise with the affected neighbouring administration;

2 that such a high altitude platform station shall, as of the end of WRC-03, comply with the limits revised, if appropriate, by WRC-03, irrespective of the date of notification;

~~1~~3 that administrations wishing to implement high altitude platform stations~~HAPS~~ within a terrestrial IMT-2000 system ~~[~~shall conform with the following~~]~~ ~~[(see Recommendation ITU-R M.1457) should give due consideration to the minimum performance characteristics and operational conditions given in Recommendation ITU-R M.1456, in particular]~~:

a) ~~that~~ for the purpose of protecting certain stations operating within IMT-2000 in neighbouring administrations from co-channel interference, administrations using high altitude platform stations~~HAPS~~ as base stations to IMT-2000 shall use antennae that comply with the following antenna pattern:

$G(\psi) = G_m - 3(\psi/\psi_b)^2$	dBi	for	$0° \le \psi \le \psi_1$
$G(\psi) = G_m + L_N$	dBi	for	$\psi_1 < \psi \le \psi_2$
$G(\psi) = X - 60\log(\psi)$	dBi	for	$\psi_2 < \psi \le \psi_3$
$G(\psi) = L_F$	dBi	for	$\psi_3 < \psi \le 90°$

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)

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

$\psi_2 = 3.745\ \psi_b$ degrees

$X = G_m + L_N + 60\log(\psi_2)$ dB

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

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

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

where G_m is the peak aperture gain (dBi);

~~b) that a HAPS operating as a base station to provide IMT-2000 [shall] [should] not exceed a co-channel power flux-density (pfd) 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;~~

c) ~~that~~ a high altitude platform station~~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~~]~~ ~~[should]~~ not exceed an out-of-band pfd 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;

d) ~~that~~ a high altitude platform station~~HAPS~~ operating as a base station to provide IMT-2000, in order to protect fixed stations from interference, ~~[~~shall~~]~~ ~~[should]~~ not exceed an out-of-band pfd 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 (θ - 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,

~~[~~2~~]~~3. that administrations wishing to implement high altitude platform stations~~HAPS~~ within a terrestrial IMT-2000 system shall, prior to notification under Article **S11**, take into account in their bilateral consultations with administrations of neighbouring countries, the operation and growth of existing systems in the mobile service and systems in the other services allocated on a primary basis,~~]~~

4~~3~~. that administrations wishing to implement high altitude platform stations~~HAPS~~ within a terrestrial IMT-2000 system shall, pending the review by WRC-2002~~0~~/03 of the studies mentioned below, for the purpose of protecting fixed service stations operating in neighbouring administrations from co-channel interference, take full account of the relevant ITU-R Recommendations relating to protection values for fixed stations (see Recommendation ITU-R F.758);

invites ITU-R

to complete, as a matter of urgency, additional studies of high altitude platform station~~HAPS~~ sharing 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,~~ and to report on the results of these studies on time for consideration of WRC-2002/03 to allow revision of the values in *resolves 1*,

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WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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AD HOC GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

Informal Group - GT PLEN-1 - 1B

REGIONS 1 AND 3 BSS/BSS SHARING

1 Terms of reference

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 37 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.

David C. NETTERVILLE
Coordinator for the Informal Group

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 (Ew)

$e.i.r.p._{interfering}$: e.i.r.p. of the interfering emission of a broadcasting-satellite space station at the test point considered (Ei)

[D_e: Equivalent antenna diameter (in metres) at the test point considered: the earth station antenna diameter required to obtain the same carrier to thermal noise ratio as a 60 cm antenna pointed at a BSS satellite providing an e.i.r.p. of [54.5] dBW into the same test point under clear-sky conditions.

$$D_e = 0.6 \times 10^{(54.5 - e.i.r.p._{wanted})/20}]$$

[It is proposed to establish a minimum antenna diameter of 45 cm.]

$G_{owanted}$: On-axis gain of the [equivalent] antenna at the test point considered, assuming a 65% efficiency.

$G_{\theta wanted}$: Co-polar of 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 = Ew – free space path loss for the wanted path - Ei + free space path loss on the interfering path + $G_{owanted} - G_{\theta wanted} - K$

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.

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WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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DRAFTING GROUP 5A-4

Chairperson, Drafting Group 5A-4

CONCLUSIONS REGARDING AGENDA ITEM 1.6.1 ON THE SATELLITE COMPONENT FOR IMT-2000

1 Method without a Footnote

ADD

RESOLUTION [COM 5/SAT] (WRC-2000)

Use of additional frequency bands for the satellite component of IMT-2000 [and appropriate transitional arrangements]

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the bands 1 980-2 010 MHz and 2 170-2 200 MHz are identified for use by the satellite component of International Mobile Telecommunications 2000 (IMT-2000) through No. **S5.388** and Resolution **212 (Rev. WRC-97)**;

b) Resolutions **212 (Rev. WRC-97)**, **[COM 5/24] (WRC-2000)** and **[COM 5/25] (WRC-2000)** on the implementation of the terrestrial and satellite components of IMT-2000;

c) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz are allocated on a primary basis to the mobile-satellite service;

d) that safety communications of the Global Maritime Distress and Safety System and the Aeronautical Mobile-Satellite(Route) service have priority over all other mobile-satellite service communications in accordance with Nos. **S5.353A and S5.357A**,

noting

Resolution ITU-R 47 on studies underway on satellite radio transmission technologies for IMT-2000,

recognizing

a) that services such as broadcasting-satellite, broadcasting-satellite (sound), mobile-satellite, fixed (including point-to-multipoint distribution/communication systems) and mobileare in operation or planned, in the band 2 500-2 690 MHz, or in portions of this band;

b) that other services such as mobile services and radiodetermination-satellite service are in operation or planned in the bands 1 525-1 559/1626.5-1660.5 MHz and 1 610-1 626.5/2 483.5-2 500 MHz, or in portions of these bands and that these bands or portions thereof are intensively used in some countries by applications other than IMT-2000 satellite component, and the sharing studies within ITU-R are not finished;

c) that the study of potential sharing and coordination between the satellite component of IMT-2000 and the terrestrial component of IMT-2000, mobile-satellite services and other high density applications in other services such as point-to-multipoint communication/distribution systems, in the bands 2 500-2 520 MHz and 2 670-2 690 MHz bands need to be fully addressed,

resolves

----------option A:

1 that the bands 2 500-2 520 MHz and 2 670-2 690 MHz as identified for IMT-2000 in No. S5.AAA (Dco. 360) and allocated to the mobile-satellite service, may be used by administrations wishing to implement the satellite component of IMT-2000, however, depending on market developments, it may be possible in the longer term for bands 2 500-2 520 MHz and 2 670-2 690 MHz to be used by the terrestrial component of IMT-2000;

2 that, in addition to the frequency bands indicated in *considering* a*)* and *resolves* 1, the frequency bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz on a worldwide basis [and the bands 2 520-2 535 MHz and 2 655-2 670 MHz in the United States], may be used by administrations wishing to implement the satellite component of IMT-2000, subject to the regulatory provisions related to the mobile-satellite service in these frequency bands;

----------option B:

