



**Documents of the World Administrative Radio Conference for the Planning of the  
Broadcasting-Satellite Service in Frequency Bands 11.7-12.2 GHz (Regions 2 and 3)  
and 11.7-12.5 GHz (Region 1) (WARC SAT-77)**

**(Geneva, 1977)**

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INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

**(Geneva, 1977)**

Document No. 301-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Kenya

In signing the Final Acts of the World Administrative Broadcasting-Satellite Conference, Geneva 1977, the delegation of the Republic of Kenya, reserves its Government's right to take any measures it may deem necessary to protect its interests if other countries or administrations fail to observe the provisions contained in the Final Acts and its Annexes and the Protocol attached to it, as adopted by the Conference.



Corrigendum N° 1 au  
Document N° 302-F/E/S  
11 février 1977

SEANCE PLENIERE  
PLENARY MEETING  
SESIÓN PLENARIA

R.3(Corr.1)

CORRIGENDUM A LA  
3ème SERIE DE TEXTES SOUMISE PAR LA COMMISSION DE  
REDACTION A LA SEANCE PLENIERE

Remplacer les pages 19, 20, 21 et 22 du Document N° 302 par les pages ci-annexées.

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CORRIGENDUM TO THE  
3rd SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

Replace the pages 19, 20, 21 and 22 to Document No. 302 by the following pages.

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CORRIGENDUM A LA  
3.<sup>a</sup> SERIE DE TEXTOS SOMETIDOS POR LA COMISION DE  
REDACCION AL PLENO DE LA CONFERENCIA

Sustitúyanse las páginas 19, 20, 21 y 22 del Documento N.º 302 por las adjuntas.

Annexes : 4 pages



TABLEAU 1 - TABLE 1 - CUADRO 1

Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
/ADL	1 7	BHR	5	/CPV	5 7
AFG	5	/BIO	5 7	CRO	5
AFI	5	BLR	2	CTI	1
		BOL*)		CTR	1
AGL	1	BOT	1	CUB	1
ALB	4		5	CVA	4
ALG	*)	BRB	1	CYP	4
ALS	2	BRM	1	D	3
/AMS	5 7	BRU	1	DAH (BENIN)	1
AND	3	BUL	4	DDR	3
AOE	5	CAF*)		DNK	*)
ARG	5	CAN	2	DOM	1
ARS	5		5	E	4
ASC	5	/CAR	5 7	EGY	5
ASO	1	CBG	1	EQA	1
	5	CHL	*)	ETH	1
ATN	1	CHN	*)		
AUS	*)			F	3
		/CHR	5 7	/FJI	1 7
AUT	3	CKH	1	/FLK	5 7
AZR	3	CKN	1	FNL	2
B	1	CLM	1	G	3
BAH	1	CLN	1	GAB	1
BDI	1	CME	1	GDL	1
BEL	3	CNR	5	GHA	1
BER	1	COG	1	GIB	4
BGD	1	COM	1	/GIL	1 7

\*) voir renseignements complémentaires dans le Tableau 2

\*) see additional information in Table 2

\*) véase información complementaria en el Cuadro 2

Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
GMB	1	/ IWA	1 7	MLT	4
GNE	1	J	2	MNG	5
GNP	1	/ JAR	5 7	MOZ	1
GRC	4	JMC	1	/ MRA	1 7
GRL	2	/ JON	5 7	MRC	4
GTM	1	JOR	5	5	5
GUB	1	KEN	1	/ MRL	1 7
GUF	1	/ KER	5 7	/ MRN	1 7
GUI	1	KOR	2	MRT	1
/ GUM	1 7	KRE	2	MTN	5
HNB	1	KWT	5	MWI	1
HND	1	LAO	1	MYT	1
HNG	4	LBN	5	NCG	1
HOL	3	LBR	1	NCL	1
HTI	1	LBY	5	NGR	1
HVO	1	LIE	3	NHB	3
/ HWA	1 7	LSO	1	NIG	1
/ HWL	5 7	LUX	3	NIU	1
I	4	MAC	1	NOR	*)
ICO	-	MAU	1	NPL	1
IND	1	MCO	4	/ NRU	5 7
INP	1	/ MCS	5 7	NZL	3
INS	1	MDG	1	OCE	1
IOB	1	MDR	5	OMA	5
IRL	3	/ MDW	1 7	PAK	*)
IRN	5	MEX	*)	PAQ	5
IRQ	5	MLA	1	PHL	1
ISL	3	MLD	1	/ PHX	1 7
ISR	5	MLI	1	/ PLM	5 7
			5	PNG	1

\*) voir renseignements complémentaires dans le Tableau 2

\*) see additional information in Table 2

\*) véase información complementaria en el Cuadro 2

Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques	Symboles de pays	Zone hydro-météorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
PNR	1	SRL	1	/ VIR	1 7
PNZ	1	STP	1	VTN	1
POL	3	SUI	3	/ WAK	1 7
POR	3	SUR	1	WAL	1
PRG	1	/ SWN	5 7	YEM	5
PRU	5	SWZ	1	YMS	5
/ PTC	1 7	SYR	5	YUG	1
PTR	1	TCD	1, 5	ZAI	1
QAT	5	TCH	3	ZAN	1
REU	1	TGK	1	ZMB	1
RHS	1	TGO	1		
ROU	3	THA	1		
RRW	1	TKL	1		
RYU	2	TMP	1		
S	2	/ TON	1 7		
SDN	*)	/ TRC	5 7		
SEN	1	TRD	1		
5	5	TUN	4		
/ SEY	5 7	TUR	4		
/ SHN	5 7	/ TUV	5 7		
/ SLM	1 7	UAE	5		
SLV	1	UGA	1		
/ SMA	1 7	UKR	2		
SMO	1	URG	1		
SMR	4	URS	2		
SNG	1	USA	1		
SOM	5	2	2		
SPM	2	3	3		
		4	4		
		5	5		
		VEN	1		

- \*) voir renseignements complémentaires dans le Tableau 2  
 \*) see additional information in Table 2  
 \*) véase información complementaria en el Cuadro 2

Tableau 2  
Table 2  
Cuadro 2

Zones hydrométéorologiques

Rain-climatic zones

Zonas hidrometeorológicas

Informations supplémentaires. Additional information. Información complementaria.

Pays Country País	IFRB No.**)	Zone Zona	Pays Country País	IFRB No.	Zone Zona	
ALG	0250	4	CHN (cont.)	0165	5	
	0251	4		0166	2	
	0252	5		0167	2	
AUS	0004	4		0168	2	
				0169	1	
				0170	1	
				0171	1	
				0172	1	
				0173	1	
				0174	1	
				0175	1	
				0176	2	
				0177	1	
				0178	1	
				0179	1	
			0180	1		
			0181	1		
			0182	2		
	0183	5				
	0184	5				
0185	5					
0186	1					
0187	1					
0188	1					
BOL	0019	1	DNK	0090	2	
	0273	5		0091	3	
CAF	0258	1	MEX	0190	3	
CHL	0208	5		0191	1	
	0263	2		NOR	0120	3
	0264	2	0121		2	
0265	3	PAK	0127		2	
CHN	0154		5	0210	3	
	0155		5	0281	5	
	0156		5	0282	4	
	0157		1	0283	2	
	0158		2	SDN	0230	1
	0159		1		0231	3, 4
	0160		2		0232	5
	0161	1				
0162	1					
0163	2					
0164	2					

\*\* ) voir le Plan  
see the Plan  
véase el Plan

PLENARY MEETING

R.3

3rd SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second reading :

<u>Source</u>	<u>Document No.</u>	<u>Title</u>
B.6	232	Annex 3
B.5	231	Annex 5
B.3(Rev.1)	224(Rev.1)	Annex <u>7</u>

Miss M. HUET  
Chairman of the  
Editorial Committee

Annexes : 35 pages





ANNEX 3

METHOD FOR DETERMINING THE LIMITING INTERFERING POWER FLUX DENSITY  
AT THE EDGE OF A BROADCASTING-SATELLITE SERVICE AREA IN THE BAND  
11.7 - 12.2 GHz (IN REGIONS 2 AND 3) AND 11.7 - 12.5 GHz (IN REGION 1)  
AND FOR PREDICTING THE POWER FLUX DENSITY PRODUCED THERE  
BY A TERRESTRIAL STATION

1. General

1.1 This Annex describes a method of assessing the interference potential from terrestrial transmitters to broadcasting-satellite receivers in the band 11.7 - 12.2 GHz (12.5 GHz in Region 1).

1.2 The method is in two parts :

- i) the calculation of the maximum permissible interfering power flux density at the edge of the broadcasting-satellite service area concerned;
- ii) the calculation of the likely power flux density produced at any point on the edge of the service area by the terrestrial transmitter of another administration.

1.3 The interference potential of the terrestrial transmitters must be considered case by case; the power flux density produced by each terrestrial transmitter is compared to the limiting power flux density at any point on the edge of the service area of a broadcasting-satellite station of another administration. If, for a given transmitter, the value of the power flux density produced is lower than the value of the limiting power flux density at any point on the edge of the service area, the interference caused to the broadcasting-satellite service by this transmitter is considered to be lower than the permissible value and no coordination is required between administrations before the terrestrial service is brought into use. Where this is not the case, coordination and further, more precise calculations derived from a mutually agreed basis are necessary.

1.4 It is emphasized that, should the calculation described in this Annex indicate that the maximum permissible power flux density is exceeded, it does not necessarily preclude the introduction of the terrestrial service since the calculations are necessarily based on worst case assumptions for :

- a) the nature of the terrain of the interference path,
- b) the off-beam discrimination of the broadcasting-satellite receiving installations,
- c) the necessary protection ratios for the broadcasting-satellite service,
- d) the type of reception in the broadcasting-satellite service, i.e., assuming individual reception, this being more critical than community reception for the angles of elevation concerned.
- e) the value of power flux density to be protected in the broadcasting-satellite service;
- f) the propagation conditions between the terrestrial station and the broadcasting-satellite service area.

## 2. Limit of power flux density

### 2.1 General

The limiting power flux density not to be exceeded at the edge of the service area in order to protect the broadcasting-satellite service of an administration is given by the formula :

$$F = F_0 - R + D + P \quad (1)$$

- where
- $F$  = the maximum permissible interfering power flux density (dBW/m<sup>2</sup>) in the broadcasting-satellite wanted bandwidth
  - $F_0$  = the wanted power flux density (dBW/m<sup>2</sup>) at the edge of the service area
  - $R$  = the protection ratio (dB) between the wanted and interfering signals
  - $D$  = angular discrimination (dB) provided by the radiation pattern of the satellite broadcasting receiver antenna
  - $P$  = polarization discrimination (dB) between the wanted and interfering signals

### 2.2 Wanted power flux density ( $F_0$ )

The value of  $F_0$  is equal to

- a) -103 dBW/m<sup>2</sup> for service areas in Regions 1 and 3
- b) -105 dBW/m<sup>2</sup> for service areas in Region 2

## 2.3 Protection ratio (R)

2.3.1 The single entry protection ratio against all types of terrestrial transmissions, with the exception of amplitude-modulation multichannel television systems, is 35 dB for carrier frequency differences between the wanted and interfering signals of up to  $\pm 10$  MHz, decreasing linearly from 35 dB to 0 dB for carrier frequency differences between 10 MHz and 35 MHz, and is 0 dB for frequency differences in excess of 35 MHz (see Figure 1).

2.3.2 The carrier frequency difference should be determined by reference to the frequency assignments in the broadcasting-satellite plan or, in the case of assignments not contained within a plan, by reference to the description of the characteristics of the proposed or operational system. For amplitude-modulation multichannel television systems which produce peaks of high power flux density spread over a wide range of their necessary bandwidth, the protection ratio R is 35 dB and is independent of the carrier frequency difference.

2.3.3 A signal from a terrestrial station should be considered only if its necessary bandwidth overlaps the necessary bandwidth of the broadcasting-satellite assignment.

## 2.4 Angular discrimination (D)

### 2.4.1 Broadcasting-satellite service areas in Regions 1 and 3

Where the angle of elevation  $\phi$  selected for the proposed or operational broadcasting-satellite system for the broadcasting-satellite service area concerned is equal to or greater than  $19^\circ$ , the value of D to be assumed in expression (1) is 33 dB. When  $\phi$  is less than  $19^\circ$ , D should be derived from the expression (2.a) below.

Note : If more than one value of  $\phi$  is specified for a particular service area, the appropriate value of  $\phi$  should be used for each section of the edge of the service area under consideration.

$$D = 0 \text{ for } 0 \leq \phi \leq 0.5^\circ$$

$$D = 3\phi^2 \text{ for } 0.5^\circ < \phi \leq 1.41^\circ \quad (2.a)$$

$$D = 3 + 20 \log_{10} \phi \text{ for } 1.41^\circ < \phi \leq 2.52^\circ$$

$$D = 1 + 25 \log_{10} \phi \text{ for } 2.52^\circ < \phi \leq 19^\circ$$

Note : For the graphical determination of D see Figure 2.

2.4.2 Broadcasting-satellite service areas in Region 2

Where the angle of elevation  $\phi$ , selected for the proposed or operational broadcasting-satellite system, for the broadcasting-satellite service area concerned, is equal to or greater than  $27^\circ$ , the value of D to be assumed in expression (1) is 38 dB. When  $\phi$  is less than  $27^\circ$ , D should be derived from expression (2.b) below.

**Note :** If more than one value of  $\phi$  is specified for a particular service area, then the appropriate value of  $\phi$  should be used for each section of the edge of the service area under consideration.

$$\begin{aligned} D &= 0 \text{ for } 0 \leq \phi \leq 0.45^\circ \\ D &= 3.7\phi^2 \text{ for } 0.45^\circ < \phi \leq 1.27^\circ \\ D &= 3.9 + 20 \log_{10} \phi \text{ for } 1.27^\circ < \phi \leq 2.27^\circ \\ D &= 2.1 + 25 \log_{10} \phi \text{ for } 2.27^\circ < \phi \leq 27^\circ \end{aligned} \tag{2.b}$$

**Note :** For the graphical determination of D see Figure 2.

2.5 Polarization discrimination (P)

The value of P is equal to :

- a) 3 dB when the interfering terrestrial service uses linear polarization and the broadcasting-satellite service uses circular polarization or vice versa.
- b) 0 dB when the interfering terrestrial service and the broadcasting-satellite service both use circular or both use linear polarization.

3. Power flux density produced by a terrestrial station ( $F_p$ )

The power flux density  $F_p$  (in dBW/m<sup>2</sup>) produced at any point on the edge of the service area by the terrestrial station is determined from the following formula :

$$F_p = E - A + 43 \tag{3}$$

where E = the equivalent isotropically radiated power (dBW) of the terrestrial station in the direction of the point on the edge of the service area concerned

and A = the total path loss in dB.

3.1 Evaluation of path loss A for a terrestrial station at a distance greater than 100 km from the edge of the service area of the broadcasting-satellite

For path lengths greater than 100 km, A is given by :

$$A = 137.6 + 0.2324 d_t + 0.0814 d_m \quad (4)$$

where  $d_t$  and  $d_m$  are the overland and oversea path lengths respectively, in km.

3.2 Evaluation of path loss A for a terrestrial station at a distance equal to or less than 100 km from the edge of the service area of the broadcasting-satellite

For path lengths equal to or less than 100 km, A is calculated using equations (4) and (5) and the lower value obtained is substituted in formula (3) to calculate the power flux density produced at the point on the edge of the service area :

$$A = 109.5 + 20 \log (d_t + d_m) \quad (5)$$

The variation in A for different path lengths and percentage of oversea path is shown in Figure 3.

3.3 Distance beyond which the method need not be applied

The method need not be applied and coordination is unnecessary when the distance between the terrestrial station and the service area of the broadcasting-satellite is greater than :

- a) 400 km in the case of all overland paths, or
- b) 1200 km in the case of all oversea or mixed paths.

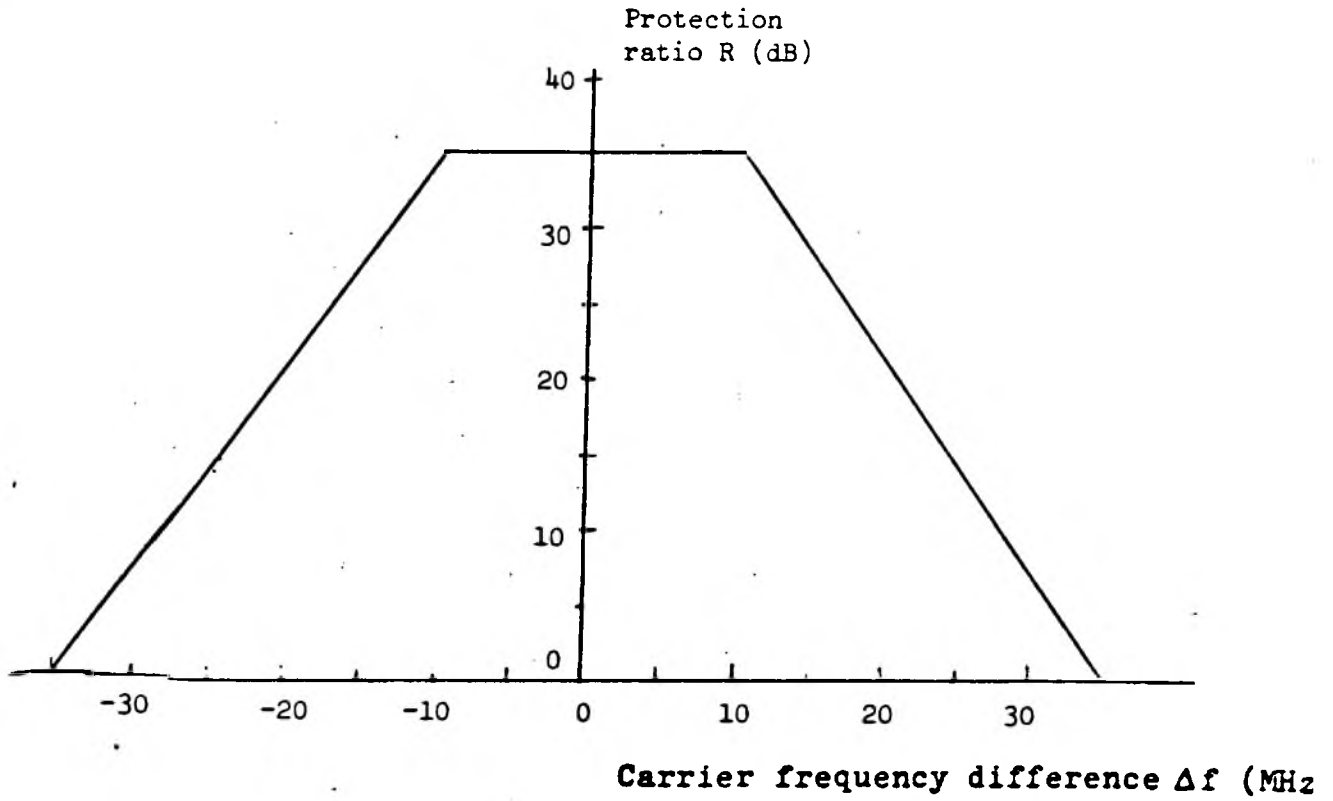


FIGURE 1

Protection ratio  $R$  (dB) for a broadcasting-satellite signal against a single entry of interference from a terrestrial service (except for AM multichannel TV systems)

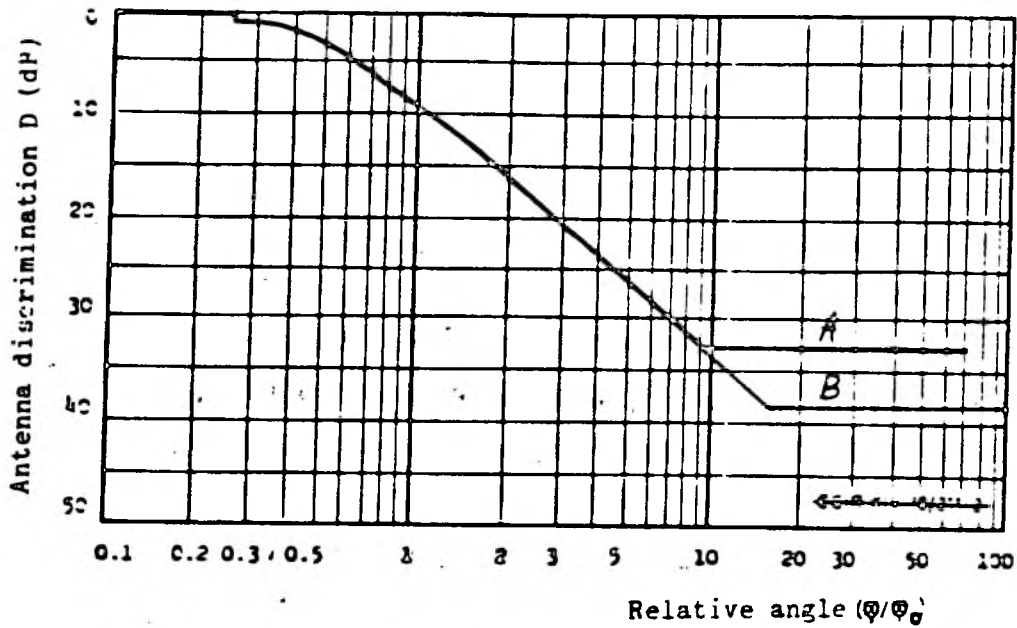
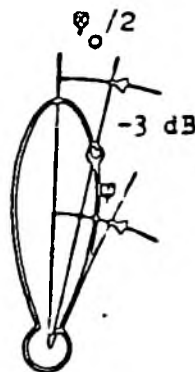


FIGURE 2

Discrimination D (dB) of broadcasting-satellite receiver antenna as a function of satellite elevation angle

For service areas in Regions 1 and 3,  $\phi_0 = 2^\circ$  and Curve A applies

For service areas in Region 2,  $\phi_0 = 1.8^\circ$  and B applies



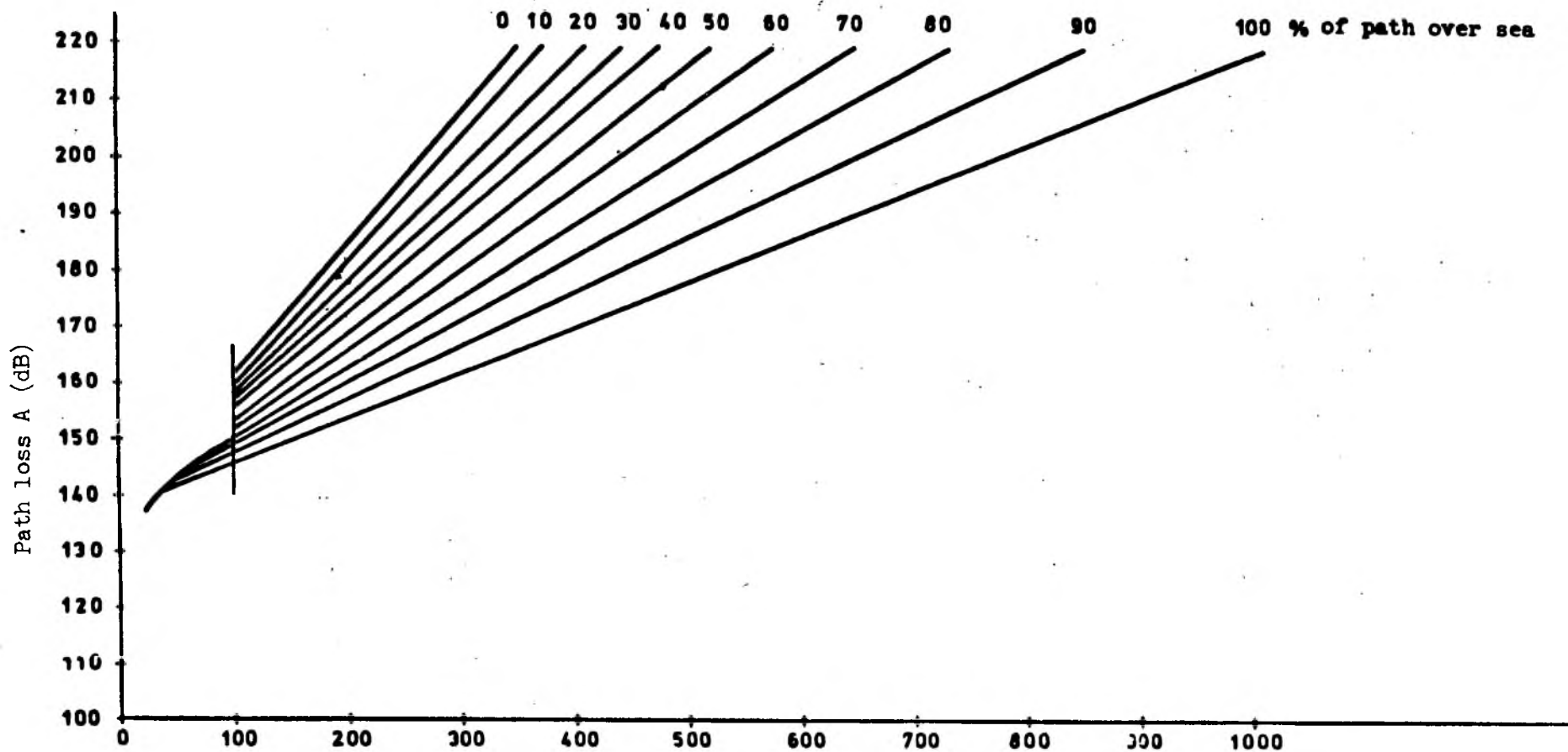


FIGURE 3

Total path loss A (dB) versus total path length ( $d_t + d_m$ ) and percentage of overseas path (km)

Length of path over land ( $d_t$ ) + length of path over sea ( $d_m$ ) (km)



ANNEX 5SHARING CRITERIA BETWEEN SERVICES1. Protection requirements for sharing between services in the 12 GHz band

1.1 The establishment of sharing criteria for the different services using the 12 GHz band should be based on the protection requirements listed in the table below :

Wanted service <sup>1)</sup>	Wanted signal <sup>1)</sup>	Interfering service <sup>1)</sup>	Interfering signal <sup>1)</sup>	Protection requirements <sup>2)</sup>	
				Total acceptable <sup>3)</sup>	Single entry
BSS	TV/FM	BSS, FSS, FS, BS	TV/FM	C/I = 30 dB <sup>4)7)</sup>	C/I = 35 dB <sup>4)</sup>
FSS	FDM/FM	BSS	TV/FM	N = 500 pWOp <sup>8)</sup>	N = 300 pWOp
FSS	TV/FM	BSS, FSS	TV/FM	C/I = 32 dB <sup>5)</sup>	C/I = 37 dB <sup>5)</sup>
FSS	4 $\phi$ - PSK	BSS, FSS	TV/FM	C/I = 30 dB	C/I = 35 dB
FSS	FDM/FM	FSS	FDM/FM	N = 1000 pWOp	N = 400 pWOp
FS	FDM/FM	BSS	TV/FM	N = 1000 pWOp	-125 dBW/m <sup>2</sup> /4 kHz <sup>6)</sup>
BS	TV/VSB	BSS	TV/FM	C/I = 50 dB	not applicable

Notes : 1) BSS = broadcasting-satellite service  
 FSS = fixed-satellite service  
 BS = broadcasting service  
 FS = fixed service  
 TV = television  
 FM = frequency modulation  
 FDM = frequency division multiplex  
 4 $\phi$ -PSK = four-level phase shift keying  
 VSB = vestigial sideband

2) These limits include both up-link and down-link contributions. They are expressed :

- in dB for carrier-to-interference ratio;
- in pWOp for noise
- in dBW/m<sup>2</sup>/4 kHz for power flux density in a 4 kHz band.

3) Values in dB are protection ratios for the sum of interfering signals.

Values in pWOp represent interference noise in the worst telephone channels caused by the sum of interfering signals.

4) For BSS satellites located at the interfaces of Regions 1/3 and Region 2, the C/I ratios should be 1 dB higher.

5) See CCIR Recommendation 483.

6) This value may be suitably modified for tropical regions to take account of rain attenuation. Allowance may also be made for polarization discrimination.

7) C/I = ratio of carrier-to-interfering signal

8) N = noise power

1.2 The values given as "total acceptable" are those necessary to protect the wanted signal. The "single entry" values are those which should be used as a guide for determining sharing criteria. The total interference from all sources must be calculated, since satisfying the "single entry" criteria for each source may not guarantee that the total interference meets the above protection requirements. A "single entry" is defined as the aggregate of emissions from any one station entering any receiver in the wanted service within the channel to be protected.

1.3 The term C/I refers to the ratio of interfered with to interfering power at the interfered with ground station. The value given shall be exceeded for all but 20 % of the worst month for the fixed-satellite service (FSS), and for all but 1 % of the worst month for the broadcasting service (BS) and the broadcasting-satellite service (BSS).

1.4 The term N refers to the post-demodulation noise power at a point of 0 dBm0 relative test tone level in any voice channel of an FDM/FM telephony system. The value given shall not be exceeded for more than 20 % of the worst month.

1.5 The specified values of protection ratio (i.e., the carrier-to-interference power ratio corresponding to a specified picture quality) are applicable, for planning purposes, to television signals of any of the several television standards.

1.6 For BSS systems with FM/TV as the wanted signal, the protection ratios are given for particular reference conditions, the most important of which are :

- a) frequency deviation of the wanted signal (12 MHz peak-to-peak)
- b) quality of the wanted service (grade 4.5)<sup>1)</sup>
- c) co-channel carriers (no carrier-frequency offset).

1.7 If system design is based on conditions other than a) and b) above, the FM/TV protection ratio is given by :

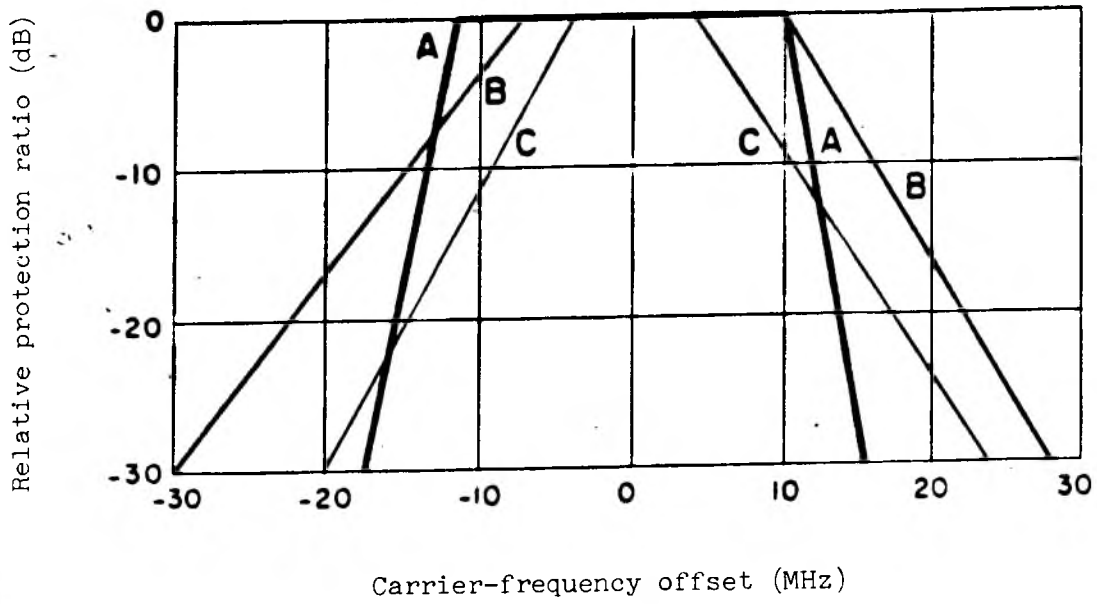
$$PR = 12.5 - 20 \log (Dv/12) - Q + 1.1 Q^2 \quad (\text{dB})$$

where  $Dv$  = nominal peak-to-peak frequency deviation (MHz)  
 $Q$  = the impairment grade, concerning the interference only.

1.8 When carriers are offset in frequency, condition c) does not apply and the adjacent channel protection ratios should be adjusted according to the frequency offset as shown in Figure 1. For example, at a frequency offset of 20 MHz, the total acceptable ratio of protection against interference to an FM/TV signal from another FM/TV signal is 13 dB. The corresponding "single entry" value is 18 dB.

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1) Impairment grade on a 5-point scale as defined in CCIR Recommendation 500.



$$\Delta f = (f_{\text{int.}} - f_{\text{wanted}})$$

Figure 1 - Reference case protection ratios relative to co-channel values

- A. TV/VSB-wanted, TV/FM interfering
- B. TV/FM-wanted, TV/FM interfering
- C. TV/FM-wanted, TV/VSB interfering

2. Reference antenna diameter for a fixed-satellite earth station to be used in calculating interference from space stations in the broadcasting-satellite service

2.1 For antennae larger than  $100 \lambda$  (2.5 m) in the fixed-satellite service, the gain of the sidelobes is given by the equation  $32 - 25 \log \theta$  where  $\theta$  is the angle from the boresight (CCIR Recommendation 465). The sidelobe gain is independent of antenna diameter.

2.2 However, in the case of transmitting earth stations, the level of interference radiated into the up-link of other satellite systems would be inversely proportional to the square of the antenna diameter. In this case, the interference decreases with increasing antenna diameter. Since the 11.7 - 12.2 GHz band is only assigned in the space-to-earth direction in the fixed-satellite service, this point is not of direct concern to the broadcasting-satellite service.

2.3 Hence it does not appear appropriate, for antenna diameters greater than  $100 \lambda$ , to specify a minimum antenna diameter for receiving earth stations in the fixed-satellite service sharing the band 11.7 - 12.2 GHz. It may be useful to consider a 4.5 m antenna having an efficiency of 60 % and an on-axis gain of 53 dB as typical for the purpose of planning the sharing of this band; however, it should be noted that administrations in Region 2 are considering the use of antennae 3 m to 10 m in diameter.

3. Use of energy dispersal in the broadcasting-satellite service

3.1 Artificial energy dispersal is useful in promoting sharing between the broadcasting-satellite service and the other services to which the band is also allocated.

3.2 Such energy dispersal is achieved by the addition at baseband of a triangular waveform to the video signal to form a composite baseband which, in turn, is used to frequency-modulate the up-link carrier. The frequency of the triangular waveform is usually synchronized at a sub-multiple of the television frame frequency. Typical frequencies range from 12.5 Hz to 30 Hz.

3.3 The table below gives the relative reduction in spectral power flux density in a 4 kHz bandwidth as a function of the peak-to-peak deviation due to the energy dispersal signal. This table is based on the following equation :

$$\left. \begin{array}{l} \text{Relative reduction (in dB)} \\ \text{in a 4 kHz band} \end{array} \right\} = 10 \log \frac{\Delta F_{pp} + \delta f_{rms}}{4}$$

where  $\Delta F_{pp}$  = peak-to-peak deviation due to the energy dispersal signal (kHz)

$\delta f_{rms}$  = rms deviation due to "natural" energy dispersal (kHz)

In compiling the table below, a value of 40 kHz has been assumed for  $\delta f_{rms}$ , on the basis of the value of 10 dB for "natural" dispersion given in Table 1 of CCIR draft Report 631(Rev.76).

Reduction of spectral power flux density relative to a 4 kHz bandwidth

Peak-to-peak deviation (kHz)	Relative reduction (dB)
0	10
100	15.44
200	17.78
300	19.29
400	20.41
500	21.30
600	22.04
700	22.67
800	23.22
900	23.71
1 000	24.15

3.4 The value of energy dispersal for the broadcasting-satellite service has been determined such that the spectral power flux density measured in a 4 kHz bandwidth is reduced by 22 dB relative to that measured in the entire bandwidth; this reduction corresponds to a peak-to-peak deviation of 600 kHz.

ANNEX / 7 /TECHNICAL DATA USED IN ESTABLISHING THE PROVISIONS AND ASSOCIATED PLAN  
AND WHICH SHOULD BE USED FOR THEIR APPLICATION1. DEFINITIONS1.1 Service area

The area on the surface of the earth in which the administration responsible for the service has the right to demand that the agreed protection conditions be provided.

Note : In the definition of service area, it is made clear that within the service area the agreed protection conditions can be demanded. This is the area where there should be at least the wanted power flux density and protection against interference based on the agreed protection ratio for the agreed percentage of time should be achieved.

1.2 Coverage area

The area on the surface of the earth delineated by a contour of a constant given value of power flux density which would permit the wanted quality of reception in the absence of interference.

Note 1 : In accordance with the provisions of No. 428A of the Radio Regulations, the coverage area must be the smallest area which encompasses the service area.

Note 2 : The coverage area, which will normally encompass the entire service area, will result from the intersection of the antenna beam (elliptical or circular) with the surface of the earth, and will be defined by a given value of power flux density. For example, in the case of a Region 1 or 3 country with a service planned for individual reception, it would be the area delineated by the contour corresponding to a level of  $-103 \text{ dBW/m}^2$  for 99 % of the worst month. There will usually be an area outside the service area but within the coverage area in which the power flux density will be at least equivalent to the minimum specified value; however, protection against interference will not be provided in this area.

1.3 Beam area

The area delineated by the intersection of the half-power beam of the satellite transmitting antenna with the surface of the earth.

Note : The beam area is simply that area on the earth's surface corresponding to the  $-3 \text{ dB}$  points on the satellite antenna radiation pattern. In many cases the beam area would almost coincide with the coverage area, the discrepancy being accounted for by the permanent difference in path lengths from the satellite throughout the beam area, and also by the permanent variations, if

any, in propagation factors across the area. However, for a service area where the maximum dimension as seen from the satellite position is less than  $0.6^\circ$  (the agreed minimum practicable satellite antenna half-power beamwidth), there could be a significant difference between the beam area and the coverage area.

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.

2. RADIO PROPAGATION FACTORS

2.1 The propagation loss on the space to earth path is equal to the free space path loss plus the attenuation exceeded for not more than 1 % of the worst month; the latter being given in Figure 1 for the five rain-climatic zone. The zone (or zones) corresponding to each country is indicated in Tables 1 and 2 below.

2.2 In using the curves of Figure 1, the difference between clear weather attenuation and the attenuation for 99 % of the worst month should be limited to a maximum of 2 dB by appropriate choice of angle of elevation.

2.3 In planning the broadcasting-satellite service, for emissions applying circular polarization, the level of the depolarized component relative to the level of the co-polar component should be taken as :

for rain-climatic zones 1 and 2 : -27 dB

for rain-climatic zones 3, 4 and 5 : -30 dB



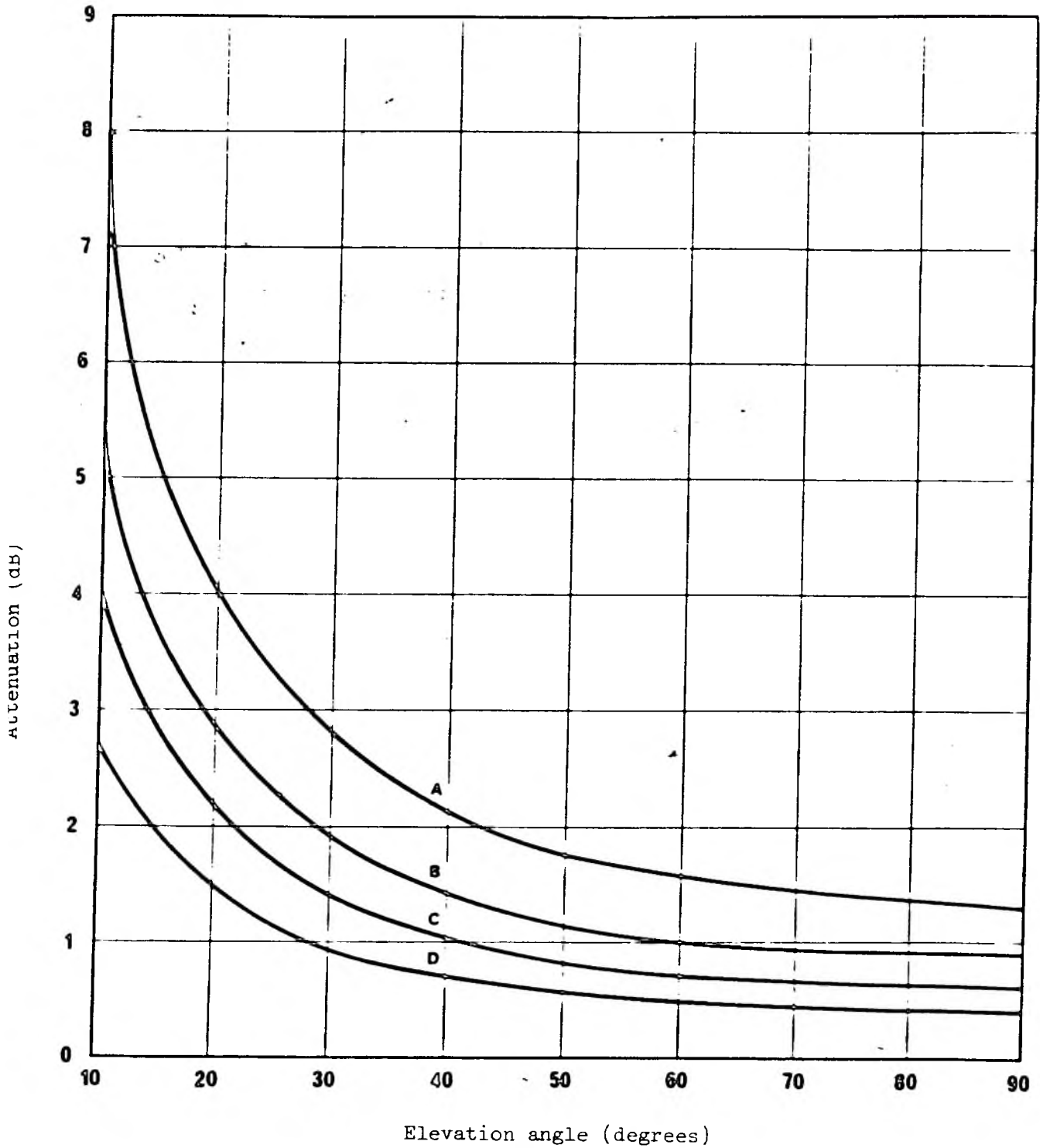


FIGURE 1

Predicted attenuation values exceeded for not more than 1 % of the worst month (0.25 % of the time) at 12 GHz in the rain-climatic zones indicated in Figure 2.

- A : Rain-climatic zone 1      C : Rain-climatic zones 3 and 4
- B : Rain-climatic zone 2      D : Rain-climatic zone 5

TABLEAU 1 - TABLE 1 - CUADRO 1

Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
/ADL	- 7	BHR	5	/CPV	- 7
AFG	5	/BIO	- 7	CRO	-
AFI	5	BLR	2	CTI	1
/AFS	1 7	BOL*)		CTR	1
AGL	1	BOT	1	CUB	1
ALB	4		5	CVA	4
ALG	*)	BRB	1	CYP	4
ALS	2	BRM	1	D	3
/AMS	- 7	BRU	1	DAH	1
AND	3	BUL	4	(BENIN)	
AOE	5	CAF*)		DDR	3
ARG	5	CAN	2	DNK	*)
ARS	5		5	DOM	1
ASC	-	/CAR	- 7	E	4
ASO	1	CBG	1	EGY	5
	5	CHL	*)	EQA	1
ATN	1	CHN	*)	ETH	1
AUS	*)			F	5
		/CHR	- 7	F	3
AUT	3	CKH	1	/FJI	- 7
AZR	3	CKN	1	/FLK	- 7
B	1	CLM	1	FNL	2
BAH	1	CLN	1	G	3
BDI	1	CME	1	GAB	1
BEL	3	CNR	5	GDL	1
BER	1	COG	1	GHA	1
BGD	1	COM	1	GIB	4
				/GIL	- 7

- \*) voir renseignements complémentaires dans le Tableau 2  
 \*) see additional information in Table 2  
 \*) véase información complementaria en el Cuadro 2

Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
GMB	1	/ IWA	-	MLT	4
GNE	1	J	2	MNG	5
GNP	1	/ JAR	-	MOZ	1
GRC	4	JMC	1	/ MRA	-
GRL	2	/ JON	-	MRC	4
GTM	1	JOR	5		5
GUB	1	KEN	1	/ MRL	-
GUF	1	/ KER	-	/ MRN	-
GUI	1	KOR	2	MRT	1
/ GUM	-	KRE	2	MTN	5
HNB	1	KWT	5	MWI	1
HND	1	LAO	1	MYT	1
HNG	4	LBN	5	NCG	1
HOL	3	LBR	1	NCL	1
HTI	1	LBY	5	NGR	1
HVO	1	LIE	3	NHB	3
/ HWA	-	LSO	1	NIG	1
/ HWL	-	LUX	3	NIU	1
I	4	MAC	1	NOR	*)
ICO	-	MAU	1	NPL	1
IND	1	MCO	4	/ NRU	-
INP	1	/ MCS	-	NZL	3
INS	1	MDG	1	OCE	1
IOB	1	MDR	5	OMA	5
IRL	3	/ MDW	-	PAK	*)
IRN	5	MEX	*)	PAQ	5
IRQ	5	MLA	1	PHL	1
ISL	3	MLD	1	/ PHX	-
ISR	5	MLI	1	/ PLM	-
			5	PNG	1

\*) voir renseignements complémentaires dans le Tableau 2

\*) see additional information in Table 2

\*) véase información complementaria en el Cuadro 2

Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques	Symboles de pays	Zone hydro-meteorologiques
Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone	Country symbol	Rain-climatic zone
Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica	Símbolo del país	Zona hidrometeorológica
PNR	1	SRL	1	/ VIR	- 7
PNZ	1	STP	1	VTN	1
POL	3	SUI	3	/ WAK	- 7
POR	3	SUR	1	WAL	1
PRG	1	/ SWN	- 7	YEM	5
PRU	1	SWZ	1	YMS	5
	5	SYR	5	YUG	1
/ PTC	- 7	TCD	1, 5	ZAI	1
PTR	1	TCH	3	ZAN	1
QAT	5	TGK	1	ZMB	1
REU	1	TGO	1		
RHS	1	THA	1		
/ ROD	- 7	TKL	1		
ROU	3	TMP	1		
RRW	1	/ TON	- 7		
RYU	2	/ TRC	- 7		
S	2	TRD	1		
		TUN	4		
SDN	*)	TUR	4		
SEN	1	/ TUV	- 7		
	5	UAE	5		
/ SEY	- 7	UGA	1		
/ SHN	- 7	UKR	2		
/ SLM	- 7	URG	1		
SLV	1	URS	2		
/ SMA	- 7		5		
SMO	1	USA	1		
SMR	4		2		
SNG	1		3		
SOM	5		4		
SPM	2	VEN	5		
			1		

\*) voir renseignements complémentaires dans le Tableau 2

\*) see additional information in Table 2

\*) véase información complementaria en el Cuadro 2

Tableau 2  
Table 2  
Cuadro 2

Zones hydrometeorologiques

Rain-climatic zones

Zonas hidrometeorológicas

Informations supplémentaires. Additional information. Información complementaria.

Pays Country País	IFRB No.**)	Zone Zona	Pays Country País	IFRB No.	Zone Zona
ALG	0250	4	CHN (cont.)	0165	5
	0251	4		0166	2
	0252	5		0167	2
AUS	0004 0005 0006 0007 0008 0009 0010 0011 0012 0013 0014 0015 0315 0316 0317 0318 0319 0320	4		0168	2
		4		0169	1
		1		0170	1
		5		0171	1
		4		0172	1
		1		0173	1
		1		0174	1
		4		0175	1
		1		0176	2
		5		0177	1
		4		0178	1
		1		0179	1
		1		0180	1
		4		0181	1
		1		0182	2
		5	0183	5	
		4	0184	5	
		1	0185	5	
1	0186	1			
BOL	0019	1	0187	1	
	0273	5	0188	1	
CAF	0258	1	DNK	0090	2
CHL	0208 0263 0264 0265	5		0091	3
		2	MEX	0190	3
		2		0191	1
3	NOR	0120		3	
CHN		0154	5	0121	2
	0155	5	PAK	0127	2
	0156	5		0210	3
	0157	1		0281	5
	0158	2	0282	4	
	0159	1	0283	2	
	0160	2	SDN	0230	1
	0161	1		0231	3, 4
0162	1	0232		5	
0163	2				
0164	2				

\*\* ) voir le Plan  
see the Plan  
véase el Plan

Renseignements encore attendus

Information still required to be furnished

Información que aún debe proporcionarse

AFS	0021 0022 0023 0024
BOT	0603
ETH	0092
FJI	0193
NRU	0615
URS	0059 0060 0061 0064 0065 0066 0067 0068 0069 0070 0071 0072 0073 0074 0075 0076 0077 0078 0079 0080 0081

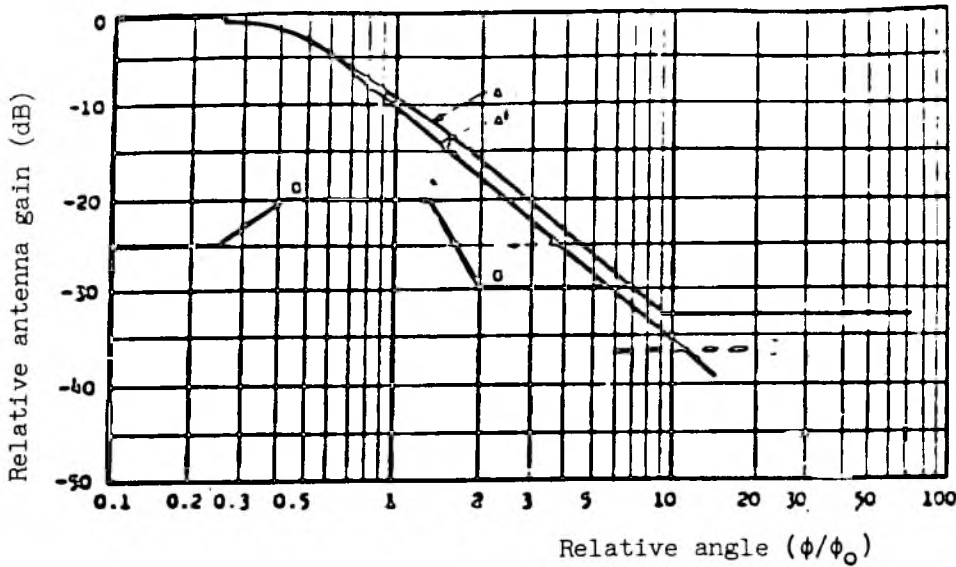


FIGURE 3

Co-polar and cross-polar reference patterns for receiving antenna

Curve A : Co-polar component for individual reception without sidelobe suppression

$$\begin{aligned}
 & 0 && \text{for } 0 \leq \phi \leq 0.25 \phi_0 \\
 & -12\left(\frac{\phi}{\phi_0}\right)^2 && \text{for } 0.25 \phi_0 < \phi \leq 0.707 \phi_0 \\
 & -\left[9.0 + 20 \log_{10}\left(\frac{\phi}{\phi_0}\right)\right] && \text{for } 0.707 \phi_0 < \phi \leq 1.26 \phi_0 \\
 & -\left[8.5 + 25 \log_{10}\left(\frac{\phi}{\phi_0}\right)\right] && \text{for } 1.26 \phi_0 < \phi \leq 9.55 \phi_0 \\
 & -33 && \text{for } 9.55 \phi_0 < \phi
 \end{aligned}$$

Curve A' : Co-polar component for community reception without sidelobe suppression

$$\begin{aligned}
 & 0 && \text{for } 0 \leq \phi/\phi_0 \leq 0.25 \\
 & -12(\phi/\phi_0)^2 && \text{for } 0.25 < \phi/\phi_0 \leq 0.86 \\
 & -\left[10.5 + 25 \log_{10}(\phi/\phi_0)\right] && \text{for } 0.86 < \phi/\phi_0 \text{ up to intersection with} \\
 & && \text{Curve C, (then Curve C)}
 \end{aligned}$$

Curve B : Cross-polar component for both types of reception

$$\begin{aligned}
 & -25 && \text{for } 0 \leq \phi \leq 0.25 \phi_0 \\
 & -\left(30 + 40 \log_{10}\left|\frac{\phi}{\phi_0} - 1\right|\right) && \text{for } 0.25 \phi_0 < \phi \leq 0.44 \phi_0 \\
 & -20 && \text{for } 0.44 \phi_0 < \phi \leq 1.4 \phi_0 \\
 & -\left(30 + 25 \log_{10}\left|\frac{\phi}{\phi_0} - 1\right|\right) && \text{for } 1.4 \phi_0 < \phi \leq 2 \phi_0 \\
 & -30 && \text{until intersection with co-polar component curve; then as for} \\
 & && \text{co-polar component}
 \end{aligned}$$

Curve C : Minus the on-axis gain

Note : for values of  $\phi_0$  see 3.7.1

b) For Region 2, the relative antenna gain (dB) is given by the curves in Figure 4 for :

- individual reception, for which use should be made of :
  - Curve A for the co-polar component;
  - Curve B for the cross-polar component;
- community reception for which Curve B should be used for the cross-polar component (the co-polar component being given in Figure 3).