1 that, in addition to the bands 1 980-2 010 MHz and 2 170-2 200 MHz (see No. **S5.388** and Resolution **212 (Rev. WRC-97)**, the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, and 2 483.5-2 500 MHz, 2 500- 2 520 MHz, 2 670-2 690 MHz allocated to the mobile-satellite service on a worldwide basis [and the bands 2 520-2 535 MHz and 2 655-2 670 MHz in the United States], may be used by administrations wishing to implement the satellite component of IMT-2000, subject to the regulatory provisions related to the mobile-satellite service in these frequency bands;

---

2 or 3 that the identification of bands for the satellite component of IMT-2000 should be reviewed by a future WRC in the light of the results of ITU-R studies,

[3 or 4 that the the usage of these bands by the satellite component of IMT-2000 should not begin before the end of the above mentioned ITU-R studies,]

[further resolves

that taking into account No. **S5.SAT**, to facilitate the introduction and future use of the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz by the satellite component of IMT-2000, (not precluding the use of these bands for other mobile-satellite service applications):

- administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after [1 January 2002], do not overlap with the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz;
- administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz to non-overlapping bands, giving priority to the transfer of their frequency assignments from the MSS uplink band 2 670-2 690 MHz, considering the technical, operational and economic aspects.]

invites ITU-R

to study the sharing and coordination issues in the above bands related to use of the mobile-satellite allocations for the satellite component of IMT-2000 and the use of this spectrum by the other allocated services including the radiodetermination-satellite service and that the results of these studies should be available for consideration by a future WRC,

instructs the Director of the Radiocommunication Bureau

to facilitate to the greatest extent possible the completion of these studies.

2 Method with a Footnote

MOD

1 525-1 610 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 525-1 530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT Earth exploration-satellite Mobile except aeronautical mobile S5.349 S5.341 S5.342 S5.350 S5.351 S5.352A S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	**1 525-1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT Earth exploration-satellite Mobile S5.349 S5.341 S5.351 S5.352A S5.354
1 530-1 535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A ADD S5.SAT Earth exploration-satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530-1 535** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.353A ADD S5.SAT Earth exploration-satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT S5.341 S5.351 S5.353A S5.354 S5.355 S5.356 S5.357 S5.357A S5.359 S5.362A	

MOD

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372
1 626.5-1 660	MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT S5.341 S5.351 S5.353A S5.354 S5.355 S5.357A S5.359 S5.362A S5.374 S5.375 S5.376	

MOD

1 660-1 710 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 660-1 660.5	MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.362A S5.376A	

MOD

2 170-2 520 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402	**2 483.5-2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) ADD S5.SAT RADIOLOCATION Radiodetermination-satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402
2 500-2 520 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 ADD S5.SAT S5.405 S5.407 S5.408 S5.412 S5.414	**2 500-2 520** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 ADD S5.SAT S5.404 S5.407 S5.414 S5.415A	

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[ADD S5.SAT]	**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
2 655-2 670 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.412 S5.417 S5.420	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420[ADD S5.SAT]	**2 655-2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.420
2 670-2 690 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420	**2 670-2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) ADD S5.SAT Earth exploration-satellite (passive) Radio astronomy Space research (passive) S5.149 S5.419 S5.420 S5.420A

ADD

S5.SAT In addition to the bands 1 980-2 010 MHz and 2 170-2 200 MHz (see No. **S5.388** and Resolution **212 (Rev. WRC-97)**, the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, and 2 483.5-2 500 MHz, 2 500- 2 520 MHz, 2 670-2 690 MHz allocated to the mobile-satellite service on a worldwide basis [and the bands 2 520-2 535 MHz and 2 655-2 670 MHz in the United States], may be used by administrations wishing to implement the satellite component of International Mobile Telecommunications 2000 (IMT-2000) in accordance with Resolution **[COM 5/SAT] (WRC-2000)**, subject to the regulatory provisions related to the mobile-satellite service in these frequency bands.

ADD

RESOLUTION [COM 5/SAT] (WRC-2000)

Use of additional frequency bands for the satellite component of IMT-2000 [and appropriate transitional arrangements]

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that the bands 1 980-2 010 MHz and 2 170-2 200 MHz are identified for use by the satellite component of International Mobile Telecommunications 2000 (IMT-2000) through No. **S5.388** and Resolution **212 (Rev. WRC-97)**;

b) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5, 1 646.5-1 660.5 MHz, and 2 483.5-2 500 MHz, 2 500- 2 520 MHz, 2 670-2 690 MHz allocated to the mobile-satellite service on a worldwide basis [and the bands 2 520-2 535 MHz and 2 655-2 670 MHz in the United States], were identified by this Conference as additional bands for use by IMT-2000 through No. **S5.SAT**;

c) Resolutions **212 (Rev. WRC-97)**, **[COM 5/24] (WRC-2000)** and **[COM 5/25] (WRC-2000)** on the implementation of the terrestrial and satellite components of IMT-2000;

d) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz are allocated on a primary basis to the mobile-satellite service;

e) that safety communications of the Global Maritime Distress and Safety System and the Aeronautical Mobile-Satellite(Route) service have priority over all other mobile-satellite service communications in accordance with Nos. **S5.353A and S5.357A**,

noting

Resolution ITU-R 47 on studies underway on satellite radio transmission technologies for IMT-2000,

recognizing

a) that services such as broadcasting-satellite, broadcasting-satellite (sound), mobile-satellite, fixed (including point-to-multipoint distribution/communication systems) and mobileare in operation or planned, in the band 2 500-2 690 MHz, or in portions of this band;

b) that other services such as mobile services and radiodetermination-satellite service are in operation or planned in the bands 1 525-1 559/1626.5-1660.5 MHz and 1 610-1 626.5/2 483.5-2 500 MHz, or in portions of these bands and that these bands or portions

thereof are intensively used in some countries by applications other than IMT-2000 satellite component, and the sharing studies within ITU-R are not finished;

c) that the study of potential sharing and coordination between the satellite component of IMT-2000 and the terrestrial component of IMT-2000, mobile-satellite services and other high density applications in other services such as point-to-multipoint communication/distribution systems, in the bands 2 500-2 520 MHz and 2 670-2 690 MHz bands need to be fully addressed,

resolves

that the identification of bands for the satellite component of IMT-2000 should be reviewed by a future WRC in the light of the results of ITU-R studies,

[futher resolves

that taking into account No. **S5.SAT**, to facilitate the introduction and future use of the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz by the satellite component of IMT-2000, (not precluding the use of these bands for other mobile-satellite service applications):

- administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after [1 January 2002], do not overlap with the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz;
- administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the frequency bands 2 500-2 520 MHz and 2 670-2 690 MHz to non-overlapping bands, giving priority to the transfer of their frequency assignments from the MSS uplink band 2 670-2 690 MHz, considering the technical, operational and economic aspects.]

invites ITU-R

to study the sharing and coordination issues in the above bands related to use of the mobile-satellite allocations for the satellite component of IMT-2000 and the use of this spectrum by the other allocated services including the radiodetermination-satellite service and that the results of these studies should be available for consideration by a future WRC,

instructs the Director of the Radiocommunication Bureau

to facilitate to the greatest extent possible the completion of these studies.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

Document DL/68(Rev.1)-E
24 May 2000
Original: English only

DRAFTING GROUP 1
OF 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-~~97~~2000)

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, 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 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~~e) that it was not possible during WRC-2000 to analyse ~~fully~~ the effect of all assignments for which ~~were received~~[complete Appendix S4 coordination data had been submitted with dates of receipt before ~~27 October 1997~~31 July 2000 ~~but which had not been processed at the time of this Conference~~;

~~e~~f) 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 currently provided under the Radio Regulations;

b) that the compatibility between the BSS in Regions 1 and 3 and services having 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**;

~~*c)*~~*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 ~~c~~Circular ~~l~~Letter;

3 that once the ~~c~~Circular ~~l~~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;

~~5~~4 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~~,~~;

~~4~~5 that the new coordination requirements implicitly contained in the Plan are identified in the above-mentioned ~~c~~Circular ~~l~~Letter ~~shall apply provisionally from the date of the above-mentioned circular letter until a decision is taken by WRC-99~~;

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 and the Region 2 Plan,

~~*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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

DRAFTING GROUP 1
OF 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. Check this with BR; previous version of Resolution 53 was not included in Article 59.]

Murray DELAHOY
Chairperson, Drafting Group 1 of
GT PLEN-1
Box 618

RESOLUTION 53 (Rev.WRC-~~97~~2000)

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, 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 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~~e) that it was not possible during WRC-2000 to analyse ~~fully~~ the effect of all assignments for which ~~were received~~[complete Appendix S4 coordination data had been submitted with dates of receipt before ~~27 October 1997~~31 July 2000 ~~but which had not been processed at the time of this Conference~~;

~~e~~f) 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;

b) 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**;

c) 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 as described in the Annex to this Resolution;

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 ~~e~~Circular ~~l~~Letter;

3 that once the ~~e~~Circular ~~l~~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 table;

~~5~~4 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~~,~~;

~~4~~5 that the new coordination requirements implicitly contained in the Plan are identified in the above-mentioned ~~e~~Circular ~~l~~Letter ~~shall apply provisionally from the date of the above-mentioned circular letter until a decision is taken by WRC-99~~;

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 above-mentioned Circular Letter, would be subject to an examination by the Bureau with respect to its compatibility with other services having primary allocations in the planned bands and the Region 2 Plan,

~~*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.

ANNEX

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

4*bis* In cases where assignments from the WRC-97 Plan 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 other cases the methodology described in Notes 5 to 7 shall be applied.

5 This assignment shall be brought into use only w hen 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 with a favourable finding; or those which have been coordinated under the provisions of No. **1060** or **S9.7** or § 7.2.1 of Appendix **S30**; or those that are in process of coordination under the provisions of No. **1060** or **S9.7** or § 7.2.1 of Appendix **S30** prior to ~~27 October 1997.~~[31 July 2000 for which the following conditions apply:

that complete Appendix **S4** data (or Appendix **3** data, as appropriate) will have been received by the Bureau under the relevant provisions of Article **S9** (or Article **11**, as appropriate) 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 of section 8 below.

However, assignments for which complete coordination information according to **APS4** has been received by the Bureau after 12 May 2000, 1700 hours, (Istanbul time) shall be taken into account, by applying the same sharing criteria of –138 dB(W/m^2/27 MHz) or the pfd values in section 8, 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~~[12 May 2000] [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.

TABLE 1

Symbol	Criteria
a	§ 3 of Annex 1*
b	[§ ~~4, 5 *a)* and 5 *b)*~~] of Annex 1*
c	~~§ 6 of Annex 1*~~the limit criteria given below:

* These paragraphs and this Annex are contained in the Radio Regulations in force at the ~~time~~end of WRC-~~97~~2000.

[For Regions 1 and 3 BSS → Region 2 FSS:

–160 dB(W/m^2/27 MHz)	$0 < \theta < 0.054°$
(–137.46 + 17.74 log θ) dB(W/m^2/27 MHz)	$0.054° \leq \theta < 367°$
(–141.56 + 25 log θ) dB(W/m^2/27 MHz)	$3.67° \leq \theta < 11.54°$
(–115 dB(W/m^2/27 MHz)	$11.54° \leq 0$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space stations.

For Region 1 BSS → Region 3 FSS:

–160 dB(W/m^2/27 MHz)	$0 < \theta < 0.054°$
(–137.46 + 17.74 log θ) dB(W/m^2/27 MHz)	$0.054° \leq \theta < 3.67°$
[(–141.56 + 25 log θ) dB(W/m^2/27 MHz) (see NOTE 1)	$3.67° \leq \theta < 24.12°$
(–107 dB(W/m^2/27 MHz) (see NOTE 1)]	$24.12° \leq \theta$

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 between the interfering BSS and the interfered with FSS space stations.]

Modifications to notes included in Article 9A of Appendix S30A

2bis In cases where assignments from the WRC-97 Plan 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.

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~~[12 May 2000] with a favourable finding; or

b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[12 May 2000] for recording in the Master Register and which subsequently receives a favourable finding based on the Plan as it existed on ~~27 October 1997~~[12 May 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~~[12 May 2000] with a favourable finding; or

b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[12 May 2000] for recording in the Master Register and which subsequently receives a favourable finding based on the Regions 1 and 3 feeder-link Plan as it existed on ~~27 October 1997~~[12 May 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%.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

AD HOC GROUP 1 OF WORKING GROUP 1 OF THE PLENARY

Chairperson, ad hoc Group 1 of the Plenary

MODIFICATION OF ANNEX 5 TO APPENDIX S30

With respect to WRC-2000 agenda item 1.19, ad hoc Group 1 of the Plenary has been reviewing Annex 5 to Appendix S30 and incorporating the required modifications into this annex:

MOD

ANNEX 5

Technical data used in establishing the provisions and associated Plans, the List and which should be used for their application[22]

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.~~5~~6 to 1.11 are applicable to Region 2.

MOD

[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.

1.11 Overall equivalent protection margin[24]

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.

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] is [are] based on digital modulation of sound and television signals.

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[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

3.4 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, 28*bis*]:

– 24 dB for co-channel signals;

– 16 dB for adjacent channel signals;

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.

---

[27] These protection ratio values may be 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:

$$\frac{\text{wanted power}}{\text{sum of the co-channel interfering powers}} \text{ (dB)} - \text{co-channel protection ratio (dB)}$$

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.

[28*bis*] These protection ratio values may be 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 12 May 2000.

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 dB[29].

WRC-2000 adopted 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.

These values were used for all assignments of the WRC-2000 Regions 1 and 3 BSS Plan 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*. WRC-2000 Regions 1 and 3 Plan is 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 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 MHz[34], 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.

---

[29] The overall protection margin calculation method used is based on the first formula in § 1.12 of Annex 3 to Appendix **S30A**.

[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.

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 as adopted by the Radio Regulations Board.

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, for analogue emissions the guardbands assume 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~~The coordination procedure described in Article 2 of this Appendix shall be applied for assignments transmitting in the guardbands.