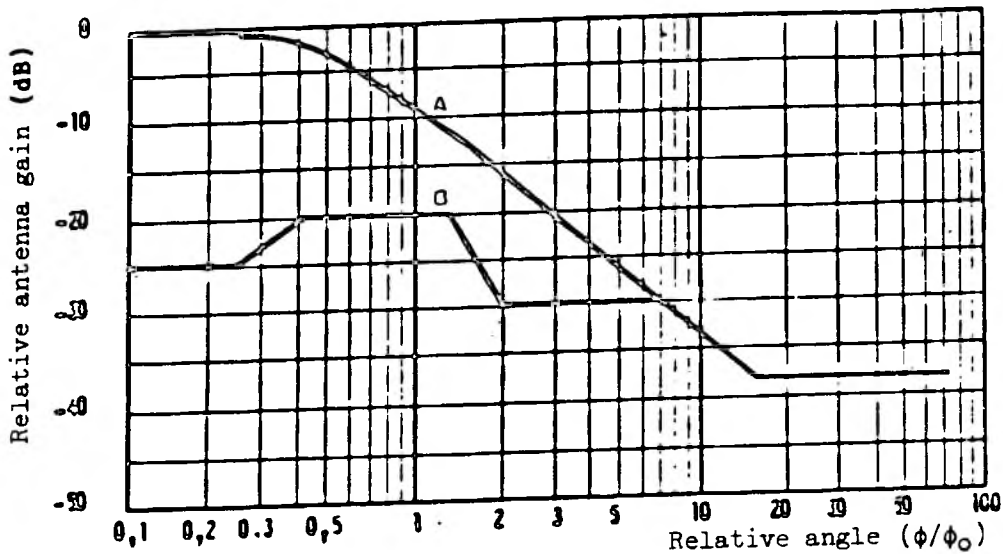


FIGURE 4

Reference patterns for co-polar and cross-polar components for receiving antennae for individual reception in Region 2



Curve A : Co-polar component without sidelobe suppression

$$\begin{aligned}
 &0 && \text{for } 0 \leq \phi \leq 0.25 \phi_0 \\
 &-12 \left(\frac{\phi}{\phi_0}\right)^2 && \text{for } 0.25 \phi_0 < \phi \leq 0.707 \phi_0 \\
 &-\left[9.0 + 20 \log_{10} \left(\frac{\phi}{\phi_0}\right) - 7\right] && \text{for } 0.707 \phi_0 < \phi \leq 1.26 \phi_0 \\
 &-\left[8.5 + 25 \log_{10} \left(\frac{\phi}{\phi_0}\right) - 7\right] && \text{for } 1.26 \phi_0 < \phi \leq 15.14 \phi_0 \\
 &-38 \text{ dB} && \text{for } \phi > 15.14 \phi_0
 \end{aligned}$$

Curve B : Cross-polar component

$$\begin{aligned}
 &-25 && \text{for } 0 \leq \phi \leq 0.25 \phi_0 \\
 &-(30 + 40 \log_{10} \left| \frac{\phi}{\phi_0} - 1 \right|) && \text{for } 0.25 \phi_0 < \phi \leq 0.44 \phi_0 \\
 &-20 && \text{for } 0.44 \phi_0 < \phi \leq 1.4 \phi_0 \\
 &-(30 + 25 \log_{10} \left| \frac{\phi}{\phi_0} - 1 \right|) && \text{for } 1.4 \phi_0 < \phi \leq 2 \phi_0
 \end{aligned}$$

-30 until intersection with co-polar component curve; then as for co-polar component

Note : for values of  $\phi_0$  see 3.7.1



### 3.8 Necessary bandwidth

The necessary bandwidths considered are as follows for :

- 625-line systems : 27 MHz
- 525-line system M of Region 2 : 18 MHz and 23 MHz

### 3.9 Guard bands

3.9.1 A guard band is defined as the portion of the frequency spectrum between the edge of the allocated band and the edge of the necessary bandwidth of the emission in the nearest channel.

3.9.2 For the planning of the broadcasting-satellite service, the guard bands necessary to protect the services in adjacent frequency bands are shown in the table below.

Regions	Guard band at the lower edge of the band (11.7 GHz)	Guard band at the upper edge of the band (12.2/12.5 GHz)
1	14 MHz	11 MHz
2	12 MHz	9 MHz
3	14 MHz	11 MHz

These guard bands assume maximum beam centre e.i.r.p. values of 67 dBW for Regions 1 and 3 and 63 dBW for Region 2 (values relating to individual reception), and a filter roll-off of 2 dB/MHz. If smaller e.i.r.p. values are assumed, the guard bands can be reduced in width by 0.5 MHz for each decibel decrease in e.i.r.p.

3.9.3 Since developments in technology or the choice of lower e.i.r.p. values than those given above are likely to permit a reduction in the necessary guard bands, it is recommended that, for purposes other than "a priori" planning at this Conference, the latest CCIR Recommendations concerning spurious emissions from broadcasting satellites should be followed.

### 3.10 Orbital spacing

The Plan for Regions 1 and 3 has been based on nominal orbital positions spaced uniformly at intervals of  $6^\circ$ .

### 3.11 Satellite station keeping

Space stations in the broadcasting-satellite service must be maintained in position with an accuracy of better than  $\pm 0.1^\circ$  in both the N-S and E-W direction. (These tolerances lead to a maximum excursion of  $\pm 0.14^\circ$  from the nominal satellite position).

### 3.12 Elevation angle of receiving antennae

The Plan has been based on the consideration of a minimum angle of elevation of  $20^{\circ}$  to minimize the required e.i.r.p. of the satellite and to reduce the effects of shadowing and the possibility of interference from terrestrial services. However, for areas situated in latitudes above about  $60^{\circ}$ , the angle of elevation is of necessity less than  $20^{\circ}$ . Attention is also directed to Section 2.2.

For mountainous areas where an angle of  $20^{\circ}$  may not suffice, an angle of at least  $30^{\circ}$  has been provided where possible to provide an acceptable service. An angle of elevation of at least  $40^{\circ}$  has been considered for service areas subject to high precipitation (e.g., rain-climatic zone 1).

Some dry, non-mountainous areas may be given an acceptable service at angles of elevation less than  $20^{\circ}$ .

In areas with small angles of elevation, the shadowing effect of tall buildings may have to be taken into account.

In choosing a satellite position designed to give the maximum angle of elevation at the ground, the influence of such a position on the eclipse period has been borne in mind.

### 3.13 Transmitting antenna

#### 3.13.1 Cross-section of transmitted beam

Planning has been based on the use of transmitting antennae with beams of elliptical or circular cross-section.

If the cross-section of the transmitted beam is elliptical, the effective beamwidth  $\phi_0$  is a function of the angle of rotation  $q$  between the plane containing the satellite and the major axis of the beam cross-section and the plane in which the beamwidth is required.

The relationship between the maximum gain of an antenna and the half-power beamwidth can be derived from the expression :

$$G_m = 27,843/ab$$

or :

$$G_m \text{ (dB)} = 44.44 - 10 \log_{10} a - 10 \log_{10} b$$

where :

a and b are the angles (in degrees) subtended at the satellite by the major and minor axes of the elliptical cross-section of the beam.

An antenna efficiency of 55 % is assumed.

#### 3.13.2 Minimum beamwidth of transmitting antenna

A minimum value of  $0.6^\circ$  for the half-power beamwidth of a transmitting antenna has been agreed for planning.

#### 3.13.3 Transmitting antenna reference patterns

The reference patterns for the co-polar and cross-polar components of satellite transmitting antenna used in preparing the Plan are given in Figure 5.

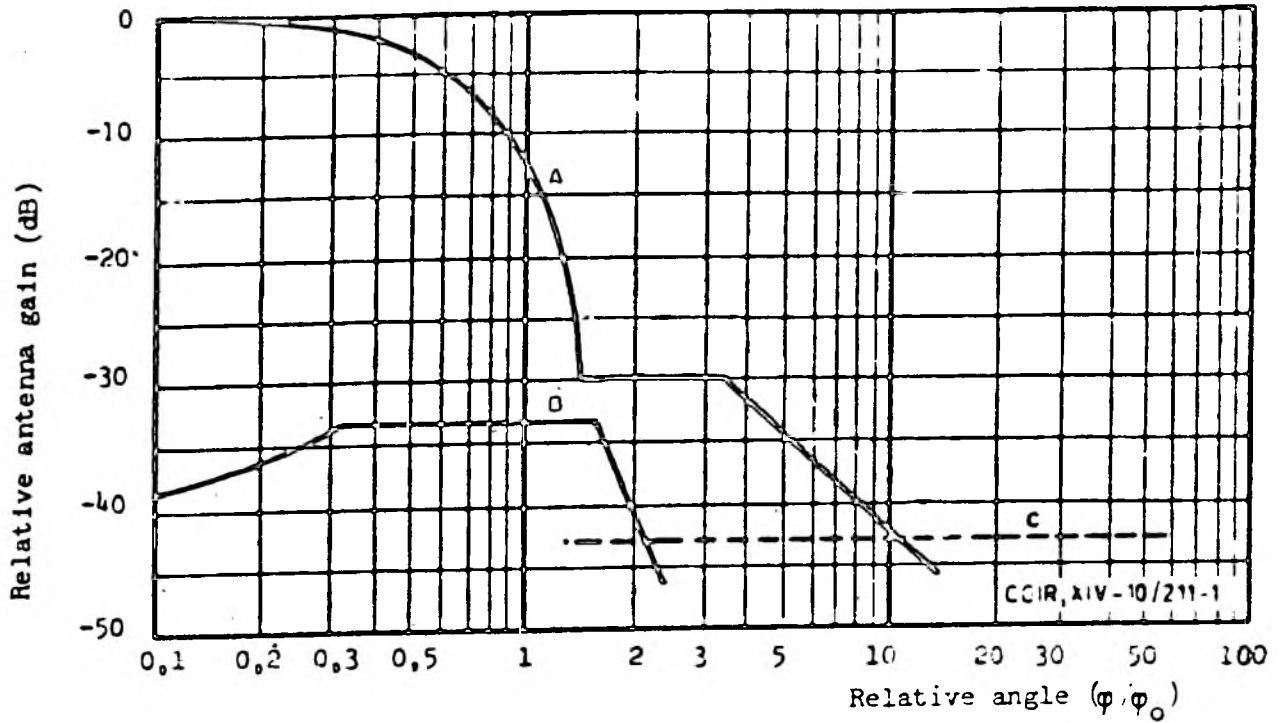


FIGURE 5

Reference patterns for co-polar and cross-polar components for satellite transmitting antenna

Curve A : Co-polar component

$$-12\left(\frac{\varphi}{\varphi_0}\right)^2 \text{ for } 0 \leq \varphi \leq 1.58 \varphi_0$$

$$-30 \text{ for } 1.58 \varphi_0 < \varphi \leq 3.16 \varphi_0$$

$$-\sqrt{17.5 + 25 \log_{10}\left(\frac{\varphi}{\varphi_0}\right)} \text{ for } 3.16 \varphi_0 < \varphi$$

after intersection with curve C : as curve C

Curve B : Cross-polar component

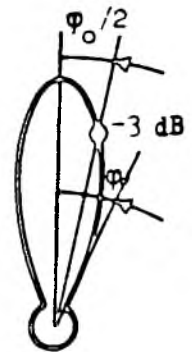
$$-(40 + 40 \log_{10}\left|\frac{\varphi}{\varphi_0} - 1\right|) \text{ for } 0 \leq \varphi \leq 0.33 \varphi_0$$

$$-33 \text{ for } 0.33 \varphi_0 < \varphi \leq 1.67 \varphi_0$$

$$-(40 + 40 \log_{10}\left|\frac{\varphi}{\varphi_0} - 1\right|) \text{ for } 1.67 \varphi_0 < \varphi$$

after intersection with curve C : as curve C

Curve C : Minus the on-axis gain



### 3.14 Pointing accuracy of satellite antennae

3.14.1 The deviation of the antenna beam from its nominal pointing direction must not exceed a limit of  $0.1^\circ$  in any direction. Moreover, the angular rotation of a transmitting beam about its axis must not exceed a limit of  $\pm 2^\circ$ ; this latter limit is not necessary for beams of circular cross-section using circular polarization.

3.14.2 The following factors contribute to the total variation in the area on the surface of the earth illuminated by the satellite beam :

- variations in satellite station-keeping;
- the variations caused by the pointing tolerances, which become more significant for coverage areas with low angles of elevation;
- the effect of the yaw error increases as the beam ellipse lengthens.

3.14.3 The effect of these possible variations should be assessed on a case-by-case basis, since their total effect on the area covered will vary as the geometry of the satellite beam varies, and it would not be reasonable to indicate a single value of shift in the area covered for all situations.

3.14.4 If linear polarization is used for an emission, yaw error makes a significant contribution to increasing the transmitted cross-polarized component; this increases the interference with other carriers which were originally cross-polarized with the emission in question.

3.15 Limitation of output power in the satellite transmitter

The output power of a space station in the broadcasting-satellite service must not rise by more than 0.25 dB relative to its nominal value throughout the life of the satellite.

3.16 Power flux density at edge of coverage area

The value of the power flux density at the edge of the coverage area for 99 % of the worst month is :

- 103 dBW/m<sup>2</sup> for individual reception in Regions 1 and 3
- 105 dBW/m<sup>2</sup> for individual reception in Region 2
- 111 dBW/m<sup>2</sup> for community reception in all Regions

3.17 Difference between the e.i.r.p. directed towards the edge of the coverage area and that on the axis of the beam

For planning, the absolute value of the difference between the e.i.r.p. directed towards the edge of the coverage area and that on the axis of the beam should preferably be 3 dB.

If the beam area is larger than the coverage area, the value will be less than 3 dB.

3.18 Use of energy dispersal

For planning, an energy dispersal value has been adopted which reduces by 22 dB the spectral power flux density measured in a 4 kHz bandwidth in relation to that measured in the entire bandwidth; this reduction corresponds to a peak-to-peak deviation of 600 kHz.

### 3. BASIC TECHNICAL CHARACTERISTICS

#### 3.1 Type of modulation

Planning of the broadcasting-satellite service is 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 Figure 2 (from CCIR Recommendation 405).

#### 3.2 Polarization

3.2.1 For the planning of the broadcasting-satellite service, circular polarization shall be used in Regions 1, 2 and 3.<sup>1)</sup>

3.2.2 If possible, the polarization of different beams intended to serve the same area should be the same.

3.2.3 The terms "direct" and "indirect" used in the Plan to indicate the direction of rotation of circularly polarized waves correspond to the following definitions :

##### Direct polarization

An elliptically or circularly-polarized wave, in which the electric field-intensity vector, observed in any *fixed plane*, normal to the direction of propagation, whilst looking in (i.e., not against) the direction of propagation, rotates *with time* in a *right-hand* or clockwise direction.

Note : For circularly-polarized plane waves, the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front, form, *at any instant*, a *left-hand* helix.

##### Indirect polarization

An elliptically or circularly-polarized wave, in which the electric field-intensity vector, observed in any *fixed plane*, normal to the direction of propagation, whilst looking in (i.e., not against) the direction of propagation, rotates *with time* in a *left-hand* or anti-clockwise direction.

Note : For circularly-polarized plane waves, the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front, form, *at any instant*, a *right-hand* helix.

---

1) The administration of the United States of America expressed concern regarding the adoption of circular polarization for Region 2 and indicated that the very probable adoption of linear polarization by the fixed-satellite service would preclude the use of cross-polarization to facilitate sharing between the two space services and would affect orbit and spectrum utilization within the Region.

The administration of Iran expressed a reservation regarding the adoption of circular polarization for planning the broadcasting-satellite service in Region 3 and stated its intention to use linear polarization.

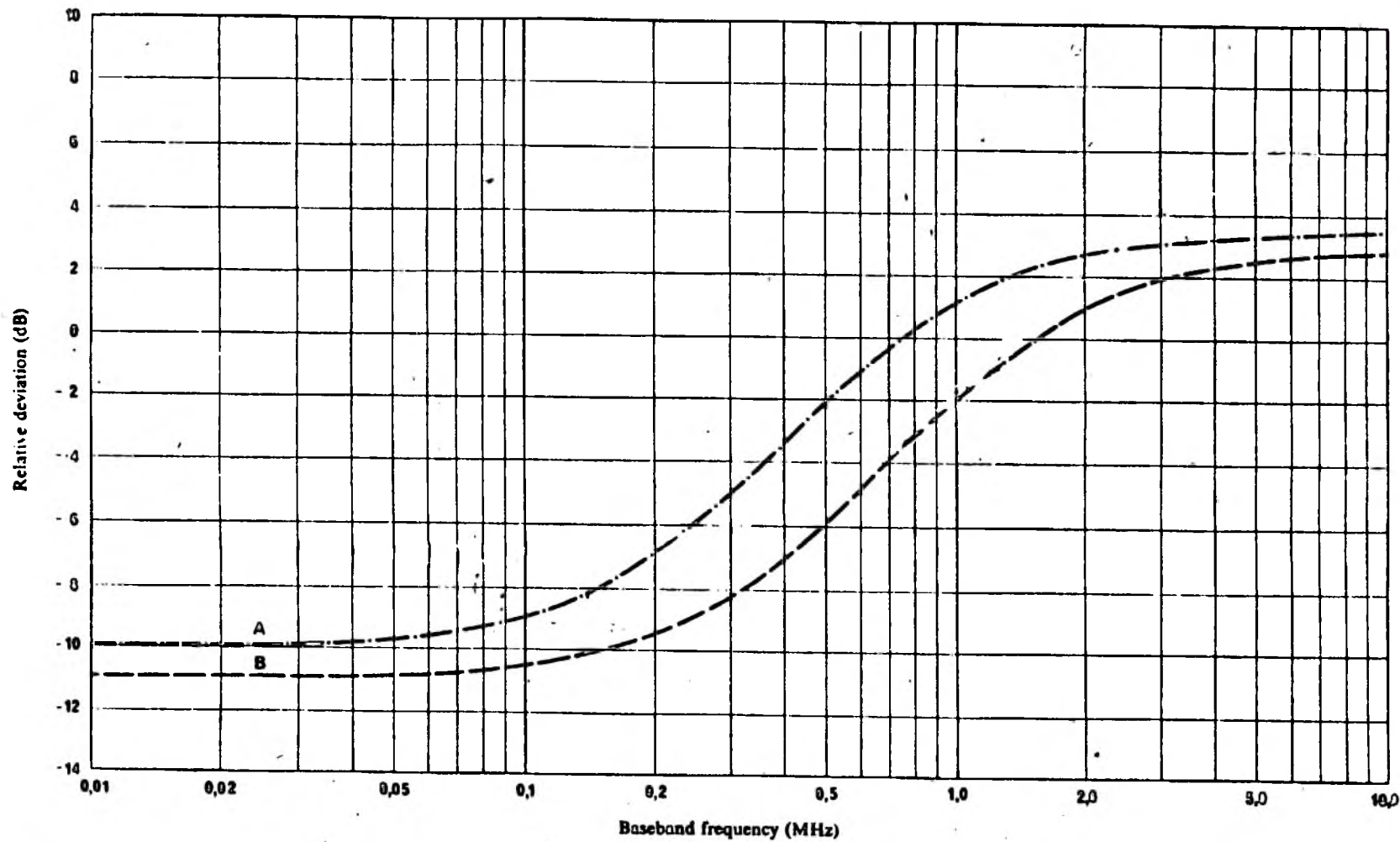


FIGURE 2  
Pre-emphasis characteristic for television on 525- and 625-line systems

Curve A: 525-line system  
Curve B: 625-line system



### 3.3 Carrier-to-noise ratio

For the purpose of planning the broadcasting-satellite service, the carrier-to-noise ratio is equal to 14 dB for 99 % of the worst month.

The reduction in quality in the down-link due to thermal noise in the up-link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio not exceeding 0.5 dB for 99 % of the worst month.

### 3.4 Protection ratio between two FM television signals

For planning in Regions 1 and 3 the following protection ratios have been adopted for the purpose of calculating equivalent protection margin :<sup>1)</sup>

- 31 dB for co-channel signals
- 15 dB for adjacent channel signals.

1) The equivalent protection margin M is given in dB by the formula

$$M = -10 \log \left[ 10^{-M_1/10} + 10^{-M_2/10} + 10^{-M_3/10} \right]$$

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.

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 transmissions in the adjacent channel are considered.

3.5 Channel spacing

3.5.1 Channel spacing in the Plan

The spacing between two adjacent channels is 19.18 MHz. The Plan gives the assigned frequencies for each channel.

3.5.2 Grouping of channels in the same beam

Planning in Region 1 has been carried out by trying to group all the channels radiated within a single antenna beam within a frequency range of 400 MHz, in order to simplify receiver construction.

3.5.3 Spacing between channels of same beam

Owing to technical difficulties in the output circuit of a satellite transmitter, the spacing between two channels feeding a common antenna must be greater than 40 MHz.

3.6 Figure of merit (G/T) of a receiving installation in the broadcasting-satellite service

In planning the broadcasting-satellite service, the value of the figure of merit (G/T) used is :

- 6 dB/K for individual reception
- 14 dB/K for community reception.

The values are calculated from the following formula which allows for pointing error, polarization effects, and ageing :

$$G/T = \frac{\alpha \beta G_r}{\alpha T_a + (1-\alpha) T_0 + (n-1) T_0}$$

where

- $\alpha$  : the total coupling losses, expressed as a power ratio
- $\beta$  : the total losses due to the pointing error, polarization effects and ageing, expressed as a power ratio
- $G_r$  : the effective gain of the receiving antenna, expressed as a power ratio and taking account of the method of feeding and the efficiency
- $T_a$  : the effective temperature of the antenna
- $T_0$  : the reference temperature = 290 K
- $n$  : the overall noise factor of the receiver, expressed as a power ratio.

See also CCIR Report 473-1 (Annex I).

### 3.7 Receiving antenna

#### 3.7.1 Minimum diameter of receiving antenna

For planning the broadcasting-satellite service the minimum diameter of receiving antenna considered is such that the half-power beamwidth,  $\phi_0$ , is :

- a) for individual reception :  $2^\circ$  in Regions 1 and 3  
 $1.8^\circ$  in Region 2
- b) for community reception :  $1^\circ$  in all Regions.

#### 3.7.2 Receiving antenna reference patterns

The co-polar and cross-polar reference patterns of receiving antennae are given in Figures 3 and 5.

a) The relative antenna gain (dB) is given by the curves in Figure 3 for :

- individual reception in Regions 1 and 3 :
    - Curve A for the co-polar component and
    - Curve B for the cross-polar component;
  - community reception :
    - in all Regions, Curve A' up to the intersection with Curve C, then Curve C, for the co-polar component,
    - in Regions 1 and 3, Curve B for the cross-polar component.
-

INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 303-E  
10 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the People's Republic of Bangladesh

As per Documents Nos. 233 and 265 and the Maps of the Antenna Beam Ellipse, the Beam No. INDO037 allocated to India covers about 90 % of the territory of the People's Republic of Bangladesh. This spillover, which appears to be technically avoidable, is not acceptable to the Bangladesh Administration.

Bangladesh delegation would therefore like to have this reservation recorded by this Conference for necessary corrective measures, with the cooperation of the respected Indian delegation.



INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 304-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Senegal

In signing the Final Acts and associated Plan, the delegation of the Republic of Senegal reserves its Government's right to take any steps or action designed to safeguard its telecommunication services and the rights of the Republic of Senegal.

Furthermore, the delegation of the Republic of Senegal affirms that its Government will continue to cooperate at the international level, on a basis of equality and mutual observance of the rights of countries large and small, in the use of the natural resource constituted by spectrum-orbit space.



INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 305-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the People's Republic of Benin

The delegation of the People's Republic of Benin reserves its Government's right to : take any action it may consider necessary should any reservations formulated by other administrations jeopardize its interests; take any steps needed to protect its services should any Members of the Union fail to observe the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva 1977.



PLENARY MEETING

R.4

4th SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second reading :

<u>Source</u>	<u>Document No.</u>	<u>Title</u>
B.10	246	Resolutions A - F
B.9	242	Recommendations AA - FF

Miss M. HUET  
Chairman of the  
Editorial Committee

Annexes : 15 pages



## RESOLUTION No. A

**Relating to the annexing to the Radio Regulations of the  
provisions and associated Plan contained in the  
Final Acts of the Conference**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

noting

a) that the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971, adopted Resolution No. Spa2 2 envisaging that stations in the broadcasting-satellite service shall be established and operated in accordance with agreements and associated plans adopted by World or Regional Administrative Radio Conferences;

b) that the present Conference has adopted provisions for all Regions and an associated Plan for Regions 1 and 3;

considering

the wish expressed at the Conference to annex the provisions and associated Plan to the Radio Regulations;

resolves

that the 1979 World Administrative Radio Conference be requested to annex the provisions and associated Plan to the Radio Regulations as an integral part thereof, in the form and to the extent it deems most appropriate without thereby affecting their content or integrity;

requests

the Administrative Council to include the request referred to in the above paragraph in the agenda of the 1979 World Administrative Radio Conference.



## RESOLUTION No. B

Relating to the period between the entry into force of the  
Final Acts of the Conference and the date on which the  
provisions and associated Plan are annexed to the Radio Regulations

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that its Final Acts will come into force on  
1 January 1979;

b) that, in its Resolution No. A, it has requested the  
1979 World Administrative Radio Conference to annex to the Radio Regulations  
the provisions and associated Plan established by the Conference;

c) that there will be an interim period between the date of  
entry into force of these Final Acts and the date on which the provisions and  
associated Plan are annexed to the Radio Regulations;

further considering

that these Final Acts are regarded as including a World agreement  
and associated Plan in accordance with Resolution No. Spa2 - 2 of the World  
Administrative Radio Conference for Space Telecommunications, Geneva, 1971;

resolves

1. that both during this interim period and after the date on  
which they have been annexed to the Radio Regulations, the provisions and the  
associated Plan shall retain their integrity as a legal instrument;

2. that during this period the IFRB and the other appropriate  
organs of the Union shall be guided by the provisions of these Final Acts and  
the Radio Regulations.

## RESOLUTION No. C

**Relating to the updating of the Master International Frequency Register for Regions 1 and 3 on the date of entry into force of the Final Acts**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that the Final Acts of this Conference will take effect before the entry into force of the revised Radio Regulations adopted by the 1979 World Administrative Radio Conference, and that meanwhile the relevant provisions of the current Radio Regulations and Resolutions Nos. Spa2 - 2 and Spa2 - 3 remain valid;

b) that No. 405BA of the Radio Regulations provides that in the band 11.7 - 12.2 GHz in Region 3 and in the band 11.7 - 12.5 GHz in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the present Conference;

c) that the coordination procedures described in Resolution No. Spa2 - 3 are to be applied only until the entry into force of plans pursuant to Resolution No. Spa2 - 2;

resolves

1. that all administrations using or intending to use frequency assignments to terrestrial stations in the bands covered by the Plan shall decide as soon as possible, whether or not these assignments will affect frequency assignments in conformity with the Plan (if necessary, with the assistance of the IFRB);

2. that, if it is found that frequency assignments in accordance with the Plan may be subject to interference, administrations shall inform the IFRB of the measures they intend to take to ensure the protection of the frequency assignments concerned before the date of entry into force of these Final Acts;

3. that administrations may continue to use frequency assignments which are not in conformity with the Plan, provided that agreement is reached with the administrations whose broadcasting-satellite stations are affected;

4. that the administrations seeking agreement shall inform the IFRB of the terms of the agreement reached;

5. that, upon receipt of such information, the IFRB shall insert a symbol in the Remarks column of the Master Register indicating the duration specified in the agreement. The duration specified shall also be published in a special section of its weekly circular;

6. that, on the date of entry into force of the Final Acts, the frequency assignments in the Plan will be entered in the Master Register. The date of signature of these Final Acts will be entered, together with an appropriate symbol, in Column 13c opposite these assignments;

invites the IFRB

to assist administrations in implementing the provisions of this Resolution.

RESOLUTION No. D

**Relating to the coordination, notification and recording  
in the Master International Frequency Register of assignments to  
stations in the fixed-satellite service with respect to stations in the  
broadcasting-satellite service in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

that the Radio Regulations contain no provisions governing the  
coordination, notification or recording in the Master International Frequency  
Register of frequency assignments to stations in the fixed-satellite service in  
the band 11.7 12.2 GHz with respect to stations in the broadcasting-satellite  
service in Region 2;

resolves

that the provisions of Article 9A of the Radio Regulations shall be  
applied in such cases until the matter is considered by a competent  
Administrative Radio Conference.

## RESOLUTION No. E

**Relating to the coordination, notification and recording  
in the Master International Frequency Register of frequency assignments  
to stations in the broadcasting-satellite service in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that a plan will be established for the  
broadcasting-satellite service in Region 2 in accordance with  
Recommendation HH;

b) that in Region 2 the broadcasting-satellite service should be  
operated on the basis of the principles contained in Article 11 and  
Annexes [...and...] of these Final Acts;

c) that some of the provisions adopted by this Conference  
concerning the broadcasting-satellite service in Regions 1 and 3 may also be  
applied in Region 2 prior to the entry into force of the plan for that Region  
to be established pursuant to Recommendation HH;

d) that, in the interim period, the procedures described in  
Resolution No. Spa2 - 3 will continue to apply in Region 2;

resolves

1. that an administration intending to bring into use a space  
station in the broadcasting-satellite service in Region 2 shall, for the  
purpose of coordination with space systems of other administrations, apply the  
relevant provisions of Article 9A of the Radio Regulations i.e., Nos. 639AA  
to 639AI inclusive;

2. that the relevant provisions of Resolution No. Spa2 - 3 shall  
apply to the coordination, notification and recording of stations in the  
broadcasting-satellite service in Region 2, wherever a station in the  
broadcasting-satellite service or the fixed-satellite service in Region 2 is  
involved;

2.1 that an administration notifying a frequency assignment to  
a space station in the broadcasting-satellite service in Region 2 under  
paragraph 4.1 of Resolution No. Spa2 - 3 shall also notify a typical receiving  
earth station;

3. that the coordination, notification and recording procedures for stations in the fixed-satellite service specified in Article 7 of these Final Acts shall also apply to stations in the broadcasting-satellite service in Region 2 with respect to stations in the broadcasting-satellite service for which a frequency assignment appears in the Plan whenever

- any portion of the necessary bandwidth of the proposed frequency assignment in Region 2 falls within the necessary bandwidth of a frequency assignment in Region 1 or Region 3, and
- the power flux density which would be produced by the proposed broadcasting-satellite frequency assignment in Region 2 exceeds the value specified in Annex 1.

4. that Annex 2 of these Final Acts shall be used in supplying the information referred to in Section B of Resolution No. Spa2 - 3 and Section II of Article 7;

5. that an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2 for any frequency assignment notified under paragraph 4.1 of Resolution No. Spa2 - 3 or paragraph 2.1 of this Resolution or Section III of Article 7 of these Final Acts.

## RESOLUTION No. F

**Relating to the use, by space stations operating in the frequency bands 11.7 – 12.2 GHz (in Regions 2 and 3) and 11.7 – 12.5 GHz (in Region 1), of the geostationary orbit and no other**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that a plan designating frequency assignments in the above-mentioned frequency bands and positions in the geostationary orbit has been adopted by the Conference for Regions 1 and 3;

b) that a similar plan for Region 2 is expected to result from a Regional Administrative Radio Conference in 1982;

c) that the operation of space radiocommunication services in the frequency bands concerned in orbits other than the geostationary orbit would be incompatible with the plans referred to in a) and b) above;

resolves

that administrations shall ensure that their space stations in these frequency bands are operated in the geostationary orbit and no other.

## RECOMMENDATION No. AA

To the CCIR relating to spurious emissions  
in the broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that space stations in the broadcasting-satellite service operating at high power levels are likely to cause interference to services in adjacent and in harmonically related frequency bands due to spurious emissions;

b) that, in the planning of the broadcasting-satellite service, account must be taken of the need to reduce interference to services operating in adjacent bands to acceptable levels at the lower and upper edges of the bands 11.7 - 12.2 GHz in Regions 2 and 3 and 11.7 - 12.5 GHz in Region 1, and to the radio astronomy service which has an exclusive allocation at 23.6 - 24 GHz in all three Regions;

c) the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;

d) the studies being pursued by the CCIR under the appropriate Study Programme;

invites the CCIR

to continue, as a matter of urgency, the study of the technical and operational aspects of spurious emissions from space stations in the broadcasting-satellite service to enable the Special Joint Meeting of CCIR Study Groups to draw up a report for the 1979 World Administrative Radio Conference.



## RECOMMENDATION No. BB

To the CCIR relating to transmitting antennae  
for the broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) the need for ample information on transmitting antennae for  
the planning of the broadcasting-satellite service;

b) the technical data required to enable the 1979 World Administrative  
Radio Conference to revise the Radio Regulations;

c) the studies being pursued by the CCIR under the appropriate  
Questions and Study Programmes;

invites the CCIR

1. to continue the study of reference patterns for the co-polar  
and cross-polar components of transmitting antennae for the broadcasting-  
satellite service for both individual and community reception, and in particular  
the practicable means of achieving various degrees of improved side-lobe  
suppression and the economic implication thereof;

2. to initiate the study of the technical characteristics designed  
to achieve a pointing accuracy for transmitting antenna such that :

- the deviation of the antenna beam from its nominal direction of  
pointing shall not exceed  $0.1^{\circ}$ ;
- the angle of rotation of the transmitting beam about its axis  
shall not exceed  $\pm 2^{\circ}$ ;

3. to submit as much information as possible on these problems to  
the 1979 World Administrative Radio Conference.

## RECOMMENDATION No. CC

To the CCIR relating to studies of propagation at 12 GHz  
for the broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

- a) the need for ample information on the various propagation factors required for the planning of the broadcasting-satellite service;
- b) the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;
- c) the studies being pursued by the CCIR under the appropriate Study Programmes;

invites the CCIR

1. to continue the study of the effects of precipitation attenuation at low angles of incidence in all rain-climatic zones;
2. to initiate the study of the effects of sand and dust storms;
3. to examine the relationship between the propagation characteristics for 99 % of the worst month and those for the year;
4. to examine, for emissions using circular polarization, the level of the depolarized component relative to the polarized component;
5. to submit as much information as possible on these problems to the 1979 World Administrative Radio Conference.

RECOMMENDATION No. DD

To the CCIR relating to up-links for the  
broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) the need for ample information on the characteristics of  
up-links for planning the broadcasting-satellite service;

b) the technical data required to enable the 1979 World Administrative  
Radio Conference to revise the Radio Regulations;

c) the studies being pursued by the CCIR under the appropriate  
Study Programme;

d) that the protection ratios in the up-links to broadcasting  
satellites need to be approximately one order of magnitude greater than those  
in the down-links;

e) that, as regards up-link interference between broadcasting  
satellites at different orbital positions, adequate up-link protection ratios  
(approximately 10 dB greater than those in the down-link) would appear to be  
readily achievable by antenna pattern discrimination in earth station  
transmitting antennae which would clearly have to be larger in diameter than  
the receiving antennae used in the down-links;

f) that, where planning is based on isolation parameters such as  
radiation patterns for space station transmitting antennae, carrier inter-  
leaving, and/or polarization discrimination in meeting the down-link carrier-  
to-interference requirements between service areas served from a single orbital  
position, the increased carrier-to-interference requirements in the up-links  
serving the satellite(s) at that same orbital position will have to use the  
same isolation parameters provided that this produces an improvement of about  
10 dB in net isolation. The characteristics of the transmitting earth station  
will clearly not affect this isolation, apart from the purity of their  
on-beam polarization;

g) that in the implementation of broadcasting-satellite systems,  
consideration must be given to all aspects of associated space operation  
service functions (tracking, telemetry, telecommand and ranging) in connection  
with the operation of broadcasting satellites;

invites the CCIR

1. to continue the study of those radiation characteristics of receiving antennae of space stations in the broadcasting-satellite service which, singly or in combination with other means of discrimination, would give the necessary protection ratios for the up-links of systems in the broadcasting-satellite service for (a) satellite(s) occupying a given position in the geostationary satellite orbit;
2. to continue the study of those polarization characteristics of receiving antennae of space stations in the broadcasting-satellite service which, singly or in combination with other means of discrimination, would give the necessary protection ratios for the up-links of systems in the broadcasting-satellite service for (a) satellite(s) occupying a given position in the geostationary satellite orbit;
3. to continue the study of the technical up-link characteristics required to implement the plan for this service;
4. to study the technical and design characteristics and requirements which affect the provision of "space operation service functions" of space stations in the broadcasting-satellite service;
5. to study the requirements for adjacent-channel isolation in up-links for (a) satellite(s) in the broadcasting-satellite service occupying a given position in the geostationary satellite orbit;
6. to draw up a report at the Special Joint Meeting of CCIR Study Groups to be held for the preparation of technical data for the 1979 World Administrative Radio Conference.

RECOMMENDATION No. EE

Relating to up-links for the broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that, according to the definition given in No. 84AG of the Radio Regulations, the fixed-satellite service includes earth-to-space links for the broadcasting-satellite service;

b) that there is an imbalance between the width of the bands allocated to earth-to-space links and those allocated to space-to-earth links in the fixed-satellite and broadcasting-satellite services between 10 and 15 GHz;

c) that, in consequence, the earth-to-space capacity may be insufficient to meet future demands for space-to-earth links for the broadcasting-satellite and fixed-satellite services;

d) that, due to interference considerations, space stations in both services may be subject to severe up-link constraints;

e) that Recommendation No. DD invites the CCIR to continue the studies on up-links for the broadcasting-satellite service;

invites administrations

to estimate their future technical requirements for such links for the purpose of the studies mentioned in e) above, and to forward them to the appropriate CCIR Study Groups and to the Special Joint Meeting of CCIR Study Groups to be held in preparation for the 1979 World Administrative Radio Conference.

RECOMMENDATION No. FF

To the CCIR relating to the interdependence of  
receiver design, channel grouping and sharing criteria

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that receiver design, channel grouping and sharing criteria are interrelated and have a considerable influence on the development of a plan for the broadcasting-satellite service;

b) that, so far, insufficient attention may have been given to these factors and to their influence on the implementation of such a plan;

invites the CCIR

to study the problem of the interdependence of receiver design, channel grouping and sharing criteria, together with the effects of these factors on the operation of the broadcasting-satellite service.

INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 307-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Togolese Republic

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the delegation of the Togolese Republic reserves its Government's right to take any action it may consider necessary to safeguard its interests should any Member fail to abide by the Final Acts and their Annexes and the Protocol attached thereto or should any reservations formulated by other countries jeopardize the proper functioning of its Broadcasting-Satellite Services.



INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 308-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Guinea

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the delegation of the Republic of Guinea reserves its Government's right to take any measures necessary in order to safeguard its interests if reservations made by other delegations on behalf of their administrations or non-compliance with the Final Acts and Annexes should have the effect of jeopardizing the satisfactory operation of the Satellite- and Terrestrial-Broadcasting Services of the Republic of Guinea.





INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 309-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For Australia, New Zealand and Papua New Guinea

The Plan as published shows an Australian system providing three beams each of six channels from orbital position  $98^{\circ}\text{E}$  to the Western States and similarly three beams each with six channels to the Eastern States from orbital position  $128^{\circ}\text{E}$ . The Plan also shows New Zealand systems operating from both  $158^{\circ}\text{E}$  and  $128^{\circ}\text{E}$  and Papua New Guinea systems operating from  $110^{\circ}\text{E}$  and  $128^{\circ}\text{E}$ .

In the case of the systems on  $128^{\circ}\text{E}$  it is proposed, as an interim development, for the three countries to share a satellite which would enable a small number of programmes to be provided into each of the Australian states and in New Zealand and Papua New Guinea.

The planning of this initial system has not yet been finalized and the coordination of the channel allocations will be undertaken outside the Conference using the technical criteria and coordination procedures established at the Conference.



INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

**(Geneva, 1977)**

Document No. 310-E

11 February 1977

Original : Spanish

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Bolivia

The delegation of the Republic of Bolivia to the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in frequency bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1), in signing the Final Acts of the Conference, reserves its Government's right to take any action it might consider necessary to safeguard its interests should the lack of a plan for Region 2 in any way jeopardize subsequent plans for the use of the orbit by the broadcasting-satellite or any other telecommunication service.



INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 311-E  
11 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Kingdom of Saudi Arabia, State of Bahrain, Arab Republic of Egypt, United Arab Emirates, State of Kuwait, Kingdom of Morocco, Islamic Republic of Mauritania, Sultanate of Oman, Yemen Arab Republic, People's Democratic Republic of Yemen

The above-mentioned delegations declare that the signature and possible subsequent notification by their respective Governments of the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, (Geneva, 1977) does not imply the recognition of Israel in any way.



INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 312-E

11 February 1977

Original : English

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PLENARY MEETING

FINAL PROTOCOL

For Algerian Democratic and Popular Republic, Kingdom of Saudi Arabia, State of Kuwait, Kingdom of Morocco, Democratic Republic of the Sudan, Tunisia, Yemen Arab Republic

The delegations of the above-mentioned countries reserve their rights to take any action required to safeguard their interests to implement and protect their Satellite-Broadcasting and Terrestrial Telecommunication Services in case if any country violates the Final Acts of this Conference.

PLENARY MEETING

FINAL PROTOCOL

For Algerian Democratic and Popular Republic, Kingdom of Saudi Arabia, State of Bahrain, People's Republic of Bangladesh, Arab Republic of Egypt, United Arab Emirates, State of Kuwait, Malaysia, Kingdom of Morocco, Sultanate of Oman, Pakistan, Democratic Republic of the Sudan, Tunisia, Yemen Arab Republic, People's Democratic Republic of Yemen

The delegations of the above-mentioned countries who have supported the request submitted by the delegation of Saudi Arabia for the proposed Islamic Programme originating from Saudi Arabia, which was not incorporated in the Plan appropriately, reserve their right to press for the implementation of this proposal in future whenever it is technically feasible.

MINUTES

OF THE

SEVENTH PLENARY MEETING

Page 7, item 4 (Documents submitted by Committee 4),  
replace the third paragraph by the following :

The delegate of Denmark pointed out that in the second formula  
for curve B the figure  $0.33\phi$  should read  $0.33\phi_0$ .

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 314-E  
15 February 1977  
Original : English

PLENARY MEETING

MINUTES

OF THE

SEVENTH PLENARY MEETING

Tuesday, 8 February 1977, at 1415 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

Subjects discussed

Documents Nos.

- |   |                    |
|---|--------------------|
| 1. Extension of the Conference and deadlines for the tabling of declarations and counter-declarations |                    |
| 2. Report of Committee 2  | 241                |
| 3. Fifth, sixth, seventh and eighth series of texts submitted by the Editorial Committee              | 231, 232, 234, 235 |
| 4. Document submitted by Committee 4  | 243                |
| 5. Final Report of the Budget Control Committee   | 217                |
| 6. Period of validity of the Plan   |                    |

- 
1. Extension of the Conference and deadlines for the tabling of declarations and counter-declarations

The Chairman announced that the Steering Committee had decided to prolong the Conference by one day, Saturday 12 February. The situation would be reviewed again on Thursday, 10 February and, depending on the progress of work in Committee 5 and the Plenary Meetings, the possibility of a further extension might have to be considered at that time.



Following the Steering Committee's decision, new deadlines had been set for the tabling of declarations and counter-declarations, namely, Thursday, 10 February at 2000 hrs for declarations and Friday, 11 February at 2000 hrs for counter-declarations. For formal reasons, it would not be possible to make any exceptions in respect of those deadlines.

The Secretary-General drew attention to No. 513 of the Convention, which provided for the tabling of reservations to be included in the Final Protocol to the Final Acts of the Conference. All such reservations must be brought to the notice of the Plenary Meeting in order to enable any delegations wishing to enter counter-reservations to do so. Consequently, a twenty-four hour interval had been allowed between the deadline for declarations and that for counter-declarations.

The delegate of Mexico said that if the Plan or any of the basic documents produced by the Conference were to be modified on Thursday, 10 February in such a way as to affect the interests of his Administration, it would be necessary for his delegation to reconsider the deadlines indicated by the Chairman.

The delegate of Uruguay observed that reservations could only be tabled once the results of the Conference were known. Should any problems still remain unsolved on Thursday, 10 or Friday, 11 February, some provision would presumably have to be made for the tabling of reservations on those matters later than the deadlines to which reference had been made.

The Secretary-General said that a certain amount of flexibility would be introduced should such a situation arise.

The Chairman said that if he heard no objection he would take it that the procedure he had outlined and the explanations given by the Secretary-General were acceptable to delegations.

It was so agreed.

2. Report of Committee 2 (Document No. 241)

The Chairman of Committee 2 introduced the Committee's Report, drawing particular attention to the recommendation in paragraph 4 (page 1).

The recommendation, having been supported by the delegate of Mexico, was adopted.

The Chairman of Committee 2, referring to page 3 of the Annex, said that "Roumania (Socialist Republic of)" should be inserted in the appropriate place in paragraph 1.1, and "Central African Empire" and "Congo (People's Republic of)" in paragraph 1.2.1. The names of those three countries should be deleted from pages 4 and 5.

The Report of Committee 2 and its Annex (Document No. 241), as amended, were adopted.



3. Fifth, sixth, seventh and eighth series of texts submitted by the Editorial Committee (Documents Nos. 231, 232, 234, 235)

Fifth series of texts (B.5) (Document No. 231)

The Chairman of Committee 8 said that the texts in question, which originated from Document No. 177, were to be incorporated in an Annex to the Final Acts relating to technical sharing criteria.

Paragraph 1.1

On a proposal by the delegate of the United Kingdom, it was agreed to alter the first part of the introductory sentence to read : "The establishment of sharing criteria for the different services using the 12 GHz band....".

On a proposal by the delegate of Spain, it was agreed to change the headings of the first two columns of the table (page 3) to read, respectively, "Wanted service" and "Wanted signal".

The Chairman of Committee 8 read out a minor editorial correction to be made in the first line of the first column of the table in the French and Spanish texts.

The representative of the IFRB drew attention to the value 30 dB in the first line of the fifth column of the table, observing that 31 dB was given for the same value in another document. It would perhaps be appropriate to replace "30 dB" by "31 dB" in the table and to delete Note 4.

The Chairman of Committee 5 said that Committee 5 had adopted 31 dB as the protection ratio value for the same channel in Regions 1 and 3.

The delegate of the United Kingdom said that the value 31 dB had indeed been used for planning purposes, but that 30 dB was the correct figure to be used as one of the parameters for the establishment of sharing criteria.

The delegate of the United States of America said he would welcome information on the reasons for which Committee 5 had in certain cases adopted values that were different from those which Committee 4, often after lengthy discussions, had recommended for planning purposes.

The Chairman of Committee 5 said that Committee 5 had added 1 dB to the protection value after taking into account tube ageing and various other considerations.

The representative of the IFRB, referring to the French text only, said that the word "défavorable" should be replaced by "défavorisée" in Note 3.

It was so agreed.

In reply to a question by the representative of the IFRB concerning Note 5, the Chairman of Working Group 4B said that the Note had been included for the sole purpose of indicating the source of the value in question.

The delegate of Egypt observed that Note 6 might be misleading, since it related to the method of calculating the protection ratio and not to the protection requirement itself.

The Chairman of Working Group 4B said that the wording of Note 6 was a compromise solution which had been worked out by a small drafting group and adopted by the Working Group after lengthy discussions on the subject.

The representative of the IFRB, referring to Note 6, said it was his understanding that the IFRB would, if the need arose, have all latitude to take account of the conditions prevailing in tropical regions.

The delegate of Australia, referring to Note 7, proposed that the word "wanted" should be replaced by "carrier".

It was so agreed.

#### Paragraph 1.2

On a proposal by the delegate of the United Kingdom, it was agreed to replace the word "protected" by "wanted" in the first and last sentences.

On a proposal by the delegate of Canada, it was agreed to replace the phrase "for planning purposes" by the phrase "for determining sharing criteria" in the second sentence.

#### Paragraph 1.3

The representative of the IFRB suggested that the first sentence should refer to the receiver input rather than to the receiving ground station only.

It was so agreed.

#### Paragraph 1.4

On a proposal by the delegate of France, it was agreed to replace "post-detection" by "post-demodulation" in the first sentence.

#### Paragraph 1.6

On a proposal by the delegate of the United Kingdom, it was agreed to replace "protected" by "wanted" in the first line and sub-paragraph a).

#### Paragraph 1.8

The Chairman of Committee 8, referring to A, B and C underneath the figure, said that "protected" should be replaced by "wanted" in all three cases.

The fifth series of texts (B.5) was approved on first reading, as amended and subject to editorial changes.

Sixth series of texts (B.6) (Document No. 232)

The Chairman of Committee 8 introduced Document No. 232, indicating minor editorial corrections, and the Chairman of Committee 6 said that, apart from editorial changes, the document was exactly as Committee 6 had received it from Committee 4.

Title

On the proposal of the United Kingdom delegate, it was agreed that on pages 1 and 2 the words "in the band 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1)" should be placed after the words "service area".

Paragraph 2.1

It was agreed that the term "wanted bandwidth" should be changed to "necessary bandwidth".

Paragraph 1.4 c)

On the proposal of the United Kingdom delegate, it was agreed that the sub-paragraph should read "the necessary protection ratios for the broadcasting-satellite service."

Paragraph 2.3.3

In reply to the delegate of Australia, the Chairman of Committee 5 pointed out that the term "occupied bandwidth" was not used in any other document.

The delegate of the United Kingdom said that the Sub-Working Group under his chairmanship had done the earlier technical work on the point in question. The idea had been that the separation between the carriers of the broadcasting-satellite service and the terrestrial service should be about 30 MHz. In order to express that, the phrase "occupied bandwidth" which was clearly defined in the Radio Regulations, had been taken and there had been considerable discussion on the derivation of the 7 MHz figure, but for typical terrestrial service bandwidths and the broadcasting-satellite bandwidth, that would correspond to carrier separations of about 30 MHz.

The Chairman of Committee 8 pointed out that a slight problem arose because the bandwidth occupied by another administration was not generally known, only the necessary bandwidth, and one could not be deduced from the other.

After discussion, it was agreed that paragraph 2.3.3 should be amended to read : "A signal ... only if its necessary bandwidth overlaps the necessary bandwidth of the broadcasting-satellite assignment."

As a consequence, "occupied bandwidth" should be changed to "necessary bandwidth" also in paragraph 2.3.2.

Paragraphs 2.4.1 and 2.4.2

It was agreed to delete the words " / for protection / ".

At the suggestion of the representative of the IFRB, it was also agreed to delete the words "either as specified in the Plan or".

The sixth series of texts submitted by the Editorial Committee was approved on first reading, as amended, and subject to editorial changes.

Seventh series of texts (B.7) (Document No. 234)

The Chairman of Committee 8 introduced Document No. 234.

Paragraph 1.1

On the proposal of the Chairman of Committee 6, it was agreed to delete the words "...or are separated by less than 7 MHz ..".

Footnote 2) on page 2

On the proposal of the delegate of the United Kingdom, it was agreed that the footnote should be amended to read : " .... except that determination of the need for the coordination referred to in No. 492A of the Radio Regulations shall be based on Appendix / see B.6 / ."

Paragraph 3.10 c)

It was agreed to replace the word "station" by "assignment".

The delegate of Italy said that the use of the expression station or frequency assignment "which appears in the Plan" might give the impression that only those which appeared in the Plan at the time of signature were covered. He therefore proposed that those words referring to a station or frequency assignment should be changed to "in conformity with the Plan" wherever they appeared in the document.

It was so agreed.

The seventh series of texts submitted by the Editorial Committee was approved on first reading, as amended, and subject to editorial changes.

Eighth series of texts (B.8) (Document No. 235)

The Chairman said that the term "occupied bandwidth" should be replaced by "necessary bandwidth" throughout the document.

The Chairman of Committee 6 said that all references to "the Broadcasting-Satellite Plan" should be shortened to "the Plan".

Section I

The Chairman said that footnote 2) to paragraph 1.1 should be deleted.

Section I, as amended, was approved.

Section II

The Chairman said that the words "new or modified" in the second line of paragraph 2.1 should be deleted.

The delegate of Italy said that the Appendix marked with one asterisk in that paragraph was Appendix D. The same applied to the Appendix mentioned in paragraph 2.3, and footnote 1) on page 4 could now be deleted.

Section II, as amended, was approved.

Sections III to IX

Approved.

Section X

The delegate of Italy said that the Appendix referred to in sub-paragraph a) was Appendix D.

Section X, as amended, was approved.

Document No. 235, as amended, was approved.

4. Document submitted by Committee 4 (Document No. 243)

The Chairman said that, although the Plenary Meeting could not discuss the text of the document until the results of calculations of orbital positions were made known, the Chairman of Committee 5 was anxious for the Plenary to approve the revised reference antenna pattern on page 5, since that pattern had to serve as a basis for planning work.

The representative of the CCIR said that the figure 12.7 in the third formula for curve A should be replaced by 17.5.

The delegate of Denmark said that the figure -33 in the second formula for curve B should be -50.

The reference antenna pattern on page 5 of Document No. 243 was approved.

5. Final Report of the Budget Control Committee (Document No. 217)

The Chairman of Committee 3 introduced the report, pointing out that the words "an updated edition of the report ... and the Additional Radio Regulations" at the end of paragraph 3 should be replaced by "the re-arranged Radio Regulations as in 'resolves' paragraph 1 of Resolution No. A."

In reply to a question by the Chairman, the Chairman of Committee 3 said that two copies of the Final Acts would be handed to smaller delegations and three or four to larger ones.

In reply to the delegate of Spain, the Deputy Secretary-General said that the additional copies would be sent to administrations within ten days after the end of the Conference, but that surface mail would be used to reduce expenditure.

The final report of Committee 3 was approved.

The Chairman of Committee 3 expressed his thanks to all those who had helped him to bring the Committee's work to a successful conclusion.

6. Period of validity of the Plan

The delegate of India said that, in view of the different opinions held on the period of validity of the Plan, it would be advisable to discuss the matter in the Plenary Meeting as soon as possible.

The Chairman of Committee 6 said that his Committee had come to no final decision on the question, but that the relevant document would be placed before the Plenary Meeting the following day.

The delegate of the United Kingdom said he saw no reason to single that provision out for especially urgent consideration. In any case, the Plan would remain in force until it was revised by a future competent Administrative Radio Conference.

The Chairman said that the point would be dealt with in connection with the relevant texts from Committee 6.

The meeting rose at 1755 hours.

The Secretary-General :

M. MILI

The Chairman :

I. LØNBERG

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 315-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the United Republic of Tanzania

The delegation of the United Republic of Tanzania to the World Administrative Broadcasting-Satellite Conference, Geneva, 1977, declares that its Government reserves the right to take any measures it considers necessary to safeguard its interests should failure by other countries to observe the provisions of the Final Acts of the Conference prove prejudicial to the proper functioning of its services.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 316-E

11 February 1977

Original : English

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PLENARY MEETING

FINAL PROTOCOL

For the Federative Republic of Brazil

A plan will be established for the Broadcasting-Satellite Service in Region 2 as a result from a Regional Administrative Radio Conference to be held in 1982.

In Region 2 the Broadcasting-Satellite Service should be operated on the basis of principles and provisions contained in Document No. 204.

The Brazilian Administration draws the attention of this Conference to the fact that 5 TV channels for each service area in the territory of Brazil is the minimum number of channels necessary to satisfy its requirements.

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**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 317-E  
11 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Democratic Republic of the Sudan

1. While signing the Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service, Geneva 1977, in the frequency bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1), the delegation of the Democratic Republic of the Sudan reserves the right of its Government to take such measures as may be necessary to safeguard its interests should any country reserve and/or not accept the provisions of the Final Acts including the Associated Plan.
  