MOD

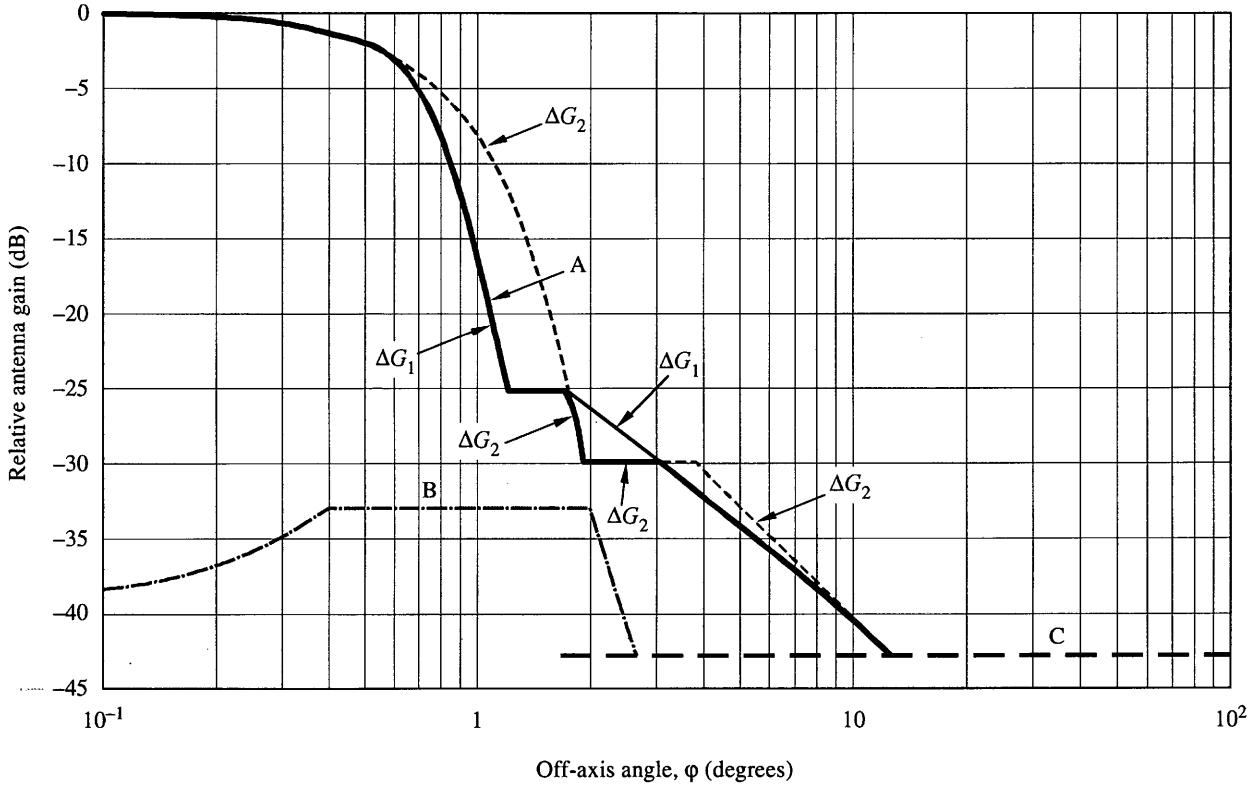
3.13.3 Transmitting antenna reference patterns

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.

FIGURE 13

Improved fast roll-off satellite transmitting antenna pattern for Regions 1 and 3



——— Regions 1 and 3 transmitting fast roll-off co-polar (Curve ΔG_1)

——— Improved fast roll-off co-polar (Curve A defined as ΔG below)

- - - - - - - - Regions 1 and 3 transmitting co-polar (Curve ΔG_2)

—·—·—·— Improved fast roll-off cross-polar (Regions 1 and 3 transmitting cross-polar) (Curve B)

— — — Curve C (minus the on-axis gain)

Note 1 – The diagram gives the example curves in case of a satellite antenna beamwidth of $\varphi_0 = 1.2°$ (circular).

1445-01

Curve A: co-polar relative gain $\Delta G = \min(\Delta G_1, \Delta G_2)$ (dB):

where:

$$\Delta G_1 = -12(\varphi/\varphi_0)^2 \quad \text{for } 0 \le (\varphi/\varphi_0) \le 0.5$$

$$\Delta G_1 = -12\left(\frac{\frac{\varphi}{\varphi_0} - x}{\frac{B_{min}}{\varphi_0}}\right)^2 \quad \text{for } 0.5 < (\varphi/\varphi_0) \le \left(\frac{1.45}{\varphi_0} B_{min} + x\right)$$

$\Delta G_1 = -25.3$ for $\left(\frac{1.45}{\varphi_0} B_{min} + x\right) < (\varphi/\varphi_0) \leq 1.45$

$\Delta G_1 = -(22 + 20 \log(\varphi/\varphi_0))$ for $(\varphi/\varphi_0) > 1.45$

$\Delta G_1 = -(G_{on-axis})$ after intersection with Curve C

$\Delta G_2 = -12(\varphi/\varphi_0)^2$ for $0 \leq \varphi \leq 1.58\ \varphi_0$

$\Delta G_2 = -30$ for $1.58\ \varphi_0 < \varphi \leq 3.16\ \varphi_0$

$\Delta G_2 = -(17.5 + 25 \log(\varphi/\varphi_0))$ for $\varphi > 3.16\ \varphi_0$

$\Delta G_2 = -(G_{on-axis})$ after intersection with Curve C

Curve B: cross-polar relative gain (dB):

$-\left(40 + 40 \log\left|\frac{\varphi}{\varphi_0} - 1\right|\right)$ for $0 \leq \varphi \leq 0.33\ \varphi_0$

-33 for $0.33\ \varphi_0 < \varphi \leq 1.67\ \varphi_0$

$-\left(40 + 40 \log\left|\frac{\varphi}{\varphi_0} - 1\right|\right)$ for $\varphi > 1.67\ \varphi_0$

$-(G_{on-axis})$ 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

$X = 0.5\left(1 - \frac{B_{min}}{\varphi_0}\right)$

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

For Regions 1 and 3 the orbital separation limit of [9] degrees shall be applied for the calculation of the equivalent protection margin. Beyond this limit no interference was taken into account.

C. DOSCH
Chairperson, ad hoc Group 1
of the Plenary, Box 751

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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WORKING GROUP 4A

Chairperson, ad hoc Group 1 of the Plenary

MODIFICATION OF ANNEX 3 TO APPENDIX S30A

With respect to WRC-2000 agenda item 1.19, ad hoc Group 1 of the Plenary has been revieving the Annex 3 to Appendix S30A and incorporating the required modifications into this annex:

MOD

ANNEX 3*

Technical data used in establishing the provisions and associated Plans and the List and which should be used for their application[19]

[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.

MOD

1.7 Feeder-link equivalent protection margin for Regions 1 and 3[20]

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.

MOD

1.12 Overall equivalent protection margin

The overall equivalent protection margin M is given in dB by the expression[22]:

$$M = -10 \log \left(\sum_{i=1}^{n} 10^{(-M_i/10)} \right)$$

where:

n is generally equal to 3 for Regions 1 and 3, n is equal to 5 for Region 2;

---

[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~~ 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.

[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.

M_1:overall co-channel protection margin (dB) (as defined in § 1.9);

M_2, M_3: overall adjacent channel protection margins for the upper and lower adjacent channels, respectively (dB) (as defined in § 1.10);

M_4, M_5: 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.

The values of the protection ratios used for the 1988 feeder-link Plan were as follows:

R_{cu} = 40 dB

R_{cd} = 31 dB

R_{co} = 30 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 dB

R_{cd} = 24 dB

R_{co} = 23 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**.

[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~~.

WRC-2000 apllied the following protection ratio values for development WRC-2000 Regions 1 and 3 feeder-link Plan:

R_{cu} = 27 dB

R_{cd} = 21 dB

R_{co} = 22 dB

MOD

3.1 Translation frequency and guardbands

a) *17 GHz feeder-links*

The feeder-link Plan generally uses a frequency translation of 5.6 GHz between the 17 GHz feeder-link channels and the 12 GHz downlink channels. Other values of the translation frequency may be used, provided that the corresponding channels have been assigned to the space station of the administration concerned.

With the value of frequency translation between the feeder-link frequency band (17.3-18.1 GHz in Regions 1 and 3) and the downlink frequency band (11.7-12.5 GHz in Region 1 and 11.7-12.2 GHz in Region 3), the guardbands specified in § 3.9 of Annex 5 to Appendix **S30** for the downlink Plan result in corresponding guardband bandwidths of 11 MHz at the upper and 14 MHz at the lower feeder-link band edges. These feeder-link guardbands may be used for transmissions in the space operation service.

The coordination procedure described in the Article 2 of this Appendix shall be applied for assignments transmitting in the guardbands.

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 margins[24]:

– 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

[24] These protection ratio values may be 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.

alternative formula for overall equivalent protection margin given in § 1.12 are specified in Recommendation ITU-R BO.1297, as follows[24bis]:

– 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*.

WRC-2000 adopted 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:

– 27 dB for co-channel signals;

– 22 dB for adjacent channel signals.

These values were used for all assignments of the WRC-2000 Regions 1 and 3 BSS Plan except those, for which WRC-2000 adopted different values 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.

[24bis] These protection ratio values may be 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 12 May 2000.

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

Reason: 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

Reason: 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

3.16 Orbital separation limit for interference calculation

For Regions 1 and 3 the orbital separation limit of [9] degrees shall be applied for the calculation of the equivalent protection margin. Beyond this limit no interference was taken into account.

C. Dosch
Chairperson of ad hoc Group 1 of the Plenary
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INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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WORKING GROUP 5C

Chairperson, Drafting Group 5C-3-RA

RESOLUTION [COM5/27]

Development of the technical basis for coordination of radio stations with transmitting high-density fixed systems (HDFS) in the fixed service, in the band 42.5-43.5 GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that that this Conference decided that the band 42.5-43.5 GHz, which is allocated to the fixed service, should become available for high-density applications;

b) that the 42.5-43.5 GHz band is also allocated to the radio astronomy service on a primary basis worldwide, and it is intensively used for both continuum and spectral line observations, at a limited number of sites;

c) that radio astronomy observatories operating in the band are generally located far from urban population centres, employ very high-gain antennas and very low-noise amplifiers to receive extremely weak cosmic radio emissions over which astronomers have no control;

d) that HDFS stations are expected to be deployed in large numbers over areas of large geographical extent in urban population centres;

e) that studies are being initiated to characterize short-term anomalous propagation from transmitting stations dispersed over a large geographical area to a single receiving earth station (area-to-point propagation);

f) that no studies are yet available on the coordination distance that may be required to protect a radio astronomy station from HDFS transmissions associated with a single urban population centre, but that based on preliminary studies made at lower frequencies a provisional coordination distance of 250 km may be appropriate,

resolves to request ITU-R

1 to conduct studies on the coordination distance required to protect radio astronomy stations operating in the 42.5-43.5 GHz band from HDFS stations associated with single urban populations over a large geographical area;

2 to report on the result of those studies to the next competent conference, with a view to determine the radius to be used in coordination between HDFS systems and radio astronomy stations operating in the 42.5-43.5 GHz band,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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AD-HOC GROUP 1 OF
WORKING GROUP 1 OF THE
PLENARY

Chairperson, Ad-hoc Group 1 of the Plenary

Please find attached proposed modifications to APS30.

Christoph Dosch
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Box 751

ANNEX 1

Limits for determining whether a service of an administration is affected by a proposed modification to the Plans or when it is necessary under this Appendix to seek the agreement of any other administration[13]

(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~~ 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 Acts[14], whichever is the lower.][may be revised based on work in D. Netterville's group]

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 margin[15] 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:

- the Region 2 Plan as established by the 1983 Conference; *or*
- a modification of the assignment in accordance with this Appendix; *or*

---

[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.

- 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 to the Regions 1 and 3 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 $0° \leq \theta < 0.44°$;
$-138 + 25 \log \theta$ dB(W/m^2/27 MHz)	for $0.44° \leq \theta < 19.1°$;
-106 dB(W/m^2/27 MHz)	for $\theta \geq 19.1°$;

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.

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

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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**.

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:

-148 dB(W/m^2/4 kHz) for $\theta \leq 5°$;

$-148 + 0.5\,(\theta - 5)$ dB(W/m^2/4 kHz) for $5° < \theta \leq 25°$;

-138 dB(W/m^2/4 kHz) for $25° < \theta \leq 90°$;

where θ represents the angle of arrival.

~~–125 dB(W/m^2/4 kHz) when the broadcasting satellite station uses circular polarization, *and*,~~

~~–128 dB(W/m^2/4 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 3~~[16]

~~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 1~~[17] ~~and 3 and for any arrival angle γ:~~

~~–125 dB(W/m^2/4 kHz) for broadcasting satellite space stations using circular polarization;~~

~~–128 dB(W/m^2/4 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° E~~[18]~~:~~

~~–132 dB(W/m^2/5 MHz) for $0° \leq \gamma < 10°$;~~

~~$-132 + 4.2\,(\gamma - 10)$ dB(W/m^2/5 MHz) for $10° \leq \gamma < 15°$;~~

~~–111 dB(W/m^2/5 MHz) for $15° \leq \gamma < 90°$;~~

~~*c)* in the frequency band 12.2-12.7 GHz for territories of administrations in Region 1~~[17]~~, east of longitude 30° E:~~

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**.

~~–134 dB(W/m²/5 MHz) for γ = 0°;~~

~~–134 + 4.6975 γ² dB(W/m²/5 MHz) for 0° < γ ≤ 0.8°;~~

~~–128.5 + 25 log γ dB(W/m²/5 MHz) for γ > 0.8°;~~

~~*d)* in the frequency band 12.5-12.7 GHz for all the territories of administrations of Regions 1[17] and 3:~~

~~–148 dB(W/m²/4 kHz) for γ = 0°;~~

~~–148 + 4.6975 γ² dB(W/m²/4 kHz) for 0° < γ ≤ 0.8°;~~

~~–142.5 + 25 log γ dB(W/m²/4 kHz) for γ > 0.8°;~~

~~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 List~~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 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 dB(W/m²/27 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 dB(W/m²/4 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 [GTPlen1/1] (WRC-2000) should be applied 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/m^2).~~

~~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/m^2).~~

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 7.2~~7.2.1~~ 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 7.2~~7.2.1~~ 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 dB(W/m^2/27 MHz)	for $0° \leq \theta < 0.44°$;
$-138 + 25 \log \theta$ dB(W/m^2/27 MHz)	for $0.44° \leq \theta < 19.1°$;
-106 dB(W/m^2/27 MHz)	for $\theta \geq 19.1°$;

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 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.