2. The delegation of the Democratic Republic of the Sudan wishes to point out that the interference caused by the beam ET 0092A may prove to be harmful. The Sudanese delegation reserves the right of its Government to take appropriate measures to ensure that its Satellite Broadcasting Services are free of harmful interference.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

PLENARY MEETING

FINAL PROTOCOL

For the People's Democratic Republic of Yemen

The delegation of the People's Democratic Republic of Yemen to the World Administrative Broadcasting-Satellite Conference, Geneva 1977, reserves its Government's right to take any measures it may deem necessary to protect its interests if other countries fail to respect the Final Acts and its Annexes adopted by this Conference.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 319-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Central African Empire

The delegation of the Central African Empire to the World Broadcasting-Satellite Administrative Radio Conference, desiring the geostationary orbit to be used in an equitable manner and solely for peaceful purposes, declares that its Government reserves the right to take whatever action may be required to safeguard its national and international interests should the Final Acts and the Plan annexed thereto, as drawn up by the Conference, contravene the provisions of its Constitution or infringe upon its sovereignty.

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**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 320-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the State of Bahrain and the United Arab Emirates

In signing the Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service (Geneva, 1977), the delegations of the State of Bahrain and of the United Arab Emirates declare that their Administrations reserve the right to take such measures as they may deem necessary to safeguard their interests, should an Administration fail in any way to observe the provisions of the Final Acts or should the reservations made by other Administrations jeopardize the telecommunication services or liable to infringe upon the sovereign rights of the State of Bahrain and of the United Arab Emirates.

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**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 321-E  
11 February 1977  
Original : English

COMMITTEE 6

SUMMARY RECORD  
OF THE  
EIGHTH MEETING OF COMMITTEE 6  
(PROCEDURES)

Saturday, 5 February 1977, at 0915 hrs and 1430 hrs

Chairman : Mr. R.J. BUNDLE (New Zealand)

<u>Subjects discussed</u> :	<u>Documents Nos.</u>
1. Definition of service area (continued)	159
2. First Report of Working Group 6B (continued)	185 + Corr.1
3. Second Report of Working Group 6A	220, 210
4. Second Report of Working Group 6B	221
5. Approval of the summary record of the fifth meeting	203
6. Organization of the work of Committee 6	
7. First Report of Working Group 6D	227

1. Definition of service area (Document No. 159 (continued))

The Chairman recalled the discussion which had taken place at the Committee's sixth meeting concerning the definition of service area and the related Note (Document No. 159, page 2). Following the consultations he had held on the matter with the Chairman of Committee 4, he was in a position to propose the deletion of the last sentence of the Note.

The delegate of the German Democratic Republic, replying to a question by the Chairman, said that his delegation was prepared to withdraw the amendment it had proposed at the Committee's sixth meeting.



The definition of service area given in Document No. 159 was approved subject to the deletion of the last sentence of the related Note.

2. First Report of Working Group 6B (Document No. 185 + Corr.1 (continued))

The delegate of the United Kingdom said that the consultations regarding the title of the Annex between the delegations concerned and the IFRB had enabled agreement to be reached with regard to his delegation's suggestion. Accordingly, he proposed the insertion of the phrase "affecting broadcasting-satellite stations" after the words "terrestrial stations" in the third line of the title, and the deletion of the phrase "in cases where broadcasting-satellite stations are involved".

In reply to a question by the delegate of the Federal Republic of Germany, the Chairman said it was his understanding that the footnote to the title would not be affected by those changes.

The delegates of Australia, Venezuela and Sweden supported the United Kingdom proposal.

The delegate of China said that to amend the title as proposed by the United Kingdom delegation would be to place Region 3 countries under an obligation to apply the procedures set out in the Annex to frequency assignments outside the band 11.7 - 12.2 GHz. Since it was not within the purview of the Conference to take any action which would affect bands other than the 11.7 - 12.2 GHz band in Region 3, he proposed that the title of the Annex should be retained as it stood.

The delegates of Iran and Indonesia supported that proposal.

The delegate of the United Kingdom said that his delegation understood the term "other services" used in paragraph 2.1 of Administrative Council Resolution No. 762 (Document No. 1) to mean those services in the whole of the band 11.7 - 12.5 GHz which affected Broadcasting-Satellite Services in the bands 11.7 - 12.2 GHz in Regions 2 and 3 and 11.7 - 12.5 GHz in Region 1. In his view, therefore, the proposed amendment was perfectly consistent with the terms of reference of the Conference.

It would no doubt be possible to overcome any differences of opinion concerning the interpretation of the terms of reference of the Conference. However, the following factual situation would arise if the title of the Annex was not altered : the Broadcasting-Satellite Service to the USSR in the area of that country which bordered on Chinese territory would not be protected from Chinese terrestrial services, since it was planned for the USSR services in question to use the band 12.2 - 12.5 GHz. Therefore, if the procedure in the Annex did not apply to Chinese terrestrial services in the band 12.2 - 12.5 GHz, the Conference would have failed to achieve its objectives with regard to sharing criteria and protection provisions.

The delegate of the USSR considered that the title of the Annex, however it was worded, could not affect the terms of reference of the Conference and the substantive issue involved, namely, the establishment of coordination procedures for the bands 11.7 - 12.2 GHz in Regions 2 and 3 and 11.7 - 12.5 GHz in Region 1, and adequate protection of the latter from interference by

services in Regions 2 and 3. The example used by the United Kingdom delegate to illustrate his point was not the only one that could be quoted; other geographical areas in Region 1 and 3 could also be affected.

The delegate of China said he could not agree with the views expressed by the delegates of the United Kingdom and the USSR. Not only the border area between China and the USSR but Regions 1 and 3 in their totality were involved. If Region 3 were to take on commitments outside its frequency band as laid down in the terms of reference of the Conference, it would be necessary also to discuss the question of protection of services using the 300 MHz band.

Having called for a show of hands in order to sound out the Committee's reaction to the United Kingdom proposal, the Chairman said that a fairly large number of delegations appeared to be in favour of the changes in question. He therefore proposed to consider the title of the Annex as having been amended in accordance with that proposal.

The delegate of China reserved the right to comment on the question at a later stage.

The Chairman invited the Committee to consider the contents of the Annex paragraph by paragraph.

#### Paragraph 1

On a proposal by the delegate of Japan, supported by the delegate of the United Kingdom, it was agreed to delete "contracting" from the first line of the paragraph.

On a proposal by the Chairman of Working Group 6B, it was agreed to amend the last phrase of the first sub-paragraph to read: "separated by less than 7 MHz and".

On proposals by the delegates of Japan and the United Kingdom, it was agreed to amend the last sub-paragraph to read: "at one or more points on the edge of the service area which is within the coverage area concerned of the Broadcasting-Satellite Service for that Administration".

Paragraph 1, as amended, was approved.

#### Paragraphs 1.1 and 1.2

Approved.

#### Paragraph 1.3

Approved subject to the insertion of the words "devant être" before the word "assurés" in the French text.

#### Paragraphs 1.4 to 1.8

Approved.

Paragraph 1.9

The representative of the IFRB said that the words "its earth station" at the end of the paragraph should be replaced by "its broadcasting-satellite station".

Following a discussion in which the delegates of Algeria and the United Kingdom, the representative of the IFRB, the Vice-Chairman and the Chairman took part, it was agreed to insert the phrase "or to be rendered" after the words "service rendered" towards the end of the paragraph.

Paragraph 1.9, as amended, was approved.

Paragraph 1.10

Approved.

Paragraph 1.11

The Chairman said that the text in the Corrigendum should be substituted for the text between square brackets in Document No. 185.

On a proposal by the delegate of the United Kingdom, it was agreed to delete the phrase "provided that the assistance of the Board has been requested".

Paragraph 1.11 as set out in the Corrigendum, as amended, was approved.

Paragraph 1.12

On a proposal by the Chairman of Working Group 6B, supported by the delegate of the United Kingdom, it was agreed to delete the paragraph.

Paragraphs 2.1 to 3.14

Approved.

Paragraph 3.15

The Chairman said that the text in the Corrigendum should be substituted for that in Document No. 185.

Paragraph 3.15 as set out in the Corrigendum was approved subject to the substitution of the word "condition" for the word "coordination" in the second sentence, and consequential drafting amendments to the French and Spanish texts.

Paragraphs 3.16 to 3.20

Approved.



Paragraph 3.21

The delegate of Algeria observed that the term "earth stations" in the first sentence was used out of context.

The Chairman said that the appropriate correction would be made.

Paragraph 3.21 was approved on that understanding.

Paragraphs 3.22 and 3.23

Approved.

Paragraph 3.24

Approved, subject to amendment of the term "earth stations" in the first sentence to Broadcasting-Satellite Service.

Paragraphs 3.25 to 3.31

Approved.

Paragraph 3.32

The Chairman said that the text in the Corrigendum should be substituted for that in Document No. 185.

The delegate of the United Kingdom said that the word "coordination" in the second sentence should be replaced by "condition". He proposed the replacement of "IFRB" by "Board" in the last sentence. Furthermore, in order to take into account a point raised by the delegation of the USSR, he proposed that the following sentence should be added at the end of the paragraph :  
"The notifying administration using the frequency assignment during a specified period shall not use this circumstance subsequently for the continued use of this frequency beyond the period specified if it does not obtain the agreement of the administration or administrations concerned, as the case may be."

Paragraph 3.32 as set out in the Corrigendum, as amended, was approved.

Paragraphs 3.33 to 4

Approved.

Appendix

The Chairman said the Committee might wish to note that, the question having been discussed, Document No. 169 had been considered to be acceptable for the purpose of calculating power flux-density.

It was so agreed.

Document No. 185 and Corrigendum No. 1 as a whole, as amended, was approved.

The Chairman said it had been proposed that the following text be incorporated in Document No. 185, possibly in the form of a new Article. It read :

"[.....] The procedures for coordination, notification and recording of assignments to terrestrial stations vis-à-vis broadcasting-satellite stations in Region 2 are contained in Article 9 of the Radio Regulations, except that the coordination area referred to in No. 492A of the Radio Regulations is replaced by the power flux-density limits provided for in [Appendix ...]."

That text was approved for submission to Committee 8 together with Document No. 185.

3. Second Report of Working Group 6A (Documents Nos. 220, 210)

The Chairman of Working Group 6A, introducing its second Report (Document No. 220), explained that the Ad Hoc 4/6 Group would be reporting direct to the Committee concerning its deliberations on Appendix B which would then have to be attached to the document.

The results of the study by the Working Group on the items and the Miscellaneous Provisions referred back to it (point 1.2 in the Report) were contained in Annex 1. The numbers of the items had been left in square brackets because some renumbering was thought necessary so as to achieve a more logical order : that question could be referred to Committee 8.

Annex 1 was approved.

The Chairman of Working Group 6A drew attention to the additional wording proposed for insertion at the end of Article [4], paragraph 4.3.2 and at the end of Article 5, paragraph 5.2.5 in Document No. 210. The new texts were given in points 1.3 and 1.4 respectively of the Working Group's Report.

Those texts were approved.

The Chairman of Working Group 6A explained that a set of procedures concerning coordination, notification and registration of broadcasting-satellite stations in Region 2 had been prepared by Sub-Working Group 6A2 and examined since it seemed desirable to have ready at least a preliminary text (Annex 2 of the Report) for possible inclusion in the Final Acts. However, the decision would be contingent upon the outcome of certain discussions in Committee 5, particularly in respect of Document No. 204.

The delegate of the United Kingdom pointed out that Working Group 6D had considered Document No. 204 the previous day and had proceeded on the assumption that there would be no plan. Accordingly, he proposed that Committee 6 defer examination of Annex 2 in Document No. 220 until the Chairman had had an opportunity of ascertaining from the Chairman of Committee 5 whether or not there would be a plan within the meaning of Resolutions Nos. Spa2 - 2 and Spa2 - 3. Otherwise it would be wholly unproductive to discuss Annex 2 in detail.

The views of the United Kingdom delegation concerning various aspects of the regulatory provisions which were being developed and their special implications for broadcasting satellites in Region 2 were set out in Document No. 215, paragraph 3.

The delegates of Mexico and Venezuela agreed with the United Kingdom delegate, particularly in view of the statement in paragraph 15 of the Annex to the Report of Working Group 5B (Document No. 204) which had yet to be considered by Committee 5.

The delegate of the USSR endorsed the United Kingdom delegate's proposal and regretted that the Conference had paid no heed to his delegation's warning at the outset that it would serve no purpose to set up a working group with the terms of reference assigned to Working Group 6A2. Its objection had proved fully justified.

The United Kingdom delegate's proposal to postpone further consideration of Annex 2 in Document No. 220 was adopted.

4. Second Report of Working Group 6B (Document No. 221)

The Chairman of Working Group 6B, presenting its second Report, paid tribute to Mr. Weppler and the Sub-Group over which he had presided for the arduous work done on preparing the texts contained in the Annex.

Document No. 221 was approved, subject to some editorial corrections.

The delegates of Mexico, Cuba and Venezuela reserved their right to comment on Document No. 221 at a later stage in the light of the ultimate decision to be taken in Committee 5 concerning the status of the Fixed-Satellite Service in Region 2.

5. Approval of the summary record of the fifth meeting (Document No. 203)

Document No. 203 was approved, on the understanding that a corrigendum would be issued indicating the final document numbers under item 2.

The meeting was suspended at 1200 hours and was resumed at 1430 hours.

6. Organization of the work of Committee 6

The delegate of the United Kingdom observed that at the present stage of the Conference it was evident that no plan would be produced for Region 2 within the meaning of Resolution No. Spa2 - 2. That being so, it would be advisable to consider what provisions should be included in the Final Acts to cover any situation that might arise as between Region 2 and Regions 1 and 3. He wondered whether Sub-Group 6A2 might not be reconvened for that purpose.

The Chairman of Working Group 6A suggested that, rather than reconvening Sub-Group 6A2, the Committee should set up an ad hoc group for the purpose outlined by the delegate of the United Kingdom.

It was so decided.

The Chairman requested the Chairman of Working Group 6A to act as the convener of the Ad Hoc Group.

The delegate of the United Kingdom proposed that the terms of reference of the Ad Hoc Group should be as follows :

"To consider what provisions for coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the Broadcasting-Satellite Service in Region 2 should be added to the Final Acts to provide for the necessary procedures to supplement, but in no way contradict, Resolution No. Spa2 - 3 and to consider what other provisions are necessary :

- a) to protect the Broadcasting-Satellite Service in Regions 1 and 3 and,
- b) the broadcasting-satellite stations in Region 2 from the Broadcasting-Satellite Service in Regions 1 and 3."

Those terms of reference were approved.

The delegates of Canada, Mexico, Venezuela, the United Kingdom, Japan and the United States said that they wished to participate in the work of the Ad Hoc Group.

The delegate of the United Kingdom asked the Committee to take note of Document No. 215, prepared by his delegation. Replying to a question by the delegate of the USSR, he explained that the last column of the table in Document No. 215 covered all broadcasting satellites in Region 2.

7. First Report of Working Group 6D (Document No. 227)

The Chairman of Working Group 6D, introducing the document, said that the draft texts had given rise to considerable difference of opinion within the Working Group, but were nevertheless acceptable to the majority of participants. The following errors should be noted in the text of the document, which had been prepared in great haste : in the English text of Article a, the words "an 'agreement and associated plan'" between the words "regarded as" and "in accordance with" should be replaced by "including a world agreement and associated plans for Regions 1 and 3 and for Region 2 respectively"; in the English text of resolves 1 of Resolution No. B, the words "and shall be binding on all Members" should be deleted; in the French text of Resolution No. A, under "notant a)", the words "qui s'y apporte" should be replaced by "associés".

The delegate of the United Kingdom said that since the idea of a Plan for Region 2 had now been abandoned, the words "and for Region 2 respectively" in the corrected text of Article a could be dropped and the "s" of the word "plan" could be deleted.

It was so decided.

The Chairman invited the Committee to consider the draft texts appearing in the Annex to Document No. 227.

### Title and Preamble

The delegate of the United Kingdom said that the letter "s" appearing in brackets after the word "Plan" at the end of the Preamble should be deleted.

The Chairman said that the word "of" between the words "need" and "an orderly development", six lines from the bottom of the page in the English text, should be replaced by the word "for".

The title of the Annex and the draft text of the Preamble were approved with those changes.

### Article 1 - GENERAL DEFINITIONS

The delegate of the Federal Republic of Germany proposed that the words "Geneva, 1959" should be added to the definition of the IFRB weekly circular.

The Chairman pointed out that the correct reference was to "edition 1976". He wondered whether the same reference should not be added to the definition of Regions 1, 2 and 3.

After a brief discussion, the delegate of the United States of America proposed that the reference "edition 1976" should be added only to the definition of the Radio Regulations.

It was so decided.

The delegate of the USSR said that the definition of the Conference in the English text should be brought into line with the French text by the insertion of the date "1977".

With those changes, the draft text of Article 1 was approved.

### Article 2 - FREQUENCY BANDS

The delegate of the United Kingdom proposed that, in view of the decision taken by the Committee in the earlier part of the meeting, the words "the Broadcasting-Satellite Service in" should be inserted between the words "apply to" and "the frequency bands", and that the following words should be added at the end of the Article: "and to the other services to which these bands are allocated".

The delegates of Singapore, the USSR, Denmark, Hungary, Greece and the Federal Republic of Germany supported that proposal.

The delegate of Japan was in favour of leaving the draft text of Article 2 unchanged.

The delegate of the United States of America also felt that the text should remain as it stood; the point of the proposed amendment was adequately covered in the Preamble. However, if the delegate of the United Kingdom maintained his proposal, the difficulty might be overcome by further adding the words: "in their relationship to the Broadcasting-Satellite Service in these bands".

The delegate of Japan seconded that suggestion.

The draft text of Article 2, as amended by the delegates of the United Kingdom and the United States of America, was approved.

Article 3 - EXECUTION OF THE FINAL ACTS

The delegate of Canada proposed the insertion of a new paragraph between paragraphs 1 and 2 reading as follows :

"The Members of the Union in Region 2 shall apply the interim provisions contained in Annex ... to the Final Acts which will govern the Broadcasting-Satellite Service in Region 2 until detailed plans for Region 2, drawn up by a future regional conference, have entered into force."

Furthermore, he proposed the addition of the words "and Annexes" at the end of old paragraph 2.

The delegates of the United Kingdom, the United States of America, Mexico, Netherlands and Japan seconded those proposals.

The delegate of the USSR suggested the deletion of the word "interim" from the text of new paragraph 2 proposed by the delegate of Canada.

The delegate of the United Kingdom said that he could see some value in the word "interim". Those provisions which supplemented Resolution No. Spa2 - 3 would be superseded when a regional conference for Region 2 was held in a few years' time, but others, relating to the Fixed-Satellite and Terrestrial Services, would continue in force.

The draft text of Article 3, as amended by the delegate of Canada, was approved.

Article a - APPROVAL OF THE FINAL ACTS

The Chairman said that the definitive numbering of Articles a, b and c and the question whether the words "final acts" should be capitalized would be entrusted to the Editorial Committee.

The draft text of Article a, as corrected by the Chairman of Working Group 6D and amended by the delegate of the United Kingdom, was approved.

Article b - ENTRY INTO FORCE OF THE FINAL ACTS

The draft text of Article b was approved.

Article c - DURATION OF THE PROVISIONS AND ASSOCIATED PLAN(S)

The delegate of the United Kingdom proposed that the letter "s" at the end of the title and the passage in square brackets at the end of paragraph 1 be deleted.

The delegate of the United States of America proposed that the word "regional" be inserted after "competent" in the second line of paragraph 2.

Article c was approved, with the above two amendments and subject to the Editorial Committee's consideration of whether "Final Acts" should not read more correctly "final acts" in the text of the Article.

Resolution No. A

The delegate of Canada proposed that the words "for Regions 1 and 3" be inserted after mention of "Plan" throughout the Resolution, but withdrew the proposal in the light of objections by the delegates of the USSR and the United Kingdom.

Resolution No. A was approved.

Resolution No. B

Resolution No. B was approved, subject to deletion of the words "and shall be binding on all Members" in resolves 1.

Document No. 227 was thus approved, as amended.

The Chairman thanked all participants in the Committee's work for their understanding and cooperative attitude.

The meeting rose at 1610 hours.

The Secretary :

R. PLUSS

The Chairman :

R.J. BUNDLE

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 322-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the People's Republic of China

In service areas IND 0037 and IND 0038, which the Indian Telecommunication Administration is having included in the Plan, certain regions of Tibet and Sinkiang, both of them Chinese territories, are shown as Indian territory. This is an illegal and inadmissible infringement of Chinese sovereignty.

The Sisha and Nansha Islands, as well as the other islands of the South China Sea, have always been Chinese territory; the People's Republic of China has indisputable sovereignty over these islands and the adjacent waters. The Chinese Government has repeatedly published declarations defining its position on the subject. The use by any foreign country of the broadcasting-satellite service area for the purpose of creating confusion regarding the status of the territories is illegal and invalid.

The Chinese Government reserves the right to take whatever action may be required should the Chinese telecommunication services, during implementation of the Plan, suffer interference resulting from any infringement of the Final Acts.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 323-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Lao People's Democratic Republic

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference (Geneva, 1977), the delegation of the Lao People's Democratic Republic reserves its Government's right to take whatever measures it may deem necessary to safeguard the interests of national sovereignty should any neighbouring country use a beam covering Lao territory.

Such countries should obtain the agreement of the Lao People's Democratic Republic before bringing their broadcasting-satellite stations into operation.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 324-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Kingdom of Saudi Arabia

The equivalent protection margins of Saudi Arabian beams indicated in Document No. 265 are unacceptable to the delegation of Saudi Arabia. In the meeting of Committee 5A on Thursday 10 February 1977 an indication was given by the Chairman of Committee 5A that these margins would be corrected to acceptable values. As the results of these corrective measures are not available as yet, the delegation of Saudi Arabia, therefore, wish to declare that if the results are not satisfactory, the delegation of Saudi Arabia reserve their right, in the interest of their Administration, to take any suitable action technically feasible and deemed fit to achieve satisfactory and good quality reception.

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## BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

PLENARY MEETING

### FINAL PROTOCOL

#### For the Islamic Republic of Pakistan

1. In signing the Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service, Geneva, 1977, the delegation of the Islamic Republic of Pakistan hereby declares that its Government reserves the right to take any action which it considers necessary to safe-guard its interests, should any country or countries fail to observe the provisions of the Final Acts and its Annexes or the Protocols attached thereto or should the reservations made by other countries adversely affect the Satellite-Broadcasting and Telecommunications Services of the Islamic Republic of Pakistan.
2. The delegation of the Islamic Republic of Pakistan declares that the decisions of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service, Geneva, 1977, regarding areas falling within the territory of the disputed state of Jammu and Kashmir are without prejudice to the position recognized by the relevant resolutions of the United Nations on the question.
3. The delegation of the Islamic Republic of Pakistan has noted with concern that the Plan has frequency assignments to the Indian Administration for providing Satellite-Broadcasting Services to include coverage of a large area of the territory of Pakistan. This spillover, which is technically avoidable, is not acceptable to the Pakistan Administration. The Government of Pakistan reserves the right to take appropriate measures to ensure that its territory does not come under intentional coverage by such Indian Services.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 326-E

11 February 1977

Original : Russian

PLENARY MEETING

FINAL PROTOCOL

For the Byelorussian Soviet Socialist Republic, the People's Republic of Bulgaria, the Hungarian People's Republic, the People's Republic of Poland, the German Democratic Republic, the Ukrainian Soviet Socialist Republic, the Czechoslovak Socialist Republic and the Union of Soviet Socialist Republics

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the above delegations reserve their Governments' right to take whatever action may be required to ensure the normal operation of their telecommunication services, should any countries fail to comply with the provisions adopted by this Conference and the Plan associated with these provisions.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 327-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For Thailand

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the delegation of Thailand reserves the right of its Government to take any measures it may deem necessary to safeguard its interest should any country or countries fail to observe the provisions of the Final Acts and its Annexes and the Protocol attached thereto or should reservations by other countries jeopardize its Broadcasting-Satellite or other radio Services.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 328-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Burundi

The delegation of the Republic of Burundi to the World Broadcasting-Satellite Radio Conference, Geneva, 1977, declares that it reserves its Government's right to take whatever action it may deem necessary to safeguard its interests should they be jeopardized by failure to observe the provisions of the Final Acts, their Annexes and the Protocol attached to the Final Acts, as adopted by this Conference.

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INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 329-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Republic of the Chad

In signing the Final Acts of this Conference, the Chad delegation reserves its Government's right to take whatever action may be necessary to protect its services should any Member of the Union fail to observe the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 330-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For Ethiopia

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva 1977, the delegation of Ethiopia declares that its Government reserves the right to take any measures it may deem necessary to safeguard its interests if other countries or administrations fail to observe the provisions contained in the Final Acts and the Protocol attached to it, as adopted by this Conference.





**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 331-E  
11 February 1977  
Original : English/  
French/  
Spanish

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Colombia, the People's Republic of the Congo, the Republic of Equator, the Republic of Gabon, the Republic of Kenya, the Republic of Uganda, the Republic of Zaire

Declare that their Governments are not claiming sovereignty in space, the way it is stated in the letter and spirit of the Treaty on the Peaceful Uses of Outer Space, since there can be no doubt that these countries have always exercised sovereignty over their internationally recognized territories and within their projections.

Consequently, in line with the principles enshrined in the declaration of Bogota, signed on 3 December 1976, they wish to make the following reservations in signing the Final Acts of the Satellite-Broadcasting Conference.

First :

The delegations of the above-mentioned countries officially declare that they do not accept and accordingly are under no circumstances bound, through the signature of the Final Acts, by the Resolutions, Agreements and Decisions of this Conference regarding the location of geostationary satellites on the segments of the orbit over which these States exercise sovereign rights.

Second :

The positioning of such geostationary satellites will require the prior authorization of the equatorial country concerned and their functioning and operation shall be subject to the provisions of the national laws of the Equatorial States concerned.

Third :

The Equatorial countries reserve the right to take whatever steps they may deem fit to preserve and secure the observance of their sovereign rights which include the segments of the geostationary orbit corresponding to their respective national territories, in accordance with the constitutional and legal rules in force in each country.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 332-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Federative Republic of Brazil

The Brazilian Administration reserves its position regarding the sentences in paragraph 1 of Document No. 204 which read : "As an exception to the foregoing, it is accepted that, for Greenland, a position in the geostationary satellite orbit between 55°W and 60°W may be used for the Broadcasting-Satellite Service as a primary service. All efforts should be made by the administrations concerned to allow for the sharing of a Broadcasting Satellite for Greenland and the Fixed Satellites of other administrations in Region 2 in this portion of the arc."

In this connection, the Brazilian Administration is of the opinion that a decision about the optimum orbital arc usable for Greenland or any other Administration in Region 2 must only be taken by the Regional Administrative Radio Conference which should be held not later than 1982.

The signature by Brazil of the Final Acts issued from this Conference must be interpreted only as an acceptance of the technical deliberations of this Conference. This acceptance however does not prejudge the Brazilian position concerning any future decision about the juridical regulation of the utilization of the geostationary satellite orbit which could be taken by this or by any other competent forum.

**BROADCASTING SATELLITE CONFERENCE**

Document No. 333-E

11 February 1977

Original : French

(Geneva, 1977)

PLENARY MEETING

FINAL PROTOCOL

For the Algerian Democratic and Popular Republic

The Government of the Algerian Democratic and Popular Republic, which considers invalid any action taken by Spain, the administrative power, or by Morocco or Mauritania with a view to changing in any manner whatsoever the status of Western Sahara with regard to the fundamental provisions of Resolution 1514 (XV) and the other relevant resolutions of the United Nations General Assembly and the provisions of international law, or with a view to infringing any of the lawful and sovereign rights of the Sahraoui people to its own territory, formally contests the notification of the beams : 0209 = MRC and 0223 = MTN.

The resulting deliberate spill-over both over the territory of Western Sahara and consequently over part of Algerian territory is an intentional infringement of the Radio Regulations (No. 428A), strict compliance with which should be ensured.

Western Sahara is still a responsibility of the United Nations, whose duty it is to complete the process of decolonization and to create all the conditions required to guarantee that country's independence and territorial integrity, and no provision of the Broadcasting-Satellite Conference (Geneva, 1977) may exceed the Conference's terms of reference or affect or restrict the Sahraoui people in the exercise of their sovereign rights and in the present case of their rights in matters of broadcasting.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 334-E

11 February 1977

Original : Spanish

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PLENARY MEETING

FINAL PROTOCOL

For the Republic of Venezuela

The delegation of the Republic of Venezuela declares that its Administration reserves the right to adopt whatever measures it may deem appropriate to ensure the development of its telecommunication services in the band 11.7-12.5 GHz, should its interests be adversely affected by the decisions of this Conference.

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Corrigendum N° 2 au  
Document N° 335-F/E/S  
12 février 1977

PLENIERE  
PLENARY  
PLENARIA

Note du Président de la Commission 5 (Planification)

PROJET DE PLAN POUR LES REGIONS 1 ET 3

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Note by the Chairman of Committee 5 (Planning)

DRAFT PLAN FOR REGIONS 1 AND 3

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Nota del Presidente de la Comisión 5 (Planificación)

PROYECTO DE PLAN PARA LAS REGIONES 1 y 3

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UNION INTERNATIONALE DES TELECOMMUNICATIONS  
CONFERENCE DE RADIODIFFUSION  
PAR SATELLITE

Corrigendum N° 1 au  
Document N° 335-F/E/S  
12 février 1977

(Genève, 1977)

COMMISSION 5  
COMMITTEE 5  
COMISIÓN 5

Note du Président de la Commission 5 (Planification)

PROJET DE PLAN POUR LES REGIONS 1 ET 3

Note by the Chairman of Committee 5 (Planning)

DRAFT PLAN FOR REGIONS 1 AND 3

Nota del Presidente de la Comisión 5 (Planificación)

PROYECTO DE PLAN PARA LAS REGIONES 1 y 3



	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14						
29	ALG0251D	-25.0	14	4.2	33.2	2.4	1.3	172.	39.4	1	261.	63.6	9.5	30.0	0.	*TCD0143D	5.	*LBY0321D	7.	*TGO0226D	8
30	ARS0275D	17.0	14	48.3	24.6	3.8	1.4	138.	36.9	2	401.	63.0	50.0	18.5	3.	*YMS0267D	5.	*YEM0266D	7.	*QAT0247D	17
31	AUS0006D	98.0	14	135.4	-30.3	2.0	1.4	44.	39.8	1	230.	63.4	140.8	-27.7	1.	*AUS0008D	3.	*AUS0005D	8.	*AUS0004D	14
32	AUS0008D	128.0	14	145.9	-21.5	2.9	2.0	120.	36.6	2	530.	63.9	149.0	-29.0	3.	*AUS0009D	6.	*AUS0006D	6.	*NZL0287A	17
33	BOT0297D	-1.0	14	23.3	-22.2	2.1	1.5	36.	39.2	2	296.	63.9	25.3	-17.8	4.	*ZMB0314D	6.	*ZAI0323D	10.	*ROU0136D	11
34	BRU0330B	74.0	14	114.7	4.4	0.6	0.6	0.	48.7	1	24.	62.6	114.6	4.0	9.	*BGD0220A	14.	*THA0142D	15.	*CHN0180A	18
35	CHN0154D	62.0	14	83.9	40.5	2.8	2.0	177.	36.7	1	461.	63.4	79.0	34.3	3.	*PAK0210B	5.	*CHN0155D	8.	*IND0045D	15
36	CHN0172A	92.0	14	120.4	29.1	1.0	0.8	123.	45.2	1	82.	64.3	118.8	27.5	2.	*CHN0174A	6.	*CHN0181A	7.	*CHN0180A	10
37	CHN0181A	80.0	14	108.5	23.8	1.4	1.1	153.	42.4	2	148.	64.1	104.5	24.5	3.	*VTN0325D	7.	*THA0142D	10.	*CHN0158A	13
38	CKH0052D	156.0	14	-161.0	-19.8	1.0	0.6	132.	46.1	2	73.	64.8	-163.5	-17.5	15.	*SMO0057D	18.	*NZL0055D	19.	*WAL0102D	28
39	CLN0219D	50.0	14	80.6	7.7	1.2	0.6	106.	45.7	1	63.	63.8	80.0	10.0	3.	*IND0043D	6.	*IND0045D	10.	*AFG0246D	14
40	D 0087D	-19.0	14	9.6	49.9	1.6	0.7	147.	43.6	2	162.	65.7	10.0	54.8	-0.	*NOR0120A	3.	*ZAI0323D	5.	*LUX0114D	11
41	GNP0304D	-31.0	14	-15.0	12.0	0.9	0.6	172.	46.9	2	43.	63.3	-14.2	12.3	3.	*GMB0302D	7.	*GUI0192D	7.	*IRL0211D	14
42	GUM0331D	122.0	14	144.5	13.1	0.6	0.6	0.	48.7	2	30.	63.5	144.7	13.4	7.	*MRA0332D	9.	*CAR0338D	17.	*AUS0008D	20
43	IND0037D	68.0	14	93.0	25.5	1.5	1.1	40.	42.1	2	159.	64.1	96.0	29.5	2.	*CHN0155D	6.	*CHN0154D	7.	*THA0142D	15
44	IND0045D	56.0	14	76.2	19.5	1.6	1.6	21.	40.3	2	218.	63.7	74.0	15.7	5.	*IND0043D	10.	*IND0039D	10.	*ARS0275D	11
45	IRL0211D	-31.0	14	-8.2	53.2	0.8	0.6	162.	47.2	1	52.	64.4	-5.5	54.3	5.	*NOR0120A	9.	*D 0087D	10.	*GNP0304D	15
46	KRE0286A	110.0	14	127.0	39.1	1.3	1.1	31.	42.7	2	134.	64.0	130.0	43.0	0.	*PNG0131D	3.	*J 0111H	7.	*J 0111G	7
47	MAU0242D	29.0	14	59.8	-18.9	1.6	1.2	55.	41.2	1	195.	64.1	60.0	-14.0	5.	*ZAI0323D	6.	*MDG0236D	14.	*ARS0275D	25
48	MLI0327D	-37.0	14	-2.0	19.0	2.7	1.3	127.	39.0	1	344.	64.4	-2.5	23.3	9.	*ALG0251D	11.	*SMR0311D	18.	*LIE0253D	20
49	MRL0333D	146.0	14	166.7	7.9	1.5	1.5	177.	40.7	1	187.	63.5	162.1	11.5	13.	*PNG0131D	19.	*CAR0338D	19.	*NCL0100D	22
50	NCL0100D	140.0	14	166.0	-21.0	1.1	0.7	146.	45.1	1	75.	63.9	167.5	-23.0	-3.	*WAL0102D	-3.	*NHB0128D	11.	*AUS0008D	15
51	NOR0120A	5.0	14	13.1	64.1	1.8	0.9	10.	42.2	2	195.	65.0	7.6	58.0	1.	*D 0087D	2.	*IRL0211D	14.	*POL0132D	14
52	PAK0210B	38.0	14	72.1	30.8	1.2	0.7	90.	45.0	1	71.	63.6	75.2	32.2	1.	*CHN0154D	2.	*IND0045D	15.	*AFG0245D	17
53	PNG0131D	110.0	14	147.7	-6.3	2.5	2.2	169.	36.9	1	585.	64.6	141.0	-9.2	1.	*AUS0008D	6.	*INS0036D	7.	*KRE0286A	9



Canal 14 suite - Channel 14 cont. - Canal 14 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
54	RDU0136D	-1.0	14	25.0	45.7	1.4	0.7	155.	44.7	1	85.	64.0	20.2	46.1	-1. *D 0087D	4. *BOT0297D	5. *TCH0144D	7
															*	*	*	
55	TCD0143D	-13.0	14	18.1	15.5	3.4	1.7	107.	36.6	2	568.	64.1	16.5	8.2	5. *CME0300D	7. *MLI0327D	14. *GAB0260D	15
															*	*	*	
56	TG00226D	-25.0	14	0.8	8.6	1.5	0.6	105.	44.6	2	78.	63.5	-0.2	11.1	-2. *MLI0327D	-0. *ALG0251D	6. *DAH0233D	8
															*	*	*	
57	WAL0102D	140.0	14	-176.8	-14.0	0.7	0.6	29.	47.8	1	48.	64.6	-178.1	-14.2	-2. *NCL0100D	-2. *PNG0131D	13. *MRL0333D	20
															*	*	*	
58	YEM0266D	11.0	14	44.3	15.1	1.1	0.7	109.	45.2	1	57.	62.8	44.0	18.0	-1. *ARS0275D	0. *YMS0267D	7. *UGA0051D	11
															*	*	*	
59	ZAI0323D	-19.0	14	21.3	-6.8	2.8	1.5	149.	38.0	1	483.	64.8	16.3	-1.0	1. *TCD0143D	5. *GAB0260D	8. *D 0087D	8

Canal 16 Channel 16 Canal 16

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
35	ALG0252D	-25.0	16	1.6 25.5	3.6 2.2	152.	35.3	1	583.	63.0	9.5 30.0	4.	*LBY0321D	7.	*MLT0147D 15
													*	*	*
36	AND0341D	-37.0	16	1.6 42.5	0.6 0.6	0.	48.7	2	20.	61.6	1.4 42.4	-1.	*G 0027D	3.	*MLI0328D 7
													*	*	*
37	ARS0003D	17.0	16	41.1 23.8	3.5 1.7	134.	36.5	2	421.	62.8	35.5 30.0	-0.	*EGY0026D	1.	*LBN0279D 12
													*	*	*
38	AUS0007D	128.0	16	145.0 -38.1	1.8 1.4	134.	40.2	2	213.	63.5	149.6 -37.5	6.	*AUS0009D	7.	*DCE0101D 27
													*	*	*
39	AUT0016D	-19.0	16	12.1 47.5	1.1 0.6	166.	45.7	2	73.	64.3	17.1 48.0	0.	*ZAI0522D	4.	*URS0060D 12
													*	*	*
40	BUL0020D	-1.0	16	25.0 43.0	1.0 0.6	165.	46.3	1	57.	63.8	28.1 42.0	-2.	*MOZ0307D	3.	*GRC0105D 6
													*	*	*
41	CHN0169A	92.0	16	118.5 36.4	1.2 0.8	11.	44.8	1	98.	64.7	122.8 38.4	-1.	*KRE0286B	1.	*CHN0186A 8
													*	*	*
42	CHN0186A	62.0	16	102.5 30.2	1.9 1.2	147.	40.5	2	311.	65.5	110.0 31.8	7.	*CHN0169A	9.	*IND0048D 17
													*	*	*
43	CKN0053D	158.0	16-163.0	-11.2	1.8 0.7	30.	43.2	2	133.	64.5	-158.0 -9.0	4.	*DCE0101D	4.	*SMO0057D 31
													*	*	*
44	CPV0301D	-31.0	16	-24.0 16.0	0.9 0.7	144.	46.5	2	39.	62.4	-24.3 14.4	4.	*G 0027D	6.	*MLI0328D 16
													*	*	*
45	DNK0089B	5.0	16	12.3 57.1	1.2 0.6	177.	45.7	2	74.	64.4	10.0 54.5	1.	*G 0027D	5.	*AUT0016D 8
													*	*	*
46	EGY0026D	-7.0	16	29.7 26.8	2.3 1.7	136.	38.2	2	319.	63.3	36.0 23.3	-0.	*ARS0003D	0.	*MOZ0307D 16
													*	*	*
47	G 0027D	-31.0	16	-3.5 53.8	1.8 0.7	142.	43.0	1	164.	65.2	1.3 51.1	3.	*ALG0252D	6.	*DNK0089B 13
													*	*	*
48	IND0040D	56.0	16	73.0 25.0	1.8 1.5	58.	39.9	2	244.	63.8	78.2 27.0	2.	*NPL0122A	6.	*IND0038A 11
													*	*	*
49	IND0048D	68.0	16	86.2 25.0	1.6 0.9	120.	42.8	2	188.	65.5	89.8 26.7	-6.	*CHN0186A	-6.	*IND0046A 10
													*	*	*
50	KRE0286B	110.0	16	127.0 39.1	1.3 1.1	31.	42.7	2	135.	64.0	124.0 39.9	0.	*CHN0169A	2.	*CHN0186A 10
													*	*	*
51	MAU0243D	29.0	16	56.8 -13.9	1.6 1.4	65.	40.9	1	197.	63.9	53.0 -15.0	6.	*MDG0236E	9.	*COM0207D 18
													*	*	*
52	MLA0227A	86.0	16	102.1 4.1	1.6 0.8	135.	43.0	1	105.	63.2	105.4 2.2	7.	*VTN0325D	12.	*INS0032A 13
													*	*	*
53	MLD0306B	44.0	16	73.1 6.0	1.0 0.6	90.	46.6	1	51.	63.7	71.0 7.5	5.	*URS0069B	6.	*ARS0003D 19
													*	*	*
54	MLI0328D	-37.0	16	-7.6 13.2	1.7 1.2	171.	40.9	1	198.	63.9	-12.0 15.0	3.	*GMB0302D	8.	*ALG0252D 9
													*	*	*
55	MLT0147D	-13.0	16	14.3 35.9	0.6 0.6	0.	48.7	1	18.	61.2	14.3 35.9	0.	*ALG0252D	2.	*CME0300E 12
													*	*	*
56	MOZ0307D	-1.0	16	34.0 -18.0	3.6 1.4	55.	37.3	2	505.	64.4	30.3 -15.0	5.	*ZMB0314D	6.	*ZAI0322D 17
													*	*	*
57	DCE0101D	-160.0	16-145.0	-16.3	4.3 3.5	4.	32.4	2	1352.	63.7	-154.7 -15.7	17.	*CKN0053D	17.	*AUS0007D 35
													*	*	*

suite - cont.



CONFERENCE DE RADIODIFFUSION  
PAR SATELLITE

(Genève, 1977)

Document N° 335-F/E/S ✓  
11 février 1977

COMMISSION 5

Note du Président de la Commission 5 (Planification)

PROJET DE PLAN POUR LES REGIONS 1 et 3  
(en date du vendredi, 11 février 1977 à 12h.30)

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COMMITTEE 5

Note by the Chairman of Committee 5 (Planning)

DRAFT PLAN FOR REGIONS 1 AND 3  
(as of Friday, 11 February 1977 at 12.30 hours)

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COMISIÓN 5

Nota del Presidente de la Comisión 5 (Planificación)

PROYECTO DE PLAN PARA LAS REGIONES 1 y 3  
(el viernes, 11 de febrero de 1977 a las 12 y media de la mañana)

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COMMISSION 5

Note du Président de la Commission 5 (Planification)

ANALYSE DU PROJET DE PLAN

PREPARE EN DATE DU VENDREDI, 11 FEVRIER 1977

L'annexe est l'analyse résumée que l'I.F.R.B. a faite du projet de Plan révisé, en date du 11 février 1977.

Il a été décidé par la Commission 5 que les colonnes 1 à 9b, inclusivement, de cette analyse soient considérées comme le projet de Plan pour les Régions 1 et 3. Pour faciliter la correspondance entre les colonnes de l'analyse et celles du projet de Plan, nous reproduisons ci-après les titres des colonnes du projet de Plan :

1. Symbole désignant le pays et numéro de référence de l'I.F.R.B.
2. Position nominale sur l'orbite, en degrés
3. Numéro du canal
4. Coordonnées géographiques du point de visée (degrés et dixièmes de degré)
5. Ouverture du faisceau d'antenne. La colonne comporte deux valeurs représentant respectivement le grand axe et le petit axe de la section transversale du faisceau elliptique entre les points à demi-puissance
6. Orientation de l'ellipse
7. Polarisation (1 = directe, 2 = indirecte) (Rapport 321 du C.C.I.R.)
8. P.i.r.e. dans la direction du rayonnement maximal, en dBW
9. Observations

Dans l'explication relative aux colonnes du présent document (voir page 5), le numéro se rapportant à la colonne correspondante du projet de Plan est indiqué entre crochets.

A. PETTI  
Président  
Commission 5 (Planification)

COMMITTEE 5

Note by the Chairman of Committee 5 (Planning)

ANALYSIS OF THE DRAFT PLAN  
PREPARED ON FRIDAY, 11 FEBRUARY 1977

Attached is the summary analysis by the I.F.R.B. of the revised draft Plan, as of 11 February 1977.

It has been agreed by Committee 5 that Columns 1 to 9b inclusive of this analysis be considered as the draft Plan for Regions 1 and 3. To assist in correlating the columns of the analysis with those of the draft Plan, the Column headings of the draft Plan are reproduced hereunder:

1. Country symbol and I.F.R.B. Serial Number
2. Nominal orbital position, in degrees
3. Channel number
4. Boresight geographical coordinates (in degrees and tenths)
5. Antenna aperture. This column contains two figures corresponding to the major axis and the minor axis respectively of the elliptical cross-section half power beam
6. Orientation of the ellipse
7. Polarization (1 = direct, 2 = indirect) (C.C.I.R. Report 321)
8. E.i.r.p. in the maximum direction in dBW
9. Remarks

In the explanation of the columns in the present document which follows on page 5, the related column number in the draft Plan is shown in square brackets.

A. PETTI  
Chairman  
Committee 5 (Planning)

COMISIÓN 5

Nota del Presidente de la Comisión 5 (Planificación)

ANÁLISIS DEL PROYECTO DE PLAN

PREPARADO EL VIERNES, 11 DE FEBRERO DE 1977

El análisis resumido que se adjunta, elaborado por la I.F.R.B., es el proyecto de Plan revisado de fecha 11 de febrero de 1977.

En el seno de la Comisión 5 se ha decidido que las columnas 1 a 9b inclusive de este análisis se consideren como el proyecto de Plan para las Regiones 1 y 3. A fin de ayudar en la correlación de las columnas del análisis con las del proyecto de Plan, se reproducen a continuación los encabezamientos de las columnas del proyecto de Plan:

1. Símbolo del país y número de orden de la I.F.R.B.
2. Posición orbital nominal en grados
3. Número del canal
4. Coordenadas geográficas del eje de puntería (en grados y décimas de grados)
5. Abertura de la antena. Esta columna contiene dos valores que representan los ejes mayor y menor, respectivamente, de la sección transversal elíptica del haz a potencia mitad
6. Orientación de la elipse
7. Polarización (1 = directa, 2 = indirecta) (Informe 321 del C.C.I.R.)
8. P.i.r.e. en la dirección de máxima radiación, en dBW
9. Observaciones.

En la explicación de las columnas que se da más adelante (página 5) en el presente documento, el número de columna correspondiente en el proyecto del Plan se indica entre corchetes.

A. PETTI  
Presidente  
Comisión 5 (Planificación)

Explication des colonnes  
dans le présent document

Les numéros des colonnes entre parenthèses carrées correspondent aux numéros des colonnes dans le projet de Plan.

Col.

- 1 - Symbole désignant le pays et numéro de référence de l'I.F.R.B. [Col. 1]
- 2 - Position nominale sur l'orbite, en degrés [Col. 2]
- 3 - Numéro du canal [Col. 3]
- 4 - Coordonnées géographiques du point de visée [Col. 4] mais en degrés et dixièmes de degrés
- 5 - Ouverture du faisceau d'antenne. Dans le cas d'une antenne elliptique, la colonne comporte deux valeurs représentant respectivement le grand axe et le petit axe de l'allipse [Col. 5]
- 6 - Orientation de l'ellipse (conformément à la définition donnée dans la lettre-circulaire de l'I.F.R.B. N° 358) [Col. 6]
- 7 - Gain maximal
- 8 - Polarisation [Col. 7]
- 9 - 9a Puissance en watt  
9b P.i.r.e. en dBW [Col. 8]
- 10 - Coordonnées géographiques du point de contrôle critique pour lequel est indiquée la valeur de la marge de protection
- 11 - Marge équivalente de protection
- { 12 - Indications relatives aux trois princi-  
13 - paux brouilleurs. Chaque colonne con-  
14 - tient l'indication du brouilleur (symbole désignant le pays et numéro de série) et la marge de protection qui lui correspond en dB.

Explanation of the Columns  
in the present document

Column numbers shown between square brackets are those of the corresponding columns in the draft Plan.

Col.

- 1 - Country symbol and I.F.R.B. Serial Number [Col. 1]
- 2 - Nominal orbital position, in degrees [Col. 2]
- 3 - Channel number [Col. 3]
- 4 - Boresight geographical coordinates [Col. 4] but in degrees and tenths
- 5 - Antenna aperture. For an elliptical antenna this column contains two figures corresponding respectively to the major axis and the minor axis [Col. 5]
- 6 - Orientation of the ellipse, as defined in I.F.R.B. Circular-letter No. 358 [Col. 6]
- 7 - Maximal gain [Col. 7]
- 8 - Polarisation [Col. 7]
- 9 - 9a Power in watts  
9b E.i.r.p. in dBW [Col. 8]
- 10 - Geographical coordinates of the critical test point for which the protection margin is indicated
- 11 - Equivalent protection margin
- { 12 - Indication of the three main inter-  
13 - ferers; each of these three columns  
14 - indicates the designation of the inter-ferer (country symbol and serial number) and the corresponding protection margin in dB.

Explicación de las columnas  
en este documento

Los números de las columnas entre corchetes corresponden a los números de las columnas en el proyecto de Plan.

Col.

- 1 - Símbolo de país y número de referencia de la I.F.R.B. [Col. 1]
- 2 - Posición orbital nominal en grados [Col. 2]
- 3 - Número del canal [Col. 3]
- 4 - Coordenadas geográficas del centro de puntería [Col. 4] pero en grados y décimas
- 5 - Abertura del haz de antena. Si se trata de una antena elíptica se indican en la columna dos valores que representan los ejes mayor y menor, respectivamente de la elipse [Col. 5]
- 6 - Orientación de la elipse (véase la carta circular N.º 358 de la I.F.R.B.) [Col. 6]
- 7 - Ganancia máxima [Col. 7]
- 8 - Polarización
- 9 - 9a Potencia en vatios  
9b P.i.r.e. en dBW [Col. 8]
- 10 - Coordenadas geográficas del punto de prueba crítico para el que se indica el valor del margen de protección
- 11 - Margen de protección equivalente
- { 12 - Indicaciones relativas a las tres  
13 - fuentes principales de interferencia.  
14 - En cada columna se indica la fuente de interferencia (símbolo de país y número de referencia) y el margen de protección que le corresponde en dB.



Canal 1 — Channel 1 — Canal 1

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
1	AFG0246A	50.0	1	64.5 33.1	1.4 1.4	21.	41.2	1	140.	62.7	67.7 37.3	-2.	*URS0067A	1.	*CHN0155A	5.	*TURC145A	11.
2	AUS0005A	98.0	1	133.5 -18.8	2.7 1.4	76.	38.5	2	379.	64.3	130.8 -12.5	2.	*INS0035A	2.	*AUS0006A	16.	*CHN0162A	18.
3	CAR0338A	122.0	1	149.5 8.0	5.4 0.8	178.	38.1	1	275.	62.5	134.6 7.5	4.	*INS0035A	6.	*J 0111A	8.	*CHN0162A	20.
4	CHN0155A	62.0	1	88.3 31.5	3.4 1.4	162.	37.3	2	356.	62.9	92.4 26.9	1.	*IND0037A	3.	*THA0142A	7.	*IND0044A	10.
5	CHN0162A	92.0	1	115.9 21.0	2.7 2.4	23.	36.0	2	612.	63.9	125.0 25.9	0.	*J 0111A	1.	*CHN0161A	7.	*CHN0155A	15.
6	CHN0163A	80.0	1	116.0 39.2	1.2 0.8	132.	44.4	1	100.	64.4	115.4 36.1	3.	*CHN0162A	6.	*J 0111A	8.	*CHN0155A	11.
7	CME0300A	-13.0	1	12.7 6.2	2.5 1.7	87.	37.9	1	352.	63.4	14.2 13.2	4.	*TCD0143A	5.	*LBY0280A	12.	*F 0093A	19.
8	F 0093A	-19.0	1	2.6 45.9	2.5 1.0	160.	40.4	1	220.	63.8	9.5 41.2	-1.	*SMR0311A	1.	*D 0087A	9.	*ALG0251A	9.
9	FJI0193A	152.0	1	179.4 -17.9	1.0 1.0	67.	44.2	1	89.	63.7	-178.5 -19.9	4.	*NZL0055A	4.	*J 0111A	29.	*INS0035A	30.
10	GUI0192A	-37.0	1	-11.0 10.2	1.6 1.0	147.	42.1	2	136.	63.4	-14.5 11.5	4.	*GNP0304A	5.	*MLI0327A	15.	*SMR0311A	16.
11	IND0039A	56.0	1	72.7 11.2	1.3 0.6	107.	45.5	1	58.	63.1	71.9 12.3	9.	*IND0045A	12.	*IND0044A	18.	*YMS0267A	19.
12	IND0044A	68.0	1	79.5 22.3	2.2 1.4	146.	39.3	1	253.	63.3	78.2 26.9	1.	*CHN0155A	2.	*CHN0154A	12.	*IND0037A	15.
13	INS0035A	104.0	1	124.3 -3.2	3.3 1.9	82.	36.1	1	508.	63.2	125.5 4.0	6.	*J 0111A	7.	*CAR0338A	15.	*CHN0162A	17.
14	J 0111A	110.0	1	134.5 31.5	3.5 3.3	68.	33.6	1	904.	63.2	123.7 24.3	-1.	*CHN0162A	-0.	*PNG0131A	11.	*INS0035A	12.
15	LBY0280A	-25.0	1	21.4 26.0	2.5 1.0	119.	40.1	2	218.	63.5	22.0 33.0	5.	*TUR0145A	8.	*ALG0251A	11.	*F 0093A	15.
16	MDG0236A	29.0	1	46.6 -18.8	2.7 1.1	65.	39.3	2	250.	63.3	49.0 -12.3	13.	*MAU0242A	15.	*ZAI0323A	22.	*URS0067A	29.
17	NZL0055A	158.0	1	172.3 -39.7	2.9 1.6	47.	37.7	1	364.	63.3	179.0 -37.6	16.	*FJI0193A	17.	*CKH0052A	27.	*J 0111A	29.
18	PLM0337A	170.0	1	-161.4 7.0	0.6 0.6	0.	48.7	1	23.	62.4	-162.4 6.1	6.	*CAR0338A	7.	*SMA0335A	16.	*NZL0055A	23.
19	POL0132A	-1.0	1	19.3 51.8	1.5 0.6	162.	44.5	2	91.	64.1	22.9 49.0	-0.	*SMR0311A	5.	*TUR0145A	7.	*RGU0136A	7.
20	QAT0247A	17.0	1	51.1 25.3	0.6 0.6	0.	48.7	1	20.	61.8	52.3 24.8	2.	*YMS0267A	5.	*ARS0275A	6.	*LBY0280A	15.
21	SMA0335A	170.0	1	-170.1 -14.2	0.6 0.6	0.	48.7	2	18.	61.1	-171.0 -11.0	1.	*PLM0337A	2.	*NZL0055A	12.	*WAL0102A	13.
22	SMR0311A	-37.0	1	12.6 43.7	0.6 0.6	0.	48.7	1	24.	62.4	12.0 43.0	0.	*F 0093A	2.	*GUI0192A	9.	*TUR0145A	12.
23	SWZ0313A	-1.0	1	31.5 -26.5	0.6 0.6	66.	48.5	1	27.	62.8	30.8 -26.6	7.	*BOT0297A	9.	*POL0132A	11.	*CME0300A	26.
24	THA0142A	74.0	1	100.7 13.2	2.8 1.5	106.	37.9	2	374.	63.6	103.7 18.6	1.	*CHN0162A	4.	*LAO0284A	5.	*CHN0155A	11.
25	TUR0145A	5.0	1	34.4 38.9	2.7 1.0	168.	39.8	1	246.	63.7	42.7 41.5	-2.	*URS0064A	-1.	*LBY0280A	11.	*URS0067A	12.
26	URS0064A	23.0	1	45.6 40.8	2.2 0.6	163.	43.1	2	119.	63.9	40.0 43.4	1.	*TUR0145A	2.	*URS0067A	12.	*LBY0280A	12.

Canal 1 suite — Channel 1 cont. — Canal 1 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
27 URS0067A	44.0	1	62.4	58.5	3.2 1.5	169.	37.4	1	877.	66.8	50.9 51.9	14.	*TUR0145A 17.	*AFG0246A 21.	*F 0093A 24.
28 WAK0334A	140.0	1	166.5	19.2	0.6 0.6	0.	48.7	1	31.	63.6	166.5 19.2	17.	*J 0111A 23.	*MRL0333A 24.	*NCL0100A 25.
29 YMS0267A	11.0	1	48.8	15.2	1.8 1.5	176.	39.9	2	195.	62.8	49.5 18.4	5.	*ARS0275A 6.	*YEM0266A 13.	*LBY0280A 19.

Canal 2 — Channel 2 — Canal 2

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
30 ALG0251A	-25.0	2	4.2	33.2	2.4 1.3	172.	39.4	1	251.	63.4	9.5 30.0	0.	*TCD0143A 5.	*LBY0321A 7.	*TGO0226A 8.
31 ARS0275A	17.0	2	48.3	24.6	3.8 1.4	138.	36.9	2	380.	62.7	42.5 17.0	-11.	*YEM0266A-11.	*YMS0267A -2.	*TCD0143A 12.
32 AUS0006A	98.0	2	135.4	-30.3	2.0 1.4	44.	39.8	1	221.	63.2	140.8 -27.7	1.	*AUS0008A 3.	*AUS0005A 8.	*AUS0004A 14.
33 AUS0008A	128.0	2	145.9	-21.5	2.9 2.0	120.	36.6	2	510.	63.7	149.0 -29.0	3.	*AUS0009A 6.	*AUS0006A 6.	*AUS0005A 27.
34 BOT0297A	-1.0	2	23.3	-22.2	2.1 1.5	36.	39.2	2	285.	63.7	25.3 -17.8	4.	*ZMB0314A 6.	*ZAI0323A 10.	*ROU0136A 11.
35 CHN0154A	62.0	2	83.9	40.5	2.8 2.0	177.	36.7	1	443.	63.2	79.0 34.3	-0.	*PAK0127A 1.	*CHN0155A 8.	*CHN0157A 14.
36 CHN0161A	92.0	2	118.1	31.1	2.5 1.7	117.	38.0	1	436.	64.4	122.6 37.4	1.	*KOR0112A 3.	*CHN0160A 7.	*CHN0162A 13.
37 CKH0052A	158.0	2	-161.0	-19.8	1.0 0.6	132.	46.1	2	71.	64.6	-163.5 -17.5	15.	*SMO0057A 18.	*NZL0055A 19.	*WAL0102A 28.
38 CLN0219A	50.0	2	80.6	7.7	1.2 0.6	106.	45.7	1	61.	63.6	80.0 10.0	3.	*IND0043A 5.	*IND0045A 10.	*AFG0246A 14.
39 D 0087A	-19.0	2	9.6	49.9	1.6 0.7	147.	43.6	2	156.	65.5	10.0 54.8	1.	*ZAI0323A 5.	*FNL0103A 6.	*LUX0114A 11.
40 FNL0103A	5.0	2	22.5	64.5	1.4 0.8	171.	44.0	2	234.	67.7	19.2 60.0	6.	*D 0087A 8.	*POL0132A 13.	*TUR0145A 20.
41 GNP0304A	-31.0	2	-15.0	12.0	0.9 0.6	172.	46.9	2	42.	63.1	-14.2 12.3	2.	*GMB0302A 6.	*GUI0192A 7.	*IRL0211A 14.
42 GUM0331A	122.0	2	144.5	13.1	0.6 0.6	0.	48.7	2	29.	63.3	144.7 13.4	7.	*MRA0332A 9.	*CAR0338A 17.	*AUS0008A 19.
43 IND0037A	68.0	2	93.0	25.5	1.5 1.1	40.	42.1	2	153.	63.9	96.0 29.5	-1.	*CHN0157A 4.	*CHN0155A 5.	*CHN0154A 7.
44 IND0045A	56.0	2	76.2	19.5	1.6 1.6	21.	40.3	2	210.	63.5	74.4 22.0	3.	*PAK0127A 5.	*CHN0154A 14.	*ARS0275A 15.
45 INS0028A	80.0	2	101.5	0.0	3.0 1.2	133.	38.7	2	288.	63.3	104.4 0.9	0.	*MLA0228A 4.	*SNG0151A 4.	*THA0142A 11.
46 IRL0211A	-31.0	2	-8.2	53.2	0.8 0.6	162.	47.2	1	50.	64.2	-5.5 54.3	7.	*D 0087A 10.	*GNP0304A 15.	*F 0093A 16.
47 KOR0112A	110.0	2	127.5	36.0	1.2 1.0	168.	43.2	2	108.	63.6	126.2 33.0	-3.	*CHN0161A 1.	*PNG0131A 2.	*J 01113 5.
48 LAO0284A	74.0	2	103.7	18.1	2.2 0.8	133.	42.0	1	150.	63.8	102.0 22.5	3.	*THA0142A 7.	*IND0037A 9.	*CHN0157A 12.
49 MAU0242A	29.0	2	59.8	-18.9	1.6 1.2	55.	41.2	1	188.	64.0	60.0 -14.0	5.	*ZAI0323A 6.	*MDG0236A 14.	*PAK0127A 21.
50 MLA0228A	86.0	2	114.1	3.9	2.3 1.1	45.	40.1	1	224.	63.6	109.0 2.4	3.	*INS0028A 5.	*VTN0325A 11.	*CHN0161A 17.

Canal 2 suite — Channel 2 cont. — Canal 2 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
51	MLI0327A	-37.0	2	-2.0 19.0	2.7 1.3	127.	39.0	1	330.	64.2	-2.5 23.3	9.	*ALG0251A 11.	*SMR0311- 18.	*LIE0253A 20.
													*	*	*
52	MRL0333A	146.0	2	166.7 7.9	1.5 1.5	177.	40.7	1	130.	63.3	162.1 11.5	13.	*PNG0131A 19.	*CAR0338 19.	*NCL0100A 22.
													*	*	*
53	NCL0100A	140.0	2	166.0 -21.0	1.1 0.7	146.	45.1	1	72.	63.7	167.5 -23.0	-3.	*WAL0102A -3.	*NHB0128 11.	*AUS0008A 15.
													*	*	*
54	PAK0127A	38.0	2	69.6 29.5	2.3 2.2	14.	37.3	1	461.	63.9	74.5 35.7	2.	*CHN0154A 2.	*AFG0245A 14.	*AFG0246A 21.
													*	*	*
55	PNG0131A	110.0	2	147.7 -6.3	2.5 2.2	169.	36.9	1	562.	64.4	141.0 -9.2	2.	*AUS0008A 6.	*INS0036 7.	*KOR0112A 10.
													*	*	*
56	ROU0136A	-1.0	2	25.0 45.7	1.4 0.7	155.	44.7	1	82.	63.8	20.2 46.1	-1.	*D 0087A 4.	*BOT0297A 5.	*TCH0144A 7.
													*	*	*
57	TCD0143A	-13.0	2	18.1 15.5	3.4 1.7	107.	36.6	2	547.	64.0	16.5 8.2	5.	*CME0300A 7.	*MLI0327- 14.	*GAB0260A 15.
													*	*	*
58	TG00226A	-25.0	2	0.8 8.6	1.5 0.6	105.	44.6	2	75.	63.4	-0.2 11.1	-2.	*MLI0327A -0.	*ALG0251A 6.	*DAH0233A 7.
													*	*	*
59	WAL0102A	140.0	2	-176.8 -14.0	0.7 0.6	29.	47.8	1	46.	64.4	-178.1 -14.2	-2.	*NCL0100A -2.	*PNG0131A 13.	*FJI0193A 18.
													*	*	*
60	YEM0266A	11.0	2	44.3 15.1	1.1 0.7	139.	45.2	1	55.	62.6	44.0 18.0	-1.	*ARS0275A 0.	*YMS0267A 7.	*UGA0051A 11.
													*	*	*
61	ZAI0323A	-19.0	2	21.3 -6.8	2.8 1.5	149.	38.0	1	465.	64.6	16.3 -1.0	1.	*TCD0143A 5.	*GAB0260 7.	*CME0300A 8.

Canal 3 — Channel 3 — Canal 3

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
33	AFG0245A	50.0	3	70.2 35.5	1.3 1.1	53.	42.5	1	108.	62.8	68.0 31.6	0.	*IRN0109A 2.	*PAK0127A 11.	*PAK0283A 13.
													*	*	*
34	AUS0004A	98.0	3	121.8 -24.9	3.6 1.9	54.	35.9	2	514.	63.0	126.6 -31.0	8.	*AUS0006A 8.	*AUS0009A 21.	*INS0036A 21.
													*	*	*
35	AUS0009A	128.0	3	147.2 -32.0	2.1 1.4	15.	39.6	1	281.	64.1	141.0 -34.0	4.	*AUS0007A 6.	*AUS0008A 13.	*PNG0271A 15.
													*	*	*
36	AZR0134A	-31.0	3	-23.4 36.1	2.6 0.7	158.	41.7	2	135.	63.0	-16.9 32.5	-5.	*POR0133A -4.	*LBR0244A 9.	*CPV0301A 14.
													*	*	*
37	CHN0157A	62.0	3	102.3 27.8	2.6 1.6	127.	38.2	2	487.	65.1	101.7 21.3	1.	*VTN0325A 2.	*LAJ0284B 14.	*LAJ0284A 14.
													*	*	*
38	CHN0160A	92.0	3	122.8 45.3	2.5 1.4	150.	38.7	2	438.	65.1	122.5 38.3	-0.	*J 0111B 4.	*CHN0157A 7.	*CHN0161B 7.
													*	*	*
39	COM0207A	29.0	3	44.1 -12.1	0.8 0.6	149.	47.7	2	35.	63.1	43.1 -11.3	5.	*SOM0312A 9.	*ZMB0314A 10.	*MAU0243A 16.
													*	*	*
40	DAH0233A	-19.0	3	2.2 9.5	1.4 0.7	97.	44.3	2	78.	63.3	2.2 6.2	3.	*TG00226A 5.	*ZAI0323A 14.	*ZAI0322A 14.
													*	*	*
41	GAB0260A	-13.0	3	11.8 -0.6	1.4 1.1	64.	42.2	1	130.	63.3	11.0 -4.0	3.	*ZAI0323A 5.	*ZAI0322A 9.	*TCD0143A 14.
													*	*	*
42	GMB0302A	-37.0	3	-15.1 13.4	0.8 0.6	4.	47.5	2	38.	63.3	-14.2 13.3	3.	*GNP0304A 7.	*MLI0328A 9.	*LBR0244A 12.
													*	*	*
43	GRC0105A	5.0	3	24.7 38.2	1.8 1.0	156.	41.8	1	140.	63.3	26.6 41.5	1.	*BUL0020A 4.	*ROU0136A 6.	*IRN0109A 13.
													*	*	*
44	IND0043A	56.0	3	77.8 11.1	1.4 1.3	172.	41.8	1	141.	63.3	79.5 9.1	4.	*CLN0219A 5.	*IND0045A 15.	*IND0040A 19.
													*	*	*
45	IND0047A	68.0	3	93.3 11.1	1.9 0.6	96.	43.6	1	96.	63.4	93.6 14.8	6.	*CHN0157A 3.	*IND0037A 16.	*IND0048A 16.

Canal 3 suite — Channel 3 cont. — Canal 3 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
46	INS0036A	104.0	3	135.2	-3.8	2.5	2.0	147.	37.3	1	439.	63.8	128.0	-7.0	4. *AUS0004A	5. *J 0111B	15. *PNG0131A	16. *
47	IRN0109A	34.0	3	54.2	32.4	3.8	1.8	149.	35.8	2	497.	62.8	61.5	31.0	6. *AFG0245A	8. *PAK0127A	15. *SOM0312A	16. *
48	J 0111B	110.0	3	134.5	31.5	3.5	3.3	68.	35.6	1	1145.	64.2	129.3	34.7	1. *CHN0160A	7. *KOR0112B	8. *KOR0112A	8. *
49	LBN0279A	11.0	3	35.8	33.9	0.6	0.6	0.	48.7	2	20.	61.6	36.8	34.5	-0. *GRC0105A	6. *IRN0109A	6. *ARS0003A	7. *
50	LBR0244A	-31.0	3	-9.3	6.6	1.2	0.7	133.	44.9	1	68.	63.2	-10.2	6.5	4. *MLI0328A	9. *AZR0134A	9. *POR0133A	12. *
51	LBY0321A	-25.0	3	13.1	27.2	2.4	1.1	129.	40.0	2	200.	63.0	11.4	33.5	3. *ALG0251A	6. *ALG0252A	9. *TGO0226A	12. *
52	LIE0253A	-37.0	3	9.5	47.1	0.6	0.6	0.	48.7	1	24.	62.4	9.5	47.2	1. *TCH0144A	4. *LUX0114A	8. *AND0341A	13. *
53	LUX0114A	-19.0	3	6.0	49.8	0.6	0.6	0.	48.7	1	26.	62.9	7.0	48.5	-4. *LIE0253A	1. *D 0087A	3. *TCH0144A	4. *
54	MRA0332A	122.0	3	145.9	16.9	1.2	0.6	76.	45.7	1	60.	63.5	145.0	20.0	-4. *J 0111B	-4. *GUM0331A	12. *AUS0009A	19. *
55	NHBJ128A	140.0	3	168.0	-16.4	1.5	0.7	87.	44.1	2	75.	62.8	169.8	-20.0	7. *NCL0100A	8. *NRU0309A	23. *INS0036A	23. *
56	NRU0309A	134.0	3	167.0	-0.5	0.6	0.6	0.	48.7	2	24.	62.5	166.0	-2.0	10. *NHBJ128A	14. *INS0036A	17. *PNG0131A	19. *
57	POR0133A	-31.0	3	-8.0	39.6	0.9	0.6	112.	46.8	2	45.	63.4	-7.5	37.2	-15. *AZR0134A	-15. *LBR0244A	11. *G 0027A	14. *
58	SMD0057A	158.0	3	-172.3	-13.7	0.6	0.6	0.	48.7	1	31.	63.6	-171.0	-14.1	7. *CKN0053A	9. *CKH0052A	14. *WAL0102A	20. *
59	SNG0151A	74.0	3	103.8	1.3	0.6	0.6	0.	48.7	2	31.	63.5	106.0	1.1	-1. *VTN0325A	4. *INS0028B	4. *INS0028A	4. *
60	SOM0312A	23.0	3	45.0	6.4	3.3	1.5	71.	37.2	1	323.	62.3	43.2	11.2	5. *URS0060A	8. *URS0061A	10. *YEM0266A	15. *
61	TCH0144A	-1.0	3	17.3	49.3	1.5	0.6	170.	44.8	2	80.	63.8	12.1	50.3	-2. *LIE0253A	3. *ZMB0314A	5. *LUX0114A	6. *
62	UGA0051A	11.0	3	32.3	1.2	1.5	1.1	60.	42.1	1	129.	63.2	29.8	-1.3	1. *RRW0310A	4. *ZMB0314A	8. *ZAI0322A	16. *
63	URS0061A	23.0	3	24.7	56.6	0.9	0.6	12.	46.7	2	67.	65.0	25.8	54.1	-0. *TCH0144A	6. *SOM0312A	6. *URS0060A	6. *
64	URS0073A	44.0	3	54.3	63.5	1.6	0.7	3.	44.1	1	192.	66.9	49.5	59.3	10. *IRN0109A	13. *URS0060A	16. *AFG0245A	21. *
65	VTN0325A	86.0	3	105.3	16.1	3.0	1.4	116.	38.0	2	351.	63.4	102.0	22.8	-1. *CHN0157A	-1. *LAD0284B	14. *LAD0284A	14. *
66	ZMB0314A	-1.0	3	27.5	-13.1	2.4	1.5	39.	38.8	1	312.	63.7	33.0	-13.8	3. *MOZ0307A	5. *TCH0144A	11. *BOT0297A	13. *

Canal 4 — Channel 4 — Canal 4

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
35	ALG0252A	-25.0	4	1.6	25.5	3.6	2.2	152.	35.3	1	561.	62.8	9.5	30.0	4. *LBY0321A	7. *LBY0280B	12. *MLT0147A	15. *
36	AND0341A	-37.0	4	1.6	42.5	0.6	0.6	0.	48.7	2	19.	61.5	1.4	42.4	-1. *G 0027A	3. *ALG0252A	5. *MLI0328A	7. *
37	ARS0003A	17.0	4	41.1	23.8	3.5	1.7	134.	36.5	2	416.	62.7	56.0	21.0	-1. *YMS0267B	1. *EGY0026A	9. *QAT0247B	10. *

Canal 4 suite — Channel 4 cont. — Canal 4 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
38 AUS0007A	128.0	4	145.0	-38.1	1.8	1.4	134.	40.2	2	205.	63.3	149.6	-37.5	1. *PNG0271A	3. *AUS0009A	7. *JCE0101A	27.
39 AUT0016A	-19.0	4	12.1	47.5	1.1	0.6	166.	45.7	2	70.	64.1	17.1	48.0	-0. *ZAI0322A	4. *S 0138A	9. *F 0093B	10.
40 BUL0020A	-1.0	4	25.0	43.0	1.0	0.6	165.	46.3	1	54.	63.6	28.1	42.0	-2. *MOZ0307A	3. *TUR0145B	5. *GRC0105A	6.
41 CHN0156A	62.0	4	97.8	36.3	2.6	1.6	157.	38.2	1	338.	63.5	108.5	35.4	1. *CHN0161B	4. *CHN0157A	6. *CHN0155B	11.
42 CHN0161B	92.0	4	118.1	31.1	2.5	1.7	117.	38.0	1	439.	64.4	122.6	37.4	-0. *KOR0112B	3. *CHN0160A	7. *CHN0156A	7.
43 CKN0053A	158.0	4	163.0	-11.2	1.8	0.7	30.	43.2	2	128.	64.3	-158.0	-9.0	4. *JCE0101A	4. *NZL0055B	18. *TON0215A	29.
44 CPV0301A	-31.0	4	-24.0	16.0	0.9	0.7	144.	46.5	2	37.	62.2	-24.3	14.4	4. *G 0027A	6. *AZR0134A	14. *MLI0328A	16.
45 EGY0026A	-7.0	4	29.7	26.8	2.3	1.7	136.	38.2	2	307.	63.1	36.0	23.3	-0. *ARS0003A	0. *ALG0252A	12. *MOZ0307A	16.
46 G 0027A	-31.0	4	-3.5	53.8	1.8	0.7	142.	43.0	1	158.	65.0	1.3	51.1	3. *ALG0252A	5. *AUT0016A	10. *F 0093B	13.
47 IND0340A	56.0	4	73.0	25.0	1.8	1.5	58.	39.9	2	234.	63.6	73.5	30.0	-1. *PAK0283A	0. *CHN0155B	10. *CHN0156A	16.
48 IND0348A	68.0	4	86.2	25.0	1.6	0.9	120.	42.8	2	122.	63.7	89.8	26.7	-3. *CHN0156A	1. *CHN0155B	3. *CHN0157A	6.
49 INS0028B	80.0	4	101.5	0.0	3.0	1.2	133.	38.7	2	290.	63.3	104.4	0.9	0. *MLA0228B	4. *SNG0151A	4. *THA0142B	11.
50 KOR0112B	110.0	4	127.5	36.0	1.2	1.0	168.	43.2	2	109.	63.6	124.6	37.9	-2. *CHN0161B	1. *CHN0156A	6. *J 0111C	7.
51 LAC0284B	74.0	4	103.7	18.1	2.2	0.8	133.	42.0	1	151.	63.8	102.0	22.5	3. *THA0142B	7. *CHN0156A	8. *CHN0157A	12.
52 *AU0243A	29.0	4	56.8	-13.9	1.6	1.4	65.	40.9	1	190.	63.7	53.0	-15.0	6. *MDG0236B	9. *MOZ0307A	11. *COM0207A	18.
53 MLA0228B	86.0	4	114.1	3.9	2.3	1.1	45.	40.1	1	226.	63.6	109.0	2.4	3. *INS0028B	5. *VTN0325A	11. *CHN0161B	17.
54 MLI0328A	-37.0	4	-7.6	13.2	1.7	1.2	171.	40.9	1	191.	63.7	-12.0	15.0	3. *GMB0302A	8. *GUI0192B	8. *ALG0252A	9.
55 MLT0147A	-13.0	4	14.3	35.9	0.6	0.6	0.	48.7	1	17.	61.0	14.3	35.9	0. *ALG0252A	2. *EGY0026A	11. *CME0300B	12.
56 MOZ0307A	-1.0	4	34.0	-18.0	3.6	1.4	55.	37.3	2	486.	64.2	30.3	-15.0	5. *ZMB0314A	6. *BUL0020A	13. *ZAI0322A	17.
57 JCE0101A	-160.0	4	145.0	-16.3	4.3	3.5	4.	32.4	2	1301.	63.5	-154.7	-15.7	17. *CKN0053A	17. *PNG0271A	30. *TON0215A	33.
58 PAK0283A	38.0	4	74.7	33.9	1.3	1.1	160.	42.4	1	152.	64.3	79.1	32.7	2. *IND0040A	4. *CHN0156A	10. *IND0048A	13.
59 PNG0271A	128.0	4	148.0	-6.7	2.8	2.0	155.	36.7	1	470.	63.4	141.0	-9.2	3. *AUS0007A	5. *AUS0009A	10. *INS0036A	16.
60 RRW0310A	11.0	4	30.0	-2.1	0.7	0.6	42.	48.3	2	45.	64.8	30.3	-1.0	0. *ZAI0322A	2. *UGA0051A	8. *YMS0267B	14.
61 S 0138A	5.0	4	16.2	61.0	1.0	1.0	14.	44.2	2	195.	67.1	20.1	69.1	2. *URS0060A	3. *G 0027A	7. *PCL0132B	24.
62 STP0241A	-13.0	4	7.0	0.8	0.6	0.6	0.	48.7	2	19.	61.4	5.0	2.0	-2. *CME0300B	2. *ZAI0322A	3. *GAB0260A	6.
63 TON0215A	170.0	4	174.7	-18.0	1.4	0.7	95.	44.4	1	77.	63.3	-173.7	-15.9	4. *CKN0053A	6. *JCE0101A	13. *SMA0335B	15.

Canal 4 suite — Channel 4 cont. — Canal 4 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
64 URS0060A	23.0	4	41.5	57.4	3.1	1.6	153.	37.4	1	854.	66.7	28.3	68.9	-0. *S 0138A	0. *G 0027A	9. *URS0061A 13.
65 ZAI0322A	-19.0	4	22.4	0.0	2.2	1.9	48.	38.2	1	451.	64.7	19.5	5.0	4. *CME0300B	8. *ALG0252A	9. *AUT0016A 12.

Canal 5 — Channel 5 — Canal 5

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
32 AFG0246B	50.0	5	64.5	33.1	1.4	1.4	21.	41.2	1	142.	62.7	67.7	37.3	-2. *URS0067B	1. *CHN0155B	5. *TUR0145B 11.
33 AUS0005B	98.0	5	133.5	-18.8	2.7	1.4	76.	38.5	2	383.	64.3	130.8	-12.5	2. *INS0035B	2. *AUS0006B	16. *CHN0162B 18.
34 CAR0338B	122.0	5	149.5	8.0	5.4	0.8	178.	38.1	1	278.	62.5	134.6	7.5	3. *INS0035B	6. *J 0111C	7. *CHN0162B 20.
35 CHN0155B	62.0	5	88.3	31.5	3.4	1.4	162.	37.3	2	360.	62.9	86.0	28.0	-0. *IND0044B	3. *IND0048A	5. *CHN0156A 12.
36 CHN0162B	92.0	5	115.9	21.0	2.7	2.4	23.	36.0	2	620.	64.0	125.0	25.9	-1. *J 0111C	0. *CHN0161C	7. *CHN0161B 8.
37 CHN0164A	80.0	5	112.2	37.4	1.1	0.8	111.	45.2	1	79.	64.2	113.6	35.6	2. *CHN0162B	6. *J 0111C	8. *CHN0155B 10.
38 CME0300B	-13.0	5	12.7	6.2	2.5	1.7	87.	37.9	1	357.	63.5	16.2	1.4	2. *ZAI0322A	4. *ZAI0323B	8. *TC00143B 9.
39 F 0093B	-19.0	5	2.6	45.9	2.5	1.0	160.	40.4	1	223.	63.8	9.5	41.2	-2. *SMR0311B	1. *D 0087B	9. *ALG0251B 9.
40 FJI0193B	152.0	5	179.4	-17.9	1.0	1.0	67.	44.2	1	90.	63.7	-178.5	-19.9	4. *NZL0055B	4. *TON0215A	23. *J 0111C 28.
41 GUI0192B	-37.0	5	-11.0	10.2	1.6	1.0	147.	42.1	2	138.	63.5	-14.5	11.5	3. *GNP0304B	5. *MLI0328A	8. *MLI0327B 15.
42 IND0039B	56.0	5	72.7	11.2	1.3	0.6	107.	45.5	1	59.	63.1	71.9	12.3	8. *IND0045B	12. *IND0040A	16. *IND0044B 18.
43 IND0044B	68.0	5	79.5	22.3	2.2	1.4	146.	39.3	1	256.	63.4	78.2	26.9	0. *CHN0155B	2. *CHN0154B	12. *IND0048A 14.
44 INS0035B	104.0	5	124.3	-3.2	3.3	1.9	82.	36.1	1	514.	63.2	125.5	4.0	5. *J 0111C	6. *CAR0338B	15. *CHN0162B 17.
45 J 0111C	110.0	5	134.5	31.5	3.5	3.3	68.	33.6	1	1152.	64.2	123.7	24.3	-0. *CHN0162B	1. *PNG0131B	12. *INS0035B 13.
46 LBY0280B	-25.0	5	21.4	26.0	2.5	1.0	119.	40.1	2	221.	63.5	22.0	33.0	4. *TUR0145B	8. *ALG0251B	11. *ALG0252A 12.
47 MDG0236B	29.0	5	46.6	-18.8	2.7	1.1	65.	39.3	2	253.	63.4	49.0	-12.3	8. *MAU0243A	10. *MAJ0242B	15. *ZAI0323B 22.
48 NZL0055B	158.0	5	172.3	-39.7	2.9	1.6	47.	37.7	1	369.	63.4	166.3	-45.5	15. *AUS0005B	21. *FJI0193B	21. *CKN0053A 22.
49 PLM0337B	170.0	5	-161.4	7.0	0.6	0.6	0.	48.7	1	24.	62.4	-162.4	6.1	5. *CAR0338B	7. *TON0215A	14. *SMA0335B 16.
50 PDL0132B	-1.0	5	19.3	51.8	1.5	0.6	162.	44.5	2	92.	64.2	14.4	53.9	-1. *S 0138A	3. *F 0093B	6. *FNL0103B 7.
51 QAT0247B	17.0	5	51.1	25.3	0.6	0.6	0.	49.7	1	21.	61.8	52.3	24.8	1. *YMS0267B	5. *ARS0275B	6. *ARS0003A 9.

Canal 5 suite — Channel 5 cont. — Canal 5 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14				
52 SMA0335B	170.0	5-170.1	-14.2	0.6 0.6	0.	48.7	2	18.	61.2	-171.0	-11.0	-3.	*TGN0215A	1.	*PLM0337B	2.	*CKN0053A	5.	
													*		*		*		
53 SMR0311B	-37.0	5	12.6	43.7	0.6 0.6	0.	48.7	1	24.	62.5	12.0	43.0	-0.	*F 0093B	2.	*GUI0192B	9.	*TUR0145B	12.
														*		*		*	
54 SWZ0313B	-1.0	5	31.5	-26.5	0.6 0.6	66.	48.5	1	27.	62.8	31.1	-25.9	4.	*MOZ03J7A	7.	*BCT0297B	9.	*PCL0132B	11.
														*		*		*	
55 THA0142B	74.0	5	100.7	13.2	2.8 1.5	106.	37.9	2	379.	63.7	103.7	18.6	-1.	*CHN0162B	4.	*LAD0284C	5.	*LAG0284B	5.
														*		*		*	
56 TUR0145B	5.0	5	34.4	38.9	2.7 1.0	168.	39.8	1	249.	63.8	42.7	41.5	-2.	*URS0064B	-1.	*LBY0280B	11.	*URS0067B	12.
														*		*		*	
57 URS0064B	23.0	5	45.6	40.8	2.2 0.6	163.	43.1	2	121.	63.9	40.0	43.4	-1.	*TUR0145B	2.	*URS0060A	6.	*URS0067B	12.
														*		*		*	
58 URS0067B	44.0	5	62.4	58.5	3.2 1.5	169.	37.4	1	888.	66.9	50.9	51.9	12.	*URS0060A	17.	*TUR0145B	17.	*AFG0246B	21.
														*		*		*	
59 WAK0334B	140.0	5	166.5	19.2	0.6 0.6	0.	48.7	1	31.	63.6	166.5	19.2	17.	*J 0111C	22.	*MRL0333B	24.	*NCL0100B	25.
														*		*		*	
60 YMS0267B	11.0	5	48.8	15.2	1.8 1.5	176.	39.9	2	197.	62.9	49.5	18.4	3.	*ARS0275B	6.	*ARS0003A	7.	*YEM0266B	13.

Canal 6 — Channel 6 — Canal 6

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14				
30 ALG0251B	-25.0	6	4.2	33.2	2.4 1.3	172.	39.4	1	255.	63.4	9.5	30.0	0.	*TCD0143B	5.	*LBY0321B	7.	*TGD0226B	8.
														*		*		*	
31 ARS0275B	17.0	6	48.3	24.6	3.8 1.4	138.	36.9	2	385.	62.8	42.5	17.0	-11.	*YEM0266B	-11.	*YMS0267B	-1.	*TCD0143B	12.
														*		*		*	
32 AUS0006B	98.0	6	135.4	-30.3	2.0 1.4	44.	39.8	1	224.	63.3	140.8	-27.7	1.	*AUS0008B	3.	*AUS0005B	8.	*AUS0004B	14.
														*		*		*	
33 AUS0008B	128.0	6	145.9	-21.5	2.9 2.0	120.	36.6	2	516.	63.7	149.0	-29.0	3.	*AUS0009B	6.	*AUS0006B	6.	*AUS0005B	27.
														*		*		*	
34 BOT0297B	-1.0	6	23.3	-22.2	2.1 1.5	36.	39.2	2	298.	63.8	25.3	-17.8	4.	*ZMB0314B	6.	*ZAI0323B	10.	*ROU0136B	11.
														*		*		*	
35 CHN0154B	62.0	6	83.9	40.5	2.8 2.0	177.	36.7	1	449.	63.3	79.0	34.3	-0.	*PAK0127B	1.	*CHN0155B	8.	*CHN0157B	14.
														*		*		*	
36 CHN0161C	92.0	6	118.1	31.1	2.5 1.7	117.	39.0	1	442.	64.5	122.6	37.4	1.	*KOR0112C	3.	*CHN0160B	7.	*CHN0162B	13.
														*		*		*	
37 CKH0052B	158.0	6-161.0	-19.8	1.0 0.6	132.	46.1	2	71.	64.6	-163.5	-17.5	15.	*SMD0057B	18.	*NZL0055B	19.	*WAL0102B	28.	
														*		*		*	
38 CLN0219B	50.0	6	80.6	7.7	1.2 0.6	106.	45.7	1	62.	63.6	80.0	10.0	3.	*IND0043B	5.	*IND0045B	10.	*AFG0246B	14.
														*		*		*	
39 D 0087B	-19.0	6	9.6	49.9	1.6 0.7	147.	43.6	2	158.	65.6	10.0	54.8	1.	*ZAI0323B	5.	*FNL0103B	6.	*LUX0114B	11.
														*		*		*	
40 FNL0103B	5.0	6	22.5	64.5	1.4 0.8	171.	44.0	2	237.	67.8	19.2	60.0	6.	*D 0087B	8.	*POL0132B	13.	*TUR0145B	20.
														*		*		*	
41 GNP0304B	-31.0	6	-15.0	12.0	0.9 0.6	172.	46.9	2	42.	63.2	-14.2	12.3	2.	*GMB0302B	6.	*GUI0192B	7.	*IRL0211B	14.
														*		*		*	
42 GUM0331B	122.0	6	144.5	13.1	0.6 0.6	0.	48.7	2	29.	63.4	144.7	13.4	7.	*MRA0332B	9.	*CAR0338B	17.	*AUS0008B	19.
														*		*		*	
43 IND0037B	68.0	6	93.0	25.5	1.5 1.1	40.	42.1	2	155.	64.0	96.0	29.5	-1.	*CHN0157B	4.	*CHN0155B	6.	*CHN0154B	7.
														*		*		*	
44 IND0045B	56.0	6	76.2	19.5	1.6 1.6	21.	40.3	2	213.	63.6	74.4	22.0	3.	*PAK0127B	5.	*CHN0154B	14.	*ARS0275B	15.

Canal 6 suite — Channel 6 cont. — Canal 6 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
45	INS028C	80.0	6	101.5	0.0	3.0	1.2	133.	38.7	2	292.	63.3	104.4	0.9	0. *MLA0228C 4. *SNG0151B 4. *THA0142B 11.
46	IRLJ211B	-31.0	6	-8.2	53.2	0.8	0.6	162.	47.2	1	51.	64.3	-5.5	54.3	7. *J 0087B 10. *GNP0304B 15. *F 0093B 16.
47	KOR0112C	110.0	6	127.5	36.0	1.2	1.0	168.	43.2	2	110.	63.6	126.2	33.0	-3. *CHNJ161C 1. *PNG0131B 2. *J 0111D 5.
48	LAJ0284C	74.0	6	103.7	18.1	2.2	0.8	133.	42.0	1	152.	63.8	102.0	22.5	3. *THAJ142B 7. *IND0037B 9. *CHNJ157B 12.
49	MAJ0242B	29.0	6	59.8	-18.9	1.6	1.2	55.	41.2	1	190.	64.0	60.0	-14.0	5. *ZAI0323B 6. *MDG0236B 14. *PAK0127B 21.
50	MLA0228C	86.0	6	114.1	3.9	2.3	1.1	45.	40.1	1	227.	63.6	109.0	2.4	3. *INS0028C 5. *VTN0325B 11. *CHNJ161C 17.
51	MLIJ327B	-37.0	6	-2.0	19.0	2.7	1.3	127.	39.0	1	335.	64.2	-2.5	23.3	9. *ALG0251B 11. *SMR0311B 18. *LIE0253B 20.
52	MRLJ333B	146.0	6	166.7	7.9	1.5	1.5	177.	40.7	1	183.	63.3	162.1	11.5	13. *PNG0131B 19. *CAR0338B 19. *NCL0100B 22.
53	NCL0100B	140.0	6	166.0	-21.0	1.1	0.7	146.	45.1	1	73.	63.8	167.5	-23.0	-3. *WAL0102B -3. *NHB0128B 11. *AUS0008B 15.
54	PAK0127B	38.0	6	69.6	29.5	2.3	2.2	14.	37.3	1	468.	64.0	74.5	35.7	2. *CHNJ154B 2. *AFG0245B 15. *AFG0246B 21.
55	PNG0131B	110.0	6	147.7	-6.3	2.5	2.2	169.	36.9	1	570.	64.4	141.0	-9.2	2. *AUS0008B 6. *INS0036B 7. *KOR0112C 10.
56	RJ0136B	-1.0	6	25.0	45.7	1.4	0.7	155.	44.7	1	83.	63.9	20.2	46.1	-1. *D 0087B 4. *BOT0297B 5. *TCH0144B 7.
57	TCDJ143B	-13.0	6	18.1	15.5	3.4	1.7	107.	36.6	2	554.	64.0	16.5	8.2	5. *CME0300B 7. *MLI0327B 14. *GAB0260B 15.
58	TGJ0226B	-25.0	6	0.8	8.6	1.5	0.6	105.	44.6	2	76.	63.4	-0.2	11.1	-2. *MLI0327B -0. *ALG0251B 6. *DAH0233B 7.
59	WAL0102B	140.0	6	-176.8	-14.0	0.7	0.6	29.	47.8	1	46.	64.4	-178.1	-14.2	-2. *NCL0100B -2. *PNG0131B 13. *FJI0193B 18.
60	YEM0266B	11.0	6	44.3	15.1	1.1	0.7	109.	45.2	1	56.	62.7	44.0	18.0	-1. *ARS0275B 0. *YMS0267B 7. *UGA0051B 11.
61	ZAI0323B	-19.0	6	21.3	-6.8	2.8	1.5	149.	38.0	1	471.	64.7	16.3	-1.0	1. *TCD0143B 5. *GAB0260B 7. *D 0087B 8.

Canal 7 — Channel 7 — Canal 7

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
33	AFG0245B	50.0	7	70.2	35.5	1.3	1.1	53.	42.5	1	109.	62.9	68.0	31.6	0. *IRN0109B 2. *PAK0127B 11. *PAK0283B 13.
34	AUS0004B	98.0	7	121.8	-24.9	3.6	1.9	54.	35.9	2	520.	63.1	126.6	-31.0	8. *AUS0006B 8. *AUS0009B 21. *INS036B 22.
35	AJS0009B	128.0	7	147.2	-32.0	2.1	1.4	15.	39.6	1	285.	64.1	141.0	-34.0	4. *AUS0007B 6. *AUS0008B 13. *PNG0271B 13.
36	AZR0134B	-31.0	7	-23.4	36.1	2.6	0.7	158.	41.7	2	136.	63.1	-16.9	32.5	-5. *POR0133B -4. *LBR0244B 9. *CPV0301B 14.
37	CHNJ157B	62.0	7	102.3	27.8	2.6	1.6	127.	38.2	2	493.	65.1	101.7	21.3	1. *VTN0325B 2. *LAJ0284C 14. *LAJ0284C 14.
38	CHNJ160B	92.0	7	122.8	45.3	2.5	1.4	150.	33.7	2	444.	65.1	122.5	38.3	0. *J 0111D 4. *CHNJ157B 7. *CHNJ161C 7.
39	COM0207B	29.0	7	44.1	-12.1	0.8	0.6	149.	47.7	2	35.	63.1	43.1	-11.3	5. *SOM0312B 9. *ZMB0314B 10. *MAU0243B 16.



Canal 7 suite — Channel 7 cont. — Canal 7 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
40	DAH0243B	-19.0	7	2.2 9.5	1.4 0.7	97.	44.3	2	79.	63.3	2.2 6.2	3.	*TGO0226B	5.	*ZAI0323B 14.	*ZAI0322B 14.
41	GAB0263B	-13.0	7	11.8 -0.6	1.4 1.1	64.	42.2	1	131.	63.4	11.0 -4.0	3.	*ZAI0323B	5.	*ZAI0322B 9.	*TCD0143B 14.
42	GMP0302B	-37.0	7	-15.1 13.4	0.8 0.6	4.	47.5	2	39.	63.4	-14.2 13.3	3.	*GNP0304B	7.	*MLI0328B 9.	*LBR0244B 12.
43	GRC0105B	5.0	7	24.7 38.2	1.8 1.0	156.	41.8	1	142.	63.4	26.6 41.5	1.	*BUL0020B	4.	*ROU0136B 6.	*IRN0109B 13.
44	IND0043B	56.0	7	77.8 11.1	1.4 1.3	172.	41.8	1	143.	63.4	79.5 9.1	4.	*CLN0219B	5.	*IND0045B 15.	*IND0040B 19.
45	IND0047B	68.0	7	93.3 11.1	1.9 0.6	96.	43.6	1	97.	63.5	93.8 14.8	6.	*CHN0157B	8.	*IND0037B 16.	*IND0048B 16.
46	INS0036B	104.0	7	135.2 -3.8	2.5 2.0	147.	37.3	1	445.	63.8	128.0 -7.0	4.	*AUS0004B	5.	*J 0111D 15.	*PNG0131B 16.
47	IRN0109B	34.0	7	54.2 32.4	3.8 1.8	149.	35.8	2	504.	62.8	61.5 31.0	6.	*AFG0245B	8.	*PAK0127B 15.	*SOM0312B 16.
48	J 0111D	110.0	7	134.5 31.5	3.5 3.3	68.	33.6	1	1160.	64.2	129.3 34.7	1.	*CHN0160B	7.	*KOR0112D 8.	*KOR0112C 8.
49	LBN0279B	11.0	7	35.8 33.9	0.6 0.6	0.	48.7	2	20.	61.7	36.8 34.5	-0.	*GRC0105B	6.	*IRN0109B 6.	*ARS0003B 7.
50	LBF0244B	-31.0	7	-9.3 6.6	1.2 0.7	133.	44.9	1	69.	63.3	-10.2 8.5	4.	*MLI0328B	9.	*AZR0134B 9.	*POR0133B 12.
51	LBY0321B	-25.0	7	13.1 27.2	2.4 1.1	129.	40.0	2	202.	63.1	11.4 33.5	3.	*ALG0251B	6.	*ALG0252B 9.	*TGO0226B 12.
52	LIE0253B	-37.0	7	9.5 47.1	0.6 0.6	0.	48.7	1	24.	62.5	9.5 47.2	1.	*TCH0144B	4.	*LUX0114B 8.	*AND0341B 13.
53	LUX0114B	-19.0	7	6.0 49.8	0.6 0.6	0.	48.7	1	27.	63.0	7.0 48.5	-4.	*LIE0253B	1.	*D 0087B 3.	*TCH0144B 4.
54	MRA0332B	122.0	7	145.9 16.9	1.2 0.6	76.	45.7	1	61.	63.5	145.0 20.0	-4.	*J 0111D	-4.	*GUM0331B 12.	*AUS0009B 19.
55	NHB0128B	140.0	7	168.0 -16.4	1.5 0.7	87.	44.1	2	76.	62.9	169.8 -20.0	7.	*NCL0100B	8.	*NRU0309B 23.	*INS0036B 23.
56	NRU0309B	134.0	7	167.0 -0.5	0.6 0.6	0.	48.7	2	25.	62.6	166.0 -2.0	10.	*NHB0128B	14.	*INS0036B 17.	*PNG0131B 19.
57	POR0133B	-31.0	7	-8.0 39.6	0.9 0.6	112.	46.8	2	46.	63.4	-7.5 37.2	-15.	*AZR0134B	-15.	*LBR0244B 11.	*G 0027B 14.
58	SMD0057B	158.0	7	-172.3 -13.7	0.6 0.6	0.	48.7	1	32.	63.7	-171.0 -14.1	7.	*CKN0053B	9.	*CKH0052B 14.	*HAL0102B 20.
59	SNG0151B	74.0	7	103.8 1.3	0.6 0.6	0.	48.7	2	31.	63.6	106.0 1.1	-1.	*VTN0325B	4.	*INS0028D 4.	*INS0028C 4.
60	SOM0312B	23.0	7	45.0 6.4	3.3 1.5	71.	37.2	1	327.	62.4	43.2 11.2	5.	*URS0060B	8.	*URS0061B 10.	*YEM0266B 15.
61	TCH0144B	-1.0	7	17.3 49.3	1.5 0.6	170.	44.8	2	81.	63.9	12.1 50.3	-2.	*LIE0253B	3.	*ZMB0314B 5.	*LUX0114B 6.
62	UGAJ051B	11.0	7	32.3 1.2	1.5 1.1	60.	42.1	1	130.	63.3	29.8 -1.3	1.	*RRW0310B	4.	*ZMB0314B 8.	*ZAI0322B 16.
63	URS0061B	23.0	7	24.7 56.6	0.9 0.6	12.	46.7	2	68.	65.1	25.8 54.1	-0.	*TCH0144B	6.	*SOM0312B 6.	*URS0060B 6.
64	URS0072A	44.0	7	70.1 61.5	2.4 0.7	173.	42.3	1	300.	67.1	63.1 66.2	13.	*URS0060B	18.	*IRN0109B 18.	*AFG0245B 21.
65	VTN0325B	86.0	7	105.3 16.1	3.0 1.4	116.	38.0	2	356.	63.5	102.0 22.8	-1.	*CHN0157B	-1.	*LAG0284D 14.	*LAG0284C 14.
66	ZAI0314B	-1.0	7	27.5 -13.1	2.4 1.5	39.	38.8	1	316.	63.8	33.0 -13.8	3.	*MOZ0307B	5.	*TCH0144B 11.	*BOT0297B 13.

Canal 8 — Channel 8 — Canal 8

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
44	CPV0301B	-31.0	8	-24.0 16.0	0.9 0.7	144.	46.5	2	38.	62.2	-24.3 14.4	4.	*G 0027B	6.	*AZR0134B 14. *MLI0328B 16.
45	EGY0026B	-7.0	8	29.7 26.8	2.3 1.7	136.	38.2	2	311.	63.2	36.0 23.3	-0.	*ARSO003B	0.	*ALG0252B 12. *MOZ0307B 16.
46	G 0027B	-31.0	8	-3.5 53.8	1.8 0.7	142.	43.0	1	160.	65.1	1.3 51.1	3.	*ALG0252B	5.	*AUT0016B 10. *F 0093C 14.
47	IND0040B	56.0	8	73.0 25.0	1.8 1.5	58.	39.9	2	237.	63.7	73.5 30.0	-1.	*PAK0283B	0.	*CHN0155C 10. *CHN0156B 16.
48	IND0048B	68.0	8	86.2 25.0	1.6 0.9	120.	42.8	2	124.	63.7	89.8 26.7	-3.	*CHN0156B	1.	*CHN0155C 3. *CHN0157B 6.
49	INS0028D	80.0	8	101.5 0.0	3.0 1.2	133.	38.7	2	294.	63.4	104.4 0.9	0.	*MLA0228D	4.	*SNG0151B 4. *THA0142C 11.
50	KJR0112D	110.0	8	127.5 36.0	1.2 1.0	168.	43.2	2	110.	63.7	126.2 33.0	1.	*J 0111E	5.	*J 0111D 6. *CHN0156B 10.
51	LA00284D	74.0	8	103.7 18.1	2.2 0.8	133.	42.0	1	153.	63.8	102.0 22.5	3.	*THA0142C	7.	*CHN0156B 9. *CHN0157B 12.
52	MAU0243B	29.0	8	56.8 -13.9	1.6 1.4	65.	40.9	1	192.	63.8	53.0 -15.0	6.	*MDG0236C	9.	*MOZ0307B 11. *COM0207B 18.
53	MLA0228D	86.0	8	114.1 3.9	2.3 1.1	45.	40.1	1	229.	63.7	109.0 2.4	3.	*INS0028D	5.	*VTN0325B 11. *CHN0173A 19.
54	MLI0328B	-37.0	8	-7.6 13.2	1.7 1.2	171.	40.9	1	193.	63.8	-12.0 15.0	3.	*GMB0302B	8.	*GUI0192C 8. *ALG0252B 9.
55	MLT0147B	-13.0	8	14.3 35.9	0.6 0.6	0.	48.7	1	17.	61.0	14.3 35.9	0.	*ALG0252B	2.	*EGY0026B 11. *CME0300C 12.
56	MOZ0307B	-1.0	8	34.0 -18.0	3.6 1.4	55.	37.3	2	493.	64.2	30.3 -15.0	5.	*ZMB0314B	6.	*RUL0020B 13. *ZAI0322B 17.
57	OCE0101B	-160.0	8	-145.0 -16.3	4.3 3.5	4.	32.4	2	1318.	63.6	-154.7 -15.7	17.	*CKN0053B	17.	*PNG0271B 30. *TON0215B 33.
58	PAK0283B	38.0	8	74.7 33.9	1.3 1.1	160.	42.4	1	154.	64.3	79.1 32.7	2.	*IND0040B	4.	*CHN0156B 10. *IND0048B 13.
59	PNG0271B	128.0	8	148.0 -6.7	2.8 2.0	155.	36.7	1	476.	63.4	141.0 -9.2	3.	*AUS0007B	5.	*AUS0009B 10. *INS0036B 16.
60	RRW0310B	11.0	8	30.0 -2.1	0.7 0.6	42.	48.3	2	46.	64.9	30.3 -1.0	0.	*ZAI0322B	2.	*UGA0051B 8. *YMS0267C 14.
61	S 0138B	5.0	8	16.2 61.0	1.0 1.0	14.	44.2	2	198.	67.1	20.1 69.1	2.	*JPS0060B	3.	*G 0027B 7. *POL0132C 25.
62	STP0241B	-13.0	8	7.0 0.8	0.6 0.6	0.	48.7	2	19.	61.5	5.0 2.0	-2.	*CME0300C	2.	*ZAI0322B 3. *GAB0260B 6.
63	TON0215B	170.0	8	-174.7 -18.0	1.4 0.7	85.	44.4	1	78.	63.3	-173.7 -15.9	4.	*CKN0053B	6.	*OCE0101B 13. *SMA0335C 15.
64	URS0060B	23.0	8	41.5 57.4	3.1 1.6	153.	37.4	1	865.	66.8	28.3 68.9	-0.	*S 0138B	1.	*G 0027B 9. *URS0061B 13.
65	ZAI0322B	-19.0	8	22.4 0.0	2.2 1.9	48.	38.2	1	456.	64.3	19.5 5.0	4.	*CME0300C	8.	*ALG0252B 9. *AUT0016B 12.
35	ALG0252B	-25.0	8	1.6 25.5	3.6 2.2	152.	35.3	1	569.	62.8	9.5 30.0	4.	*LBY0321B	7.	*LBY0280C 12. *MLT0147B 15.
36	AND0341B	-37.0	8	1.6 42.5	0.6 0.6	0.	48.7	2	19.	61.5	1.4 42.4	-1.	*G 0027B	3.	*ALG0252B 5. *MLI0328B 7.
37	ARS0003B	17.0	8	41.1 23.8	3.5 1.7	134.	36.5	2	421.	62.8	56.0 21.0	-1.	*YMS0267C	1.	*EGY0026B 9. *QAT0247C 10.
38	AUS0007B	128.0	8	145.0 -38.1	1.8 1.4	134.	40.2	2	207.	63.4	149.6 -37.5	1.	*PNG0271B	3.	*AUS0009B 7. *OCE0101B 27.

Canal 8 suite — Channel 8 cont. — Canal 8 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
39 AUT0016B	-19.0	8	12.1	47.5	1.1	0.6	166.	45.7	2	71.	64.2	17.1	48.0	-0.	*ZAI0322B 4. *S 0138B 9. *F 0093C 10.
40 BUL0020B	-1.0	8	25.0	43.0	1.0	0.6	165.	46.3	1	55.	63.7	28.1	42.0	-2.	*MOZ0307B 3. *TUR0145C 5. *GRC0105B 6.
41 CHN0156B	62.0	8	97.8	36.3	2.6	1.6	157.	38.2	1	342.	63.5	90.2	38.6	3.	*PAK0283B 7. *CHN0155C 9. *CHN0157B 12.
42 CHN0173A	92.0	8	115.7	27.4	1.1	0.9	99.	43.9	1	100.	64.0	113.9	29.0	4.	*CHN0162C 8. *CHN0156B 9. *CHN0160B 14.
43 CKN0053B	158.0	8-163.0	-11.2	1.8	0.7	30.	43.2	2	130.	64.3	-158.0	-9.0	4.	*OCEJ101B 4. *NZL0055C 18. *TON0215B 29.	

Canal 9 — Channel 9 — Canal 9

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
32 AFG0246C	50.0	9	64.5	33.1	1.4	1.4	21.	41.2	1	144.	62.8	67.7	37.3	-2.	*URS0067C 1. *CHN0155C 5. *TUR0145C 11.
33 AUS0005C	98.0	9	133.5	-18.8	2.7	1.4	76.	38.5	2	389.	64.4	130.8	-12.5	2.	*INS0035C 2. *AUS0006C 16. *CHN0162C 18.
34 CAR0338C	122.0	9	149.5	8.0	5.4	0.8	178.	38.1	1	282.	62.6	134.6	7.5	3.	*INS0035C 6. *J 0111E 7. *CHN0162C 20.
35 CHN0155C	62.0	9	88.3	31.5	3.4	1.4	162.	37.3	2	365.	63.0	86.0	28.0	-0.	*IND0044C 3. *IND0048B 5. *CHN0156B 12.
36 CHN0162C	92.0	9	115.9	21.0	2.7	2.4	23.	36.0	2	628.	64.0	125.0	25.9	-0.	*J 0111E 0. *CHN0171A 15. *CHN0173A 15.
37 CHN0165A	80.0	9	111.4	41.8	1.6	1.2	15.	41.5	1	163.	63.6	107.6	37.8	5.	*CHN0155C 8. *CHN0162C 12. *J 0111E 14.
38 CME0300C	-13.0	9	12.7	6.2	2.5	1.7	87.	37.9	1	361.	63.5	16.2	1.4	2.	*ZAI0322B 4. *ZAI0323C 8. *TCD0143C 9.
39 F 0093C	-19.0	9	2.6	45.9	2.5	1.0	160.	40.4	1	226.	63.9	9.5	41.2	-2.	*SMR0311C 1. *D 0087C 9. *ALG0251C 9.
40 FJI0193C	152.0	9	179.4	-17.9	1.0	1.0	67.	44.2	1	91.	63.8	-178.5	-19.9	4.	*NZL0055C 4. *TON0215B 23. *J 0111E 28.
41 GUI0192C	-37.0	9	-11.0	10.2	1.6	1.0	147.	42.1	2	140.	63.5	-14.5	11.5	3.	*GNP0304C 5. *MLI0328B 8. *MLI0327C 15.
42 IND0039C	56.0	9	72.7	11.2	1.3	0.6	107.	45.5	1	59.	63.2	71.9	12.3	8.	*IND0045C 12. *IND0040B 16. *IND0044C 18.
43 IND0044C	68.0	9	79.5	22.3	2.2	1.4	146.	39.3	1	259.	63.5	78.2	26.9	0.	*CHN0155C 2. *CHN0154C 13. *IND0048B 14.
44 INS0035C	104.0	9	124.3	-3.2	3.3	1.9	82.	36.1	1	521.	63.3	125.5	4.0	5.	*J 0111E 6. *CAR0338C 15. *CHN0162C 17.
45 J 0111E	110.0	9	134.5	31.5	3.5	3.3	68.	33.6	1	1168.	64.3	123.7	24.3	-0.	*CHN0162C 1. *PNG0131C 12. *INS0035C 13.
46 LBY0280C	-25.0	9	21.4	26.0	2.5	1.0	119.	40.1	2	224.	63.6	22.0	33.0	4.	*TUR0145C 8. *ALG0251C 11. *ALG0252B 12.
47 MDG0236C	29.0	9	46.6	-18.8	2.7	1.1	65.	39.3	2	257.	63.4	49.0	-12.3	8.	*MAU0243B 10. *MAU0242C 15. *ZAI0323C 22.
48 NZL0055C	158.0	9	172.3	-39.7	2.9	1.6	47.	37.7	1	374.	63.4	166.3	-45.5	15.	*AUS0005C 21. *FJI0193C 21. *CKN0053B 22.