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

Orbital position	37° W to 36° W	33.5° W to 32.5° W	30° W to 29° W	26° W to 24° W	20° W to 18° W	14° W to 12° W	8° W to 6° W	[3.8° W to 4.2° W]	2° W to 0°	4° E to 6° E

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

Orbital position	37° W	33.5° W	30° W	25° W ± 0.2°	19° W ± 0.2°	13° W ± 0.2°	7° W ± 0.2°	[4° W ± 0.2°]	1° W ± 0.2°	5° E ± 0.2°

[NOTE - Modifications to the list which involve orbital positions additionally used by the WRC-2000 Plans shall not exceed the pfd limit as given in the first set of formulae of section 2.1.5 (a).]}

~~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.~~

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**.)

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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AD-HOC GROUP 1 OF
WORKING GROUP 1 OF THE
PLENARY

Chairperson, Ad-hoc Group 1 of the Plenary

Please find attached proposed modifications to APS30A

Christoph Dosch
Chairperson, Ad-Hoc Group 1 to GT PLEN-1
Box 751

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 Plans or when it is necessary under this Appendix to seek the agreement of any other administration

[1 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~~ Appendix S7~~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.][may no longer be needed, based on work in GTPlen1/SWG1]

[2 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 station[9] .

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.][may no longer be needed, based on work in GTPlen1/SWG1]

3 Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 Plan[10]

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

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[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 margin[11] 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[12]

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 margin[13] 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.][may change based on output from D. Netterville's group]

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 administation in Region 2 shall be considered affected by a proposed new or modified assignment in the Regions 1 and 3 Listvice versa when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link station would cause an increase in 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

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[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.

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.

ADD

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 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/m^2/MHz) on the Earth's surface at the equatorial Earth limb.~~

~~2 Not used.~~**2 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..

3 SUP

~~**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**~~

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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WORKING GROUP 5C

Chairperson, Working draft for 5C-3

MOD

[Table S21-4]

Frequency band	Service	Limit in dB(W/m^2) for angle Of arrival (δ) above the horizontal plane			Reference bandwidth
		0° - 5°	5° - 25°	25° - 90°	
37.5-40.0 GHz	Fixed-satellite (Non-geostationary) Mobile-satellite (Non-geostationary)	-120 [10, 16, FSS]	-120 + 0.75(δ-5) [10, 16, FSS]	-105 [10, 16, FSS]	1 MHz
37.5-40.0 GHz	Fixed-satellite (Geostationary) Mobile-satellite (Geostationary)	-127 [16, FSS]	5° - 20°: -127 + (4/3)(δ-5) [16, FSS] 20° - 25°: -107 + 0.4(δ-20) [16, FSS]	-105 [16, FSS]	1 MHz
40-40.5	Fixed-satellite	-115	-115 + 0.5(δ-5)	-105	1 MHz
40.5-42.0 GHz	Fixed-satellite (Non-geostationary)	-115 [10, 16, FSS]	-115 + 0.5(δ-5) [10,16, FSS]	-105 [10, 16, FSS]	1 MHz
40.5-42.0 GHz	Fixed-satellite (Geostationary)	-120 [16, FSS]	5° - 15°: -120+ (δ-5) [16, FSS] 15° - 25°: -110+ 0.5(δ-15) [16, FSS]	-105 [16, FSS]	1 MHz
42.0-42.5 GHz [pending Res.128]	Fixed-satellite (Non-geostationary)	-120 [10, 16, FSS]	-120 + 0.75(δ-5) [10, 16, FSS]	-105 [10, 16, FSS]	1 MHz
42.0-42.5 GHz [pending Res.128]	Fixed-satellite (Geostationary)	-127 [16, FSS]	5° - 20°: -127 + (4/3)(δ-5) [16, FSS] 20° - 25°: -107 + 0.4(δ-20) [16, FSS]	-105 [16, FSS]	1 MHz

MOD

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[10] **S21.16.4** The values given in this table entry shall apply to emissions of space stations of non-geostationary satellites in networks operating with 99 or fewer satellites. Further study concerning the applicability of these values is necessary in order to apply them to networks operating with 100 or more satellites. ~~until such time as modified by a competent world radiocommunication conference~~.

ADD

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[16] **S21.16.10** These values [are provisional and] shall be applied subject to Resolution JJJ. [Pending resolution of the regulatory issue regarding interim implementation]

ADD

S21.16.FSS In the bands 37-40 and 40.5-42.5 GHz, notwithstanding any further studies, the power flux-density limits in this table shall be applied to stations in the fixed-satellite service for which complete coordination (GSO) or notification information (non-GSO), as appropriate, has been received by the Bureau before the end of WRC-03 [and after WRC-2000.]

Footnote for FSS allocations in the 37.5-40 GHz and 42-42.5 GHz bands:

ADD

S5.NGSO In the band[s] 37.5-40 GHz [and 42.0-42.5 GHz], non-GSO FSS systems should employ power control or other methods of downlink fade compensation on the order of 10 dB, such that the satellite transmissions are at power levels required to meet the desired link performance while reducing the level of interference to the fixed service. The use of downlink fade compensation methods are the subject of study by ITU-R (see Resolution JJJ).

RESOLUTION [COM5/28] (WRC-2000)

Power flux-density limits in the bands 37.5-[42.5] GHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

a) that this Conference established [provisional] power flux-density limits for the fixed-satellite service (space-to-Earth) in the bands 37.5-40.0 GHz from 42.0-42.5 GHz and the mobile-satellite service (space-to-Earth) in the band 39.5-40 GHz;

b) that in the band 37.5-42.5 GHz, ITU-R Recommendation SF.1484 recommends power flux-density limits for non-GSO FSS systems;

c) that in the bands 37.5-40.0 GHz and 40.5-42.5 GHz, the power flux-density limits adopted by this Conference for GSO FSS systems are based on ITU-R studies;

d) that this Conference harmonized the allocation to the fixed-satellite service in the band 40.5-42.5 GHz across all Regions;

e) that there exists an allocation to the broadcasting-satellite service on a co-primary basis in the band 40.5-42.5 GHz;

f) that there are no power flux-density limits for BSS in the range 40.5-42.5 GHz;

g) that although sharing is feasible between earth stations in the FSS and terrestrial stations provided appropriate coordination procedures and/or operational techniques are employed, sharing may in practice become difficult when high geographic densities of such stations are deployed in bands heavily used by either service;

noting

a) that Recommendation ITU-R SF.1484 notes that some FS systems employing small net fade margins and which operate at elevation angles greater than 10 degrees in the band 37.5-40 GHz may not be fully protected from interference from FSS systems without unduly constraining FSS systems;

b) that the fixed service parameters for sharing studies are given in Recommendation ITU-R F.758;

c) that new studies taking account of high-density fixed service deployments with new characteristics (as documented in Recommendation ITU-R F.[9/1015]) in some countries have been presented and discussed during this Conference;

d) that the new studies submitted to this Conference, on which consensus has not been reached, identified high-density fixed service protection requirements from GSO and non-GSO FSS systems, that indicate clear-sky pfd protection requirements that are about 13.5 dB more stringent than the table entries in Table **S21-4** for the band 37.5-40 GHz;

e) that footnote S5.NGSO may provide additional protection to the fixed service,

recognizing

a) that some downlink fade compensation techniques, such as adaptive power control, could reduce the operational pfd levels of satellite networks under normal operating conditions while enhancing the ability of fixed-satellite service networks to overcome rain fade;

b) that there is a need for further study to determine the percentage of time during which fade conditions will require downlink fade compensation techniques;

c) that in the band 39.5-42 GHz, some administrations plan to deploy FSS systems using ubiquitous very small aperture terminals,

recognizing further

a) that the use of downlink fade compensation techniques by satellite services may affect the performance of fixed service and fixed-satellite service links operating in unfaded conditions in the same frequency band;

b) that the use of downlink fade compensation techniques affects the design of fixed service links,

resolves

1 that the limits in Table **S21-4** for the bands 37.5-40.0 GHz and 40.5-[42.5] GHz, as revised by this Conference, shall be applied for verification purposes by the Bureau and by administrations [on a provisional basis] as of 2 June 2000;