Canal 9 suite — Channel 9 cont. — Canal 9 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14						
49	PLM0337C	170.0	9-161.4	7.0	0.6	0.6	0.	48.7	1	24.	62.5	-162.4	6.1	5.	*CARD0338C	7.	*TON0215B	14.	*SMA0335C	16.	
															*	*	*	*	*	*	
50	PJL0132C	-1.0	9	19.3	51.8	1.5	0.6	162.	44.5	2	93.	64.2	14.4	53.9	-1.	*S 0138B	3.	*F 0093C	6.	*FNL0103C	7.
51	QAT0247C	17.0	9	51.1	25.3	0.6	0.6	0.	48.7	1	21.	61.9	52.3	24.8	1.	*YMS0267C	5.	*ARS0275C	6.	*ARS0003B	9.
															*	*	*	*	*	*	
52	SMA0335C	170.0	9-170.1	-14.2	0.6	0.6	0.	48.7	2	18.	61.3	-171.0	-11.0	-3.	*TON0215B	1.	*PLM0337C	2.	*CKN0053B	5.	
															*	*	*	*	*	*	
53	SMR0311C	-37.0	9	12.6	43.7	0.6	0.6	0.	48.7	1	24.	62.5	12.0	43.0	-0.	*F 0093C	2.	*GUI0192C	9.	*TUR0145C	12.
															*	*	*	*	*	*	
54	SWZ0313C	-1.0	9	31.5	-26.5	0.6	0.6	66.	48.5	1	27.	62.9	31.1	-25.9	4.	*MOZ0307B	7.	*BOT0297C	9.	*POL0132C	11.
															*	*	*	*	*	*	
55	THA0142C	74.0	9	100.7	13.2	2.8	1.5	106.	37.9	2	384.	63.7	103.7	18.6	-1.	*CHN0162C	4.	*LA00234E	5.	*LAG0284D	5.
															*	*	*	*	*	*	
56	TUR0145C	5.0	9	34.4	38.9	2.7	1.0	168.	39.8	1	252.	63.8	42.7	41.5	-2.	*URS0064C	-1.	*LBY0280C	11.	*URS0067C	12.
															*	*	*	*	*	*	
57	URS0064C	23.0	9	45.6	40.8	2.2	0.6	163.	43.1	2	122.	64.0	40.0	43.4	-1.	*TUR0145C	2.	*URS0060B	6.	*URS0067C	12.
															*	*	*	*	*	*	
58	URS0067C	44.0	9	62.4	58.5	3.2	1.5	169.	37.4	1	900.	66.9	50.9	51.9	12.	*URS0060B	17.	*TUR0145C	17.	*AFG0246C	21.
															*	*	*	*	*	*	
59	WAK0334C	140.0	9	166.5	19.2	0.6	0.6	0.	48.7	1	32.	63.7	166.5	19.2	17.	*J 0111E	22.	*MRL0333C	24.	*NCL0100C	25.
															*	*	*	*	*	*	
60	YMS0267C	11.0	9	48.8	15.2	1.8	1.5	176.	39.9	2	200.	62.9	49.5	18.4	3.	*ARS0275C	6.	*ARS0003B	7.	*YEM0266C	13.

Canal 10 — Channel 10 — Canal 10

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14						
30	ALG0251C	-25.0	10	4.2	33.2	2.4	1.3	172.	39.4	1	258.	63.5	9.5	30.0	0.	*ICD0143C	5.	*LBY0321C	7.	*TGO0226C	8.
															*	*	*	*	*	*	
31	ARS0275C	17.0	10	48.3	24.6	3.8	1.4	138.	36.9	2	390.	62.9	42.5	17.0	-11.	*YEM0266C	-11.	*YMS0267C	-1.	*ICD0143C	12.
															*	*	*	*	*	*	
32	AUS0006C	98.0	10	135.4	-30.3	2.0	1.4	44.	39.8	1	227.	63.3	140.8	-27.7	1.	*AUS0008C	3.	*AUS0005C	8.	*AUS0004C	14.
															*	*	*	*	*	*	
33	AUS0008C	128.0	10	145.9	-21.5	2.9	2.0	120.	36.6	2	523.	63.8	149.0	-29.0	3.	*AUS0009C	6.	*AUS0006C	6.	*AUS0005C	27.
															*	*	*	*	*	*	
34	BOT0297C	-1.0	10	23.3	-22.2	2.1	1.5	36.	39.2	2	292.	63.9	25.3	-17.8	4.	*ZMB0314C	6.	*ZAI0323C	10.	*ROU0136C	11.
															*	*	*	*	*	*	
35	CHN0154C	62.0	10	83.9	40.5	2.8	2.0	177.	36.7	1	455.	63.3	79.0	34.3	-0.	*PAK0127C	1.	*CHN0155C	8.	*CHN0157C	14.
															*	*	*	*	*	*	
36	CHN0171A	92.0	10	117.2	32.0	1.2	0.7	126.	44.8	1	88.	64.2	116.1	29.8	3.	*CHN0187A	6.	*CHN0162C	8.	*CHN0160C	13.
															*	*	*	*	*	*	
37	CHN0187A	80.0	10	106.6	26.7	1.1	0.9	179.	43.9	2	102.	64.0	104.7	24.6	1.	*LA00284E	3.	*VTN0325C	7.	*THA0142C	10.
															*	*	*	*	*	*	
38	CKH0052C	158.0	10-161.0	-19.8	1.0	0.6	132.	46.1	2	72.	64.7	-163.5	-17.5	15.	*SMO0057C	18.	*NZL0055C	19.	*WAL0102C	28.	

Canal 10 suite — Channel 10 cont. — Canal 10 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
39 CLN0219C	50.0	10	80.6	7.7	1.2	0.6	106.	45.7	1	62.	63.7	80.0	10.0	3. *IND0043C	6. *IND0045C	10. *AFG0246C	14. *
40 D 0087C	-19.0	10	9.6	49.9	1.6	0.7	147.	43.6	2	160.	65.6	10.0	54.8	1. *ZAI0323C	5. *FNL0103C	6. *LUX0114C	11. *
41 FNL0103C	5.0	10	22.5	64.5	1.4	0.8	171.	44.0	2	241.	67.9	19.2	60.0	6. *D 0087C	8. *POL0132C	13. *TUR0145C	20. *
42 GNP0304C	-31.0	10	-15.0	12.0	0.9	0.6	172.	46.9	2	43.	63.2	-14.2	12.3	3. *GMB0302C	7. *GUI0192C	7. *IRL0211C	14. *
43 GUM0331C	122.0	10	144.5	13.1	0.6	0.6	0.	48.7	2	30.	63.4	144.7	13.4	7. *MRA0332C	9. *CAR0338C	17. *AUS0008C	20. *
44 IND0037C	68.0	10	93.0	25.5	1.5	1.1	49.	42.1	2	157.	64.0	96.0	29.5	-1. *CHN0157C	4. *CHN0155C	6. *CHN0154C	7. *
45 IND0045C	56.0	10	76.2	19.5	1.6	1.6	21.	40.3	2	216.	63.6	74.4	22.0	3. *PAK0127C	5. *CHN0154C	14. *ARS0275C	15. *
46 IRL0211C	-31.0	10	-8.2	53.2	0.8	0.6	162.	47.2	1	52.	64.4	-5.5	54.3	7. *D 0087C	10. *GNP0304C	15. *F 0093C	17. *
47 KOR0112E	110.0	10	127.5	36.0	1.2	1.0	168.	43.2	2	111.	63.7	126.2	33.0	-1. *PNG0131C	2. *J 0111F	5. *J 0111E	6. *
48 LAD0284E	74.0	10	103.7	18.1	2.2	0.8	133.	42.0	1	154.	63.9	102.0	22.5	-1. *CHN0187A	1. *THA0142C	7. *IND0037C	9. *
49 MAU0242C	29.0	10	59.8	-18.9	1.6	1.2	55.	41.2	1	193.	64.1	60.0	-14.0	5. *ZAI0323C	6. *MDG0236C	14. *PAK0127C	21. *
50 MLI0327C	-37.0	10	-2.0	19.0	2.7	1.3	127.	39.0	1	339.	64.3	-2.5	23.3	9. *ALG0251C	11. *SMR0311C	18. *LIE0253C	20. *
51 MRL0333C	146.0	10	166.7	7.9	1.5	1.5	177.	40.7	1	185.	63.4	162.1	11.5	13. *PNG0131C	19. *CAR0338C	19. *NCL0100C	22. *
52 NCL0100C	140.0	10	166.0	-21.0	1.1	0.7	146.	45.1	1	74.	63.8	167.5	-23.0	-3. *WAL0102C	-3. *NHB0128C	11. *AUS0008C	15. *
53 PAK0127C	38.0	10	69.6	29.5	2.3	2.2	14.	37.3	1	474.	64.0	74.5	35.7	2. *CHN0154C	2. *AFG0245C	15. *AFG0246C	21. *
54 PNG0131C	110.0	10	147.7	-6.3	2.5	2.2	169.	36.9	1	577.	64.5	141.0	-9.2	2. *AUS0008C	6. *INS0036C	7. *KOR0112E	10. *
55 ROU0136C	-1.0	10	25.0	45.7	1.4	0.7	155.	44.7	1	84.	63.9	20.2	46.1	-1. *D 0087C	4. *BOT0297C	5. *TCH0144C	7. *
56 TCD0143C	-13.0	10	18.1	15.5	3.4	1.7	107.	36.6	2	561.	64.1	16.5	8.2	5. *CMF0300C	7. *MLI0327C	14. *GAB0260C	15. *
57 TGO0226C	-25.0	10	0.8	8.6	1.5	0.6	105.	44.6	2	77.	63.5	-0.2	11.1	-2. *MLI0327C	-0. *ALG0251C	6. *DAH0233C	8. *
58 WAL0102C	140.0	10	-176.8	-14.0	0.7	0.6	29.	47.8	1	47.	64.5	-178.1	-14.2	-2. *NCL0100C	-2. *PNG0131C	13. *FJI0193C	18. *
59 YEM0266C	11.0	10	44.3	15.1	1.1	0.7	109.	45.2	1	56.	62.7	44.0	18.0	-1. *ARS0275C	0. *YMS0267C	7. *UGA0051C	11. *
60 ZAI0323C	-19.0	10	21.3	-6.8	2.8	1.5	149.	38.0	1	477.	64.7	16.3	-1.0	1. *TCD0143C	5. *GAB0260C	7. *D 0087C	8. *

Canal 11 — Channel 11 — Canal 11

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
32	AFG0245C	50.0	11	70.2	35.5	1.3	1.1	53.	42.5	1	110.	62.9	68.0	31.6	1. *IRN0109C	2. *PAK0127C	11. *CLN0219C	14. *
33	AUS0004C	98.0	11	121.8	-24.9	3.6	1.9	54.	35.9	2	527.	63.1	126.6	-31.0	8. *AUS0006C	8. *AUS0009C	21. *INS0036C	22. *
34	AUS0009C	128.0	11	147.2	-32.0	2.1	1.4	15.	39.6	1	289.	64.2	141.0	-34.0	4. *AUS0007C	6. *AUS0008C	13. *PNG0271C	13. *
35	AZR0134C	-31.0	11	-23.4	36.1	2.6	0.7	158.	41.7	2	138.	63.1	-16.9	32.5	-5. *POR0133C	-4. *LBR0244C	9. *CPV0301C	14. *
36	CHN0157C	62.0	11	102.3	27.8	2.6	1.6	127.	38.2	2	500.	65.2	101.7	21.3	1. *VTN0325C	2. *LAD0284E	14. *CHN0156C	16. *
37	CHN0160C	92.0	11	122.8	45.3	2.5	1.4	150.	38.7	2	449.	65.2	122.5	38.3	1. *J 0111F	4. *CHN0157C	7. *CHN0170A	12. *
38	COM0207C	29.0	11	44.1	-12.1	0.8	0.6	149.	47.7	2	36.	63.2	43.1	-11.3	5. *SOM0312C	9. *ZMB0314C	10. *MAU0243C	16. *
39	DAH0233C	-19.0	11	2.2	9.5	1.4	0.7	97.	44.3	2	80.	63.4	2.2	6.2	3. *TGO0226C	5. *ZAI0323C	14. *ZAI0322C	14. *
40	GAB0260C	-13.0	11	11.8	-0.6	1.4	1.1	64.	42.2	1	133.	63.4	11.0	-4.0	3. *ZAI0323C	5. *ZAI0322C	9. *TCD0143C	14. *
41	GMB0302C	-37.0	11	-15.1	13.4	0.8	0.6	4.	47.5	2	39.	63.4	-14.2	13.3	3. *GNP0304C	7. *MLI0328C	9. *LBR0244C	12. *
42	GRC0105C	5.0	11	24.7	38.2	1.8	1.0	156.	41.8	1	144.	63.4	26.6	41.5	1. *BUL0020C	4. *RGU0136C	6. *IRN0109C	13. *
43	IND0043C	56.0	11	77.8	11.1	1.4	1.3	172.	41.8	1	145.	63.5	79.5	9.1	4. *CLN0219C	5. *IND0045C	15. *IND0040C	19. *
44	IND0047C	68.0	11	93.3	11.1	1.9	0.6	96.	43.6	1	98.	63.5	93.8	14.8	6. *CHN0157C	8. *IND0037C	16. *IND0048C	16. *
45	INS0036C	104.0	11	135.2	-3.8	2.5	2.0	147.	37.3	1	451.	63.9	128.0	-7.0	4. *AUS0004C	5. *J 0111F	15. *PNG0131C	16. *
46	IRN0109C	34.0	11	54.2	32.4	3.8	1.8	149.	35.8	2	510.	62.9	61.5	31.0	6. *AFG0245C	8. *PAK0127C	15. *SO0312C	16. *
47	J 0111F	110.0	11	134.5	31.5	3.5	3.3	68.	33.6	1	1175.	64.3	129.3	34.7	2. *CHN0160C	7. *KOR0112F	8. *KOR0112E	8. *
48	LBN0279C	11.0	11	35.8	33.9	0.6	0.5	0.	48.7	2	20.	61.7	36.8	34.5	-0. *GRC0105C	6. *IRN0109C	6. *ARS0003C	7. *
49	LBR0244C	-31.0	11	-9.3	6.6	1.2	0.7	133.	44.9	1	69.	63.3	-10.2	8.5	4. *AZR0134C	9. *MLI0328C	9. *POR0133C	12. *
50	LBY0321C	-25.0	11	13.1	27.2	2.4	1.1	129.	40.0	2	205.	63.1	11.4	33.5	3. *ALG0251C	6. *ALG0252C	9. *TGO0226C	12. *
51	LIE0253C	-37.0	11	9.5	47.1	0.6	0.6	0.	48.7	1	24.	62.5	9.5	47.2	1. *TCH0144C	4. *LUX0114C	8. *AND0341C	13. *
52	LUX0114C	-19.0	11	6.0	49.8	0.6	0.6	0.	48.7	1	27.	63.0	7.0	48.5	-4. *LIE0253C	1. *D 0087C	3. *TCH0144C	4. *
53	MRA0332C	122.0	11	145.9	16.9	1.2	0.6	76.	45.7	1	62.	63.6	145.0	20.0	-4. *J 0111F	-3. *GUM0331C	12. *AUS0009C	19. *
54	NHB0128C	140.0	11	168.0	-16.4	1.5	0.7	87.	44.1	2	77.	63.0	169.8	-20.0	7. *NCL0100C	8. *INS0036C	23. *NRU0309C	23. *
55	NRU0309C	134.0	11	167.0	-0.5	0.6	0.6	0.	48.7	2	25.	62.6	166.0	-2.0	10. *NHB0128C	14. *INS0036C	17. *PNG0131C	19. *
56	POR0133C	-31.0	11	-8.0	39.6	0.9	0.6	112.	46.8	2	47.	63.5	-7.5	37.2	-15. *AZR0134C	-15. *LBR0244C	11. *G 0027C	14. *

Canal 11 suite — Channel 11 cont. — Canal 11 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
57	SMD0057C	158.0	11-172.3	-13.7	0.6 0.6	0.	48.7	1	32.	63.8	-171.0	-14.1	7. *CKN0053C	9. *CKH0052C	14. *WAL0102C	20. *
58	SNG0151C	74.0	11 193.8	1.3	0.6 0.6	0.	48.7	2	31.	63.7	106.0	1.1	3. *VTN0325C	4. *BRU0330A	18. *CHN0157C	20. *
59	SOM0312C	23.0	11 45.0	6.4	3.3 1.5	71.	37.2	1	332.	62.4	43.2	11.2	5. *URS0060C	8. *URS0061C	10. *YEM0266C	15. *
60	TCH0144C	-1.0	11 17.3	49.3	1.5 0.6	170.	44.8	2	82.	63.9	12.1	50.3	-1. *LIE0253C	3. *ZMB0314C	5. *LUX0114C	6. *
61	JGA0051C	11.0	11 32.3	1.2	1.5 1.1	60.	42.1	1	132.	63.3	29.8	-1.3	1. *RRW0310C	4. *ZMB0314C	8. *ZAI0322C	16. *
62	URS0061C	23.0	11 24.7	56.6	0.9 0.6	12.	46.7	2	69.	65.1	25.8	54.1	-0. *TCH0144C	6. *SOM0312C	6. *URS0060C	6. *
63	VTN0325C	86.0	11 105.3	16.1	3.0 1.4	116.	38.0	2	361.	63.5	102.0	22.8	-2. *CHN0157C	-1. *CHN0187A	9. *LAG0284E	14. *
64	ZMB0314C	-1.0	11 27.5	-13.1	2.4 1.5	39.	38.8	1	320.	63.8	33.0	-13.8	3. *MOZ0307C	5. *TCH0144C	11. *BOT0297C	13. *

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
34	ALG0252C	-25.0	12	1.6 25.5	3.6 2.2	152.	35.3	1	576.	62.9	9.5 30.0	4.	*LBY0321C	7.	*LBY0280D 12. *MLT0147C 15.
35	AND0341C	-37.0	12	1.6 42.5	0.6 0.6	0.	48.7	2	19.	61.6	1.4 42.4	-1.	*G 0027C	3.	*ALG0252C 5. *MLI0328C 7.
36	ARS0003C	17.0	12	41.1 23.8	3.5 1.7	134.	36.5	2	426.	62.8	56.0 21.0	-1.	*YMS0267D	2.	*EGY0026C 9. *QAT0247D 10.
37	AUS0007C	128.0	12	145.0 -38.1	1.8 1.4	134.	40.2	2	210.	63.4	149.6 -37.5	1.	*PNG0271C	3.	*AUS0009C 7. *NZL0287A 14.
38	AUT0016C	-19.0	12	12.1 47.5	1.1 0.6	166.	45.7	2	72.	64.2	17.1 48.0	0.	*ZAI0322C	4.	*F 0093D 10. *URS0060C 12.
39	BRU0330A	74.0	12	114.7 4.4	0.6 0.6	0.	48.7	1	24.	62.5	114.6 4.0	11.	*THA0142D	15.	*CHN0180A 18. *VTN0325C 22.
40	BULO020C	-1.0	12	25.0 43.0	1.0 0.6	165.	46.3	1	56.	63.8	28.1 42.0	-2.	*MOZ0307C	3.	*TUR0145D 5. *GRC0105C 6.
41	CHN0156C	62.0	12	97.8 36.3	2.6 1.6	157.	38.2	1	347.	63.6	105.2 32.6	3.	*CHN0157C	5.	*CHN0178A 10. *CHN0155D 10.
42	CHN0170A	92.0	12	119.5 33.0	1.3 0.6	155.	44.9	1	88.	64.4	118.7 31.2	1.	*CHN0178A	3.	*CHN0156C 9. *CHN0180A 11.
43	CHN0178A	80.0	12	111.5 27.4	1.2 0.9	130.	44.0	2	107.	64.4	113.6 29.8	3.	*CHN0170A	5.	*CHN0156C 8. *CHN0157C 18.
44	CKN0053C	158.0	12-163.0	-11.2	1.8 0.7	30.	43.2	2	131.	64.4	-158.0 -9.0	4.	*OCE0101C	4.	*NZL0055D 18. *TON0215C 29.
45	CPV0301C	-31.0	12	-24.0 16.0	0.9 0.7	144.	46.5	2	38.	62.3	-24.3 14.4	4.	*G 0027C	6.	*AZR0134C 14. *MLI0328C 16.
46	DNK0089A	5.0	12	12.3 57.1	1.2 0.6	177.	45.7	2	74.	64.3	10.0 54.5	1.	*G 0027C	5.	*POL0132D 8. *AUT0016C 8.
47	EGY0026C	-7.0	12	29.7 26.8	2.3 1.7	136.	38.2	2	315.	63.2	36.0 23.3	-0.	*ARS0003C	0.	*ALG0252C 12. *MOZ0307C 16.
48	G 0027C	-31.0	12	-3.5 53.8	1.8 0.7	142.	43.0	1	162.	65.1	1.3 51.1	3.	*ALG0252C	5.	*AUT0016C 10. *DNK0089A 13.
49	IND0040C	56.0	12	73.0 25.0	1.8 1.5	58.	39.9	2	241.	63.8	73.5 30.0	-1.	*PAK0210A	-0.	*CHN0155D 10. *URS0069A 13.
50	IND0048C	68.0	12	86.2 25.0	1.6 0.9	120.	42.8	2	126.	63.8	89.8 26.7	-3.	*CHN0156C	1.	*CHN0155D 3. *CHN0157C 6.
51	KOR0112F	110.0	12	127.5 36.0	1.2 1.0	168.	43.2	2	112.	63.7	126.2 33.0	-1.	*CHN0170A	3.	*J 0111G 5. *J 0111F 6.
52	MAU0243C	29.0	12	56.8 -13.9	1.6 1.4	65.	40.9	1	195.	63.8	53.0 -15.0	6.	*MDG0236D	9.	*MOZ0307C 11. *COM0207C 18.
53	MLD0306A	44.0	12	73.1 6.0	1.0 0.6	90.	46.6	1	50.	63.7	71.0 7.5	2.	*URS0069A	6.	*URS0067D 8. *IND0039D 14.
54	MLI0328C	-37.0	12	-7.6 13.2	1.7 1.2	171.	40.9	1	146.	63.8	-12.0 15.0	3.	*GMB0302C	8.	*GUI0192D 8. *ALG0252C 9.
55	MLT0147C	-13.0	12	14.3 35.9	0.6 0.6	0.	48.7	1	17.	61.1	14.3 35.9	0.	*ALG0252C	2.	*EGY0026C 11. *CME0300D 12.
56	MOZ0307C	-1.0	12	34.0 -18.0	3.6 1.4	55.	37.3	2	499.	64.3	30.3 -15.0	5.	*ZMB0314C	6.	*BUL0020C 13. *ZAI0322C 17.
57	OCE0101C	-160.0	12-145.0	-16.3	4.3 3.5	4.	32.4	2	1335.	63.6	-154.7 -15.7	17.	*CKN0053C	17.	*PNG0271C 30. *TON0215C 33.
58	PAK0210A	38.0	12	72.1 30.8	1.2 0.7	90.	45.0	1	71.	63.5	72.3 33.7	-2.	*URS0069A	0.	*IND0040C 5. *AFG0245C 13.
59	PNG0271C	128.0	12	148.0 -6.7	2.8 2.0	155.	36.7	1	482.	63.5	141.0 -9.2	3.	*AUS0007C	5.	*AUS0009C 10. *NZL0287A 12.



Canal 12 suite — Channel 12 cont. — Canal 12 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
00 RRW0310C	11.0	12	30.0	-2.1	0.7	0.6	42.	48.3	2	46.	64.9	30.3	-1.0	0.	*ZAI0322C 2. *UGA0051C 8. *YMS0267D 14.
61 STP0241C	-13.0	12	7.0	0.8	0.6	0.6	0.	48.7	2	19.	61.5	5.0	2.0	-2.	*CME0300D 2. *ZAI0322C 3. *GAB0260C 6.
62 TONJ215C	170.0	12	-174.7	-18.0	1.4	0.7	85.	44.4	1	79.	63.4	-173.7	-15.9	4.	*CKN0053C 6. *DCE0101C 13. *SMA0335D 15.
03 URS0060C	23.0	12	41.5	57.4	3.1	1.6	153.	37.4	1	876.	66.9	27.7	60.5	5.	*URSOJ61C 8. *DNK0089A 11. *SCM0312C 19.
04 URS0069A	44.0	12	70.8	38.5	1.4	0.7	161.	44.2	2	97.	64.1	75.1	37.3	-1.	*PAK0210A 1. *IND0040C 6. *MLD0306A 11.
65 ZAI0322C	-19.0	12	22.4	0.0	2.2	1.9	48.	38.2	1	462.	64.8	19.5	5.0	4.	*CME0300D 8. *ALG0252C 9. *AUT0016C 12.

Canal 13 — Channel 13 — Canal 13

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
33 AFG0246D	50.0	13	64.5	33.1	1.4	1.4	21.	41.2	1	145.	62.8	67.7	37.3	-2.	*URSO067D 1. *CHN0155D 5. *TUR0145D 11.
34 AUS0005D	98.0	13	133.5	-18.8	2.7	1.4	76.	38.5	2	394.	64.4	130.8	-12.5	2.	*INS0035D 2. *AUS0006D 16. *CHN0180A 18.
35 CAR0338D	122.0	13	149.5	8.0	5.4	0.8	178.	38.1	1	286.	62.6	134.6	7.5	3.	*INS0035D 6. *J 0111G 7. *CHN0180A 19.
36 CHN0155D	62.0	13	88.3	31.5	3.4	1.4	162.	37.3	2	370.	63.0	86.0	28.0	-0.	*IND0044D 3. *IND0048C 5. *CHN0156C 12.
37 CHN0180A	92.0	13	113.7	12.9	3.8	2.2	72.	35.1	2	713.	63.6	109.0	17.2	3.	*THA0142D 4. *J 0111G 15. *AUS0005D 19.
38 CME0300D	-13.0	13	12.7	6.2	2.5	1.7	87.	37.9	1	366.	63.6	16.2	1.4	2.	*ZAI0322C 4. *ZAI0323D 8. *TC00143D 9.
39 F 0093D	-19.0	13	2.6	45.9	2.5	1.0	160.	40.4	1	229.	64.0	9.5	41.2	-2.	*SMR0311D 1. *D 0087D 9. *ALG0251D 9.
40 GUI0192D	-37.0	13	-11.0	10.2	1.6	1.0	147.	42.1	2	141.	63.6	-14.5	11.5	3.	*GNP0304D 5. *MLI0328C 8. *MLI0327D 15.
41 IND0039D	56.0	13	72.7	11.2	1.3	0.6	107.	45.5	1	60.	63.3	73.0	8.3	7.	*MLD0306A 13. *IND0045D 14. *IND0040C 15.
42 IND0044D	68.0	13	79.5	22.3	2.2	1.4	146.	39.3	1	263.	63.5	78.2	26.9	0.	*CHN0155D 2. *CHN0154D 13. *IND0048C 14.
43 INS0035D	104.0	13	124.3	-3.2	3.3	1.9	82.	36.1	1	528.	63.4	125.5	4.0	4.	*J 0111G 6. *CHN0180A 9. *CAR0338D 15.
44 J 0111G	110.0	13	134.5	31.5	3.5	3.3	68.	33.6	1	1183.	64.3	123.7	24.3	2.	*CHN0180A 3. *PNG0131D 12. *INS0035D 13.
45 LBY0280D	-25.0	13	21.4	26.0	2.5	1.0	119.	40.1	2	226.	63.6	22.0	33.0	4.	*TUR0145D 8. *ALG0251D 11. *ALG0252C 12.
46 MDG0236D	29.0	13	46.6	-18.8	2.7	1.1	65.	39.3	2	260.	63.5	49.0	-12.3	8.	*MAU0243C 10. *MAU0242D 15. *ZAI0323D 22.
47 NZL0055D	158.0	13	172.3	-39.7	2.9	1.6	47.	37.7	1	379.	63.5	174.0	-46.0	-1.	*NZL0287A -1. *AUS0005D 22. *CKN0053C 23.
48 NZL0287A	128.0	13	173.0	-41.0	3.3	1.3	48.	38.0	1	476.	64.8	166.3	-45.5	1.	*NZL0055D 2. *PNG0271C 14. *AUS0008D 16.
49 PLM0337D	170.0	13	-161.4	7.0	0.6	0.6	0.	48.7	1	24.	62.6	-162.4	6.1	5.	*CAR0338D 7. *TONJ215C 14. *SMA0335D 16.
50 PCL0132D	-1.0	13	19.3	51.8	1.5	0.6	162.	44.5	2	94.	64.3	22.9	49.0	-0.	*SMR0311D 5. *TUR0145D 7. *ROU0136D 7.

Canal 13 suite — Channel 13 cont. — Canal 13 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
51 QAT0247D	17.0	13	51.1	25.3	0.6 0.6	0.	48.7	1	21.	62.0	52.3 24.8	1. *YMS0267D	5. *ARS0275D	6. *ARS0003C	9.
52 SMA0335D	170.0	13-170.1	-14.2	0.6 0.6	0.	48.7	2	18.	61.3	-171.0 -11.0	-3. *TON0215C	1. *PLM0337D	2. *CKN0053C	5.	
53 SMR0311D	-37.0	13	12.6	43.7	0.6 0.6	0.	48.7	1	25.	62.6	12.0 43.0	-0. *F 0093D	2. *GUI0192D	9. *TUR0145D	12.
54 SWZ0313D	-1.0	13	31.5	-26.5	0.6 0.6	66.	48.5	1	28.	63.0	31.1 -25.9	4. *MGZ0307C	7. *BOT0297D	9. *POL0132D	11.
55 THA0142D	74.0	13	100.7	13.2	2.8 1.5	106.	37.9	2	389.	63.8	105.4 14.3	3. *CHN0180A	3. *CHN0155D	22. *J 0111G	22.
56 TUR0145D	5.0	13	34.4	38.9	2.7 1.0	168.	39.8	1	255.	63.9	42.7 41.5	-2. *URS0064D	-1. *LBY0280D	11. *URS0067D	12.
57 URS0064D	23.0	13	45.6	40.8	2.2 0.6	163.	43.1	2	124.	64.1	40.0 43.4	-1. *TUR0145D	2. *URS0060C	6. *URS0067D	12.
58 URS0067D	44.0	13	62.4	58.5	3.2 1.5	169.	37.4	1	912.	67.0	50.9 51.9	12. *URS0060C	17. *TUR0145D	17. *AFG0246D	21.
59 WAK0334D	140.0	13	166.5	19.2	0.6 0.6	0.	48.7	1	32.	63.7	166.5 19.2	17. *J 0111G	22. *MRL0333D	24. *NCL0100D	25.
60 YMS0267D	11.0	13	48.8	15.2	1.8 1.5	176.	39.9	2	202.	63.0	49.5 18.4	3. *ARS0275D	6. *ARS0003C	7. *YEM0266D	13.

Canal 14 — Channel 14 — Canal 14

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
29 ALG0251D	-25.0	14	4.2	33.2	2.4 1.3	172.	39.4	1	261.	63.6	9.5 30.0	0. *TCD0143D	5. *LBY0321D	7. *TGD0226D	8.
30 ARS0275D	17.0	14	48.3	24.6	3.8 1.4	138.	36.9	2	395.	62.9	42.5 17.0	-11. *YEM0266D	-11. *YMS0267D	-1. *TCD0143D	12.
31 AUS0006D	98.0	14	135.4	-30.3	2.0 1.4	44.	39.8	1	230.	63.4	140.8 -27.7	1. *AUS0008D	3. *AUS0005D	8. *AUS0004C	14.
32 AUS0008D	128.0	14	145.9	-21.5	2.9 2.0	120.	36.6	2	530.	63.9	149.0 -29.0	3. *AUS0009C	6. *AUS0006D	6. *NZL0287A	17.
33 BOT0297D	-1.0	14	23.3	-22.2	2.1 1.5	36.	39.2	2	296.	63.9	25.3 -17.8	4. *ZMB0314D	6. *ZAI0323D	10. *ROU0136D	11.
34 BRU0330B	74.0	14	114.7	4.4	0.6 0.6	0.	48.7	1	24.	62.6	114.6 4.0	9. *BGD0220A	14. *THA0142D	15. *CHN0180A	18.
35 CHN0154D	62.0	14	83.9	40.5	2.8 2.0	177.	36.7	1	461.	63.4	79.0 34.3	3. *PAK0210B	5. *CHN0155D	8. *IND0045D	15.
36 CHN0172A	92.0	14	120.4	29.1	1.0 0.8	123.	45.2	1	82.	64.3	118.8 27.5	2. *CHN0174A	6. *CHN0131A	7. *CHN0180A	10.
37 CHN0181A	80.0	14	108.5	23.8	1.4 1.1	153.	42.4	2	148.	64.1	104.5 24.5	3. *VTN0325D	7. *THA0142D	10. *CHN0158A	10.
38 CKH0052D	158.0	14-161.0	-19.8	1.0 0.6	132.	46.1	2	73.	64.8	-163.5 -17.5	15. *SMC0057D	18. *NZL0055D	19. *WAL0102D	28.	
39 CLN0219D	50.0	14	80.6	7.7	1.2 0.6	106.	45.7	1	63.	63.8	80.0 10.0	3. *IND0043D	6. *IND0045D	10. *AFG0246D	14.
40 D 0087D	-19.0	14	9.6	49.9	1.6 0.7	147.	43.6	2	162.	65.7	10.0 54.8	-0. *NOR0120A	3. *ZAI0323D	5. *LUX0114D	11.
41 GNP0304D	-31.0	14	-15.0	12.0	0.9 0.6	172.	46.9	2	43.	63.3	-14.2 12.3	3. *GMB0302D	7. *GUI0192D	7. *IPL0211D	14.
42 GUM0331D	122.0	14	144.5	13.1	0.6 0.6	0.	48.7	2	30.	63.5	144.7 13.4	7. *MRA0332D	9. *CAR0338D	17. *AUS0008D	20.

Canal 14 suite — Channel 14 cont. — Canal 14 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
43	IND0037D	68.0	14	93.0	25.5	1.5	1.1	40.	42.1	2	159.	64.1	96.0	29.5	2. *CHN0155D 6. *CHN0154D 7. *THA0142D 15.
44	IND0045D	56.0	14	76.2	19.5	1.6	1.6	21.	40.3	2	218.	63.7	74.0	15.7	5. *IND0043D 10. *IND0039D 10. *ARS0275D 11.
45	IRL0211D	-31.0	14	-8.2	53.2	0.8	0.6	162.	47.2	1	52.	64.4	-5.5	54.3	5. *NDF0120A 9. *D 0087D 10. *GNP0304D 15.
46	KRE0286A	110.0	14	127.1	40.1	1.1	0.8	31.	45.2	2	76.	64.0	128.4	38.6	-0. *PNG0131D 2. *J 0111H 6. *J 0111G 6.
47	MAU0242D	29.0	14	59.8	-18.9	1.6	1.2	55.	41.2	1	195.	64.1	60.0	-14.0	5. *ZAI0323D 6. *MDG0236D 14. *ARS0275D 25.
48	MLI0327D	-37.0	14	-2.0	19.0	2.7	1.3	127.	39.0	1	344.	64.4	-2.5	23.3	9. *ALG0251D 11. *SMR0311D 18. *LIE0253D 20.
49	MRL0333D	146.0	14	166.7	7.9	1.5	1.5	177.	40.7	1	187.	63.5	162.1	11.5	13. *PNG0131D 19. *CAR0338D 19. *NCL0100D 22.
50	NCL0100D	140.0	14	166.0	-21.0	1.1	0.7	146.	45.1	1	75.	63.9	167.5	-23.0	-3. *WAL0102D -3. *NHBO128D 11. *AUS0008D 15.
51	NOR012JA	5.0	14	13.1	64.1	1.8	0.9	10.	42.2	2	195.	65.0	7.6	58.0	1. *D 0087D 2. *IRL0211D 14. *POL0132D 14.
52	PAK0210B	38.0	14	72.1	30.8	1.2	0.7	90.	45.0	1	71.	63.6	75.2	32.2	1. *CHN0154D 2. *IND0045D 15. *AFG0245D 17.
53	PNG0131D	110.0	14	147.7	-6.3	2.5	2.2	169.	36.9	1	585.	64.6	141.0	-9.2	2. *AUS0008D 6. *INS0036D 7. *KRE0286A 12.
54	ROU0136D	-1.0	14	25.0	45.7	1.4	0.7	155.	44.7	1	85.	64.0	20.2	46.1	-1. *D 0087D 4. *BGT0297D 5. *TCH0144D 7.
55	TC00143D	-13.0	14	18.1	15.5	3.4	1.7	107.	36.6	2	568.	64.1	16.5	8.2	5. *CME0300D 7. *MLI0327D 14. *GAB0260D 15.
56	TG00226D	-25.0	14	0.8	8.6	1.5	0.6	105.	44.6	2	78.	63.5	-0.2	11.1	-2. *MLI0327D -0. *ALG0251D 6. *DAH0233D 8.
57	WAL0102D	140.0	14	-176.8	-14.0	0.7	0.6	29.	47.8	1	48.	64.6	-178.1	-14.2	-2. *NCL0100D -2. *PNG0131D 13. *MRL0333D 20.
58	YEM0266D	11.0	14	44.3	15.1	1.1	0.7	109.	45.2	1	57.	62.8	44.0	18.0	-1. *ARS0275D 0. *YMS0267D 7. *UGA0051D 11.
59	ZAI0323D	-15.0	14	21.3	-6.8	2.8	1.5	149.	38.0	1	433.	64.8	16.3	-1.0	1. *TC00143D 5. *GAB0260D 8. *D 0087D 8.

Canal 15 — Channel 15 — Canal 15

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
32	AFG0245D	50.0	15	70.2	35.5	1.3	1.1	53.	42.5	1	112.	63.0	68.0	31.6	1. *IRN0109D 2. *CLN0219D 14. *PAK0210B 15.
33	AUS0004D	98.0	15	121.8	-24.9	3.6	1.9	54.	35.9	2	534.	63.2	124.5	-15.5	1. *PHL0285A 2. *INS0036D 13. *AUS0006D 15.
34	AUS0009D	128.0	15	147.2	-32.0	2.1	1.4	15.	39.6	1	292.	64.2	141.0	-34.0	5. *AUS0007D 6. *AUS0008D 13. *AUS0004D 13.
35	AZK0134D	-31.0	15	-23.4	36.1	2.6	0.7	158.	41.7	2	140.	63.2	-16.9	32.5	-5. *POR0133D -4. *LBR0244D 9. *CPV0301D 14.
36	BGD0220A	74.0	15	90.3	23.6	1.5	0.8	135.	43.4	1	107.	63.7	92.5	21.5	-2. *IND0047D -2. *VTN0325D 12. *IND0037D 15.
37	CHN0158A	80.0	15	111.8	38.0	2.6	1.7	124.	37.7	1	520.	64.9	115.3	31.5	3. *J 0111H 7. *CHN0174A 8. *CHN0181A 14.
38	CHN0174A	92.0	15	118.1	25.9	1.0	0.8	82.	44.9	2	82.	64.1	117.3	27.8	-2. *CHN0158A 1. *J 0111H 4. *CHN0172A 6.

Canal 15 suite — Channel 15 cont. — Canal 15 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
39	CUM0207D	29.0	15	44.1 -12.1	0.8 0.6	149.	47.7	2	36.	63.3	43.1 -11.3	5.	*SOM0312D	9.	*ZMB0314D 10. *AJJ243D 16.
40	DAH0233D	-19.0	15	2.2 9.5	1.4 0.7	97.	44.3	2	81.	63.4	2.2 6.2	3.	*TGO0226D	5.	*ZAI0323D 14. *ZAI0322D 14.
41	GAB0260D	-13.0	15	11.8 -0.6	1.4 1.1	64.	42.2	1	135.	63.5	11.0 -4.0	3.	*ZAI0323D	5.	*ZAI0322D 9. *TOD0143D 14.
42	GMB0302D	-37.0	15	-15.1 13.4	0.8 0.6	4.	47.5	2	40.	63.5	-14.2 13.3	3.	*GNP0304D	7.	*MLI0328D 9. *LBR0244D 12.
43	GRC0105D	5.0	15	24.7 38.2	1.8 1.0	156.	41.8	1	146.	63.5	26.6 41.5	1.	*BUL0220D	4.	*ROU0136D 6. *IRN0109D 13.
44	IND0043D	56.0	15	77.8 11.1	1.4 1.3	172.	41.8	1	147.	63.5	79.5 9.1	4.	*CLN0219D	5.	*IND0045D 15. *INJ0040D 19.
45	IND0047D	68.0	15	93.3 11.1	1.9 0.6	96.	43.6	1	99.	63.6	93.8 14.8	2.	*BGD0220A	3.	*IND0048D 14. *IND0037D 16.
46	INS0036D	104.0	15	135.2 -3.8	2.5 2.0	147.	37.3	1	457.	63.9	128.0 -7.0	4.	*AUS0004D	5.	*J 0111H 15. *PNG0131D 17.
47	IRN0109D	34.0	15	54.2 32.4	3.8 1.8	149.	35.8	2	517.	63.0	61.5 31.0	7.	*AFG0245D	8.	*SOM0312D 16. *ARS0275D 26.
48	J 0111H	110.0	15	134.5 31.5	3.5 3.3	68.	33.6	1	1190.	64.4	123.7 24.3	5.	*CHN0174A	8.	*PNG0131D 12. *CHN0158A 12.
49	LBN0279D	11.0	15	35.8 33.9	0.6 0.6	0.	48.7	2	20.	61.8	36.8 34.5	-0.	*GRC0105D	6.	*IRN0109D 6. *ARS0003D 7.
50	LBR0244D	-31.0	15	-9.3 6.6	1.2 0.7	133.	44.9	1	70.	63.4	-10.2 8.5	4.	*AZR0134D	9.	*MLI0328D 9. *POR0133D 12.
51	LBY0321D	-25.0	15	13.1 27.2	2.4 1.1	129.	40.0	2	208.	63.2	11.4 33.5	3.	*ALG0251D	6.	*ALG0252D 9. *TGO0226D 12.
52	LIE0253D	-37.0	15	9.5 47.1	0.6 0.6	0.	48.7	1	24.	62.6	9.5 47.2	1.	*TCH0144D	4.	*LUX0114D 8. *AND0341D 13.
53	LUX0114D	-19.0	15	6.0 49.8	0.6 0.6	0.	48.7	1	28.	63.1	7.0 48.5	-4.	*LIE0253D	1.	*D 0087D 3. *TCH0144D 4.
54	MRA0332D	122.0	15	145.9 16.9	1.2 0.6	76.	45.7	1	53.	63.6	145.0 20.0	-4.	*J 0111H	-3.	*GUM0331D 12. *AUS0009D 19.
55	NHB0128D	140.0	15	168.0 -16.4	1.5 0.7	87.	44.1	2	78.	63.0	169.8 -20.0	7.	*NGL0100D	8.	*INS0036D 23. *NRU0309D 23.
56	NRU0309D	134.0	15	167.0 -0.5	0.6 0.6	0.	48.7	2	25.	62.7	166.0 -2.0	10.	*NHB0128D	14.	*INS0036D 17. *PNG0131D 19.
57	POR0133D	-31.0	15	-8.0 39.6	0.9 0.6	112.	46.8	2	47.	63.6	-7.5 37.2	-15.	*AZR0134D	-15.	*LBR0244D 11. *G 0027D 14.
58	SMD0057D	158.0	15	172.3 -13.7	0.6 0.6	0.	48.7	1	33.	63.8	-171.0 -14.1	7.	*CKN0053D	9.	*CKH0052D 14. *WAL0102D 20.
59	SNG0151D	74.0	15	103.8 1.3	0.6 0.6	0.	48.7	2	32.	63.7	106.0 1.1	0.	*VTN0325D	4.	*BGD0220A 4. *MLA0227A 12.
60	SOM0312D	23.0	15	45.0 6.4	3.3 1.5	71.	37.2	1	336.	62.5	43.2 11.2	5.	*URS0060D	8.	*URS0061D 10. *YEM0266D 15.
61	TCH0144D	-1.0	15	17.3 49.3	1.5 0.6	170.	44.8	2	83.	64.0	12.1 50.3	-2.	*LIE0253D	3.	*ZMB0314D 5. *LUX0114D 6.
62	UGA0051D	11.0	15	32.3 1.2	1.5 1.1	60.	42.1	1	134.	63.4	29.8 -1.3	2.	*RRW0310D	4.	*ZMB0314D 8. *ZAI0322D 16.
63	URS0061D	23.0	15	24.7 56.6	0.9 0.6	12.	46.7	2	70.	65.2	25.8 54.1	-0.	*TCH0144D	6.	*SOM0312D 6. *URS0060D 6.
64	VTN0325D	86.0	15	105.3 16.1	3.0 1.4	116.	38.0	2	365.	63.6	108.0 21.6	0.	*CHN0181A	3.	*CHN0158A 4. *J 0111H 13.
65	ZMB0314D	-1.0	15	27.5 -13.1	2.4 1.5	39.	38.8	1	324.	63.9	33.0 -13.8	3.	*MOZ0307D	5.	*TCH0144D 11. *BOT0297D 13.

Canal 16 — Channel 16 — Canal 16

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
35	ALG0252D	-25.0	16	1.6 25.5	3.6 2.2	152.	35.3	1	583.	63.0	9.5 30.0	4.	*LBY0321D	7.	*LBY0280E	12.	*MLT0147D	15.
36	AND0341D	-37.0	16	1.6 42.5	0.6 0.6	0.	48.7	2	20.	61.6	1.4 42.4	-1.	*G 0027D	3.	*ALG0252D	5.	*MLI0328D	7.
37	ARS0003D	17.0	16	41.1 23.8	3.5 1.7	134.	36.5	2	432.	62.9	56.0 21.0	-1.	*YMS0267E	2.	*EGY026D	9.	*QAT0247E	10.
38	AUS0007D	128.0	16	145.0 -38.1	1.8 1.4	134.	40.2	2	213.	63.5	149.6 -37.5	6.	*AUS0039D	7.	*NZL0287B	14.	*DCE0101D	27.
39	AUT0016D	-19.0	16	12.1 47.5	1.1 0.6	166.	45.7	2	73.	64.3	17.1 48.0	0.	*ZAI0322D	4.	*F 0093E	10.	*URS0060D	12.
40	BUL0020D	-1.0	16	25.0 43.0	1.0 0.6	165.	46.3	1	57.	63.8	28.1 42.0	-2.	*MOZ0307D	3.	*TUR0145E	5.	*GRC0105D	6.
41	CHN0169A	92.0	16	118.5 36.4	1.2 0.8	11.	44.8	1	98.	64.7	122.8 38.4	-1.	*KRE0286B	2.	*CHN0167A	8.	*CHN0186A	8.
42	CHN0186A	62.0	16	102.5 30.2	1.9 1.2	147.	40.5	2	311.	65.5	110.0 31.8	7.	*CHN0169A	9.	*CHN0158A	17.	*IND0048D	17.
43	CKN0053D	158.0	16	163.0 -11.2	1.8 0.7	30.	43.2	2	133.	64.5	-158.0 -9.0	4.	*DCE0101D	4.	*TON0215D	29.	*SMO0057D	31.
44	CPV0301D	-31.0	16	-24.0 16.0	0.9 0.7	144.	46.5	2	39.	62.4	-24.3 14.4	4.	*G 0027D	6.	*AZR0134D	14.	*MLI0328D	16.
45	DNK0089B	5.0	16	12.3 57.1	1.2 0.6	177.	45.7	2	74.	64.4	10.0 54.5	1.	*G 0027D	5.	*POL0132E	8.	*AUT0016D	8.
46	EGY0026D	-7.0	16	29.7 26.8	2.3 1.7	136.	38.2	2	319.	63.3	36.0 23.3	-3.	*ARS003D	0.	*ALG0252D	12.	*MOZ0307D	16.
47	G 0027D	-31.0	16	-3.5 53.8	1.8 0.7	142.	43.0	1	164.	65.2	1.3 51.1	3.	*ALG0252D	6.	*AUT0016D	10.	*DNK0089B	13.
48	IND0040D	56.0	16	73.0 25.0	1.8 1.5	58.	39.9	2	244.	63.8	78.2 27.0	2.	*NPL0122A	6.	*IND0048D	7.	*IND0038A	11.
49	IND0048D	68.0	16	86.2 25.0	1.6 0.9	120.	42.8	2	138.	65.5	89.8 26.7	-6.	*CHN0186A	-6.	*BRM0298A	9.	*IND0046A	10.
50	KRE0286B	110.0	16	127.1 40.1	1.1 0.8	31.	45.2	2	76.	64.0	124.0 39.9	-1.	*CHN0169A	1.	*J 0111H	8.	*CHN0186A	9.
51	MAU0243D	29.0	16	56.8 -13.9	1.6 1.4	65.	40.9	1	197.	63.9	53.0 -15.0	6.	*MOG0236E	9.	*MOZ0307D	11.	*COM0207D	18.
52	MLA0227A	86.0	16	102.1 4.1	1.6 0.8	135.	43.0	1	105.	63.2	105.4 2.2	7.	*VTN0325D	12.	*SNG0151D	13.	*INS0032A	13.
53	MLD0306B	44.0	16	73.1 6.0	1.0 0.6	90.	46.6	1	51.	63.7	71.0 7.5	5.	*JRS0069B	6.	*IND0043D	17.	*ARS0003D	19.
54	MLI0328D	-37.0	16	-7.6 13.2	1.7 1.2	171.	40.9	1	198.	63.9	-12.0 15.0	3.	*GMB0302D	8.	*GUI0192E	8.	*ALG0252D	9.
55	MLT0147D	-13.0	16	14.3 35.9	0.6 0.6	0.	48.7	1	18.	61.2	14.3 35.9	0.	*ALG0252D	2.	*EGY0026D	11.	*CME0300E	12.
56	MOZ0307D	-1.0	16	34.0 -18.0	3.6 1.4	55.	37.3	2	505.	64.4	30.3 -15.0	5.	*ZMB0314D	6.	*BUL0020D	13.	*ZAI0322D	17.
57	DCE0101D	-160.0	16	145.0 -16.3	4.3 3.5	4.	32.4	2	1352.	63.7	-154.7 -15.7	17.	*CKN0053D	17.	*TON0215D	33.	*MOZ0307D	35.
58	PHL0285A	98.0	16	121.3 11.1	3.5 1.8	99.	36.4	2	531.	63.7	122.0 21.0	7.	*AUS0005E	11.	*AUS0004D	13.	*J 0111H	15.
59	RRW0310D	11.0	16	30.0 -2.1	0.7 0.6	42.	48.3	2	47.	65.0	30.3 -1.0	0.	*ZAI0322D	2.	*UGA0051D	8.	*YMS0267E	14.
60	STP0241D	-13.0	16	7.0 0.8	0.6 0.6	0.	48.7	2	20.	61.6	5.0 2.0	-2.	*CME0300E	2.	*ZAI0322D	3.	*GAB0260D	6.

Canal 16 suite — Channel 16 cont. — Canal 16 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
61	TQNJ215D	170.0	16-174.7	-18.0	1.4 0.7	85.	44.4	1	30.	63.5	-173.7 -15.9	4.	*CKN0053D	6.	*DCEJ101D 13.	*SMA0335E 15.
													*	*	*	*
62	URSD060D	23.0	16	41.5	57.4	3.1 1.6	153.	37.4	1	887.	66.9 27.7 60.5	5.	*URSD061D	8.	*DNK0389B 11.	*SOM0312D 19.
													*	*	*	*
63	JRSQ069B	44.0	16	71.8	38.5	1.4 0.7	161.	44.2	2	98.	64.1 75.1 37.3	4.	*IND0040D	6.	*MLD0306B 11.	*IND0038A 14.
													*	*	*	*
64	ZAI0322D	-19.0	16	22.4	0.0	2.2 1.9	48.	38.2	1	468.	64.9 19.5 5.0	4.	*CME0300E	8.	*ALG0252D 9.	*AUT0016D 12.

Canal 17 — Channel 17 — Canal 17

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
31	AUS0005E	98.0	17	133.5	-18.8	2.7 1.4	76.	38.5	2	399.	64.5 130.8 -12.5	-2.	*PHL0285B	1.	*PHL0285A 1.	*INS0032A 12.
													*	*	*	*
32	BRM0298A	74.0	17	97.1	19.1	3.6 1.5	104.	37.0	2	488.	63.9 92.4 21.4	-0.	*IND0046A	3.	*BGD0220B 6.	*IND0048D 10.
													*	*	*	*
33	CAR0338E	122.0	17	149.5	8.0	5.4 0.8	178.	38.1	1	289.	62.7 134.6 7.5	11.	*INS0032A	12.	*NZL0287B 22.	*AUS0005E 25.
													*	*	*	*
34	CHN0167A	92.0	17	124.3	43.7	2.0 0.7	156.	42.7	2	159.	64.7 121.0 42.1	7.	*CHN0182A	10.	*CHN0169A 11.	*CHN0159A 21.
													*	*	*	*
35	CHN0182A	80.0	17	108.7	35.1	1.4 0.9	109.	43.3	1	122.	64.2 105.7 32.9	-1.	*INS0032A	2.	*BRM0298A 4.	*CHN0159A 7.
													*	*	*	*
36	CME0300E	-13.0	17	12.7	6.2	2.5 1.7	87.	37.9	1	371.	63.6 16.2 1.4	2.	*ZAI0322D	4.	*ZAI0323E 8.	*TCD0143E 9.
													*	*	*	*
37	F 0093E	-19.0	17	2.6	45.9	2.5 1.0	160.	40.4	1	232.	64.0 9.5 41.2	-2.	*SMR0311E	1.	*D 0087E 9.	*ALG0251E 9.
													*	*	*	*
38	GUI0192E	-37.0	17	-11.0	10.2	1.6 1.0	147.	42.1	2	143.	63.7 -14.5 11.5	3.	*GNP0304E	5.	*MLI0328D 8.	*MLI0327E 15.
													*	*	*	*
39	IND0038A	56.0	17	75.9	33.4	1.5 1.1	33.	42.1	1	166.	64.3 79.0 31.2	-3.	*NPL0122A	-3.	*IND0040D 7.	*IND0042A 12.
													*	*	*	*
40	IND0046A	68.0	17	84.7	20.5	1.6 0.9	30.	42.9	1	118.	63.6 87.5 21.7	1.	*IND0048D	6.	*BRM0298A 6.	*BGD0220B 8.
													*	*	*	*
41	INS0032A	80.0	17	112.3	-0.3	2.7 2.3	109.	36.3	2	587.	64.0 109.1 1.8	4.	*BRM0298A	6.	*CHN0182A 9.	*CHN0159A 14.
													*	*	*	*
42	LBY0283E	-25.0	17	21.4	26.0	2.5 1.0	119.	40.1	2	229.	63.7 22.0 33.0	4.	*TUR0145E	8.	*ALG0251E 11.	*ALG0252D 12.
													*	*	*	*
43	MDG0236E	29.0	17	46.6	-18.8	2.7 1.1	65.	39.3	2	263.	63.5 49.0 -12.3	8.	*MAU0243D	10.	*MAU0242E 15.	*ZAI0323E 22.
													*	*	*	*
44	NPL0122A	50.0	17	83.7	28.3	1.7 0.6	163.	44.1	2	112.	64.6 88.0 26.5	3.	*IND0046A	7.	*BRM0298A 8.	*IND0041A 15.
													*	*	*	*
45	NZL0287B	128.0	17	173.0	-41.0	3.3 1.3	48.	38.0	1	492.	64.8 166.3 -45.5	12.	*AUS0006E	16.	*AUS0007D 16.	*AUS0005E 22.
													*	*	*	*
46	PLM0337E	170.0	17-161.4	7.0	0.6 0.6	0.	48.7	1	25.	62.6	-162.4 6.1	6.	*CAR0338E	7.	*TON0215D 14.	*SMA0335E 10.
													*	*	*	*
47	PDL0132E	-1.0	17	19.3	51.8	1.5 0.6	162.	44.5	2	95.	64.3 22.9 49.0	-0.	*SMR0311E	5.	*TUR0145E 7.	*ROU0136E 7.
													*	*	*	*
48	JAT0247E	17.0	17	31.1	25.3	0.6 0.6	0.	48.7	1	22.	62.0 52.3 24.8	1.	*YMS0267E	5.	*ARS0275E 6.	*ARS0003D 9.
													*	*	*	*
49	SMA0335E	170.0	17-170.1	-14.2	0.6 0.6	0.	48.7	2	19.	61.4	-171.0 -11.0	-2.	*TON0215D	1.	*PLM0337E 2.	*CKN0053D 5.
													*	*	*	*
50	SMR0311E	-37.0	17	12.6	43.7	0.6 0.6	0.	48.7	1	25.	62.7 12.0 43.0	-0.	*F 0093E	2.	*GUI0192E 9.	*TUR0145E 12.

Canal 17 suite — Channel 17 cont. — Canal 17 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
51 SWZ0313E	-1.0	17	31.5	-26.5	0.6	0.6	66.	48.5	1	28.	63.0	31.1	-25.9	4. *MOZ0307D	7. *BOT0297E	9. *POL0132E	11. *
52 TUR0145E	5.0	17	34.4	38.9	2.7	1.0	168.	39.8	1	259.	63.9	42.7	41.5	-2. *URS0064E	-1. *LBY0280E	11. *URS0060D	18. *
53 URS0064E	23.0	17	45.6	40.8	2.2	0.6	163.	43.1	2	126.	64.1	40.0	43.4	-0. *TUR0145E	2. *URS0060D	6. *LBY0280E	12. *
54 WAK0334E	140.0	17	166.5	19.2	0.6	0.6	0.	48.7	1	32.	63.8	166.5	19.2	22. *MRL0333E	24. *NZL0287B	30. *AUS0005E	31. *
55 YMS0267E	11.0	17	48.8	15.2	1.8	1.5	176.	39.9	2	205.	63.0	49.5	18.4	3. *ARS0275E	6. *ARS0003D	7. *YEM0266E	13. *

Canal 18 — Channel 18 — Canal 18

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
26 ALG0251E	-25.0	18	4.2	33.2	2.4	1.3	172.	39.4	1	265.	63.6	9.5	30.0	0. *TCD0143E	5. *LBY0321E	7. *TGO0226E	8. *
27 ARS0275E	17.0	18	48.3	24.6	3.8	1.4	138.	36.9	2	400.	63.0	42.5	17.0	-11. *YEM0266E	-11. *YMS0267E	-1. *TCD0143E	12. *
28 AUS0006E	98.0	18	135.4	-30.3	2.0	1.4	44.	39.8	1	232.	63.4	140.8	-27.7	-3. *PHL0285B	-0. *AUS0008E	3. *AUS0005E	8. *
29 AUS0008E	128.0	18	145.9	-21.5	2.9	2.0	120.	36.6	2	537.	63.9	149.0	-29.0	3. *AUS0009E	6. *AUS0006E	6. *NZL0287B	17. *
30 BGD0220B	74.0	18	90.3	23.6	1.5	0.8	135.	43.4	1	108.	63.7	88.0	27.0	-2. *IND0042A	1. *CHN0185A	7. *IND0041A	10. *
31 BOT0297E	-1.0	18	23.3	-22.2	2.1	1.5	36.	39.2	2	300.	64.0	25.3	-17.8	4. *ZMB0314E	6. *ZAI0323E	10. *ROU0136E	11. *
32 CBG0299A	68.0	18	105.0	12.7	1.0	0.9	110.	44.7	1	91.	64.3	103.5	10.5	2. *IND0042A	4. *MLA0227B	13. *IND0046B	14. *
33 CHN0159A	80.0	18	109.4	27.3	2.1	1.7	107.	38.6	2	393.	64.5	109.5	33.1	-1. *INS0030A	5. *CHN0158B	6. *CHN0182A	6. *
34 CHN0185A	62.0	18	95.7	35.4	2.1	1.1	156.	40.5	1	198.	63.4	101.3	33.1	4. *CHN0159A	5. *BRM0298B	17. *BRM0298A	17. *
35 D 0087E	-19.0	18	9.6	49.9	1.6	0.7	147.	43.6	2	164.	65.7	10.0	54.8	-0. *NOR0120B	3. *ZAI0323E	5. *LUX0114E	11. *
36 GNP0304E	-31.0	18	-15.0	12.0	0.9	0.6	172.	46.9	2	44.	63.3	-14.2	12.3	3. *GMB0302E	7. *GUI0192E	7. *IRL0211E	14. *
37 GUM0331E	122.0	18	144.5	13.1	0.6	0.6	0.	48.7	2	31.	63.5	144.7	13.4	8. *MRA0332E	9. *CAR0338E	17. *AUS0008E	20. *
38 IND0041A	56.0	18	78.4	16.0	2.1	1.4	35.	39.7	2	258.	63.8	84.9	19.0	2. *IND0042A	3. *IND0046B	12. *IND0046A	12. *
39 IND0042A	68.0	18	79.3	27.7	2.1	1.2	147.	40.3	2	223.	63.8	84.6	25.8	-2. *BGD0220B	2. *IND0041A	4. *CBG0299A	15. *
40 INS0030A	80.0	18	112.3	-8.1	3.1	1.5	169.	37.6	1	450.	64.2	114.0	-5.8	1. *CHN0159A	4. *INS0032B	7. *INS0032A	7. *
41 IRL0211E	-31.0	18	-8.2	53.2	0.8	0.6	162.	47.2	1	53.	64.5	-5.5	54.3	5. *NOR0120B	9. *D 0087E	10. *GNP0304E	15. *
42 KRE0286C	110.0	18	127.1	40.1	1.1	0.8	31.	45.2	2	77.	64.0	124.0	39.9	4. *CHN0159A	7. *PHL0285B	13. *CHN0185A	13. *
43 MAU0242E	29.0	18	59.8	-18.9	1.6	1.2	55.	41.2	1	198.	64.2	60.0	-14.0	5. *ZAI0323E	6. *MDG0236E	14. *ARS0275E	25. *
44 MLA0227B	86.0	18	102.1	4.1	1.6	0.8	135.	43.0	1	106.	63.3	103.8	1.2	-1. *INS0030A	-1. *INS0032B	15. *INS0032A	15. *

Canal 18 suite — Channel 18 cont. — Canal 18 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
45	MLI0327E	-37.0	18	-2.0	19.0	2.7	1.3	127.	39.0	1	348.	64.4	-2.5	23.3	9. *ALG0251E	11. *SMR0311E	18. *LIE0253E	20. *
46	MRL0333E	146.0	18	166.7	7.9	1.5	1.5	177.	40.7	1	190.	63.5	162.1	11.5	16. *CAR0338E	19. *AUS0008E	25. *PHL0285B	25. *
47	NDR0120B	5.0	18	13.1	64.1	1.8	0.9	10.	42.2	2	193.	65.0	7.6	58.0	1. *D 0087E	2. *IRL0211E	14. *POL0132E	14. *
48	PAK0281A	38.0	18	65.2	27.9	1.5	1.4	28.	40.9	1	162.	63.0	69.5	32.2	2. *IND0042A	4. *URS0070A	10. *IRN0109E	16. *
49	PHL0285B	98.0	18	121.3	11.1	3.5	1.8	99.	36.4	2	534.	63.7	122.0	21.0	3. *AUS0006E	6. *CHN0159A	10. *AUS0005E	11. *
50	ROU0136E	-1.0	18	25.0	45.7	1.4	0.7	155.	44.7	1	86.	64.0	20.2	46.1	-1. *D 0087E	4. *BDT0297E	5. *TCH0144E	7. *
51	TCDO143E	-13.0	18	18.1	15.5	3.4	1.7	107.	36.6	2	576.	64.2	16.5	8.2	5. *CME0300E	7. *MLI0327E	14. *GAB0260E	15. *
52	TGO0226E	-25.0	18	0.8	8.6	1.5	0.6	105.	44.6	2	79.	63.6	-0.2	11.1	-2. *MLI0327E	-0. *ALG0251E	6. *DAH0233E	8. *
53	URS0070A	44.0	18	73.9	41.0	1.3	0.8	5.	43.7	2	120.	64.5	73.8	38.4	4. *PAK0281A	7. *IND0042A	9. *IND0038B	17. *
54	YEM0266E	11.0	18	44.3	15.1	1.1	0.7	109.	45.2	1	58.	62.8	44.0	18.0	-1. *ARS0275E	0. *YMS0267E	7. *JGA0051E	11. *
55	ZAI0323E	-19.0	18	21.3	-6.8	2.8	1.5	149.	38.0	1	490.	64.9	16.3	-1.0	1. *TCDO143E	5. *GAB0260E	8. *D 0087E	8. *

Canal 19 — Channel 19 — Canal 19

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
31	AUS0004E	98.0	19	121.8	-24.9	3.6	1.9	54.	35.9	2	541.	63.2	124.5	-15.5	-2. *PHL0285C	2. *PHL0285B	2. *INS0032B	10. *
32	AUS0009E	128.0	19	147.2	-32.0	2.1	1.4	15.	39.6	1	296.	64.3	141.0	-34.0	5. *AUS0007E	6. *AUS0008E	13. *AUS0004E	13. *
33	AZR0134E	-31.0	19	-23.4	36.1	2.6	0.7	158.	41.7	2	142.	63.2	-16.9	32.5	-5. *POR0133E	-4. *CPV0301E	14. *GNP0304E	17. *
34	BRM0298B	74.0	19	97.1	19.1	3.6	1.5	104.	37.0	2	491.	63.9	92.4	21.4	-1. *IND0046B	3. *BGD0220C	6. *BGD0220B	6. *
35	CHN0158B	80.0	19	111.8	38.0	2.6	1.7	124.	37.7	1	527.	64.9	115.3	31.5	-1. *INS0032B	3. *CHN0159B	6. *CHN0159A	7. *
36	CHN0179A	92.0	19	112.2	21.9	1.8	1.2	37.	40.7	2	204.	63.8	112.0	24.7	1. *CHN0158B	2. *CHN0159B	13. *CHN0159A	13. *
37	DAH0233E	-19.0	19	2.2	9.5	1.4	0.7	97.	44.3	2	82.	63.5	2.2	6.2	3. *TGO0226E	5. *ZAI0323E	14. *ZAI0322E	14. *
38	GAB0260E	-13.0	19	11.8	-0.6	1.4	1.1	64.	42.2	1	136.	63.6	11.0	-4.0	3. *ZAI0323E	6. *ZAI0322E	9. *TCDO143E	14. *
39	GMB0302E	-37.0	19	-15.1	13.4	0.8	0.6	4.	47.5	2	40.	63.5	-14.2	13.3	4. *GNP0304E	7. *MLI0328E	9. *MLI0327E	16. *
40	GRC0105E	5.0	19	24.7	38.2	1.8	1.0	156.	41.8	1	147.	63.5	26.6	41.5	1. *BUL0020E	4. *ROU0136E	6. *IRN0109E	13. *



Canal 19 suite — Channel 19 cont. — Canal 19 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
41	IND0038B	56.0	19	75.9	33.4	1.5	1.1	33.	42.1	1	167.	64.3	79.0	31.2	-3. *NPL0122B -3. *IRN0109E 9. *IND0042B 12. *
42	IND0046B	68.0	19	84.7	20.5	1.6	0.9	30.	42.9	1	119.	63.6	87.5	21.7	1. *BRM0298B 6. *BGD0220C 8. *BGD0220B 8. *
43	INS0032B	80.0	19	112.3	-0.3	2.7	2.3	109.	36.3	2	591.	64.1	117.5	3.7	0. *CHN0158B 2. *CHN0159B 12. *CHN0159A 12. *
44	INS0036E	104.0	19	135.2	-3.8	2.5	2.0	147.	37.3	1	463.	64.0	128.0	-7.0	1. *AUS0004E 5. *INS0032B 5. *INS0030B 18. *
45	IRN0109E	34.0	19	54.2	32.4	3.8	1.8	149.	35.8	2	523.	63.0	60.2	25.2	7. *SOM0312E 10. *PAK0281A 14. *URS0066A 18. *
46	LBN0279E	11.0	19	35.8	33.9	0.6	0.6	0.	48.7	2	21.	61.8	36.8	34.5	-0. *GRC0105E 6. *IRN0109E 6. *UGA0051E 7. *
47	LBY0321E	-25.0	19	13.1	27.2	2.4	1.1	129.	40.0	2	210.	63.3	11.4	33.5	3. *ALG0251E 6. *ALG0252E 9. *TGJ0226E 12. *
48	LIE0253E	-37.0	19	9.5	47.1	0.6	0.6	0.	48.7	1	25.	62.6	9.5	47.2	1. *TCH0144E 4. *LUX0114E 8. *AND0341E 13. *
49	LUX0114E	-19.0	19	6.0	49.8	0.6	0.6	0.	48.7	1	28.	63.1	7.0	48.5	-4. *LIE0253E 1. *D 0087E 3. *TCH0144E 4. *
50	MRA0332E	122.0	19	145.9	16.9	1.2	0.6	76.	45.7	1	63.	63.7	146.9	15.1	7. *GUM0331E 7. *AUS0009E 21. *URS0077A 24. *
51	NIW0054A	158.0	19	169.8	-19.0	0.6	0.6	0.	48.7	2	34.	64.1	-169.9	-19.0	27. *TKL0058A 31. *AUS0009E 31. *URS0077A 37. *
52	NPL0122B	50.0	19	83.7	28.3	1.7	0.6	163.	44.1	2	112.	64.6	88.0	26.5	2. *IND0046B 7. *BRM0298B 8. *IND0041B 15. *
53	PDR0133E	-31.0	19	-8.0	39.6	0.9	0.6	112.	46.8	2	48.	63.6	-7.5	37.2	-15. *AZR0134E-15. *G 0027E 14. *LBY0321E 18. *
54	SOM0312E	23.0	19	45.0	6.4	3.3	1.5	71.	37.2	1	340.	62.6	42.0	-1.0	7. *URS0061E 11. *UGA0051E 13. *ZMB0314E 15. *
55	TCH0144E	-1.0	19	17.3	49.3	1.5	0.6	170.	44.8	2	84.	64.0	12.1	50.3	-2. *LIE0253E 3. *ZMB0314E 5. *LUX0114E 6. *
56	UGA0051E	11.0	19	32.3	1.2	1.5	1.1	60.	42.1	1	135.	63.4	29.8	-1.3	2. *RRW0310E 4. *ZMB0314E 8. *ZAI0322E 16. *
57	URS0061E	23.0	19	24.7	56.6	0.9	0.6	12.	46.7	2	70.	65.2	25.8	54.1	1. *TCH0144E 6. *SOM0312E 6. *LIE0253E 7. *
58	URS0077A	110.0	19	112.7	57.3	2.7	1.8	2.	37.6	1	450.	64.1	117.8	49.4	1. *CHN0158B 1. *BRM0298B 19. *INS0036E 19. *
59	ZMB0314E	-1.0	19	27.5	-13.1	2.4	1.5	39.	38.8	1	329.	63.9	33.0	-13.8	3. *MOZ0307E 5. *TCH0144E 11. *BOT0297E 13. *

Canal 20 — Channel 20 — Canal 20

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
30	ALG0252E	-25.0	20	1.6	25.5	3.6	2.2	152.	35.3	1	591.	63.0	-9.0	27.5	5. *MRC0209A 6. *G 0027E 16. *ZAI0322E 17. *
31	AND0341E	-37.0	20	1.6	42.5	0.6	0.6	0.	48.7	2	20.	61.7	1.4	42.4	-1. *G 0027E 3. *ALG0252E 5. *MLI0328E 7. *
32	ARS0003E	17.0	20	41.1	23.8	3.5	1.7	134.	36.5	2	437.	62.9	38.0	32.0	-0. *EGY0026E 1. *URS0066A 9. *LBN0279E 9. *
33	AUS0007E	128.0	20	145.0	-38.1	1.8	1.4	134.	40.2	2	215.	63.5	149.6	-37.5	6. *AUS0009E 7. *NZL0287C 14. *URS0079A 24. *

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
34	AUT0016E	-19.0	20	12.1	47.5	1.1	0.6	166.	45.7	2	73.	64.3	9.4	47.2	1. *ZAI0322E	5. *AND0341E	8. *G 0027E	8. *
35	BGD0220C	74.0	20	90.3	23.6	1.5	0.8	135.	43.4	1	109.	63.7	88.0	27.0	-2. *IND0042B	1. *IND0041B	10. *URS0066A	10. *
36	BUL0020E	-1.0	20	25.0	43.0	1.0	0.6	165.	46.3	1	57.	63.9	23.0	41.3	-2. *MOZ0307E	3. *YUG0148A	4. *GRC0105E	5. *
37	CBG0299B	68.0	20	105.0	12.7	1.0	0.9	110.	44.7	1	92.	64.3	103.5	10.5	2. *IND0042B	4. *MLA0227C	13. *IND0046C	14. *
38	CHN0159B	80.0	20	109.4	27.3	2.1	1.7	107.	38.6	2	396.	64.6	109.5	33.1	-2. *CHN0184A	3. *INS0030B	5. *CHN0158B	6. *
39	CHN0184A	62.0	20	101.0	37.9	2.8	0.8	144.	40.7	1	201.	63.7	105.8	32.9	0. *CHN0159B	1. *URS0066A	11. *CHN0158B	16. *
40	CPV0301E	-31.0	20	-24.0	16.0	0.9	0.7	144.	46.5	2	39.	62.4	-22.9	16.8	4. *G 0027F	7. *AZR0134E	13. *SEN0222A	15. *
41	DNK0089C	5.0	20	12.3	57.1	1.2	0.6	177.	45.7	2	75.	64.4	10.0	54.5	0. *DDR0216A	5. *G 0027E	5. *AUT0016E	8. *
42	EGY0026E	-7.0	20	29.7	26.8	2.3	1.7	136.	38.2	2	324.	63.3	36.0	23.3	-0. *ARS0003E	0. *ALG0252E	12. *MGZ0307E	16. *
43	G 0027E	-31.0	20	-3.5	53.8	1.8	0.7	142.	43.0	1	166.	65.2	1.3	51.1	2. *ALG0252E	6. *AUT0016E	10. *BEL0018A	13. *
44	IND0041B	56.0	20	78.4	16.0	2.1	1.4	35.	39.7	2	260.	63.8	84.9	19.0	2. *IND0042B	3. *IND0046C	12. *IND0046B	12. *
45	IND0042B	68.0	20	79.3	27.7	2.1	1.2	147.	40.3	2	224.	63.8	84.6	25.8	-2. *BGD0220C	2. *IND0041B	4. *CBG0299B	10. *
46	INS0030B	80.0	20	112.3	-8.1	3.1	1.5	169.	37.6	1	453.	64.2	114.0	-5.8	1. *CHN0159B	4. *INS0032C	7. *INS0032B	7. *
47	KRE0286D	110.0	20	127.1	40.1	1.1	0.8	31.	45.2	2	77.	64.1	130.0	43.0	-3. *URS0079A	-2. *CHN0159B	11. *URS0077A	14. *
48	MLA0227C	86.0	20	102.1	4.1	1.6	0.8	135.	43.0	1	107.	63.3	103.8	1.2	-1. *INS0030B	-1. *INS0032C	15. *INS0032B	15. *
49	MLI0328E	-37.0	20	-7.6	13.2	1.7	1.2	171.	40.9	1	201.	63.9	-12.0	15.0	2. *SEN0222A	6. *GMB0302E	8. *ALG0252E	9. *
50	MOZ0307E	-1.0	20	34.0	-18.0	3.6	1.4	55.	37.3	2	512.	64.4	32.5	-26.8	4. *AFS0021A	6. *BUL0020E	13. *ZMB0314E	15. *
51	PAK0282A	38.0	20	68.5	25.8	1.3	0.6	133.	45.1	1	66.	63.3	68.3	28.7	-1. *URS0066A	-0. *IND0042B	7. *EGY0026E	15. *
52	PHL0285C	98.0	20	121.3	11.1	3.5	1.8	99.	36.4	2	538.	63.7	122.0	21.0	2. *CHN0175A	5. *CHN0159B	10. *AUS0005F	11. *
53	RRW0310E	11.0	20	30.0	-2.1	0.7	0.6	42.	48.3	2	47.	65.0	30.3	-1.0	0. *ZAI0322E	2. *UGA0051E	8. *KEN0249A	11. *
54	STP0241E	-13.0	20	7.0	0.8	0.6	0.6	0.	48.7	2	20.	61.7	5.0	2.0	-0. *ZAI0322E	3. *GAB0260E	6. *DAH0233E	9. *
55	TKL0058A	158.0	20	-171.8	-8.9	0.7	0.6	35.	48.0	1	38.	63.8	-171.2	-9.5	26. *NIU0054A	29. *URS0079A	30. *AUS0007E	35. *
56	URS0065A	23.0	20	32.4	63.1	1.2	0.6	175.	45.7	1	121.	66.6	29.5	66.6	4. *URS0066A	9. *G 0027E	12. *URS0061E	12. *
57	URS0066A	44.0	20	64.3	44.6	4.6	2.5	169.	33.7	2	1466.	65.4	71.6	37.3	7. *IND0042B	10. *EGY0026E	16. *IRN0109E	19. *
58	URS0079A	140.0	20	138.0	53.6	3.2	2.1	62.	36.0	2	1497.	67.7	130.6	42.2	3. *KRE0286D	3. *CHN0159B	15. *CHN0184A	20. *
59	ZAI0322E	-19.0	20	22.4	0.0	2.2	1.9	48.	38.2	1	474.	64.9	19.5	5.0	6. *ALG0252E	9. *AUT0016E	12. *GAB0260E	16. *

Canal 21 — Channel 21 — Canal 21

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
31 AFI0099A	23.0	21	42.5	11.6	0.6	0.6	0.	48.7	1	24.	62.5	41.9	10.8	-0.	*KEN0249A 2. *ETH0092A 6. *BLR0062A 10.
32 AFS0021A	5.0	21	24.5	-28.0	3.1	1.7	27.	37.0	2	505.	64.1	30.0	-22.1	1.	*MOZ0307E 4. *RHS0135A 5. *CYP0086A 15.
33 AUS0005F	98.0	21	133.5	-18.8	2.7	1.4	76.	38.5	2	404.	64.5	130.8	-12.5	-2.	*PHL0285D 1. *PHL0285C 1. *INS0032C 12.
34 BEL0018A	-19.0	21	4.6	50.6	0.8	0.6	167.	47.3	1	49.	64.2	6.4	50.3	0.	*DDR0216A 5. *YUG0148A 6. *SUI0140A 10.
35 BLR0062A	23.0	21	27.8	52.6	1.1	0.7	1.	45.3	2	89.	64.8	23.4	51.5	3.	*YUG0148A 7. *MCO0116A 11. *URS0065A 13.
36 BRM0298C	74.0	21	97.1	19.1	3.6	1.5	104.	37.0	2	494.	63.9	92.4	21.4	-1.	*IND0046C 3. *BGD0220D 6. *BGD0220C 6.
37 CHN0175A	92.0	21	121.4	23.8	1.1	0.8	64.	44.5	2	94.	64.3	121.9	21.6	3.	*PHL0285D 7. *PHL0285C 7. *CHN0168A 11.
38 CHN0176A	80.0	21	113.7	33.9	1.2	0.8	141.	44.4	1	97.	64.3	110.2	34.5	-1.	*INS0032C 2. *CHN0159C 6. *CHN0159B 6.
39 CYP0086A	5.0	21	33.3	35.1	0.6	0.6	0.	48.7	1	31.	63.6	34.5	35.7	2.	*AFS0021A 4. *SYR0229A 7. *YUG0148A 17.
40 DDR0216A	-1.0	21	12.6	52.1	0.8	0.6	172.	47.1	2	52.	64.2	11.0	54.0	-3.	*FNL0104A 2. *BEL0018A 2. *DNK0089C 4.
41 HVD0107A	-31.0	21	-1.5	12.2	1.4	1.1	29.	42.1	1	155.	64.0	-5.5	12.0	-0.	*MLI0328E 5. *SEN0222A 7. *CTI0237A 7.
42 IND0038C	56.0	21	75.9	33.4	1.5	1.1	33.	42.1	1	168.	64.4	79.0	31.2	-3.	*NPL0122C -3. *IND0042C 12. *IND0042B 12.
43 IND0046C	68.0	21	84.7	20.5	1.6	0.9	30.	42.9	1	120.	63.7	87.5	21.7	1.	*BRM0298C 6. *BGD0220D 8. *BGD0220C 8.
44 INS0032C	80.0	21	112.3	-0.3	2.7	2.3	109.	36.3	2	595.	64.1	114.7	-4.2	3.	*INS0030C 8. *INS0030B 8. *CHN0176A 12.
45 ISL0049A	-31.0	21	-19.0	64.9	1.0	0.6	177.	46.5	2	86.	65.8	-13.5	65.1	7.	*HVD0107A 10. *G 0027E 13. *CTI0237A 19.
46 KEN0249A	11.0	21	37.9	1.1	2.3	1.6	94.	38.7	1	317.	63.7	33.9	-1.0	7.	*RRW0310E 10. *BDI0270A 14. *ZAI0322E 18.
47 MCO0116A	-37.0	21	7.4	43.7	0.6	0.6	0.	48.7	1	24.	62.4	5.6	46.0	-9.	*BEL0018A -4. *MRC0209A -2. *YUG0148A 1.
48 MRC0209A	-25.0	21	-9.0	29.2	2.7	1.5	43.	38.2	2	318.	63.3	-1.2	32.2	6.	*ALG0252E 7. *TUN0150A 12. *ISL0049A 22.
49 NPL0122C	50.0	21	83.7	28.3	1.7	0.6	163.	44.1	2	113.	64.6	88.0	26.5	3.	*IND0046C 7. *BRM0298C 8. *IND0041C 15.
50 NZL0287C	128.0	21	173.0	-41.0	3.3	1.3	48.	38.0	1	488.	64.9	166.3	-45.5	12.	*AUS0008F 16. *AUS0007E 16. *AUS0005F 22.
51 SEN0222A	-37.0	21	-14.4	13.8	1.5	1.0	139.	42.4	2	132.	63.6	-15.0	16.3	2.	*MRC0209A 6. *MTN0223A 7. *MLI0328E 10.
52 UAE0274A	17.0	21	53.6	24.2	1.0	0.8	162.	45.3	1	61.	63.2	50.8	24.6	7.	*ARS0003E 9. *KWT0113A 15. *KEN0249A 17.
53 YUG0148A	-7.0	21	18.4	43.7	1.7	0.7	154.	43.8	1	139.	65.2	13.4	46.4	-1.	*DDR0216A 3. *MCO0116A 3. *HNG0106A 9.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
24 ALB0296A	-7.0	22	19.8	41.3	0.7	0.6	146.	48.1	2	37.	63.8	19.8	42.6	-2.	*HNG0106A 2. *SDN0231A 5. *YUG0149A 6.
25 AUS0006F	98.0	22	135.4	-30.3	2.0	1.4	44.	39.8	1	235.	63.5	140.8	-27.7	-3.	*PHL0285D -0. *AUS0008F 3. *AUS0005F 8.
26 AUS0008F	128.0	22	145.9	-21.5	2.9	2.0	120.	36.6	2	543.	64.0	149.0	-29.0	3.	*AUS0009F 6. *AUS0006F 6. *NZL0287C 17.
27 BDI0270A	11.0	22	29.9	-3.1	0.7	0.6	80.	48.0	2	35.	63.4	29.1	-2.7	3.	*TGK0225A 7. *ETH0092A 10. *SYR0229A 11.
28 BGD0220D	74.0	22	90.3	23.6	1.5	0.8	135.	43.4	1	109.	63.8	89.0	22.0	-1.	*IND0042C 4. *IND0041C 6. *IND0046D 6.
29 CBG0299C	68.0	22	105.0	12.7	1.0	0.9	110.	44.7	1	92.	64.3	103.5	10.5	2.	*IND0042C 4. *MLA0227D 13. *IND0046D 14.
30 CHN0159C	80.0	22	109.4	27.3	2.1	1.7	107.	38.6	2	398.	64.6	109.5	33.1	-1.	*INS0030C 5. *CHN0158C 6. *CHN0183A 7.
31 CHN0168A	92.0	22	124.8	48.1	2.7	0.9	157.	40.3	2	322.	65.4	129.0	43.5	0.	*KRE0286E 2. *CHN0159C 9. *PHL0285D 10.
32 CHN0183A	62.0	22	104.8	39.0	1.5	0.6	142.	44.8	1	81.	63.8	106.0	35.4	1.	*CHN0159C 2. *CHN0158C 14. *CBG0299C 17.
33 COG0235A	-13.0	22	14.6	-0.7	2.0	1.2	59.	40.5	2	214.	63.8	12.6	2.4	-1.	*NIG0119A 0. *GNE0303A 5. *AGL0295A 10.
34 CTI0237A	-31.0	22	-5.6	7.5	1.6	1.2	108.	41.3	2	172.	63.7	-3.5	9.8	-1.	*NIG0119A 4. *MTN0223A 4. *HVD0107A 6.
35 ETH0092A	23.0	22	39.7	9.1	3.5	2.4	124.	35.0	2	698.	63.4	39.2	17.5	2.	*SDN0231A 3. *KWT0113A 19. *BLR0062A 19.
36 FNL0104A	5.0	22	17.0	61.5	2.0	1.0	10.	41.2	2	470.	68.0	15.0	55.0	5.	*DDR0216A 8. *SUI0140A 11. *ISL0050A 16.
37 HNG0106A	-1.0	22	19.5	47.2	0.9	0.6	176.	46.8	1	52.	64.0	16.1	46.8	-3.	*YUG0149A 4. *YUG0148A 4. *SUI0140A 4.
38 IND0041C	56.0	22	78.4	16.0	2.1	1.4	35.	39.7	2	262.	63.8	84.9	19.0	2.	*IND0042C 3. *IND0046D 12. *IND0046C 12.
39 IND0042C	68.0	22	79.3	27.7	2.1	1.2	147.	40.3	2	226.	63.8	84.6	25.8	-1.	*BGD0220D 2. *IND0041C 4. *CBG0299C 10.
40 INS0030C	80.0	22	112.3	-8.1	3.1	1.5	169.	37.6	1	456.	64.2	114.0	-5.8	1.	*CHN0159C 4. *INS0032D 7. *INS0032C 7.
41 KRE0286E	110.0	22	127.1	40.1	1.1	0.8	31.	45.2	2	78.	64.1	130.0	43.0	-1.	*CHN0168A -0. *CHN0159C 11. *URS0077B 12.
42 KWT0113A	17.0	22	47.6	29.2	0.7	0.6	145.	48.1	2	31.	63.1	46.3	28.3	0.	*ETH0092A 2. *ARS0340A 8. *UAE0274A 15.
43 MLA0227D	86.0	22	102.1	4.1	1.6	0.8	135.	43.0	1	107.	63.3	103.8	1.2	-1.	*INS0030C -1. *INS0032D 15. *INS0032C 15.
44 MTN0223A	-37.0	22	-12.2	18.5	2.6	1.9	150.	37.3	1	351.	62.8	-5.2	15.3	0.	*CTI0237A 2. *HVD0107A 7. *NIG0119A 12.
45 NIG0119A	-19.0	22	7.8	9.4	2.2	2.0	45.	37.9	1	402.	63.9	3.4	6.4	4.	*CTI0237A 8. *GHA0108A 9. *SUI0140A 12.
46 PAK0281B	38.0	22	65.2	27.9	1.5	1.4	28.	40.9	1	164.	63.1	69.5	32.2	3.	*IND0042C 4. *URS0070B 10. *IND0038D 17.
47 PHL0285D	98.0	22	121.3	11.1	3.5	1.8	99.	36.4	2	541.	63.7	122.0	21.0	1.	*CHN0175A 5. *AUS0006F 6. *CHN0159C 10.
48 REU0097A	29.0	22	55.6	-19.2	1.6	0.8	96.	43.4	1	113.	63.9	54.7	-15.7	15.	*ETH0092A 17. *PAK0281B 29. *INS0030C 29.
49 RHS0135A	-1.0	22	29.6	-18.8	1.5	1.4	37.	41.3	2	195.	64.2	31.2	-22.2	6.	*AFS0021A 7. *HNG0106A 13. *AGL0295A 20.
50 SDN0231A	-7.0	22	28.9	12.7	2.3	2.0	159.	37.8	1	371.	63.5	34.0	8.5	-2.	*ETH0092A -0. *SDN0230A 6. *ALB0296A 13.

Canal 22 suite — Channel 22 cont. — Canal 22 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
51 SUI0140A	-19.0	22	8.2	46.6	1.0	0.7	171.	45.9	2	66.	64.1	8.5	47.8	2. *NIG0119A	6. *FNL0104A	7. *BEL0018A	12. *
52 SYR0229A	11.0	22	38.3	34.9	1.0	0.9	7.	44.5	1	74.	63.2	35.9	35.7	2. *CYP0086A	5. *JCR0224A	10. *TGK0225A	12. *
53 TUN0150A	-25.0	22	9.5	33.5	1.9	0.7	153.	42.9	1	123.	63.8	12.0	37.5	2. *GHA0108A	9. *CVA0085A	9. *MRC0209A	9. *
54 URS0070B	44.0	22	73.9	41.0	1.3	0.8	5.	43.7	2	122.	64.6	73.8	38.4	4. *PAK0281B	7. *IND0042C	9. *IND0038D	17. *
55 URS0081A	140.0	22	168.5	65.5	2.0	0.6	168.	43.5	1	286.	68.1	158.1	67.8	13. *CHN0168A	13. *URS0077B	26. *AUS0008F	32. *

Canal 23 — Channel 23 — Canal 23

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
33 AGL0295A	-13.0	23	16.5	-12.0	3.1	2.3	84.	35.8	1	691.	64.1	12.5	-6.5	7. *COG0235A	9. *CAF0258A	15. *SDN0230A	24. *
34 ARS0340A	17.0	23	52.3	24.8	2.7	0.8	143.	40.7	1	177.	63.2	48.0	30.0	2. *IRQ0256A	5. *KWT0113A	6. *OMA0123A	15. *
35 AUS0004F	98.0	23	121.8	-24.9	3.6	1.9	54.	35.9	2	548.	63.3	124.5	-15.5	-2. *PHL0285E	2. *PHL0285D	2. *INS0032D	10. *
36 AUS0009F	128.0	23	147.2	-32.0	2.1	1.4	15.	39.6	1	300.	64.3	141.0	-34.0	5. *AUS0007F	6. *AUS0008F	13. *AUS0004F	13. *
37 BRM0298D	74.0	23	97.1	19.1	3.6	1.5	104.	37.0	2	497.	64.0	92.4	21.4	-1. *IND0046D	3. *BGD0220E	6. *BGD0220D	6. *
38 CHN0158C	80.0	23	111.8	38.0	2.6	1.7	124.	37.7	1	533.	65.0	119.8	46.8	-2. *JRS0077B	1. *INS0032D	3. *CHN0168A	12. *
39 CNR0130A	-31.0	23	-15.7	28.4	1.5	0.6	5.	44.6	2	56.	62.8	-13.5	29.2	-13. *E 0129A	-13. *CTI0237A	13. *SRL0259A	13. *
40 CVA0085A	-37.0	23	10.8	41.5	2.0	0.6	138.	43.5	1	105.	63.6	18.0	40.0	-4. *YUG0149A	-2. *E 0129A	6. *MTN0288A	12. *
41 E 0129A	-31.0	23	-3.1	39.9	2.1	1.1	154.	43.5	2	223.	63.9	-2.9	35.3	-8. *CNR0130A	-8. *CTI0237A	13. *SRL0259A	13. *
42 GHA0108A	-25.0	23	-1.2	7.9	1.5	1.1	102.	42.3	1	136.	63.6	0.1	11.0	3. *NGR0115A	7. *NIG0119A	8. *TUN0150A	16. *
43 GNE0303A	-19.0	23	10.3	1.5	0.7	0.6	10.	48.1	2	37.	63.8	11.3	2.4	0. *AGL0295A	4. *COG0235A	8. *CAF0258A	9. *
44 HDL0213A	-19.0	23	5.4	52.0	0.8	0.6	171.	47.7	1	48.	64.4	6.2	50.6	-0. *E 0129A	5. *YUG0149A	7. *CVA0085A	7. *
45 IND0038D	56.0	23	75.9	33.4	1.5	1.1	33.	42.1	1	169.	64.4	79.0	31.2	6. *IND0042D	12. *IND0042C	12. *IND0041D	14. *
46 IND0046D	68.0	23	84.7	20.5	1.6	0.9	30.	42.9	1	121.	63.7	87.5	21.7	1. *BRM0298D	6. *BGD0220E	8. *BGD0220D	8. *
47 INS0032D	80.0	23	112.3	-0.3	2.7	2.3	199.	36.3	2	598.	64.1	117.5	3.7	1. *CHN0158C	2. *CHN0159C	12. *INS0030D	16. *
48 ISL0050A	5.0	23	-19.5	61.0	2.2	0.8	4.	41.8	1	281.	66.3	-6.2	62.3	7. *DNK0090A	10. *FNL0104A	10. *TGK0225A	23. *
49 JCR0224A	11.0	23	35.8	31.4	0.8	0.8	114.	46.1	2	50.	63.1	38.3	33.3	-2. *TGK0225A	3. *ARS0340A	5. *SYR0229A	5. *
50 NIU0054B	158.0	23	-169.8	-19.0	0.6	0.6	0.	48.7	2	35.	64.1	-169.9	-19.0	27. *TKL0058B	31. *AUS0009F	31. *URS0077B	35. *

Canal 23 suite — Channel 23 cont. — Canal 23 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
51 SDN0230A	-7.0	23	29.2	7.5	2.3	1.1	148.	40.1	2	272.	64.4	23.0	11.0	1. *CAF0258A	6. *SDN0231A	7. *YUG0149A	9.
52 SRL0259A	-31.0	23	-11.8	8.6	0.8	0.7	114.	47.0	1	44.	63.4	-10.5	8.5	2. *E 0129A	7. *CTI0237A	8. *GHA0108A	9.
53 TGK0225A	11.0	23	34.6	-6.2	2.4	1.7	129.	38.1	1	366.	63.7	30.5	-1.0	3. *BDI0270A	7. *AGLJ295A	10. *SDN0230A	10.
54 URS0061F	23.0	23	24.7	56.6	0.9	0.6	12.	46.7	2	71.	65.3	21.3	55.3	-1. *URS0064F	0. *CVA0085A	10. *YUG0149A	14.
55 URS0064F	23.0	23	45.6	40.8	2.2	0.6	163.	43.1	1	128.	64.2	46.6	38.8	3. *ARS0340A	4. *URS0061F	12. *ETH0092A	17.
56 URS0077B	110.0	23	112.7	57.3	2.7	1.8	2.	37.6	1	722.	66.1	117.8	49.4	3. *CHN0158C	3. *CHN0168A	17. *BRM0298D	21.
57 YUG0149A	-7.0	23	18.4	43.7	1.7	0.7	154.	43.8	1	140.	65.2	13.4	46.4	-1. *CVA0085A	2. *SDN0230A	6. *E 0129A	9.

Canal 24 — Channel 24 — Canal 24

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14		
26 AUS0007F	128.0	24	145.0	-38.1	1.8	1.4	134.	40.2	2	218.	63.6	149.6	-37.5	7. *AUS0009F	7. *URS0079B	24. *PHL0285E	28.
27 BGD0220E	74.0	24	90.3	23.6	1.5	0.8	135.	43.4	1	110.	63.8	92.5	25.0	-2. *CHN0188A	0. *BRM0298D	6. *IND0042D	7.
28 CAF0258A	-13.0	24	21.0	6.3	2.3	1.7	31.	38.5	2	379.	64.3	23.2	11.0	1. *SDN0232A	5. *NGR0115A	6. *SDN0230A	6.
29 CBG0299D	68.0	24	105.0	12.7	1.0	0.9	110.	44.7	1	93.	64.3	103.5	10.5	2. *IND0042D	4. *MLA0227E	13. *IND0046D	14.
30 CHN0166A	92.0	24	121.1	41.7	1.5	0.8	154.	43.5	2	126.	64.5	125.6	40.8	0. *URS0079B	2. *PHL0285E	7. *CHN0158C	16.
31 CHN0177A	80.0	24	111.8	30.8	1.4	0.8	160.	43.6	2	129.	64.7	109.2	29.1	-1. *CHN0188A	3. *INS0030D	4. *CHN0158C	7.
32 CHN0188A	62.0	24	101.5	25.1	1.9	1.1	132.	41.2	2	240.	65.0	97.5	24.0	2. *IND0041D	5. *BGD0220E	7. *IND0042D	12.
33 DNK0090A	5.0	24	17.0	61.5	2.0	1.0	10.	41.2	2	473.	68.0	12.0	54.6	4. *DDR0216B	8. *I 0082A	8. *ISL0050A	16.
34 I 0082A	-19.0	24	12.3	41.3	2.4	1.0	137.	40.6	2	227.	64.1	12.6	35.4	3. *NGR0115A	4. *NMB0025A	15. *CAF0258A	17.
35 IND0041D	56.0	24	78.4	16.0	2.1	1.4	35.	39.7	2	263.	63.9	84.9	19.0	2. *IND0042D	3. *IND0046D	12. *BGD0220E	14.
36 IND0042D	68.0	24	79.3	27.7	2.1	1.2	147.	40.3	2	227.	63.9	84.6	25.8	-1. *BGD0220E	2. *IND0041D	4. *CBG0299D	10.
37 INS0030D	80.0	24	112.3	-8.1	3.1	1.5	169.	37.6	1	459.	64.3	114.0	-5.8	4. *INS0032D	7. *CHN0177A	10. *CHN0158C	13.
38 IRQ0256A	11.0	24	43.6	32.8	1.9	1.0	143.	41.7	1	146.	63.3	44.0	37.3	-0. *URS0066B	1. *KEN0249B	11. *TGK0225A	12.
39 LSD00305A	5.0	24	27.8	-29.8	0.7	0.6	36.	48.3	1	39.	64.2	29.5	-29.4	1. *DNK0090A	3. *AFS0021B	5. *NMB0025A	19.
40 MLA0227E	86.0	24	102.1	4.1	1.6	0.8	135.	43.0	1	108.	63.4	103.8	1.2	-1. *INS0030D	-1. *INS0032D	15. *BRM0298D	22.
41 MTN0288A	-37.0	24	-7.8	23.4	1.6	1.1	141.	41.7	1	134.	63.0	-5.6	20.0	3. *NGR0115A	5. *CVA0085A	14. *SEN0222B	14.
42 MWI0308A	-1.0	24	34.1	-13.0	1.5	0.6	87.	44.6	2	92.	64.2	35.2	-17.2	10. *AFS0021B	12. *TGK0225A	21. *AGL0295A	22.

Canal 24 suite — Channel 24 cont. — Canal 24 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
43 MYT0098A	29.0	24	45.1	-12.8	0.6 0.6	0.	48.7	1	30.	63.4	45.0 -12.8	18.	*TGK0225A 24.	*URS0066B 28.	*OMA0123A 29.
44 NGR0115A	-25.0	24	8.3	16.8	2.5 2.1	44.	37.0	2	558.	64.5	13.0 13.0	4.	*CAF0258A 6.	*MRC0209B 13.	*SDN0232A 14.
45 OMA0123A	17.0	24	55.6	21.0	1.9 1.0	100.	41.4	2	153.	63.3	56.0 26.5	-0.	*URS0066B 6.	*UAF0274B 7.	*ARS0340A 7.
46 PAK0282B	38.0	24	68.5	25.8	1.3 0.6	133.	45.1	1	67.	63.4	68.3 28.7	-1.	*URS0066B -0.	*IND0042D 7.	*OMA0123A 10.
47 PHL0285E	98.0	24	121.3	11.1	3.5 1.8	99.	36.4	2	545.	63.8	122.0 21.0	9.	*AUS0004F 13.	*CHN0188A 16.	*CHN0166A 17.
48 SDN0232A	-7.0	24	30.4	19.0	2.4 1.5	176.	38.6	1	295.	63.3	24.0 15.8	-0.	*CAF0258A 3.	*NGR0115A 5.	*SDN0230A 11.
49 TKL0058B	158.0	24	-171.8	-8.9	0.7 0.6	35.	48.0	1	38.	63.9	-171.2 -9.5	26.	*NIU0054B 29.	*URS0079B 30.	*AUS0007F 35.
50 URS0066B	44.0	24	64.3	44.6	4.6 2.5	169.	33.7	2	1485.	65.4	53.9 37.3	8.	*IRQ0256A 9.	*NGR0115A 17.	*URS0064F 20.
51 URS0079B	140.0	24	138.0	53.6	3.2 2.1	62.	36.0	2	1516.	67.8	130.6 42.2	6.	*CHN0166A 7.	*PHL0285E 22.	*CHN0158C 24.

Canal 25 — Channel 25 — Canal 25

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
27 AFI0099B	23.0	25	42.5	11.6	0.6 0.6	0.	48.7	1	25.	62.6	41.9 10.8	-0.	*KEN0249B 2.	*ETH0092B 6.	*BLR0062B 10.
28 AFS0021B	5.0	25	24.5	-28.0	3.1 1.7	27.	37.0	2	511.	64.1	20.0 -25.0	-1.	*NMB0025A -0.	*CYP0086B 16.	*LSD0305A 18.
29 BEL0018B	-19.0	25	4.6	50.6	0.8 0.6	167.	47.3	1	50.	64.3	6.4 50.3	-1.	*NMB0025A 4.	*DDR0216B 5.	*YUG0148B 6.
30 BLR0062B	23.0	25	27.8	52.6	1.1 0.7	1.	45.3	2	90.	64.9	23.4 51.5	3.	*YUG0148B 7.	*MCD0116B 11.	*ETH0092B 13.
31 CYP0086B	5.0	25	33.3	35.1	0.6 0.6	0.	48.7	1	31.	63.6	34.5 35.7	-0.	*AFS0021B 4.	*ISR0110A 5.	*SYR0229B 8.
32 DDR0216B	-1.0	25	12.6	52.1	0.8 0.6	172.	47.1	2	53.	64.3	11.0 54.0	-4.	*FNL0104B 2.	*BEL0018B 2.	*DNK0090A 2.
33 HVO0107B	-31.0	25	-1.5	12.2	1.4 1.1	29.	42.1	1	156.	64.0	-5.5 12.0	2.	*SEN0222B 7.	*CTI0237B 7.	*MTN0223B 9.
34 ISL0049B	-31.0	25	-19.0	64.9	1.0 0.6	177.	46.5	2	87.	65.9	-13.5 65.1	9.	*HVO0107B 10.	*CTI0237B 19.	*MRC0209B 20.
35 ISR0110A	-13.0	25	34.9	31.4	0.9 0.6	117.	46.7	2	51.	63.8	35.2 33.2	2.	*CYP0086B 3.	*CAF0258A 13.	*COG0235B 14.
36 KEN0249B	11.0	25	37.9	1.1	2.3 1.6	94.	38.7	1	321.	63.8	41.9 3.9	9.	*ETH0092B 13.	*IRQ0256A 14.	*SYR0229B 19.
37 MCD0116B	-37.0	25	7.4	43.7	0.6 0.6	0.	48.7	1	24.	62.5	5.6 46.0	-9.	*BEL0018B -4.	*MRC0209B -2.	*YUG0148B 1.
38 MNG0248A	74.0	25	102.2	46.6	3.6 1.1	169.	38.2	1	393.	64.1	98.8 51.9	-1.	*URS0078A 0.	*URS0074A 4.	*BGD0220E 13.
39 MRC0209B	-25.0	25	-9.0	29.2	2.7 1.5	43.	38.2	2	322.	63.3	-1.2 32.2	3.	*NGR0115A 4.	*TUN0150B 12.	*NMB0025A 20.