2 that in the interim period before WRC-03, before an administration brings into use, in Region 2, a frequency assignment for a GSO FSS network in the 37.5-40 GHz band, it shall seek the agreement of any administration where the power flux-density produced on the territory of that administration exceeds the values in Table **S21-4** minus 12 dB [under clear-sky conditions],

urges administrations

to [endeavour to] meet the requirements of footnote S5.[NGSO] [and *noting* [*e)*]],

invites ITU-R

1 taking into account the *resolves*, to conduct as a matter of urgency and in time for WRC-03, studies to determine whether the pfd limits included in Table **S21-4** adequately protect the fixed service in the band[s] 37.5-40 GHz [and 42-42.5 GHz] from space-to-Earth transmissions in the fixed-satellite and mobile-satellite services;

2 taking into account the *resolves,* to conduct as a matter of urgency and in time for WRC-03, studies to determine whether the pfd limits included in Table **S21-4** adequately protect the fixed service in the band 40.5-42.0 GHz from space-to-Earth transmissions in the fixed-satellite services, taking into account the requirements of the fixed-satellite service and *recognizing c)*;

3 to study technical and operational characteristics and pfd values for the broadcasting-satellite service in the range 40.5-42.5 GHz;

4 in conducting studies under *invites ITU-R* 1, 2 and 3 above, to take into account the need to ensure the proper balances of impacts on the fixed service and space services sharing the same band;

5 to conduct as a matter of urgency and taking into account the *considerings* above, studies on the mitigation techniques to improve sharing conditions between space services in the *considerings* above and the FS, taking account of the impact on these space services and the FS;

6 in the bands 37.5-40 GHz [and 42-42.5 GHz], to study the nominal clear-sky pfd levels, and the percentage of time during with they may be exceeded to overcome fading conditions between the satellite and one or more geographically separated earth stations, in order to protect the fixed service while permitting operation of fixed-satellite service earth stations using, e.g., coordinated large antennas, taking into account the balance of constraints on fixed-satellite systems and the fixed service,

7 to report on the results of these studies in time for WRC-03;

requests

WRC-03 to take appropriate action based on the results of these studies.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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ISTANBUL, 8 MAY – 2 JUNE 2000

Note by the Secretary-General

FINAL DAYS OF THE CONFERENCE

The Steering Committee has established a programme for the termination of the conference on 2 June 2000. In this connection, attention is invited to the following:

1 Final Acts

Paper copies of the preliminary version of the Final Acts will be distributed on 2 June 2000 before the signing ceremony to Heads of delegations on the basis of up to a maximum of five copies per delegation and one copy for each Sector Member. A CD-ROM containing all the working documents of the conference and the preliminary version of the Final Acts will also be distributed to each delegate on the same day.

NOTE - Delegates who leave the conference before the signing ceremony are requested to inform the Delegate Registration Service to enable the secretariat to dispatch their CD-ROM after the conference.

2 Declarations concerning the Final Acts

When the last text to be included in the Final Acts of the conference has been approved in second reading by the Plenary Meeting, a time-limit of two hours will be set for the deposit of declarations/reservations concerning the Final Acts.

The declarations/reservations concerning the Final Acts are to be handed in to the Document Control Service (Rumeli level 0/03) for publication in a consolidated document.

The Plenary Meeting will take note **(without debate)** of the declarations/reservations concerning the Final Acts and fix a second deadline of one and a half hours for the deposit of additional declarations/reservations **having regard to the first set of declarations/reservations**.

A subsequent Plenary Meeting will take note **(without debate)** of the additional declarations/reservations.

3 Signing ceremony

Between the final adoption, **in second reading**, of the last texts of the Final Acts and the signing ceremony, **a period of approximately up to 24 hours** is required:

– for the preparation and printing of the Final Acts; and

– for the deposit and publication of the declarations/reservations and additional declarations/reservations, as well as for the Plenary Meeting held to take note of them.

The time of the opening of the signing ceremony will therefore depend on when the last text is cleared in Plenary and will be notified to delegates in the usual manner (i.e. on the daily programme and on the video monitors).

NOTE - Delegations (or members thereof) wishing to sign the Final Acts before the signing ceremony may do so by application to Mme. C. Cailler (Rumeli level 0/03).

Yoshio UTSUMI
Secretary-General

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS

CMR-2000 CONFÉRENCE MONDIALE DES RADIOCOMMUNICATIONS

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ISTANBUL, 8 MAI – 2 JUIN 2000

Note du Secrétaire général

DERNIERS JOURS DE LA CONFERENCE

La Commission de direction a établi un programme pour la fin de la Conférence le 2 juin 2000. A cet égard, les arrangements ci-après sont portés à votre attention.

1 Actes finals

Des copies papier de la version préliminaire des Actes finals seront distribuées aux chefs de délégation avant la cérémonie de signature à raison d'au maximum cinq exemplaires par délégation et un exemplaire par Membre de Secteur. Un CD-ROM contenant tous les documents de travail de la Conférence et la version préliminaire des Actes finals sera également distribué à chaque délégué le même jour.

NOTE - Les délégués qui quittent la Conférence avant la cérémonie de signature sont invités à en informer le Service d'enregistrement des délégués afin de permettre au Secrétariat de leur envoyer leur CD-ROM après la Conférence.

2 Déclarations relatives aux Actes finals

Lorsque le dernier texte qui doit figurer dans les Actes finals de la Conférence aura été approuvé en seconde lecture par la séance plénière, un délai de deux heures sera fixé pour le dépôt des déclarations/réserves relatives à ces Actes finals.

Les déclarations/réserves relatives aux Actes finals doivent être remises au Service du contrôle des documents (Rumeli, niveau 0/03) pour publication dans un document récapitulatif.

La séance plénière prendra note (**sans débat**) des déclarations/réserves relatives aux Actes finals et fixera un deuxième délai d'une heure et trente minutes pour le dépôt des déclarations/réserves additionnelles **ayant trait à la première série de déclarations/réserves**.

Une séance plénière ultérieure prendra note (**sans débat**) des déclarations/réserves additionnelles.

3 Cérémonie de signature

Entre la fin de l'adoption, **en seconde lecture**, des derniers textes des Actes finals et la cérémonie de signature, **un délai d'environ 24 heures** est nécessaire:

– pour établir et imprimer les Actes finals, et

– pour le dépôt et la publication des déclarations/réserves et des déclarations/réserves additionnelles, ainsi que pour la tenue des séances plénières au cours desquelles il en est pris note.