Canal 25 suite — Channel 25 cont. — Canal 25 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
40 NMB0025A	-19.0	25	17.5	-21.6	2.7	1.9	48.	37.2	2	565.	64.7	20.0	-28.4	-0.	*AFS0021B 21.
															*
41 SEN0222B	-37.0	25	-14.4	13.8	1.5	1.0	139.	42.4	2	133.	63.7	-15.0	16.3	3.	*MRC0209B 16.
															*
42 UAE0274B	17.0	25	53.6	24.2	1.0	0.8	162.	45.3	1	62.	63.2	54.9	22.4	5.	*GMA0123A 20.
															*
43 URS0078A	110.0	25	108.2	53.4	2.2	0.8	10.	42.0	1	199.	65.0	107.8	50.0	1.	*MNG0248A 20.
															*
44 YUG0148B	-7.0	25	18.4	43.7	1.7	0.7	154.	43.8	1	140.	65.3	13.4	46.4	-1.	*DDR0216B 9.
															*

Canal 26 — Channel 26 — Canal 26

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
19 ALB0296B	-7.0	26	19.8	41.3	0.7	0.6	146.	48.1	2	37.	63.8	19.8	42.6	-2.	*HNG0106B 6.
															*
20 BDI0270B	11.0	26	29.9	-3.1	0.7	0.6	80.	48.0	2	35.	63.4	29.1	-2.7	3.	*TGK0225B 11.
															*
21 COG0235B	-13.0	26	14.6	-0.7	2.0	1.2	59.	40.5	2	217.	63.8	12.6	2.4	-2.	*NIG0119B 10.
															*
22 CTI0237B	-31.0	26	-5.6	7.5	1.6	1.2	108.	41.3	2	174.	63.7	-3.5	9.8	-1.	*NIG0119B 6.
															*
23 ETH0092B	23.0	26	39.7	9.1	3.5	2.4	124.	35.0	2	707.	63.5	39.2	17.5	2.	*SDN0231B 19.
															*
24 FNL0104B	5.0	26	17.0	61.5	2.0	1.0	10.	41.2	2	476.	68.0	15.0	55.0	5.	*DDR0216B 17.
															*
25 HNG0106B	-1.0	26	19.5	47.2	0.9	0.6	176.	46.8	1	53.	64.0	16.1	46.8	-3.	*YUG0149B 4.
															*
26 KWT0113B	17.0	26	47.6	29.2	0.7	0.6	145.	48.1	2	32.	63.1	46.3	28.3	1.	*ETH0092B 15.
															*
27 MTN0223B	-37.0	26	-12.2	18.5	2.6	1.9	150.	37.3	1	355.	62.9	-5.2	15.3	0.	*CTI0237B 12.
															*
28 NIG0119B	-19.0	26	7.8	9.4	2.2	2.0	45.	37.9	1	407.	63.9	3.4	6.4	4.	*CTI0237B 12.
															*
29 REU0097B	29.0	26	55.6	-19.2	1.6	0.8	96.	43.4	1	115.	64.0	54.7	-15.7	16.	*ETH0092B 30.
															*
30 RHS0135B	-1.0	26	29.6	-18.8	1.5	1.4	37.	41.3	2	197.	64.2	31.2	-22.2	5.	*AFS0021B 19.
															*
31 SDN0231B	-7.0	26	28.9	12.7	2.3	2.0	159.	37.8	1	376.	63.5	34.0	8.5	-2.	*ETH0092B 13.
															*
32 SUI0140B	-19.0	26	8.2	46.6	1.0	0.7	171.	45.9	2	67.	64.1	8.5	47.8	2.	*NIG0119B 12.
															*
33 SYR0229B	11.0	26	38.3	34.9	1.0	0.9	7.	44.5	1	75.	63.3	35.9	35.7	2.	*CYP0086B 12.
															*
34 TUN0150B	-25.0	26	9.5	33.5	1.9	0.7	153.	42.9	1	125.	63.9	9.0	38.0	3.	*MRC0209B 11.
															*
35 URS0068A	44.0	26	59.0	38.8	2.2	1.0	164.	40.7	2	213.	64.0	52.5	41.8	12.	*SYR0229B 24.
															*
36 URS0074A	74.0	26	88.8	57.6	3.1	1.7	162.	37.1	2	1210.	67.9	97.2	49.7	9.	*MNG0248A 22.
															*
37 URS0080A	140.0	26	155.3	55.4	2.9	2.4	35.	35.9	1	1584.	67.9	145.6	63.8	22.	*URS0077C 89.
															*



Canal 27 — Channel 27 — Canal 27

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
20	AGL0295B	-13.0	27	16.5	-12.0	3.1	2.3	84.	35.8	1	690.	64.2	12.5	-6.5	7.	*CUG0235B 9. *CAF0258B 15. *SDN0230B 24.
21	BHRJ255A	17.0	27	50.5	26.1	0.6	0.6	0.	48.7	1	16.	60.8	52.3	24.4	-3.	*DMA0123B 0. *UPS0059A 6. *IRQ0256B 7.
22	CNR0130B	-31.0	27	-15.7	28.4	1.5	0.6	5.	44.6	2	67.	62.8	-13.5	29.2	-13.	*E 0129B-13. *CTI0237B 13. *SRL0259B 13.
23	CVA0083A	-37.0	27	12.4	41.8	0.6	0.6	0.	48.7	1	45.	65.2	12.5	43.8	-3.	*YUG0149B -1. *E 0129B 2. *URS0059A 13.
24	DNK0091A	5.0	27	-19.5	61.0	2.2	0.8	4.	41.8	1	275.	66.2	-6.2	62.3	6.	*FNL0104B 10. *NOR0121A 10. *URS0059A 12.
25	E 0129B	-31.0	27	-3.1	39.9	2.1	1.1	154.	40.5	2	226.	64.0	-2.9	35.3	-8.	*CNR0130B -8. *CTI0237B 13. *SRL0259B 13.
26	GHA0108B	-25.0	27	-1.2	7.9	1.5	1.1	102.	42.3	1	137.	63.7	0.1	11.0	3.	*NGR0115B 7. *NIG0119B 8. *TUN0150B 16.
27	GNE0303B	-19.0	27	10.3	1.5	0.7	0.6	10.	48.1	2	37.	63.8	11.3	2.4	0.	*AGL0295B 4. *CUG0235B 8. *NIG0119B 9.
28	HQL0213B	-19.0	27	5.4	52.0	0.8	0.6	171.	47.7	1	48.	64.5	6.2	50.6	0.	*E 0129B 5. *YUG0149B 7. *SUI0140B 10.
29	JUR0224B	11.0	27	35.8	31.4	0.8	0.8	114.	46.1	2	50.	63.1	35.0	34.0	-4.	*UPS0059A -0. *TGK0225B 1. *SYR0229B 5.
30	SDN0230B	-7.0	27	29.2	7.5	2.3	1.1	148.	40.1	2	275.	64.5	23.0	11.0	1.	*CAF0258B 6. *SDN0231B 7. *YUG0149B 9.
31	SRL0259B	-31.0	27	-11.8	8.6	0.8	0.7	114.	47.0	1	45.	63.5	-10.5	8.5	2.	*E 0129B 7. *CTI0237B 8. *GHA0108B 9.
32	TGK0225B	11.0	27	34.6	-6.2	2.4	1.7	129.	38.1	1	371.	63.8	30.5	-1.0	3.	*BDI0270B 7. *AGL0295B 10. *SDN0230B 10.
33	URS0059A	23.0	27	36.0	47.0	3.7	1.4	153.	37.0	2	651.	65.2	22.0	48.4	-1.	*YUG0149B 0. *CVA0083A 6. *ETH0092B 12.
34	JRS0077C	110.0	27	112.7	57.3	2.7	1.8	2.	37.6	1	920.	67.2	106.2	69.5	12.	*URS0076A 15. *URS0074A 16. *URS0066C 22.
35	YUG0149B	-7.0	27	18.4	43.7	1.7	0.7	154.	43.8	1	141.	65.3	20.1	46.3	-3.	*CVA0083A 2. *URS0059A 4. *HNG0106B 5.

Canal 28 — Channel 28 — Canal 28

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
17	CAF0258B	-13.0	28	21.0	6.3	2.3	1.7	31.	38.5	2	383.	64.3	23.2	11.0	1.	*SDN0232B 5. *NGR0115B 6. *SDN0230B 6.
18	I 0082B	-19.0	28	12.3	41.3	2.4	1.0	137.	40.6	2	230.	64.2	12.6	35.4	3.	*NGR0115B 4. *NMB0025B 15. *CAF0258B 18.
19	IRQ0256B	11.0	28	43.6	32.8	1.9	1.0	143.	41.7	1	148.	63.4	44.0	37.3	-0.	*URS0066C 1. *KEN0249C 11. *TGK0225B 12.
20	LSG0305B	5.0	28	27.8	-29.8	0.7	0.6	36.	48.3	1	39.	64.2	29.5	-29.4	1.	*NOR0121A 3. *AFS0021C 5. *NMB0025B 19.
21	MTN0288B	-37.0	28	-7.8	23.4	1.6	1.1	141.	41.7	1	136.	63.0	-5.6	20.0	3.	*NGR0115B 5. *SEN0222C 14. *CVA0083A 14.
22	MWI0308B	-1.0	28	34.1	-13.0	1.5	0.6	87.	44.6	2	94.	64.3	35.2	-17.2	10.	*AFS0021C 12. *TGK0225B 21. *AGL0295B 22.
23	MYT0098B	29.0	28	45.1	-12.8	0.6	0.6	0.	48.7	1	30.	63.5	45.0	-12.8	19.	*TGK0225B 24. *URS0066C 28. *DMA0123B 29.

Canal 28 suite — Channel 28 cont. — Canal 28 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
24	NGR0115B	-25.0	28	8.3 16.8	2.5 2.1	44.	37.0	2	565.	64.5	13.0 13.0	4.	*CAF0258B	6.	*MRC0209C 13. *SDN0232B 14.
25	NDR0121A	5.0	28	17.0 61.5	2.0 1.0	10.	41.2	2	453.	67.8	15.0 55.0	4.	*DDR0216C	8.	*I 0082B 8. *URS0066C 15.
26	DMA0123B	17.0	28	55.6 21.0	1.9 1.0	100.	41.4	2	155.	63.3	56.0 26.5	1.	*URS0066C	6.	*UAE0274C 7. *IRQ0256B 7.
27	SDNJ232B	-7.0	28	30.4 19.0	2.4 1.5	176.	38.6	1	298.	63.3	24.0 15.8	-0.	*CAF0258B	3.	*NGR0115B 5. *SDN0230B 11.
28	URS0066C	44.0	28	64.3 44.6	4.6 2.5	169.	33.7	2	1513.	65.5	53.9 37.3	8.	*IRQ0256B	9.	*NGR0115B 17. *URS0059A 22.
29	URS0076A	74.0	28	98.0 63.2	1.8 0.7	170.	43.2	2	310.	68.1	106.5 69.5	3.	*URS0066C	6.	*URSD079C 6. *URS0077C 18.
30	URSD079C	140.0	28	138.0 53.6	3.2 2.1	62.	36.0	2	1535.	67.8	128.4 73.2	1.	*URS0076A	1.	*URS0077C 18. *MNG0248B 35.

Canal 29 — Channel 29 — Canal 29

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
15	AFI0099C	23.0	29	42.5 11.6	0.6 0.6	0.	48.7	1	25.	62.6	41.9 10.8	-1.	*KEN0249C	2.	*UKR0063A 6. *ETH0092C 6.
16	AFS0021C	5.0	29	24.5 -28.0	3.1 1.7	27.	37.0	2	518.	64.2	20.0 -25.0	-1.	*NMB0025B	-0.	*CYP0086C 16. *LS00305B 18.
17	BEL0018C	-19.0	29	4.6 50.6	0.8 0.6	167.	47.3	1	50.	64.3	6.4 50.3	-1.	*NMB0025B	4.	*DDR0216C 5. *YUG0148C 7.
18	CYP0086C	5.0	-29	33.3 35.1	0.6 0.6	0.	48.7	1	31.	63.7	34.5 35.7	-0.	*AFS0021C	4.	*ISR0110B 5. *SYR0229C 8.
19	DDR0216C	-1.0	29	12.6 52.1	0.8 0.6	172.	47.1	2	53.	64.3	11.0 54.0	-4.	*BEL0018C	2.	*S 0139A 2. *NCR0121A 2.
20	HVG0107C	-31.0	29	-1.5 12.2	1.4 1.1	29.	42.1	1	158.	64.1	-5.5 12.0	2.	*SEN0222C	7.	*CTI0237C 7. *MTN0223C 9.
21	ISL0049C	-31.0	29	-19.0 64.9	1.0 0.6	177.	46.5	2	88.	65.9	-13.5 65.1	9.	*HVG0107C	10.	*CTI0237C 19. *MRC0209C 20.
22	ISR0110B	-13.0	29	34.9 31.4	0.9 0.6	117.	46.7	2	52.	63.9	35.2 33.2	2.	*CYP0086C	3.	*CAF0258B 13. *COG0235C 14.
23	KEN0249C	11.0	29	37.9 1.1	2.3 1.6	94.	38.7	1	325.	63.8	41.9 3.9	9.	*ETH0092C	13.	*IRQ0256B 14. *SYR0229C 19.
24	MCO0116C	-37.0	29	7.4 43.7	0.6 0.6	0.	48.7	1	24.	62.5	5.6 46.0	-9.	*BEL0018C	-4.	*MRC0209C -2. *YUG0148C 1.
25	MNG0248B	74.0	29	102.2 46.6	3.6 1.1	169.	38.2	1	398.	64.2	87.9 48.9	2.	*URS0074B	3.	*URS0076A 11. *URS0066C 17.
26	MRC0209C	-25.0	29	-9.0 29.2	2.7 1.5	43.	38.2	2	326.	63.4	-1.2 32.2	3.	*NGR0115B	4.	*TUN0150C 12. *NMB0025B 20.
27	NMB0025B	-19.0	29	17.5 -21.6	2.7 1.9	48.	37.2	2	572.	64.8	20.0 -28.4	-0.	*AFS0021C	-0.	*BEL0018C 14. *NIG0119C 21.
28	SEN0222C	-37.0	29	-14.4 13.8	1.5 1.0	139.	42.4	2	135.	63.7	-15.0 16.3	3.	*MRC0209C	6.	*MTN0223C 7. *MTN0288B 16.
29	UAE0274C	17.0	29	53.6 24.2	1.0 0.8	162.	45.3	1	63.	63.3	54.9 22.4	5.	*DMA0123B	6.	*KENJ249C 17. *AFI0099C 20.
30	UKR0063A	23.0	29	31.2 48.4	2.3 1.0	172.	40.8	2	243.	64.6	22.1 48.4	-0.	*YUG0148C	2.	*MCO0116C 8. *ETH0092C 13.
31	YUG0148C	-7.0	29	18.4 43.7	1.7 0.7	154.	43.8	1	142.	65.3	13.4 46.4	-0.	*DDR0216C	3.	*MCO0116C 3. *HNG0106C 9.

Canal 30 — Channel 30 — Canal 30

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14						
18	ALB0296C	-7.0	30	19.8	41.3	0.7	0.6	146.	48.1	2	38.	63.9	19.8	42.6	-2.	*HNG0106C	2.	*SDN0231C	5.	*YUG0149C	6.
																*	*	*	*	*	
19	BDI0270C	11.0	30	29.9	-3.1	0.7	0.6	80.	48.0	2	36.	63.5	29.1	-2.7	3.	*TGK0225C	7.	*ETH0092C	10.	*SYR0229C	11.
																*	*	*	*	*	
20	COG0235C	-13.0	30	14.6	-0.7	2.0	1.2	59.	40.5	2	219.	63.9	12.6	2.4	-1.	*NIG0119C	0.	*GNE0303C	5.	*AGL0295C	10.
																*	*	*	*	*	
21	CTI0237C	-31.0	30	-5.6	7.5	1.6	1.2	108.	41.3	2	176.	63.8	-3.5	9.8	-1.	*NIG0119C	4.	*MTN0223C	4.	*HVJ0107C	6.
																*	*	*	*	*	
22	ETH0092C	23.0	30	39.7	9.1	3.5	2.4	124.	35.0	2	716.	63.6	39.2	17.5	2.	*SDN0231C	3.	*URS0059B	11.	*UKR0063A	14.
																*	*	*	*	*	
23	HNG0106C	-1.0	30	19.5	47.2	0.9	0.6	176.	46.8	1	53.	64.1	16.1	46.8	-3.	*YUG0149C	4.	*YUG0148C	4.	*SUI0140C	4.
																*	*	*	*	*	
24	KWT0113C	17.0	30	47.6	29.2	0.7	0.6	145.	48.1	2	32.	63.2	46.3	28.3	1.	*ETH0092C	2.	*UAE0274C	15.	*URS0059B	16.
																*	*	*	*	*	
25	MTN0223C	-37.0	30	-12.2	18.5	2.6	1.9	150.	37.3	1	360.	62.9	-5.2	15.3	0.	*CTI0237C	2.	*HVJ0107C	7.	*NIG0119C	12.
																*	*	*	*	*	
26	NIG0119C	-19.0	30	7.8	9.4	2.2	2.0	45.	37.9	1	412.	64.0	3.4	6.4	4.	*CTI0237C	8.	*GHA0108C	9.	*SUI0140C	12.
																*	*	*	*	*	
27	REU0097C	29.0	30	55.6	-19.2	1.6	0.8	96.	43.4	1	116.	64.1	54.7	-15.7	16.	*ETH0092C	17.	*RHS0135C	29.	*URS0074B	30.
																*	*	*	*	*	
28	RHS0135C	-1.0	30	29.6	-18.8	1.5	1.4	37.	41.3	2	200.	64.3	31.2	-22.2	6.	*AFS0021C	7.	*HNG0106C	13.	*NMB0025B	19.
																*	*	*	*	*	
29	S 0139A	5.0	30	17.0	61.5	2.0	1.0	10.	41.2	2	482.	68.1	15.1	55.0	5.	*DDR0216C	8.	*SUI0140C	11.	*ISL0050B	16.
																*	*	*	*	*	
30	SDN0231C	-7.0	30	28.9	12.7	2.3	2.0	159.	37.8	1	381.	63.6	34.0	8.5	-2.	*ETH0092C	-0.	*SDN0230C	6.	*ALB0296C	13.
																*	*	*	*	*	
31	SUI0140C	-19.0	30	8.2	46.6	1.0	0.7	171.	45.9	2	68.	64.2	8.5	47.8	2.	*NIG0119C	6.	*S 0139A	7.	*BEL0018C	12.
																*	*	*	*	*	
32	SYR0229C	11.0	30	38.3	34.9	1.0	0.9	7.	44.5	1	76.	63.3	35.9	35.7	2.	*CYP0086C	5.	*JCR0224C	10.	*TGK0225C	12.
																*	*	*	*	*	
33	TUN0150C	-25.0	30	9.5	33.5	1.9	0.7	153.	42.9	1	126.	63.9	9.0	38.0	3.	*MRC0209C	9.	*GHA0108C	10.	*CVA0083B	11.
																*	*	*	*	*	
34	URS0068B	44.0	30	59.0	38.8	2.2	1.0	164.	40.7	2	216.	64.1	52.5	41.8	12.	*SYR0229C	15.	*URS0059B	18.	*URS0074B	24.

Canal 31 — Channel 31 — Canal 31

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14						
20	AGL0295C	-13.0	31	16.5	-12.0	3.1	2.3	84.	35.8	1	698.	64.2	12.5	-6.5	7.	*COG0235C	9.	*CAF0258C	15.	*SDN0230C	24.
																*	*	*	*	*	
21	BHR0255B	17.0	31	50.5	26.1	0.6	0.6	0.	48.7	1	17.	60.9	52.3	24.4	-3.	*OMA0123C	0.	*URS0059B	6.	*IRQ0256C	7.
																*	*	*	*	*	
22	CNR0130C	-31.0	31	-15.7	28.4	1.5	0.6	5.	44.6	2	68.	62.9	-13.5	29.2	-13.	*E 0129C	-13.	*CTI0237C	13.	*SRL0259C	13.
																*	*	*	*	*	
23	CVA0083B	-37.0	31	12.4	41.8	0.6	0.6	0.	48.7	1	45.	65.3	12.5	43.8	-3.	*YUG0149C	-1.	*E 0129C	2.	*URS0059B	13.
																*	*	*	*	*	
24	E 0129C	-31.0	31	-3.1	39.9	2.1	1.1	154.	40.5	2	228.	64.0	-2.9	35.3	-8.	*CNR 0130C	-8.	*CTI0237C	13.	*SRL0259C	13.
																*	*	*	*	*	
25	GHA0108C	-25.0	31	-1.2	7.9	1.5	1.1	102.	42.3	1	139.	63.7	0.1	11.0	3.	*NGR0115C	7.	*NIG0119C	8.	*TUN0150C	16.
																*	*	*	*	*	
26	GNE0303C	-19.0	31	10.3	1.5	0.7	0.6	10.	48.1	2	37.	63.9	11.3	2.4	0.	*AGL0295C	4.	*COG0235C	8.	*NIG0119C	9.

Canal 31 suite — Channel 31 cont. — Canal 31 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
27	HOL0213C	-19.0	31	5.4 52.0	0.8 0.6	171.	47.7	1	49.	64.6	6.2 50.6	0.	*E 0129C	5.	*YUG0149C 10.
28	ISLJ050B	5.0	31	-19.5 61.0	2.2 0.8	4.	41.8	1	289.	66.4	-6.2 62.3	6.	*S 0139A	10.	*NGR0121B 12.
29	JGR0224C	11.0	31	35.8 31.4	0.8 0.8	114.	46.1	2	51.	63.2	35.0 34.0	-4.	*URS0059B	-0.	*TGK0225C 5.
30	SDN0230C	-7.0	31	29.2 7.5	2.3 1.1	148.	40.1	2	279.	64.5	23.0 11.0	1.	*CAF0258C	6.	*SDN0231C 9.
31	SRL0259C	-31.0	31	-11.8 8.6	0.8 0.7	114.	47.0	1	45.	63.6	-10.5 8.5	2.	*E 0129C	7.	*CTI0237C 9.
32	TGK0225C	11.0	31	34.6 -6.2	2.4 1.7	129.	38.1	1	375.	63.8	30.5 -1.0	3.	*BDI0270C	7.	*AGL0295C 10.
33	JRS0059B	23.0	31	36.0 47.0	3.7 1.4	153.	37.0	2	660.	65.2	22.0 48.4	-1.	*YUG0149C	0.	*CVA0083B 12.
34	URS0077D	110.0	31	112.7 57.3	2.7 1.8	2.	37.6	1	932.	67.2	106.2 69.5	15.	*URS0074B	16.	*URS0066D 22.
35	YUG0149C	-7.0	31	18.4 43.7	1.7 0.7	154.	43.8	1	143.	65.4	20.1 46.3	-3.	*CVA0083B	2.	*URS0059B 5.

Canal 32 — Channel 32 — Canal 32

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
17	CAF0258C	-13.0	32	21.0 6.3	2.3 1.7	31.	38.5	2	388.	64.4	23.2 11.0	1.	*SDN0232C	5.	*NGR0115C 6.
18	I 0082C	-19.0	32	12.3 41.3	2.4 1.0	137.	40.6	2	233.	64.2	12.6 35.4	3.	*NGR0115C	4.	*NMB0025C 18.
19	IRQ0256C	11.0	32	43.6 32.8	1.9 1.0	143.	41.7	1	149.	63.4	44.0 37.3	-0.	*URS0066D	1.	*KEN0249D 12.
20	LSQ0305C	5.0	32	27.8 -29.8	0.7 0.6	36.	48.3	1	40.	64.3	29.5 -29.4	1.	*NDR0121B	3.	*AFS0021D 19.
21	MTN0288C	-37.0	32	-7.8 23.4	1.6 1.1	141.	41.7	1	137.	63.1	-5.6 20.0	3.	*NGR0115C	5.	*SEN0222D 14.
22	MWI0308C	-1.0	32	34.1 -13.0	1.5 0.6	87.	44.6	2	95.	64.4	35.2 -17.2	10.	*AFS0021D	12.	*TGK0225C 22.
23	MYTG098C	29.0	32	45.1 -12.8	0.6 0.6	0.	48.7	1	30.	63.5	45.0 -12.8	19.	*TGK0225C	24.	*URS0066D 28.
24	NGR0115C	-25.0	32	8.3 16.8	2.5 2.1	44.	37.0	2	573.	64.6	13.0 13.0	4.	*CAF0258C	6.	*MRC0209D 14.
25	NGR0121B	5.0	32	17.0 61.5	2.0 1.0	10.	41.2	2	459.	67.9	15.0 55.0	4.	*DDR0216D	8.	*I 0082C 15.
26	JMA0123C	17.0	32	55.6 21.0	1.9 1.0	100.	41.4	2	157.	63.4	56.0 26.5	1.	*URS0066D	6.	*UAE0274D 7.
27	SDN0232C	-7.0	32	30.4 19.0	2.4 1.5	176.	38.6	1	302.	63.4	24.0 15.8	-0.	*CAF0258C	3.	*NGR0115C 11.
28	URS0066D	44.0	32	64.3 44.6	4.6 2.5	169.	33.7	2	1522.	65.5	87.3 49.2	2.	*URS0075A	2.	*MNG0248C 19.
29	JRS0075A	74.0	32	94.0 51.7	1.5 0.6	172.	44.6	2	111.	65.1	87.9 51.5	0.	*URS0066D	1.	*MNG0248C 23.
30	URS0079D	140.0	32	138.0 53.6	3.2 2.1		36.0	2	1554.	67.9	128.4 73.2		*URS0077D	18.	*URS0075A 30.

Canal 33 — Channel 33 — Canal 33

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
15	AF10099D	23.0	33	42.5	11.6	0.6	0.6	0.	48.7	1	25.	62.7	41.9	10.8	-1. *KEN0249D 2. *UKR0063B 6. *ETH0092D 6.
16	AFS0021D	5.0	33	24.5	-28.0	3.1	1.7	27.	37.0	2	524.	64.2	20.0	-25.0	-1. *NMB0025C -3. *CYP0086D 16. *LSC0305C 18.
17	BEL0018D	-19.0	33	4.6	50.6	0.8	0.6	167.	47.3	1	51.	64.4	6.4	50.3	-1. *NMB0025C 4. *DDR0216D 5. *YUG0148D 7.
18	CYP0086D	5.0	33	33.3	35.1	0.6	0.6	0.	48.7	1	32.	63.7	34.5	35.7	-0. *AFS0021D 4. *ISR0110C 5. *SYR0229D 8.
19	DDR0216D	-1.0	33	12.6	52.1	0.8	0.6	172.	47.1	2	54.	64.4	11.0	54.0	-3. *BEL0018D 2. *NOR0121B 2. *S 0138C 3.
20	HVO0107D	-31.0	33	-1.5	12.2	1.4	1.1	29.	42.1	1	160.	64.1	-5.5	12.0	2. *SEN0222D 7. *CTI0237D 7. *MTN0223D 10.
21	ISL0049D	-31.0	33	-19.0	64.9	1.0	0.6	177.	46.5	2	89.	66.0	-13.5	65.1	9. *HVG0107D 10. *CTI0237D 19. *MRC0209D 20.
22	ISR0110C	-13.0	33	34.9	31.4	0.9	0.6	117.	46.7	2	53.	63.9	35.2	33.2	2. *CYP0086D 3. *CAF0258C 13. *COG0235D 14.
23	KEN0249D	11.0	33	37.9	1.1	2.3	1.6	94.	38.7	1	329.	63.9	41.9	3.9	9. *ETH0092D 13. *IRQ0256C 14. *SYR0229D 19.
24	MCO0116D	-37.0	33	7.4	43.7	0.6	0.6	0.	48.7	1	24.	62.6	5.6	46.0	-9. *BEL0018D -4. *MRC0209D -2. *YUG0148D 1.
25	MNG0248C	74.0	33	102.2	46.6	3.6	1.1	169.	38.2	1	403.	64.2	98.8	51.9	2. *URS0074C 4. *URS0075A 6. *URS0066D 18.
26	MRC0209D	-25.0	33	-9.0	29.2	2.7	1.5	43.	38.2	2	330.	63.4	-1.2	32.2	3. *NGR0115C 4. *TUN0150D 12. *NMB0025C 20.
27	NMB0025C	-19.0	33	17.5	-21.6	2.7	1.9	48.	37.2	2	580.	64.8	20.0	-28.4	-3. *AFS0021D -3. *BEL0018D 14. *NIG0119D 21.
28	SEN0222D	-37.0	33	-14.4	13.8	1.5	1.0	139.	42.4	2	137.	63.8	-15.0	16.3	3. *MRC0209D 7. *MTN0223D 7. *MTN0288C 16.
29	UAE0274D	17.0	33	53.6	24.2	1.0	0.8	162.	45.3	1	64.	63.3	54.9	22.4	5. *UMA0123C 6. *KEN0249D 17. *AFI0099D 20.
30	UKR0063B	23.0	33	31.2	48.4	2.3	1.0	172.	40.8	2	246.	64.7	22.1	48.4	-0. *YUG0148D 2. *MCO0116D 8. *ETH0092D 15.
31	YUG0148D	-7.0	33	18.4	43.7	1.7	0.7	154.	43.8	1	144.	65.4	13.4	46.4	-2. *DDR0216D 3. *MCO0116D 3. *HNG0106D 9.

Canal 34 — Channel 34 — Canal 34

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
18	ALB0296D	-7.0	34	19.8	41.3	0.7	0.6	146.	48.1	2	38.	63.9	19.8	42.6	-2. *HNG0106D 2. *SDN0231D 5. *YUG0149D 6.
19	BGI0270D	11.0	34	29.9	-3.1	0.7	0.6	80.	48.0	2	36.	63.5	29.1	-2.7	3. *TGK0225D 7. *ETH0092D 11. *SYR0229D 11.
20	COG0235D	-13.0	34	14.6	-0.7	2.0	1.2	59.	40.5	2	222.	63.9	12.6	2.4	-1. *NIG0119D 0. *GNE0303D 5. *AGL0295D 10.
21	CTI0237D	-31.0	34	-5.6	7.5	1.6	1.2	108.	41.3	2	178.	63.9	-3.5	9.8	-1. *NIG0119D 4. *MTN0223D 4. *HVO0107D 6.
22	ETH0092D	23.0	34	39.7	9.1	3.5	2.4	124.	35.0	2	725.	63.6	39.2	17.5	2. *SDN0231D 3. *URS0059C 11. *UKR0063B 14.
23	HNG0106D	-1.0	34	19.5	47.2	0.9	0.6	176.	46.8	1	54.	64.1	16.1	46.8	-3. *YUG0149D 4. *YUG0148D 4. *SUI0149D 4.
24	KWT0113D	17.0	34	47.6	29.2	0.7	0.6	145.	48.1	2	32.	63.2	46.3	28.3	1. *ETH0092D 2. *UAE0274D 15. *URS0059C 16.

Canal 34 suite — Channel 34 cont. — Canal 34 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14					
25 MTN0223D	-37.0	34	-12.2	18.5	2.6	1.9	150.	37.3	1	364.	63.0	-5.2	15.3	0.	*CTI0237D	2.	*HV00107D	7.	*NIG0119D	12.
26 NIG0119C	-19.0	34	7.8	9.4	2.2	2.0	45.	37.9	1	417.	64.1	3.4	6.4	4.	*CTI0237D	8.	*GHA0108D	9.	*SUI0140D	12.
27 REU0097D	29.0	34	55.6	-19.2	1.6	0.8	96.	43.4	1	118.	64.1	54.7	-15.7	16.	*ETH0192D	17.	*RHS0135D	29.	*URS0074C	31.
28 RHS0135D	-1.0	34	29.6	-18.8	1.5	1.4	37.	41.3	2	202.	64.3	31.2	-22.2	6.	*AFS0021D	7.	*HNG0106D	13.	*NMB0025C	19.
29 S 0138C	5.0	34	16.2	61.0	1.0	1.0	14.	44.2	2	215.	67.5	13.3	55.3	5.	*DDP0216D	8.	*SUI0140D	12.	*DNK0091B	16.
30 SDN0231D	-7.0	34	28.9	12.7	2.3	2.0	159.	37.8	1	386.	63.6	34.0	8.5	-2.	*ETH0092D	-0.	*SDN0230D	6.	*AL30296D	13.
31 SUI0140D	-19.0	34	8.2	46.6	1.0	0.7	171.	45.9	2	69.	64.3	10.4	46.9	2.	*NIG0119D	6.	*S 0138C	10.	*HNG0106D	12.
32 SYR0229D	11.0	34	38.3	34.9	1.0	0.9	7.	44.5	1	77.	63.4	35.9	35.7	2.	*CYP0086D	5.	*JOR0224D	10.	*TGM0225D	12.
33 TUN0150D	-25.0	34	9.5	33.5	1.9	0.7	153.	42.9	1	128.	64.0	9.0	38.0	3.	*ARC0209D	9.	*GHA0108D	10.	*CVA0083C	11.
34 URS0071A	44.0	34	63.1	42.0	2.6	0.8	170.	40.8	2	230.	64.4	73.1	40.8	9.	*URS0074C	9.	*URS0080C	25.	*ETH0092D	29.
35 URS0074C	74.0	34	88.8	57.6	3.1	1.7	162.	37.1	2	1241.	68.0	97.2	49.7	9.	*MNG0248C	9.	*URS0077E	21.	*URS0071A	22.
36 URS0080C	140.0	34	155.3	55.4	2.9	2.4	35.	35.9	1	1624.	68.0	145.6	63.8	23.	*URS0077E	23.	*AFI0099D	89.	*YUG0149D	89.

Canal 35 — Channel 35 — Canal 35

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14					
20 AGL0295D	-13.0	35	16.5	-12.0	3.1	2.3	84.	35.8	1	707.	64.3	12.5	-6.5	7.	*COG0235D	9.	*CAF0258D	15.	*SDN0230D	24.
21 BHR0255C	17.0	35	50.5	26.1	0.6	0.6	0.	48.7	1	17.	61.0	52.3	24.4	-3.	*DMA0123D	0.	*URS0059C	6.	*IRQ0256D	7.
22 CNR0130D	-31.0	35	-15.7	28.4	1.5	0.6	5.	44.6	2	69.	63.0	-13.5	29.2	-13.	*E 0129D	-13.	*CTI0237D	13.	*SRL0259D	13.
23 CVA0083C	-37.0	35	12.4	41.8	0.6	0.6	0.	48.7	1	46.	65.3	12.5	43.8	-3.	*YUG0149D	-1.	*E 0129D	2.	*URS0059C	15.
24 DNK0091B	5.0	35	-19.5	61.0	2.2	0.8	4.	41.8	1	282.	66.3	-6.2	62.3	7.	*DNK0090B	10.	*URS0059C	12.	*S 0138C	14.
25 E 0129D	-31.0	35	-3.1	39.9	2.1	1.1	154.	40.5	2	231.	64.1	-2.9	35.3	-8.	*CNR0130D	-8.	*CTI0237D	13.	*SRL0259D	13.
26 GHA0108D	-25.0	35	-1.2	7.9	1.5	1.1	102.	42.3	1	141.	63.8	0.1	11.0	3.	*NGR0115D	7.	*NIG0119D	8.	*TUN0150D	16.
27 GNE0303D	-19.0	35	10.3	1.5	0.7	0.6	10.	48.1	2	38.	63.9	11.3	2.4	0.	*AGL0295D	4.	*COG0235D	8.	*NIG0119D	9.
28 HOL0213D	-19.0	35	5.4	52.0	0.8	0.6	171.	47.7	1	50.	64.6	6.2	50.6	0.	*E 0129D	5.	*YUG0149D	7.	*SUI0140D	10.
29 JOR0224D	11.0	35	35.8	31.4	0.8	0.8	114.	46.1	2	52.	63.2	35.0	34.0	-4.	*URS0059C	0.	*TGM0225D	1.	*SYR0229D	5.
30 SDN0230D	-7.0	35	29.2	7.5	2.3	1.1	148.	40.1	2	282.	64.6	23.0	11.0	1.	*CAF0258D	6.	*SDN0231D	7.	*YUG0149D	9.
31 SRL0259D	-31.0	35	-11.8	8.6	0.8	0.7	114.	47.0	1	46.	63.6	-10.5	8.5	2.	*E 0129D	7.	*CTI0237D	8.	*GHA0108D	9.

Canal 35 suite — Channel 35 cont. — Canal 35 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
32	FGK0225D	11.0	35	34.6	-6.2	2.4	1.7	129.	38.1	1	380.	63.9	30.5	-1.0	3. *BDI0270D 7. *AGL0295D 10. *SDN0230D 10.
33	JRS0059C	23.0	35	36.0	47.0	3.7	1.4	153.	37.0	2	668.	65.3	22.0	48.4	-1. *YUG0149D 0. *CVA0083C 6. *ETH0092D 12.
34	JRS0077E	110.0	35	112.7	57.3	2.7	1.8	2.	37.6	1	944.	67.3	106.2	69.5	15. *URS0074C 16. *URS0066E 22. *URS0079E 22.
35	YUG0149D	-7.0	35	18.4	43.7	1.7	0.7	154.	43.8	1	145.	65.4	20.1	46.3	-3. *CVA0083C 2. *URS0059C 4. *HNG0106D 5.

Canal 36 — Channel 36 — Canal 36

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
17	CAF0258D	-13.0	36	21.0	6.3	2.3	1.7	31.	38.5	2	393.	64.4	23.2	11.0	1. *SDN0232D 5. *NGR0115D 6. *SDN0230D 6.
18	DNK0090B	5.0	36	17.0	61.5	2.0	1.0	10.	41.2	2	491.	68.2	12.0	54.6	4. *DDR0216E 8. *1 0082D 8. *DNK0091B 16.
19	I 0082D	-19.0	36	12.3	41.3	2.4	1.0	137.	40.6	2	236.	64.3	12.6	35.4	3. *NGR0115D 4. *NMB0025D 15. *CAF0258D 18.
20	IRQ0256D	11.0	36	43.6	32.8	1.9	1.0	143.	41.7	1	151.	63.5	44.0	37.3	-0. *URS0066E 1. *KEN0249E 11. *TGK0225D 12.
21	LSC0305D	5.0	36	27.8	-29.8	0.7	0.6	36.	48.3	1	40.	64.3	29.5	-29.4	1. *DNK0090B 3. *AFS0021E 5. *NMB0025D 19.
22	MTN0288D	-37.0	36	-7.8	23.4	1.6	1.1	141.	41.7	1	139.	63.1	-5.6	20.0	3. *NGR0115D 5. *SEN0222E 14. *CVA0083C 14.
23	MWI0308D	-1.0	36	34.1	-13.0	1.5	0.6	87.	44.6	2	96.	64.4	35.2	-17.2	10. *AFS0021E 12. *TGK0225D 21. *AGL0295D 22.
24	MYT0098D	29.0	36	45.1	-12.8	0.6	0.6	0.	48.7	1	31.	63.6	45.0	-12.8	19. *TGK0225D 24. *URS0066E 29. *OMA0123D 29.
25	NGR0115D	-25.0	36	8.3	16.8	2.5	2.1	44.	37.0	2	580.	64.7	13.0	13.0	4. *CAF0258D 6. *MPC0209E 13. *SDN0232D 14.
26	OMA0123D	17.0	36	55.6	21.0	1.9	1.0	100.	41.4	2	159.	63.4	56.0	26.5	1. *URS0066E 6. *JAE0274E 7. *IRQ0256D 7.
27	SDN0232D	-7.0	36	30.4	19.0	2.4	1.5	176.	38.6	1	306.	63.4	24.0	15.8	-0. *CAF0258D 3. *NGR0115D 5. *SDN0230D 11.
28	URS0066E	44.0	36	64.3	44.6	4.6	2.5	169.	33.7	2	1541.	65.6	53.9	37.3	8. *IRQ0256D 9. *NGR0115D 17. *URS0059C 22.
29	URS0079E	140.0	36	138.0	53.6	3.2	2.1	62.	36.0	2	1574.	68.0	128.4	73.2	18. *URS0077E 18. *MNG0248D 35. *YUG0148E 89.

Canal 37 — Channel 37 — Canal 37

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
14	AFI0099E	23.0	37	42.5	11.6	0.6	0.6	0.	48.7	1	25.	62.7	41.9	10.8	-1. *KEN0249E 2. *UKR0063C 6. *ETH0092E 6.
15	AFS0021E	5.0	37	24.5	-28.0	3.1	1.7	27.	37.0	2	531.	64.3	20.0	-25.0	-1. *NMB0025D -0. *CYP0086E 16. *LSC0305D 18.
16	BEL0018E	-19.0	37	4.6	50.6	0.8	0.6	167.	47.3	1	51.	64.4	6.4	50.3	-1. *NMB0025D 4. *DDR0216E 5. *YUG0148E 7.
17	CYP0086E	5.0	37	33.3	35.1	0.6	0.6	0.	48.7	1	32.	63.8	34.5	35.7	-0. *AFS0021E 4. *ISR0110D 5. *SYR0339A 8.

Canal 37 suite — Channel 37 cont. — Canal 37 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
18	DDR0216E	-1.0	37	12.6	52.1	0.8	0.6	172.	47.1	2	55.	64.4	11.0	54.0	-3.	*BEL0018E 2. *DNK0090B 2. *NOR0120C 6.
19	HVG0107E	-31.0	37	-1.5	12.2	1.4	1.1	29.	42.1	1	162.	64.2	-5.5	12.0	2.	*SEN0222E 7. *CTI0237E 7. *MTN0223E 10.
20	ISL0049E	-31.0	37	-19.0	64.9	1.0	0.6	177.	46.5	2	90.	66.0	-13.5	65.1	9.	*HVG0107E 10. *CTI0237E 19. *MRC0209E 20.
21	ISR0110D	-13.0	37	34.9	31.4	0.9	0.6	117.	46.7	2	53.	64.0	35.2	33.2	2.	*CYP0086E 3. *CAF0258D 13. *COG0235E 14.
22	KEN0249E	11.0	37	37.9	1.1	2.3	1.6	94.	38.7	1	333.	63.9	34.0	4.2	9.	*SYR0339A 14. *ETH0092E 15. *IRQ0256D 15.
23	MCD0116E	-37.0	37	7.4	43.7	0.6	0.6	0.	48.7	1	25.	62.6	5.6	46.0	-9.	*BEL0018E -4. *MRC0209E -2. *YUG0148E 1.
24	MNG0248D	74.0	37	102.2	46.6	3.6	1.1	169.	38.2	1	409.	64.3	87.9	48.9	3.	*URS0074D 3. *URS0066E 17. *UKR0063C 29.
25	MRC0209E	-25.0	37	-9.0	29.2	2.7	1.5	43.	38.2	2	334.	63.5	-1.2	32.2	2.	*NGR0115D 4. *TUN0272A 7. *NMB0025D 24.
26	NMB0025D	-19.0	37	17.5	-21.6	2.7	1.9	48.	37.2	2	587.	64.9	20.0	-28.4	-0.	*AFS0021E -0. *BEL0018E 14. *NIG0119E 21.
27	SEN0222E	-37.0	37	-14.4	13.8	1.5	1.0	139.	42.4	2	139.	63.9	-15.0	16.3	3.	*MRC0209E 7. *MTN0223E 7. *MTN0288D 16.
28	UAE0274E	17.0	37	53.6	24.2	1.0	0.8	162.	45.3	1	64.	63.4	54.9	22.4	5.	*OMA0123D 6. *KEN0249E 17. *AFI0099E 20.
29	UKR0063C	23.0	37	31.2	48.4	2.3	1.0	172.	40.8	2	249.	64.7	22.1	48.4	-0.	*YUG0148E 2. *MCD0116E 8. *ETH0092E 13.
30	YUG0148E	-7.0	37	18.4	43.7	1.7	0.7	154.	43.8	1	146.	65.4	13.4	46.4	-2.	*DDR0216E 3. *MCD0116E 3. *HNG0106E 9.

Canal 38 — Channel 38 — Canal 38

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14	
18	ALB0296E	-7.0	38	19.8	41.3	0.7	0.6	146.	48.1	2	39.	64.0	19.8	42.6	-2.	*HNG0106E 2. *SDN0231E 5. *YUG0149E 6.
19	BDI0270E	11.0	38	29.9	-3.1	0.7	0.6	80.	48.0	2	36.	63.6	29.1	-2.7	3.	*TGK0225E 7. *SYR0339A 9. *ETH0092E 11.
20	COG0235E	-13.0	38	14.6	-0.7	2.0	1.2	59.	40.5	2	225.	64.0	12.6	2.4	-1.	*NIG0119E 0. *GNE0303E 5. *AGL0295E 10.
21	CTI0237E	-31.0	38	-5.6	7.5	1.6	1.2	108.	41.3	2	180.	63.9	-3.5	9.8	-1.	*NIG0119E 4. *MTN0223E 4. *HVG0107E 6.
22	ETH0092E	23.0	38	39.7	9.1	3.5	2.4	124.	35.0	2	734.	63.7	39.2	17.5	2.	*SON0231F 3. *URS0059D 11. *UKR0063C 14.
23	HNG0106E	-1.0	38	19.5	47.2	0.9	0.6	176.	46.8	1	55.	64.2	16.1	46.8	-2.	*YUG0149E 4. *YUG0148E 4. *SJI0140E 4.
24	KWT0113E	17.0	38	47.6	29.2	0.7	0.6	145.	48.1	2	33.	63.3	46.3	28.3	1.	*ETH0092E 2. *TUN0272A 15. *UAE0274E 15.
25	MTN0223E	-37.0	38	-12.2	18.5	2.6	1.9	150.	37.3	1	369.	63.0	-5.2	15.3	0.	*CTI0237E 2. *HVG0107E 7. *NIG0119E 12.
26	NIG0119E	-19.0	38	7.8	9.4	2.2	2.0	45.	37.9	1	422.	64.1	3.4	6.4	4.	*CTI0237E 8. *GHA0108E 10. *SUI0140E 12.
27	NOR0120C	5.0	38	13.1	64.1	1.8	0.9	10.	42.2	2	304.	67.0	11.6	59.0	10.	*DDR0216E 13. *ISL0050C 15. *AFS0021E 23.
28	REU0097E	29.0	38	55.6	-19.2	1.6	0.8	96.	43.4	1	119.	64.2	54.7	-15.7	16.	*ETH0092E 17. *RHS0135E 29. *URS0074D 30.



Canal 38 suite — Channel 38 cont. — Canal 38 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
29	RHSJ135E	-1.0	38	29.6 -18.8	1.5 1.4	37.	41.3	2	205.	64.4	31.2 -22.2	6.	*AFS0021E	7.	*HNG0106E 13. *NMB0025D 19.
30	SDN0231E	-7.0	38	28.9 12.7	2.3 2.0	159.	37.8	1	390.	63.7	34.0 8.5	-2.	*ETH0092E	-0.	*SDN0230E 6. *ALB0296E 13.
31	SUI0140E	-19.0	38	8.2 46.6	1.0 0.7	171.	45.9	2	69.	64.3	10.4 46.9	2.	*NIG0119E	6.	*TUN0272A 10. *HNG0106E 12.
32	SYR0339A	11.0	38	37.6 34.2	1.3 0.9	74.	43.6	1	96.	63.4	36.0 36.0	0.	*CYP0386E	5.	*TUN0272A 7. *JOR0224E 10.
33	TUN0272A	-25.0	38	2.5 32.0	3.6 1.8	175.	36.3	1	367.	61.9	-10.0 30.0	-1.	*MTN0223E	2.	*MRC0209E 4. *GHA0108E 10.
34	URS0071B	44.0	38	63.1 42.0	2.6 0.8	170.	40.8	2	233.	64.5	73.1 40.8	9.	*URS0074D	9.	*URS0080D 25. *ETH0092E 29.
35	URS0074D	74.0	38	88.8 57.6	3.1 1.7	162.	37.1	2	1256.	68.1	97.2 49.7	6.	*MNG0248E	9.	*MNG0248D 9. *URS0077F 21.
36	URS0080D	140.0	38	155.3 55.4	2.9 2.4	35.	35.9	1	1644.	68.1	145.6 63.8	23.	*URS0077F	23.	*AFI0099E 89. *YUG0149E 89.

Canal 39 — Channel 39 — Canal 39

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14
20	AGL0295E	-13.0	39	16.5 -12.0	3.1 2.3	84.	35.8	1	716.	64.4	12.5 -6.5	7.	*COG0235E	9.	*CAF0258E 15. *SDN0230E 24.
21	BHR0255D	17.0	39	50.5 26.1	0.6 0.6	0.	48.7	1	17.	61.0	52.3 24.4	-3.	*OMA0123E	0.	*URS0059D 6. *IRQ0256E 7.
22	CNR0130E	-31.0	39	-15.7 28.4	1.5 0.6	5.	44.6	2	69.	63.0	-13.5 29.2	-13.	*E 0129E	-13.	*CTI0237E 13. *SRL0259E 13.
23	CVA0083D	-37.0	39	12.4 41.8	0.6 0.6	0.	48.7	1	47.	65.4	12.5 43.8	-3.	*YUG0149E	-1.	*E 0129E 2. *URS0059D 13.
24	E 0129E	-31.0	39	-3.1 39.9	2.1 1.1	154.	40.5	2	234.	64.2	-2.9 35.3	-8.	*CNR0130E	-8.	*CTI0237E 13. *SRL0259E 13.
25	GHA0108E	-25.0	39	-1.2 7.9	1.5 1.1	102.	42.3	1	143.	63.8	0.1 11.0	3.	*NGR0115E	7.	*NIG0119E 8. *TUN0272A 14.
26	GNE0303E	-19.0	39	10.3 1.5	0.7 0.6	10.	48.1	2	38.	64.0	11.3 2.4	0.	*AGL0295E	4.	*COG0235E 8. *NIG0119E 9.
27	HOL0213E	-19.0	39	5.4 52.0	0.8 0.6	171.	47.7	1	50.	64.7	6.2 50.6	0.	*E 0129E	5.	*YUG0149E 7. *SUI0140E 10.
28	ISL0050C	5.0	39	-19.5 61.0	2.2 0.8	4.	41.8	1	296.	66.5	-6.2 62.3	6.	*NOR0120C	10.	*S 0139B 10. *URS0059D 12.
29	JOR0224E	11.0	39	35.8 31.4	0.8 0.8	114.	46.1	2	52.	63.3	35.0 34.0	-4.	*URS0059D	0.	*TGK0225E 1. *SYR0339A 5.
30	MNG0248E	74.0	39	102.2 46.6	3.6 1.1	169.	38.2	1	411.	64.3	98.8 51.9	-2.	*URS0077F	-0.	*URS0074D 4. *URS0066F 18.
31	SDN0230E	-7.0	39	29.2 7.5	2.3 1.1	148.	40.1	2	286.	64.6	23.0 11.0	1.	*CAF0258E	6.	*SDN0231E 7. *YUG0149E 9.
32	SRL0259E	-31.0	39	-11.8 8.6	0.8 0.7	114.	47.0	1	46.	63.7	-10.5 8.5	2.	*E 0129E	7.	*CTI0237E 8. *GHA0108E 9.

Canal 39 suite — Channel 39 cont. — Canal 39 cont.

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
33	TGK0225E	11.0	39	34.6	-6.2	2.4	1.7	129.	38.1	1	385.	63.9	30.5	-1.0	3. *BDI0270E	7. *AGL0295E	10. *SDN0230E	10.
															*	*	*	
34	URS0059D	23.0	39	36.0	47.0	3.7	1.4	153.	37.0	2	676.	65.3	22.0	48.4	-1. *YUG0149E	0. *CVA0083D	6. *ETH0092E	12.
															*	*	*	
35	URS0077F	110.0	39	112.7	57.3	2.7	1.8	2.	37.6	1	955.	67.4	133.6	50.1	2. *MNG0248E	2. *URS0074D	18. *URS0066F	21.
36	YUG0149E	-7.0	39	18.4	43.7	1.7	0.7	154.	43.8	1	147.	65.5	20.1	46.3	-3. *CVA0083D	2. *URS0059D	4. *HNG0106E	5.

Canal 40 — Channel 40 — Canal 40

	1	2	3	4	5	6	7	8	9a	9b	10	11	12	13	14			
18	CAF0258E	-13.0	40	21.0	6.3	2.3	1.7	31.	38.5	2	398.	64.5	23.2	11.0	1. *SDN0232E	5. *NGR0115E	6. *SDN0230E	6.
															*	*	*	
19	I 0082E	-19.0	40	12.3	41.3	2.4	1.0	137.	40.6	2	238.	64.3	12.6	35.4	4. *NGR0115E	4. *CAF0258E	18. *E 0129E	22.
															*	*	*	
20	IRQ0256E	11.0	40	43.6	32.8	1.9	1.0	143.	41.7	1	153.	63.5	44.0	37.3	0. *URS0066F	1. *TGK0225E	12. *URS0059D	13.
															*	*	*	
21	LS00305E	5.0	40	27.8	-29.8	0.7	0.6	36.	48.3	1	41.	64.4	29.5	-29.4	3. *S 0139B	3. *ISL0050C	22. *MWI0308E	24.
															*	*	*	
22	MTN0288E	-37.0	40	-7.8	23.4	1.6	1.1	141.	41.7	1	141.	63.2	-5.6	20.0	4. *NGR0115E	5. *CVA0083D	14. *URS0066F	25.
															*	*	*	
23	MWI0308E	-1.0	40	34.1	-13.0	1.5	0.6	87.	44.6	2	97.	64.5	32.8	-9.3	11. *TGK0225E	13. *AGL0295E	21. *CAF0258E	24.
															*	*	*	
24	MYT0098E	29.0	40	45.1	-12.8	0.6	0.6	0.	48.7	1	31.	63.6	45.0	-12.8	19. *TGK0225E	24. *URS0066F	29. *GMA0123E	29.
															*	*	*	
25	NGR0115E	-25.0	40	8.3	16.8	2.5	2.1	44.	37.0	2	587.	64.7	13.0	13.0	5. *CAF0258E	6. *SDN0232E	14. *I 0082E	18.
															*	*	*	
26	GMA0123E	17.0	40	55.6	21.0	1.9	1.0	100.	41.4	2	161.	63.5	56.0	26.5	2. *URS0066F	6. *IRQ0256E	7. *SDN0232E	9.
															*	*	*	
27	S 0139B	5.0	40	17.0	61.5	2.0	1.0	10.	41.2	2	497.	68.2	15.1	55.0	6. *I 0082E	8. *URS0066F	15. *ISL0050C	16.
															*	*	*	
28	SDN0232E	-7.0	40	30.4	19.0	2.4	1.5	176.	38.6	1	310.	63.5	24.0	15.8	-0. *CAF0258E	3. *NGR0115E	5. *SDN0230E	11.
															*	*	*	
29	URS0066F	44.0	40	64.3	44.6	4.6	2.5	169.	33.7	2	1560.	65.6	53.9	37.3	8. *IRQ0256E	9. *NGR0115E	17. *URS0059D	22.
															*	*	*	
30	URS0077F	140.0	40	138.0	53.6	3.2	2.1	62.	36.0	2	1593.	68.0	128.4	73.2	18. *URS0077F	18. *MNG0248E	35. *URS0066F	89.

INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 336-E

11 February 1977

Original : Spanish

PLENARY MEETING

FINAL PROTOCOL

For the Oriental Republic of Uruguay

The delegation of the Oriental Republic of Uruguay declares that its Government reserves the right to adopt whatever measures it may deem appropriate to ensure the development of its telecommunication services in the band 11.7-12.5 GHz, should its interests be adversely affected by the decisions of this Conference.



INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 337-E

11 February 1977

Original : Russian

PLENARY MEETING

FINAL PROTOCOL

For the People's Republic of Bulgaria

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference (Geneva, 1977), the delegation of the People's Republic of Bulgaria reserves its Government's right to take any necessary action of a technical nature, if the negative protection margin obtained for Bulgaria fails to ensure a high-quality service for the territory of the People's Republic of Bulgaria.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 338-E

11 February 1977

Original : Spanish

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Panama

In signing the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the delegation of Panama reserves its Government's right to adopt any measures it may deem necessary to safeguard its interests should one or more Members of the Union formulate reservations liable to affect its sovereign rights and territorial integrity.

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**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 339-E

11 February 1977

Original : Spanish

PLENARY MEETING

FINAL PROTOCOL

For the Argentine Republic

1. The delegation of the Argentine Republic declares that its Government reserves the right to adopt any measures it may deem appropriate to ensure the development of its telecommunication services in the band 11.7-12.5 GHz, should its interests be adversely affected by the decisions of this Conference.
  
2. In signing these Final Acts, the delegation of the Argentine Republic reiterates its Declaration No. LXXXVII contained in the International Telecommunication Convention, Malaga-Torremolinos, 1973.

INTERNATIONAL TELECOMMUNICATION UNION  
**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 340-E  
11 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Republic of Korea

1. The delegation of the Republic of Korea, on behalf of its Government, reserves the right

a) to take any measures as it may deem necessary to safeguard its broadcasting and telecommunication services, should any Contracting Member fail to comply with the provisions, and associated Plan, of the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, thus causing harmful effects on the services of the Republic of Korea; and

b) to demand, and take due action for, if necessary, the reduction of any Member's coverage area in case it extends beyond a reasonable extent into the territory of the Republic of Korea and the Member fails to take appropriate remedial measures in implementing the Plan under relevant provisions of the Radio Regulations.

2. The delegation further declares that, within its territory, no signals in the Plan other than its own will be protected by its Administration.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 341-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For Islamic Republic of Pakistan

The delegation of Pakistan has the honour to refer to paragraph 2 of the Reservations made by the delegation of the Republic of India (Document No. 278) and wishes to make the following comments.

The State of Jammu and Kashmir has been recognized by the United Nations as a disputed territory and its permanent status has yet to be determined by the people of the State, in accordance with the relevant resolutions of the United Nations Security Council. Decisions regarding areas falling within the disputed State are without prejudice to the position recognized by the United Nations in its resolutions on the subject. The areas covered by the Indian Coverage Plan which fall within the State of Jammu and Kashmir are not recognized by Pakistan as being part of Indian territory.



**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 342-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For India

With reference to the Final Protocol for the People's Republic of Bangladesh as contained in Document No. 303, the delegation of India wishes to state the following :

The Indian beam No. IND 0037, submitted by the Indian Administration, was designed to cover only the Indian territory. In the process of optimization by the IFRB, the beam dimensions have been enlarged. The coverage of Bangladesh territory by this enlarged beam is thus only a technical spill-over and does not interfere with any assignment to Bangladesh. However, the Indian Administration is prepared to take any corrective measures as per procedure laid down by the Conference.