L'heure d'ouverture de la cérémonie de signature qui dépendra donc du moment où le dernier texte aura été adopté en plénière, sera indiquée aux délégués par les voies habituelles (programme du jour/moniteurs vidéo).

NOTE - Les délégations (ou leurs membres) qui veulent signer les Actes finals avant la cérémonie de signature pourront le faire en s'adressant à Mme C. Cailler (Rumeli, niveau 0/03).

Yoshio UTSUMI
Secrétaire général

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

CMR-2000 CONFERENCIA MUNDIAL DE RADIOCOMUNICACIONES

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ESTAMBUL, 8 DE MAYO – 2 DE JUNIO DE 2000

Nota del Secretario General

ÚLTIMOS DÍAS DE CONFERENCIA

La Comisión de Dirección ha establecido un programa para la terminación de la Conferencia el 2 de junio de 2000. En este contexto conviene señalar lo siguiente:

1 Actas finales

Los ejemplares en papel de la versión preliminar de las Actas Finales se distribuirán el 2 de junio de 2000 antes de la ceremonia de la firma a los Jefes de las delegaciones a razón de hasta un máximo de cinco ejemplares por delegación y un ejemplar por cada Miembro de Sector. También se entregará a cada delegado, el mismo día, un CD-ROM conteniendo todos los documentos de trabajo de la Conferencia así como la versión preliminar de las Actas Finales.

NOTA - Se ruega a los delegados que abandonen la Conferencia antes de la ceremonia de la firma que informen al respecto al Servicio de Registro de Delegados, a fin de que la Secretaría pueda enviarles sus CD-ROM después de la Conferencia.

2 Declaraciones relativas a las Actas Finales

Cuando el último texto que haya de figurar en las Actas Finales de la Conferencia haya sido aprobado en segunda lectura por el Pleno, se fijará un plazo de dos horas para la presentación de declaraciones/reservas relativas a las Actas Finales.

Estas declaraciones/reservas relativas a las Actas Finales deberán entregarse al Servicio de Control de Documentos (Rumeli nivel 0/03) para su publicación en un documento recapitulativo.

El Pleno tomará nota (sin debate) de dichas declaraciones/reservas relativas a las Actas Finales y fijará un segundo plazo de una hora y media para el depósito de declaraciones/reservas adicionales **relacionadas con la primera serie de declaraciones/reservas.**

En una sesión plenaria ulterior se tomará nota (sin debate) de dichas declaraciones/reservas adicionales.

3 Ceremonia de la firma

Entre la adopción final, **en segunda lectura**, de los últimos textos de las Actas Finales y la ceremonia de la firma se requiere **un intervalo de aproximadamente 24 horas**:

- para preparar e imprimir las Actas Finales; y
- para la presentación y publicación de las declaraciones/reservas y de las declaraciones/reservas adicionales, y para la celebración de sesiones plenarias en las que se tome nota de aquéllas.

La hora de apertura de la ceremonia de la firma dependerá, por tanto, del momento en que se haya adoptado el último texto en Plenaria. Se notificará a los delegados del modo usual (es decir, en el programa diario y en los monitores de vídeo).

NOTA - Las delegaciones (o sus miembros) que deseen firmar las Actas Finales antes de la ceremonia de firma podrán hacerlo dirigiéndose a la Sra. C. Cailler (Rumeli nivel 0/03).

Yoshio UTSUMI
Secretario General

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

ISTANBUL, 8 MAY – 2 JUNE 2000

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Draftting Group 1 of
WORKING GROUP 1
OF THE PLENARY

NOTE BY THE CHAIRPERSON OF DRAFTING GROUP 1 OF WORKING GROUP 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.

The substance of the following Resolutions and Recommendations was not discussed in Working Group 4B and several administrations raised their concern regarding certain proposed actions:

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 533 (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)

Drafting 1 of GT Plen-1 is invited to consider the above and to propose the required actions to GT-Plen-1 and subsequent reply to Committee 4.

For your convenience, please find attached the text of these Resolutions and Recommendations.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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AD HOC GROUP 1
OF 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 w hen 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 with a favourable finding; or those which have been coordinated under the provisions of No. **1060** or **S9.7** or § [7.2.1] of Appendix **S30**; or those that are in process of coordination under the provisions of No. **1060** or **S9.7** or § [7.2.1] of Appendix **S30** prior to ~~27 October 1997.~~[31 July 2000 for which the following conditions apply:

that complete Appendix **S4** data (or Appendix **3** data, as appropriate) received by the Bureau under the relevant provisions of Article **S9** (or Article **11**, as appropriate) 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 of section 8 below.

However, assignments for which complete coordination information according to **APS4** has been received by the Bureau after 12 May 2000, 1700 hours, (Istanbul time) shall be taken into account, by applying the same sharing criteria of –138 dB(W/m^2/27 MHz) or the pfd values in section 8, whichever is higher.]

~~These~~The affected 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:

a) 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.]

[*b)* have provided complete Appendix **S4** data (or Appendix **3** data, as appropriate) under the provisions of Article **S9** or Article **S11** (or under the provisions of No. **1060** or § [7.2.1] of Appendix **S30** prior to [31 July 2000]*].

8 Pending clarification of bringing into service of the satellite network.

* 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	~~§ 6 of Annex 1*~~the limit criteria given below:

* These paragraphs and this Annex are contained in the Radio Regulations in force at the ~~time~~end of WRC-~~97~~2000.

For Regions 1 and 3 BSS → Region 2 FSS:

–160 dB(W/m^2/27 MHz)	$0 < \theta < 0.054°$
(–137.46 + 17.74 log θ) dB(W/m^2/27 MHz)	$0.054° \leq \theta < 367°$
(–141.56 + 25 log θ) dB(W/m^2/27 MHz)	$3.67° \leq \theta < 11.54°$
(–115 dB(W/m^2/27 MHz)	$11.54° \leq 0$

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered with FSS space stations.

For Region 1 BSS → Region 3 FSS:

–160 dB(W/m^2/27 MHz)	$0 < \theta < 0.054°$
(–137.46 + 17.74 log θ) dB(W/m^2/27 MHz)	$0.054° \leq \theta < 3.67°$
[(–141.56 + 25 log θ) dB(W/m^2/27 MHz) (see NOTE 1)	$3.67° \leq \theta < 24.12°$
(–107 dB(W/m^2/27 MHz) (see NOTE 1)]	$24.12° \leq \theta$

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 between the interfering BSS and the interfered with FSS space stations.

NOTE - In cases where assignments from the WRC-97 Plan were included without Remarks 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 were included with Remarks, 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 8 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~~[12 May 2000] with a favourable finding; or

[*b)* for which a notice is received by the Bureau prior to ~~27 October 1997~~[12 May 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~~[12 May 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~~[12 May 2000] with a favourable finding; or

b) for which a notice is received by the Bureau prior to ~~27 October 1997~~[12 May 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~~[12 May 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 ΔT/T criterion of 6%.

NOTE - In cases where assignments from the WRC-97 Plan 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 were included with Remarks, 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.

INTERNATIONAL TELECOMMUNICATION UNION

WRC-2000 WORLD RADIOCOMMUNICATION CONFERENCE

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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 harmonisation, 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)**;

J. Dixon
Box 1217

Annexes: 1 (Annex 2 is unchanged)

ANNEX

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.