**BROADCASTING SATELLITE CONFERENCE**

Document No. 343-E

11 February 1977

Original : English

(Geneva, 1977)

PLENARY MEETING

FINAL PROTOCOL

For the Federative Republic of Brazil

In signing the Final Acts of the present Conference, the delegation of the Federative Republic of Brazil wishes to make the following statement.

The Conference has adopted a Plan for the allotment of frequencies and positions in the geostationary satellite orbit for the Broadcasting-Satellite Service for Regions 1 and 3. The delegation of the Federative Republic of Brazil draws the attention of this Conference to the fact that the above-mentioned Plan and its associated sharing criteria do not make adequate provision for the needs of the Fixed-Satellite and Broadcasting-Satellite Services in some countries in Region 2, and that the sharing criteria do not provide the protection required under paragraphs 117 and 428A of the Radio Regulations.

Furthermore, this Plan and its sharing criteria may preclude the successful development of a plan for Region 2 countries in 1982. The Brazilian Administration therefore reserves the right to operate its systems in accordance with the ITU Convention and the Radio Regulations and to claim the protection thus afforded.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 344-E  
11 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Democratic People's Republic of Korea

Concerning the Japanese ellipse for Broadcasting-Satellite Service which covers wide areas of the territory of the Democratic People's Republic of Korea, the delegation of the Democratic People's Republic of Korea submitted to the IFRB and Committee 5 the letter requesting that the Japanese ellipse should be reduced to the minimum.

The delegation of the Democratic People's Republic of Korea was informed, however, that the Japanese ellipse could not be reduced under a pretext of technique.

To reduce an ellipse for Broadcasting-Satellite Service or not is not merely a technical matter, but is a matter having political aspect. So, the solution of this problem depends entirely on the attitude of the Japanese authority.

Such unjust attitude of the Japanese authority not only runs counter 428A of the international Radio Regulations, but also is an infringement upon the sovereignty of the Democratic People's Republic of Korea.

Therefore, the delegation of the Democratic People's Republic of Korea cannot tolerate the Japanese ellipse for Broadcasting-Satellite Service which covers the territory of the Democratic People's Republic of Korea and states that all necessary measures will be taken against the coverage by the Japanese ellipse of the territory of the Democratic People's Republic of Korea.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 345-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Democratic People's Republic of Korea

Concerning the fact that the South Korea "authority" intentionally enlarged its ellipse for Broadcasting Satellite Service to cover even the service area of the Democratic People's Republic of Korea, the delegation of the Democratic People's Republic of Korea participating in the World Administrative Broadcasting-Satellite Conference, Geneva 1977, submitted to the IFRB the proposals requesting that necessary measures should be taken to solve this problem.

However, in disregard of the just demand of the Democratic People's Republic of Korea and the advice of the IFRB, the South Korean "authority" further enlarged the size of the ellipse, thus covering even wider area of the Democratic People's Republic of Korea's service area. This machination of the South Korean "authority" which ignores the Convention of the ITU is aimed at attaining its insidious political goal.

The delegation of the Democratic People's Republic of Korea states that it does not recognize any proposals of the South Korean "authority" and that it cannot tolerate the coverage of the service area of the Democratic People's Republic of Korea by the ellipse for Broadcasting-Satellite Service of the South Korean "authority", and states that all necessary measures will be taken against the coverage of the service areas of the Democratic People's Republic of Korea by the ellipse of the South Korean "authority".

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 346-E

11 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For Tunisia

The Tunisian delegation to the Broadcasting-Satellite Conference (Geneva, 1977), desires to affirm solemnly that strict observance of the provisions of No. 428A of the Radio Regulations is a necessary condition for the application of the Plan and for implementation of the Agreement.

The Tunisian delegation requests the reduction of the coverage area resulting from the assignments to certain neighbouring countries; except for technically unavoidable spillover, coverage should be limited to their national territory in conformity with No. 428A mentioned above.

The Tunisian delegation declares unacceptable any technically avoidable spillover on its territory by the assignments to these countries and reserves its Government's right to take any technical or other measures required to ensure by whatever means the integrity of its national territory in the face of any external interference and to protect its broadcasting services.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 347-E  
11 February 1977  
Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Kingdom of Morocco

The beams designated ALG 251 and ALG 252 which have been assigned to the Algerian Democratic and Popular Republic spill over on Moroccan territory to an unacceptable degree. This spill over is by no means technical. A valid technical solution ensuring coverage of the entire Algerian territory, while safeguarding the interests of the Kingdom of Morocco, has been proposed by the Moroccan delegation to the Algerian delegation.

In view of that delegation's refusal to adopt the proposed compromise solution, the Moroccan delegation formulates the most emphatic reservations regarding the assignment of the two above-mentioned beams to the Algerian Democratic and Popular Republic and requests the Conference to note that the provisions of No. 428A of the Radio Regulations have not been respected.

It should also be noted that the beam assigned to the Kingdom of Morocco and designated MRC 209 covers the entire Moroccan territory in the minimal conditions fixed by this Conference. The Moroccan delegation accordingly reserves its Government's right to take any action required in order to ensure the proper operation of its broadcasting-satellite network throughout its territory should any Administration formulate reservations or take measures liable to infringe the sovereign rights of the Kingdom of Morocco.

FINAL PROTOCOL

For Turkey

In signing the Final Acts of the World Broadcasting-Satellite Radio Conference, Geneva, 1977, the delegation of Turkey reserves for its government the right to take whatever action may be necessary to safeguard its interests and ensure the proper functioning of its Broadcasting-Satellite and Terrestrial Services should any country fail to comply with the Final Acts or its Annexes or the Protocols attached thereto, or should reservations by other countries jeopardize its above-mentioned services.

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 349-E

11 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For the United Kingdom of Great Britain and Northern Ireland

With reference to a reservation in relation to the territory of Belize made by Guatemala on signing the International Telecommunication Convention, the United Kingdom does not accept that Guatemala has any rights or any valid claim with respect to that territory.

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FINAL PROTOCOL

For Mexico

The delegation of Mexico declares that its Administration reserves the right to adopt whatever measures it may deem appropriate to ensure the development of its telecommunication services in the band 11.7 - 12.5 GHz should its interests be adversely affected by the decisions of this Conference.

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PLENARY MEETING

R.5

5th SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second reading :

<u>Source</u>	<u>Document No.</u>	<u>Title</u>
B.11	261	Recommendation GG
B.4(Add.2)	225(Add.2)	Corrigendum to Article 4
B.13	296	Annexes 2, 4 and 5 Article 9
B.12	268	Article 11
B.15	298	Final Protocol
B.12	268	Annexes 6 and 7 Recommendation HH Resolutions G and H
B.14	297	Resolution I
B.12	268	Columns headings of the Plan
B.14	297	Table showing correspondence

Miss M. HUET  
Chairman of the  
Editorial Committee

Annexes : 22 pages



## RECOMMENDATION No. GG

**relating to the radiation of harmonics of the fundamental frequency  
by broadcasting-satellite stations**

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that the frequency band 23.6-24 GHz is allocated to the radio  
astronomy service on a primary basis;

b) that the second harmonic of the fundamental frequency of  
broadcasting-satellite stations operating within the band 11.8-12.0 GHz may  
seriously disturb radio astronomy observations in the band 23.6-24.0 GHz if  
effective steps are not taken to reduce the radiation level produced by this  
harmonic;

in view of

the provisions of No. 673 of the Radio Regulations;

recommends

that, when defining the characteristics of their space stations  
operating in the broadcasting-satellite service, particularly within the  
band 11.8-12.0 GHz, administrations take all necessary steps to reduce the  
radiation level of the second harmonic below the values indicated in the  
relevant CCIR Recommendations.

CORRIGENDUM TO ARTICLE 4

1. Page 2, Article 4, Procedures for modifications to the Plan

In the first line of paragraph 4.1, after the word "modification", insert note "1)";

at the bottom of the same page, add the following note 1) :

- 1) The intention not to employ energy dispersal consistent with section 3.18 of Annex 8 shall be treated as a modification and thus subject to the appropriate provisions of this Article.
2. The existing footnote 1) shall be renumbered footnote 2), and the following words added at the end :

See Annex 10 for the orbital position limitations.

A N N E X 2

BASIC CHARACTERISTICS TO BE FURNISHED IN NOTICES  
RELATING TO SPACE STATIONS IN THE BROADCASTING-SATELLITE SERVICE

1. Country and IFRB number
2. Nominal orbit position (in degrees from the Greenwich meridian)
3. Assigned frequency or channel number
4. Date of bringing into use
5. Identity of the space station
6. Service area (if necessary, the service area may be defined by a number of "test points")
7. Geographical coordinates of the intersection of the antenna beam axis with the Earth
8. Rain-climatic zone
9. Class of station
10. Class of emission and necessary bandwidth
11. Power supplied to the antenna (Watts)
12. Antenna characteristics
  - gain of the antenna referred to an isotropic radiator
  - shape of the beam (elliptical or circular)
    - major axis (degrees) at -3 dB points
    - minor axis (degrees) at -3 dB points
  - orientation of the ellipse
  - $\Delta G$  (difference between the maximum gain and the gain in the direction of the point in the service area at which the power flux density is at a minimum)
  - pointing accuracy
  - type of polarization
  - sense of polarization
  - radiation pattern and cross-polar characteristics

13. Station keeping accuracy
14. Modulation characteristics
  - type of modulation
  - pre-emphasis characteristics
  - TV system
  - sound broadcasting characteristics
  - frequency deviation
  - composition of the baseband
  - type of multiplexing of the video and sound signals
  - energy dispersal characteristics
15. Minimum angle of elevation in the service area
16. Type of reception (individual or community)
17. Hours of operation (GMT)
18. Coordination
19. Agreements
20. Other information
21. Operating administration or company

A N N E X 4

NEED FOR COORDINATION OF A FIXED-SATELLITE SPACE STATION  
OR A BROADCASTING-SATELLITE SPACE STATION IN REGION 2  
WITH RESPECT TO THE PLAN (ARTICLE 7)

With respect to paragraph 2.1, coordination of a space station in the fixed-satellite service or the broadcasting-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 following expressions :

$$-147 \text{ dBW/m}^2/27 \text{ MHz for } 0 \leq \theta < 0.44^\circ$$

$$-138 + 25 \log \theta \text{ dBW/m}^2/27 \text{ MHz for } 0.44^\circ \leq \theta < 19.1^\circ$$

$$-106 \text{ dBW/m}^2/27 \text{ MHz for } 19.1^\circ \leq \theta$$

$\theta$  = the difference in degrees between the longitude of the interfering broadcasting-satellite or fixed-satellite in Region 2 and the longitude of the affected broadcasting-satellite space station in Regions 1 and 3.

A N N E X 5

POWER FLUX DENSITY LIMITS BETWEEN 11.7 AND 12.2 GHz  
TO PROTECT THE TERRESTRIAL SERVICES IN  
REGIONS 1 AND 3 FROM INTERFERENCE FROM  
REGION 2 BROADCASTING-SATELLITE SPACE  
STATIONS (ARTICLE 9)

The power flux density limits are as follows :

- 1) for all the territories of administrations in Regions 1 and 3 :

-125 dBW/m <sup>2</sup> /4 kHz	for broadcasting-satellite space stations using circular polarization;
-128 dBW/m <sup>2</sup> /4 kHz	for broadcasting-satellite space stations using linear polarization

for all angles of arrival; and

- 2) for territories of administrations in Region 3 and those in the western part of Region 1, West of longitude 30°E :

-132 dBW/m <sup>2</sup> /5 MHz	for angles of arrival between 0° and 10° above the horizontal plane;
-132 + 4.2 (γ - 10) dBW/m <sup>2</sup> /5 MHz	for angles of arrival γ (in degrees) between 10° and 15° above the horizontal plane;
-111 dBW/m <sup>2</sup> /5 MHz	for angles of arrival between 15° and 90° above the horizontal plane.



ARTICLE 9

Power flux density limits between 11.7 and 12.2 GHz  
to protect terrestrial services in Regions 1 and 3  
from interference from Region 2 broadcasting-satellite space stations

The power flux density at the Earth's surface in Regions 1 and 3, produced by emissions from a space station in the broadcasting-satellite service in Region 2 for all conditions and for all methods of modulation shall not exceed the values given in Annex 5 on the territory of any country unless the administration of that country so agrees.

## ARTICLE 11

PROVISIONS GOVERNING THE BROADCASTING-SATELLITE SERVICE  
IN REGION 2 PENDING THE ESTABLISHMENT OF A DETAILED PLAN

In accordance with the principles set forth in [Annex A], the following interim provisions shall apply pending the establishment of a detailed plan for the broadcasting-satellite service for Region 2 in the frequency band 11.7 - 12.2 GHz under the terms of paragraphs 8 - 11 below.

1. Space stations in the broadcasting-satellite service shall be located in the following portions of the orbit :

- 75°W to 100°W longitude (however, for service to Canada, the USA and Mexico, the relevant portion shall be only between 75°W and 95°W longitude);
- 140°W to 170°W longitude.

1.1 Space stations in the broadcasting-satellite service may also be located in the remaining portions of the orbit, in which case they shall be operated in accordance with the provisions of No. 139 of the Radio Regulations. As an exception, it is accepted that, for Greenland, a position in the geostationary satellite orbit between 55°W and 60°W may be used for the broadcasting-satellite service as a primary service. The administrations concerned should make every effort to allow for the sharing of this portion of the orbital arc by a broadcasting satellite for Greenland and space stations in the fixed-satellite service of other administrations in Region 2.

2. Space stations in the fixed-satellite service shall be located in portions of the orbit other than those referred to in paragraph 1 above. Such space stations may also be located in the portions of the orbit referred to in paragraph 1 above; they shall then be operated in accordance with the provisions of No. 139 of the Radio Regulations.

2.1 Space stations in the broadcasting-satellite service located in the portions of the orbit referred to in paragraph 1 and space stations in the fixed-satellite service located in the remaining portions of the orbit shall be operated in such a way that no unacceptable interference is caused by stations of one service to stations of other services. The level of unacceptable interference shall be determined by agreement between the administrations concerned, taking the latest CCIR Recommendations and Annexes 8 and 9 of the Final Acts as a guide. Notwithstanding the above, broadcasting-satellite space stations may be located up to the edge of the portion of the orbit referred to in paragraph 1, provided that such stations are operated in accordance with the relevant technical characteristics for Region 2 outlined in Annex 8.

3. Prior to the Regional Administrative Radio Conference, referred to in paragraph 8 below, systems in the broadcasting-satellite service shall be regarded as experimental and shall be operated in accordance with the sharing criteria and technical characteristics contained in Annexes 8 and 9.

4. Administrations may implement systems which utilize values for the technical characteristics different from the values in Annex 8 of the Final Acts, provided that such action does not result in interference to operational or planned systems of other administrations in excess of that determined in accordance with Annex 9.
5. Systems in the fixed-satellite service shall be introduced in accordance with the relevant provisions of the Radio Regulations and particularly with those of Article 9A, and where appropriate with the provisions of Article 7 of these Final Acts.
6. Space systems in the frequency band 11.7 - 12.2 GHz shall use, to the maximum extent technically and economically practicable, available techniques in order to make the most efficient use of the geostationary orbit and the frequency spectrum. Examples of such techniques are described in Annex 7.
7. The provisions of Spa2 - 3 shall continue to apply to the broadcasting-satellite service in the frequency band 11.7 - 12.2 GHz in Region 2 until such time as a detailed plan may be adopted for the broadcasting-satellite service.
8. A Regional Administrative Radio Conference is to be held not later than 1982 for the purpose of carrying out detailed planning for the broadcasting-satellite and fixed-satellite services, in accordance with the following terms.
  - 8.1 The said Regional Administrative Radio Conference shall draw up a detailed plan for the orbit/spectrum resource available for the broadcasting-satellite service in the 11.7 - 12.2 GHz band. The plan shall provide for the detailed assignment of the orbital positions and frequency channels available, ensuring that the broadcasting-satellite service requirements submitted by the various administrations are met in an equitable manner satisfactory to all the countries concerned. It should be laid down as a matter of principle that each administration in the Region should be guaranteed a minimum number of channels (4) for the operation of the broadcasting-satellite service. Above this minimum, the special characteristics of the countries (size, time zones, language differences, etc.) shall be taken into account.
  - 8.2 Planning shall be based on individual reception, but each administration may use the reception system which best meets its requirements, namely, individual or community reception, or both. Account shall also be taken of the decisions of the 1977 and 1979 World Administrative Radio Conferences and of the latest CCIR Recommendations in the case of parameters covered by its studies and research.
  - 8.3 When planning the broadcasting-satellite service, it shall be borne in mind that systems should be designed with a view to reducing to a minimum technical differences and incompatibilities with the systems of other Regions.
  - 8.4 The Conference shall also take into account the need to make equitable provision for the requirements of the fixed-satellite service to which this frequency band is also allocated in Region 2.

9. All administrations in Region 2 shall submit their broadcasting-satellite service requirements to the IFRB not later than one year before the start of the Regional Administrative Radio Conference responsible for planning this service in Region 2. Each administration may update these requirements as it considers necessary. "Requirements" are understood to include the number and boundaries of service areas and the number of channels requested for each of them. Six months before the deadline for submitting requirements, the IFRB shall remind administrations of the need to submit them by means of a circular-letter and/or telegram.

10. No systems existing or planned prior to the implementation of any detailed plan such as that referred to above shall cause interference to any systems operating in accordance with such a plan.

11. Existing or previously planned broadcasting-satellite systems will not necessarily be taken into account in the establishment of the detailed plan for the broadcasting-satellite service in the 11.7 - 12.2 GHz band in Region 2. Consequently, the installation or planning of such systems by an administration prior to the establishment of the said plan shall not confer upon that system any rights or recognition.

FINAL PROTOCOL

At the time of signing the Final Acts containing the provisions, the associated Plan and the decisions concerning the Re-arrangement of the Radio Regulations and the Additional Radio Regulations adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, the undersigned delegates take note of the following statements forming part of the Final Acts of this Conference.

/ Documents No. 269 and No. ... give a list of the Conference documents in which the statements in question are reproduced. \_/

ANNEX 6

Planning principles in Region 2

The following principles have been applied in drawing up the provisions governing the introduction of space services in the frequency band 11.7 - 12.2 GHz in Region 2 :

1. Equality for allocated services in Region 2

Under Article 5 of the Radio Regulations, the 11.7 - 12.2 GHz band is allocated to broadcasting-satellite, fixed-satellite and terrestrial services on an equal, primary basis. Each administration in Region 2 has the right to decide for itself which of these services are to be implemented within its own territory.

2. Equal rights for services in the various Regions

In accordance with No. 117 of the Radio Regulations, the principle of equal rights for different services in the same category to operate in all the Regions is recognized, provided that no harmful interference is caused to services in the other Regions.

3. Recognition of national requirements

All administrations in Region 2 shall take into consideration the national requirements which have been presented or will be presented in the future.

4. Equitable rights of access to the geostationary orbit spectrum resource

Subject to the provisions of the Convention, the Radio Regulations and the Resolutions in force, it is recognized that all administrations have the right of access to the geostationary orbit spectrum resource in order to fulfil their requirements.

5. Flexible planning approach<sup>1)</sup>

The plan adopted for Region 2 must be sufficiently flexible to allow for future technical developments, the identification of future requirements, changes in existing or stated requirements, requirements by administrations not represented at the Conference, further information on propagation data and various system design approaches. The plan may be modified only by a competent Administrative Radio Conference.

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1) Paragraph 5 does not imply recognition of systems existing prior to the implementation of the plan

6. Efficient use of the geostationary orbit and the spectrum

The plan for Region 2 shall use, to the maximum extent technically and economically practicable, the techniques available so as to make the most efficient use of the geostationary orbit and the frequency spectrum to fulfil the requirements both of the Region as a whole and of the individual administrations.

7. Consultations among administrations

Administrations planning to bring into operation systems in the 11.7 - 12.2 GHz band, shall consult all the other administrations affected or concerned.

8. Reception

The plan for Region 2 shall have as a basis individual reception, although each administration may choose the reception system that it finds most suited to its requirements, namely, individual or community reception, or both.

ANNEX 7Use of the spectrum/orbit resource

Since the equal sharing of the spectrum/orbit resource between the broadcasting-satellite service and the fixed-satellite service in Region 2 is inherently difficult and may impose some restrictions on both services, it is important that the technical parameters be chosen, and the techniques for efficient use of the spectrum/orbit resource be applied in such a way that both space services will benefit as much as possible.

The following techniques are among those identified as leading to a more efficient use of the spectrum/orbit resource and should therefore be applied to the maximum extent technically and economically practicable consistent with the capability of systems to fulfil the requirements for which they were designed.

1. Clustering

Extensive analyses have shown that orbit utilization is improved when satellites are grouped according to the sensitivity to interference and the potential for generating interference of the system of which they are a part. In most cases, this means that space stations of similar characteristics should be grouped in the same part of the orbit.

2. Cross-polarization

The proper use of cross-polarization can significantly improve the use of the spectrum/orbit resource by providing additional isolation between potentially interfering systems.

3. Crossed-beam geometry

The principle of crossed-beam geometry is that adjacent satellites should not serve adjacent service areas. In that way, discrimination from both the satellite and the earth station antennae can be used to achieve maximum isolation between systems.

4. Paired service areas

The principle of crossed-beam geometry can be extended : if service areas are far enough apart, then the satellite antenna discrimination alone may be sufficient to permit satellites serving these widely separated service areas to be co-located in the orbit, leading to practical doubling of the orbit capacity.

5. Frequency interleaving

The mutual interference between channels in different systems is usually a maximum when the two carrier frequencies coincide. When channelling design is such that frequencies are interleaved, or, more generally, such that coincidence of carrier frequencies is avoided, mutual interference can in many cases be greatly reduced.



6. Minimum space station spacings

It is obvious that, for maximum orbit utilization, space stations should be placed as close to each other as is consistent with keeping the mutual interference to acceptable levels.

7. Space station antenna discrimination

The discrimination in the sidelobes of the space station antenna determines how much isolation exists between beams serving non-overlapping or non-adjacent service areas. To achieve maximum isolation, every effort should be made to improve the discrimination by technological advances in antenna design.

8. Earth station antenna discrimination

The sidelobe discrimination of the earth station antenna determines how much isolation is obtained from satellite spacing. To achieve maximum isolation, every effort should be made to improve the discrimination by taking advantage of technological advances in antenna design.

9. Minimizing e.i.r.p. differences

The interference caused by relatively high-power space stations (space stations in the broadcasting-satellite service or certain types of space stations in the fixed-satellite service) to the earth station receivers of relatively low-power satellite systems is directly proportional to the difference between their e.i.r.p. Sharing among such systems is greatly facilitated if this difference is kept as small as is consistent with the requirements.

10. Realistic quality and reliability objectives

The quality and reliability objectives have a significant effect on the use of the spectrum/orbit resource. If the objectives are set unnecessarily high, the capacity of the orbit is reduced. Quality and reliability objectives should be set no higher than are absolutely necessary.

## RECOMMENDATION No. HH

Relating to the convening of a Regional Administrative Radio Conference  
for the detailed planning of the space services in the  
frequency band 11.7 - 12.2 GHz in Region 2

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

noting

a) that the detailed requirements of all administrations in  
Region 2 for the broadcasting-satellite service in the frequency band  
11.7 - 12.2 GHz are not yet known;

b) that, in view of the large demands expected for the other services  
with which this band is shared, there is a need to ensure that this frequency  
band and the geostationary orbit are used as efficiently as possible;

c) that a future Regional Administrative Radio Conference for the  
detailed planning of space services in the frequency band 11.7 - 12.2 GHz would  
be able to take advantage of experiments now being carried out, of further  
technological advances, and of additional studies by the CCIR;

considering

the provisions adopted by this Conference to govern the implementation of  
space services in the frequency band, 11.7 - 12.2 GHz pending the establishment  
of a detailed plan for Region 2;

recommends

1. that a Regional Administrative Radio Conference be held not  
later than 1982 for the purpose of carrying out detailed planning for the  
broadcasting-satellite and fixed-satellite services in Region 2, in accordance  
with 2), 3), 4), 5) and 6) below;

2. that the said Regional Administrative Radio Conference draw up  
a detailed plan for the orbit/spectrum resource available for the broadcasting-  
satellite services in the 11.7 - 12.2 GHz band. The plan shall provide for the  
detailed assignment of the orbital positions and frequency channels available,  
ensuring that the broadcasting-satellite service requirements submitted by the  
various administrations are met in an equitable manner satisfactory to all the  
countries concerned. It should be laid down as a matter of principle that each  
administration in the Region should be guaranteed a minimum number of channels  
(4) for the operation of the broadcasting-satellite service. Above this minimum,  
the special characteristics of the countries (size, time zones, language  
differences, etc.) shall be taken into account;

3. that planning be based on individual reception, but each administration may use the reception system which best meets its requirements, namely, individual or community reception, or both. Account shall also be taken of the decisions of the 1977 and 1979 World Administrative Radio Conferences and of the latest CCIR Recommendations in the case of parameters covered by its studies and research;

4. that, when planning the broadcasting-satellite service, it be borne in mind that systems should be designed with a view to reducing to a minimum technical differences and incompatibilities with the systems of other Regions;

5. that the Conference also take into account the need to make equitable provision for the requirements of the fixed-satellite service to which this frequency band is also allocated in Region 2;

6. that in drafting the above-mentioned detailed plan, account also be taken of the terrestrial radio services sharing the same band;

invites the Administrative Council

to make preparations for convening the said Regional Administrative Radio Conference using the provisions of this Recommendation as a basis for the agenda and the terms of reference of the Conference.

RESOLUTION No. G

Relating to the preparation for an Administrative Radio Conference for the detailed planning of the space services in the frequency band 11.7 - 12.2 GHz in Region 2

The World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977,

considering

a) that a Regional Administrative Radio Conference is to be held not later than 1982 for the detailed planning of the space services in the frequency band 11.7 - 12.2 GHz in Region 2;

b) that the technical criteria and procedures adopted at this Conference, the 1979 World Administrative Radio Conference and the latest CCIR Recommendations will be used in the interim period;

c) that a considerable amount of technical information will be required to ensure the success of this Regional Conference;

invites the CCIR

to carry out such additional studies as are necessary to ensure timely provision of the technical information likely to be required as a basis for the work of the Regional Conference.

RESOLUTION No. H

Relating to the submission of requirements  
for the broadcasting-satellite service in Region 2

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) the decision taken by the Conference that an Administrative  
Radio Conference for Region 2 is to be held not later than 1982;

b) that the said Regional Administrative Radio Conference is to draw  
up a detailed plan for the orbit spectrum resource available for the broadcasting-  
satellite services in the frequency band 11.7 - 12.2 GHz, taking into account the  
need to make equitable provision for the requirements of the other services to  
which this frequency band is also allocated in Region 2;

c) that the plan is to provide for the detailed assignment of the  
orbital positions and frequency channels available, ensuring that the  
broadcasting-satellite service requirements of the various administrations are  
met in an equitable manner satisfactory to all the countries concerned,

invites the IFRB

1. to request all administrations in Region 2 to submit their  
broadcasting-satellite service requirements to the IFRB not later than one year  
before the start of the said Regional Administrative Radio Conference. These  
requirements are understood to include the number and boundaries of service  
areas and the number of channels requested for each of them. They may be  
updated as required by each administration;

2. to remind administrations, by means of a circular letter and/or  
telegram six months before the above deadline for submitting requirements, of  
the need to submit them;

3. to assemble the information submitted by administrations in a  
form permitting a comparative study thereof and to communicate it to the  
Secretary-General for publication and despatch to administrations not later  
than nine months prior to the said Regional Administrative Radio Conference.

RESOLUTION No. I

Relating to the preparation and publication of  
information not contained in the broadcasting-satellite  
Plan for Regions 1 and 3

The World Broadcasting-Satellite Administrative Radio Conference,  
Geneva, 1977,

considering

a) that the planning work for Regions 1 and 3 has been based on  
the calculation of the protection margins at a number of test points;

b) that it would be useful to know the equivalent protection  
margin at each of these test points for all the assignments in the Plan, in  
order to assess any degradation which may result from subsequent amendments to  
the Plan;

c) that it would be helpful, in applying the method set forth in  
Annex 3, for any administration wishing to bring terrestrial stations  
into service to know the elevation angle of the receiving antennae of the  
earth stations in the broadcasting-satellite service;

invites the IFRB

to prepare, with a view to its publication by the Secretary-General in 1977,  
a document containing the following information :

a) column 1 : country symbol and IFRB serial number for the beam;

b) column 2 : geographical coordinates of the test points as given  
in Document No. 149 of the Conference;

c) column 3 : elevation angle of the receiving antenna at each  
of these test points;

d) column 4 : azimuth in degrees clockwise from True North of the  
major beam axis of the receiving antenna;

e) column 5 : the equivalent protection margin<sup>1)</sup> in dB at each  
of these test points for all the assignments in the Plan.

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1) For the definition of equivalent protection margin, see Annex 8,  
paragraph 3.4, footnote 1).

COLUMNS HEADINGS OF THE PLAN

1. Country symbol and IFRB Serial Number(Column 1 contains the symbol designating the country or the geographical area taken from Table No. 1 of the Preface to the International Frequency List).
2. Nominal orbital position, in degrees.
3. Channel number (see Table showing correspondence between channel numbers and assigned frequencies, page / /).
4. Boresight geographical coordinates, in degrees and tenths of a degree.
5. Antenna beamwidth: This column contains two figures corresponding to the major axis and the minor axis respectively of the elliptical cross-section half-power beam, in degrees and tenths of a degree.
6. Orientation of the ellipse determined as follows : in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anti-clockwise from a line parallel to the equatorial plane to the major axis of the ellipse to the nearest degree.
7. Polarization (1 = direct, 2 = indirect).<sup>1)</sup>
8. E.i.r.p. in the direction of maximum radiation in dBW.
9. Remarks.

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1) See Annex 8, paragraph 3.2.3.

TABLEAU DE CORRESPONDANCE ENTRE LE NUMERO DU CANAL  
ET LA FREQUENCE ASSIGNEE

TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS  
AND ASSIGNED FREQUENCIES

CUADRO DE CORRESPONDENCIA ENTRE EL NÚMERO DEL CANAL  
Y LA FRECUENCIA ASIGNADA

Canal Channel N°	Fréquence assignée Assigned frequency Frecuencia asignada (MHz)	Canal Channel N°	Fréquence assignée Assigned frequency Frecuencia asignada (MHz)
1	11 727,48	21	12 111,08
2	11 746,66	22	12 130,26
3	11 765,84	23	12 149,44
4	11 785,02	24	12 168,62
5	11 804,20	25	12 187,80
6	11 823,38	26	12 206,98
7	11 842,56	27	12 226,16
8	11 861,74	28	12 245,34
9	11 880,92	29	12 264,52
10	11 900,10	30	12 283,70
11	11 919,28	31	12 302,88
12	11 938,46	32	12 322,06
13	11 957,64	33	12 341,24
14	11 976,82	34	12 360,42
15	11 996,00	35	12 379,60
16	12 015,18	36	12 398,78
17	12 034,36	37	12 417,96
18	12 053,54	38	12 437,14
19	12 072,72	39	12 456,32
20	12 091,90	40	12 475,50



PLENARY MEETING

MINUTES

OF THE

EIGHTH PLENARY MEETING

Wednesday, 9 February 1977, at 1030 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

<u>Subjects discussed</u>	<u>Document No.</u>
1. Ninth series of texts submitted by the Editorial Committee (B.9)	242
2. Statement by the delegate of Indonesia	

1. Ninth series of texts submitted by the Editorial Committee (B.9)  
(Document No. 242)

The Chairman of the Editorial Committee, supported by the Chairman of Committee 6, proposed the deletion of the square brackets from the introductory sentence of each of the Recommendations contained in Document No. 242.

It was so decided.

The delegate of India proposed the deletion of the word "more" before the word "ample" in considering 1 of Recommendations Nos. BB, CC and DD.

It was so decided.

Recommendation No. CC

The representative of the CCIR proposed the insertion of the word "rain" between the words "all" and "climatic" in paragraph 1 under "invites the CCIR" and the deletion of the words "99 % of" before the words "the year" in paragraph 3 under "invites the CCIR".

It was so decided.



Recommendation No. DD

The delegate of the United States of America proposed that the word "precision" in the penultimate line of considering f) should be replaced by the word "purity".

It was so decided.

Recommendation No. EE

The delegate of India proposed that the words "to estimate their future requirements for such links" at the beginning of the paragraph under "invites administrations" should be replaced by the words "to send their suggestions and specific proposals".

The delegate of the United States of America, speaking as Chairman of the Working Group in which Recommendation No. EE had been drafted, pointed out that the wording proposed by the delegate of India failed to make clear the kind of suggestions and specific proposals which administrations were being invited to forward to the CCIR.

The Chairman, supported by the delegate of the United Kingdom, proposed that the text should be retained in its original form but with the addition of the word "technical" between the words "future" and "requirements".

It was so agreed.

The ninth series of texts (B.9) was approved on first reading, as amended and subject to editorial changes.

2. Statement by the delegate of Indonesia

The delegate of Indonesia drew attention to the text of Document No. 249, submitted by his delegation. The object of the request was to ensure that the idea underlying the document - namely, that principles previously applied to the use of space should sometimes be discarded in the light of technological progress - might be considered at future conferences of the ITU.

The Chairman thanked the delegate of Indonesia for submitting that very useful document.

The meeting rose at 1120 hours.

The Secretary-General :

M. MILI

The Chairman :

Ib LØNBERG

PLENARY MEETING

MINUTES

OF THE

NINTH PLENARY MEETING

Wednesday, 9 February 1977, at 1530 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

Subjects discussed

Document Nos.

Texts submitted by the Editorial Committee  
(Add.1 to B.4, B.10)

225(Add.1),  
246

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Texts submitted by the Editorial Committee (Add.1 to B.4, B.10)  
(Documents Nos. 225(Add.1), 246)

Addendum 1 to the 4th Series of texts submitted by the Editorial Committee  
to the Plenary Meeting (Add.1 to B.4) (Document No. 225(Add.1))

Page 2

The Chairman said that all the square brackets in the text could now be removed.

The Chairman of Committee 6 said that the word "occupied" should be replaced by "necessary" in the second and third lines of the text.

The delegate of the United Kingdom proposed that the words "to be" should be inserted before "adopted" in the seventh line and that the words "of Regions 1 and 3 plan" in the footnote should be replaced by "in the Plan".

Page 2, as amended, was approved.

Page 3

The delegate of Italy observed that, since all the assignments in the Plan were to be recorded in the Master Register, it was not clear what entries were to be made in the Register under paragraph 5.2.7.

The Chairman of Committee 6, the delegate of the United Kingdom and the Chairman of the IFRB explained that the provision related to a clearly defined case, that of confirmation of the bringing into use of a frequency assignment notified in advance.

The delegate of Italy proposed that the words "in conformity with paragraph 5.1.3" be inserted after "bringing into use", to avoid any misunderstanding.

Page 3, as amended, was approved.

Page 4

The Chairman of the Editorial Committee pointed out that the English text of the miscellaneous provisions had been changed in her Committee, although some delegations had thought it best to retain the existing text of the Radio Regulations, which had been adopted by Committee 6 in Document No. 220.

The Chairman of Committee 6 proposed that the original text should be retained.

The delegate of the United Kingdom supported that proposal. Although the existing texts of the Radio Regulations might leave room for improvement, some of them were the result of compromises reached with difficulty at Administrative Conferences, and it would be inadvisable at that stage of the proceedings to put delegations in a position where they had to examine revised texts to ensure that no substantive changes had been introduced.

It was agreed that the original text of the miscellaneous would be restored in the R. Series.

The Addendum to the Fourth Series of texts (Add.1 to B.4) was approved on first reading, as amended and subject to editorial changes.

10th Series of texts submitted by the Editorial Committee to the Plenary Meeting (B.10) (Document No. 246)

The Chairman of the Editorial Committee said that the French and Spanish versions of the last paragraph on page 2 should be aligned with the English text. The words "(Malaga-Torremolinos, 1973)" should be added after the definition of "Convention" in Article 1 on page 4. Finally, the words "stations of" should be inserted before "existing and future" in "considering" paragraph b) of Resolution No. [ C ] on page 10.

Page 2

The Chairman of Committee 6 said that the words "and the Additional Radio Regulations" at the end of the fourth indented paragraph should be deleted.

The delegate of the United Kingdom said that the words "and in accordance with" should be inserted before "Resolution No. 27" in the first paragraph, to bring the text into line with the one adopted by Committee 6.

The delegate of the Netherlands observed that the words "has been charged" at the end of that paragraph had been erroneously omitted from the English text and proposed that they should be restored.

The delegate of Algeria proposed that the word "même" in the French text of the last paragraph on page 2 be replaced by "y compris".

Page 2, as amended, was approved.

Page 3

The Chairman of Committee 6 said that he had discussed the lay-out of the Final Acts with the Chairman of the Editorial Committee and that they had decided to suggest the texts in square brackets in order to take into account the Conference's decisions on the rearrangement of the Radio Regulations. They also considered that it would be more appropriate to place the signatures immediately after the preamble : it had originally been thought that the Final Acts would consist of a few articles on such general matters as definitions and that the procedures would take the form of appendices, but now that it had been decided to include the procedures in the articles themselves, it would be more logical to have the signatures before rather than after the articles. He suggested that the square brackets round the new phrase be removed.

It was so decided.

The delegate of Chile said that it was important to include a specific reference to the provisions whereby the Broadcasting-Satellite Service in Region 2 would be governed until a detailed plan for that Region was drawn up and proposed wording to that effect.

After a discussion during which the Chairman of Committee 6 and the delegates of the USSR and the Netherlands pointed out that the broad formulation of the preamble covered the provisions relating to all the Regions, the delegate of the United Kingdom proposed that the phrase "relating to the Broadcasting-Satellite Service in the above-mentioned bands" in the second and third lines be deleted.

The delegate of Chile said that that change would meet his delegation's preoccupations.

Page 3, as amended, was approved.

Article [ 1 ] - General definitions

The Chairman of Committee 6 said that the square brackets could be removed from the last two lines of the definition of "Conference".

Article [ 1 ] was approved.

Article [ 2 ] - Frequency bands

Article [ 2 ] was approved.

Article [ 3 ] - Execution of the Final Acts

The Chairman of Committee 6 pointed out that the words "and Annexes" should be inserted after "Articles" in the penultimate line.

Article [ 3 ], as amended, was approved.

Article [ 8 ] - Approval of the Final Acts

The delegate of the United Kingdom, supported by the delegate of New Zealand, proposed that the first two sentences of the English text should be combined to read "Members shall notify their approval of these Final Acts, as promptly as possible, to the Secretary-General, who shall at once inform the other Members of the Union", as in Article a on page 4 of Document No. 227.

The delegate of Chile, observing that the Final Acts would come into force in 1979 whereas the Conference to establish a plan for Region 2 would not be held until 1982, suggested that a reference to the provisions governing the Broadcasting-Satellite Service in Region 2 be made in the last sentence of Article [ 8 ].

The Chairman of Committee 6 said it had been made clear in the long discussions on the subject in Working Group 6D and Committee 6 that the World Agreement applied to all three Regions and that the associated Plan applied only to Regions 1 and 3.

The delegate of Italy added that the insertion of a specific reference to the provisions governing Region 2 would run counter to Resolution No. 3, providing that Resolution No. Spa2 - 3 would continue to apply to Region 2 until a plan was drawn up for that Region.

The delegate of Chile, supported by the delegate of Bolivia, said he saw no reason why a reference to the provisions governing Region 2 should not be made in Article [ 8 ], when they were already specifically mentioned in Article [ 3 ], paragraph 2.

The Deputy Secretary-General suggested that the separate reference to World Agreement was necessary but it was not exclusive. However, if the Plenary Meeting wished to meet the Chilean delegate's wish, the best solution would be to add a separate sentence concerning Region 2 at the end of Article [ 8 ].

The delegate of the United Kingdom observed that the purpose of the Article was to draw the attention of Administrations to the way in which the current Conference had implemented Resolution No. Spa2 - 2 of the 1971 Space Conference and to the obligations they would assume in approving the Final Acts.

The proposed reference to interim arrangements for Region 2, whether as an insertion in the existing last sentence or as a separate sentence, would only distort that general purpose; clearly, Resolution No. Spa2 - 2 no longer applied to Regions 1 and 3, because a Plan had been drawn up for these Regions, but continued to apply to Region 2.

Those remarks were endorsed by the Chairman of Committee 6, and the delegate of the Ukrainian SSR.

After a discussion during which the delegates of the United States of America and Mauritania suggested rearrangements of Article 8 to take the Chilean delegation's point into account, the delegate of the USSR proposed that Article [ 8 ] be divided into two paragraphs, the first consisting of the two opening sentences and the second of the last sentence.

The delegate of Chile accepted that solution.

Article [ 8 ], as amended, was approved.

Article [ 9 ] - Entry into force of the Final Acts

On a proposal by the Chairman of Committee 6, it was agreed to remove the square brackets from the date "1 January 1979".

Article [ 9 ], as amended, was approved.

Article [ 10 ] - Period of validity of the provisions and associated Plan

The Chairman of Committee 6, referring to paragraph 1, said that periods of between 10 and 15 years had been envisaged during the discussions held on the question, but no specific proposal was submitted by the Committee.

The delegate of India said that there were two conflicting requirements to be met when determining the period of validity of the Plan. First, sufficient flexibility must be provided to enable countries, particularly developing ones, to benefit from the rapid development of technology in the broadcasting-satellite field and, second, changes must not be introduced in the Plan too rapidly or too early if certain practical constraints and problems were to be avoided. In order to reconcile those two requirements, his delegation considered that a maximum period, beyond which the Plan would be considered as no longer valid, should also be set. Accordingly, he proposed that 10 and 15 years from the present time (8 and 13 years from the date of entry into force of the Final Acts) should be set, respectively, as the minimum and maximum periods.

The Chairman of Committee 6 said that the course suggested by the Indian delegate had been discussed in Committee 6 and rejected in favour of the formula in the text under discussion. If a maximum period were to be set, a Conference would have to be convened at the end of it, even if there was no real need for one.

The delegate of the USSR observed that it would be possible to convene a Conference to revise the Plan at any time, irrespective of what period was specified in the Final Acts, by following the procedure laid down in Article 62 of the Convention. His delegation considered that the period of validity which would best serve the interests of the developing countries was 15 years, but it would be prepared to accept any figure which the Conference might favour.

The delegate of Senegal said that he too preferred 15 years but would accept the wish of the majority.

The delegates of Nigeria, Zaire and Laos said that they favoured 15 years.

The delegate of China said that the period of validity should be at least 15 years.

The delegate of Papua New Guinea expressed a preference for 15 years, and said that he could not agree to the proposal by the Indian delegate.

The delegate of the United Kingdom supported the views of those delegations that favoured a 15-year period. He considered that no changes should be made in the wording of paragraph 1 of the Article.

The delegate of the Federal Republic of Germany said that he too considered 15 years to be an appropriate period. However, there might be some merit in placing that figure between square brackets until delegations had taken cognizance of the Plan itself.

The delegate of Italy observed that, should the need arise, the figure could always be changed when the Article was submitted to the Plenary Meeting for second reading.

Following some further discussion, in which the delegates of India, Zaire, the United Kingdom, France, Mauritania and the USSR took part, it was decided to insert the figure "15" in the blank space in paragraph 1.

On a proposal by the delegate of France, it was agreed to replace the words "Final Acts" by "provisions and associated Plan" in the first line of paragraph 2.

The delegate of Algeria considered that the word "competent" in the second line of paragraph 2 should be replaced by the word "World". If the Final Acts were to be regarded as including a World Agreement, it was difficult to envisage their being revised other than by a World Conference.

Following a discussion during which the delegates of the United Kingdom, Canada and the United States of America opposed the suggested change and the Chairman of Committee 6 observed that no Conference, whatever its status, was likely to take decisions that it was not competent to take, the delegate of Algeria said that he would not press his proposal.



Article [ 10 ], as amended, was approved.

Resolution No. [ A ]

On a proposal by the delegate of the United Kingdom it was agreed to delete the square brackets from the heading and also the brackets which appeared in the English text of the resolves paragraph.

On a proposal by the delegate of Canada, supported by the delegate of Japan, it was agreed to delete considering b).

Resolution No. [ A ], as amended, was approved.

Resolution No. [ B ]

Approved, subject to deletion of the brackets in considering a), replacement of the square brackets in considering b) by the letter "A", and substitution of the word "are" for the words "shall be" in the first line of the further considering paragraph.

Article [ ] - Interference

The Chairman of Committee 8 said that Committee 8 would examine other texts of a similar nature in order to determine the most appropriate place for the Article in the Final Acts.

The Chairman of Working Group 6D considered that the original wording of the Article as it appeared in Document No. DT/40 was preferable to that proposed by Committee 8. Accordingly, he proposed that the text should be amended to read : "The Members of the Union shall endeavour to agree on the action required to reduce harmful interference caused by the application of these provisions and the associated Plan".

The delegates of Japan and Switzerland supported that proposal.

The delegate of Mauritania said that the proposal would be acceptable to him if the words "which might be" were inserted before the word "caused".

The text proposed by the Chairman of Committee 6, as amended by the delegate of Mauritania, was approved.

In reply to a question by the Chairman of Committee 8, the Chairman said that the English text which had just been approved could be considered as valid and that the other two language versions should be brought into line with it if there were any discrepancies.

Resolution No. C

The Chairman said that the square brackets in the fourth line of the French text of considering a) should be removed.

The Chairman of Committee 6 said that "[ subsequent ]" should be deleted from considering c).

The delegate of Papua New Guinea said that the word "Plans" in considering c) should be replaced by "plans".

Those changes were approved.

The delegate of the United Kingdom, referring to resolves 1, proposed that the phrase "broadcasting-satellite stations provided for in the Plan" should be replaced by the phrase "frequency assignments in accordance with the Plan".

It was so decided.

The Chairman of Committee 6 observed that it would be necessary to make consequential amendments to resolves 2 in order to bring the text into line with the changed wording just approved for resolves 1.

It was so agreed.

The Chairman of Committee 6 said that the word "which" should be inserted after "frequency assignments" in the first line of resolves 3. In resolves 6, the word "recorded" should be replaced by the word "entered".

It was so agreed.

Resolution No. C, as amended, was approved.

The meeting rose at 1900 hours.

The Secretary-General :

M. MILLI

The Chairman :

Ib LØNBERG

COMMITTEE 6

SUMMARY RECORD

OF THE

NINTH AND LAST MEETING OF COMMITTEE 6

Sunday, 6 February 1977, at 1120 hrs

Chairman : Mr. R.J. BUNDLE (New Zealand)

Subjects discussed :

Documents Nos.

- |   |                     |
|---|---------------------|
| 1. Consideration of draft recommendation relating to the use by space radiocommunication services of only the geostationary orbit in the frequency bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1) | DL/53               |
| 2. Consideration of texts drafted by Committee 6 Ad Hoc Group   | DL/55, DL/56, DL/57 |
| 3. Consideration of Draft texts submitted by Working Group 6D   | 227 + Add.1, DL/54  |
| 4. Consideration of Recommendations by Working Group 4B   | 188(Rev.2)          |
| 5. Completion of the Committee's work   |                     |

1. Consideration of draft recommendation relating to the use by space radiocommunication services of only the geostationary orbit in the frequency bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1) (Document No. DL/53)

The Chairman said that the draft recommendation (Document No. DL/53) might be considered superfluous by some delegations since the point it dealt with could be considered as covered by No. 470VA of the Radio Regulations, but in his view that was not quite adequate for the protection of the Plan under discussion and the draft recommendation constituted an additional safeguard.

The delegate of the United Kingdom, supported by the delegates of Norway and the Federal Republic of Germany, proposed that the draft recommendation be converted into a draft resolution, and that the words "recommends" et seq. be deleted and replaced by :

"resolves

1. that Administrations shall ensure that their space radiocommunication services in these frequency bands are operated only in the geostationary orbit."

That amendment was approved.

The delegate of Colombia said that No. 470VA of the Radio Regulations referred to the Fixed-Satellite Service; in his view the relevant provisions of the Radio Regulations were No. 422 and No. 962. He proposed the addition in considering c) after the words "incompatible with" of the words "the Radio Regulations and.."

The delegate of the United Kingdom opposed the Colombian amendment, and pointed out that although No. 962 dealt with the operation of a broadcasting service by mobile stations on the sea and over the sea, it was clear from the terms and definitions in Article 1 of the Radio Regulations that mobile services were not mobile satellite services.

In the absence of support for the Colombian amendment, the Chairman declared it rejected.

The delegate of Colombia stated that Article 28, No. 962 of the Radio Regulations laid down that "the operation of a broadcasting service by mobile stations at sea and over the sea is prohibited."

It did not specify any restriction on the height at which such stations were located "over the sea"; consequently, such services could only be operated from fixed stations, since the Regulations only provided for those two methods for all the services with which they dealt.

The delegate of Poland, supported by the delegates of the USSR and Colombia, said that considering b) should be placed in square brackets, for reference to the plenary, since the holding of the Regional Administrative Radio Conference to which it referred had not yet been approved by the Conference.

The delegate of the USSR said that the role of the various Regions in the proposed Regional Conference needed to be more clearly specified. Also he was not sure how closely the limited use of the bands by space radiocommunication services corresponded to the Radio Regulations. He therefore proposed that the whole draft resolution should be placed in square brackets to indicate the need for its further consideration by the plenary.

It was so agreed.

The United Kingdom delegate pointed out that the title of the Conference in the first line should be amended to bring it into line with that used in Document No. 227, and the Chairman said that that would be done wherever the title appeared in the documents under consideration.

The draft resolution (Document No. DL/53) as amended by the United Kingdom delegate, and placed in square brackets, was adopted.

2. Consideration of texts drafted by Committee 6 Ad Hoc Group  
(Documents Nos. DL/55, DL/56 and DL/57)

The delegate of Australia, speaking as Chairman of the Committee 6 Ad Hoc Group, introduced the Corrigendum to Document No. 210 (Document No. DL/55), the draft resolution relating to the coordination, notification and recording of broadcasting-satellite stations in Region 2 (Document No. DL/56), and the informative draft on power flux-density limits between 11.7 - 12.2 GHz (Document No. DL/57), and announced editorial corrections to Documents Nos. DL/55 and DL/56.

Corrigendum to Document No. 210 (Document No. DL/55)

The delegate of Poland said that, as in the case of the document just discussed, his delegation had objections to the reference to a Region 2 Regional Conference, and he reserved the right to return to the matter in plenary.

The Chairman said that the Polish delegate's reservation had been noted.

The delegate of the United Kingdom proposed the deletion of the words from "to be adopted" to the end of the indented paragraph; the insertion of the word "is" after the words "Region 2 Plan" in the first line of footnote [1]; and the replacement of the word "shall" by the words "and will" in the second line of the footnote.

The delegate of the United States of America opposed that amendment, on the grounds that the words "including modifications thereto" should be retained.

Supported by the delegate of Canada, he proposed deletion of footnote [1] which had been intended merely as an explanatory insertion for Committee 5.

The delegate of Italy said the footnote should remain, since otherwise frequency assignments in Regions 1 and 3 would not be protected from assignments in Region 2, whereas those in Region 2 would be protected from Regions 1 and 3.

The delegate of the USSR endorsed the Italian delegate's comment, and supported the proposed United Kingdom amendment. In view of the somewhat confused nature of the discussion, he reserved the right to return to the subject in plenary.

The United Kingdom delegate withdrew his amendment.

On the proposal of the delegate of India, it was agreed to delete the word "detailed" before the words "Region 2 Plan" in both the indented paragraph and the footnote.

The Chairman said that in view of the lack of unanimity regarding its deletion, footnote 1) would be retained in square brackets.

Document No. DL/55, as amended, and with the editorial corrections given by the Chairman of the Committee 6 Ad Hoc Group, was approved.

Draft resolution relating to the coordination, notification and recording of broadcasting-satellite stations in Region 2  
(Document No. DL/56)

The delegate of the United Kingdom proposed that the word "registration" should be changed to "recording" in resolves 2 and 3, to bring the language into conformity with that used in other Conference documents. He further proposed the addition of the words "in Region 2" at the end of considering d).

It was so agreed.

The delegate of Italy proposed that in the third line of resolves 3 the words "for which a frequency assignment appears in the Plan" should be inserted after "broadcasting satellite stations", and agreed that the subsequent reference to Regions 1 and 3 was unnecessary and should be dropped.

The Italian amendment was adopted.

The delegate of the United Kingdom, supported by the delegate of Italy, proposed that in second line of considering c) the words "for that region" should be inserted after the word "Plan".

It was so agreed.

Document No. DL/56, as amended, and with the editorial corrections given by the Chairman of the Committee 6 Ad Hoc Group, was approved.

Power flux-density limits between 11.7 - 12.2 GHz (Document No. DL/57)

The Chairman of Committee 6 Ad Hoc Group said that the document had been prepared by a member of the United Kingdom delegation serving on the ad hoc joint coordination group of Committees 4 and 6.

The delegate of the United Kingdom, introducing the document, said that it contained a draft regulatory text which was designed to ensure that the Broadcasting-Satellite Service in Region 2 did not cause interference to terrestrial services in Regions 1 and 3, and which might be incorporated in the Final Acts as a separate article. The following phrase should be added at the end of the text, after the word "values" : "on the territory of any country unless the administration of that country so agrees". The figures given in paragraphs 1 and 2 were only examples and would have to be replaced by those finally approved by Committee 4. Consequently, he suggested that those two paragraphs might be placed within square brackets pending the outcome of Committee 4's work.

The delegate of Italy, supported by the delegate of the United States of America, considered that the document should be referred to the ad hoc joint coordination group of Committees 4 and 6, which had the task of preparing technical appendices to the articles concerned with coordination and notification procedures.

The delegate of the United Kingdom said that the figures would certainly have to be incorporated in the appropriate technical appendix, but that a regulatory text in the form of a separate article was also required. Accordingly, he proposed that the last part of the text should be amended to read "... shall not exceed the values given in Appendix / ... / on the territory of any country ...", and that paragraphs 1 and 2 containing the figures should be deleted.

The delegates of the Federal Republic of Germany, Italy and the USSR supported that proposal.

The Chairman said that if he heard no objection he would take it that the text proposed by the United Kingdom delegate was acceptable to the Committee and could be transmitted to the joint coordination group of Committees 4 and 6 to assist it in its deliberations.

It was so agreed.

Draft Resolution relating to the coordination, notification and recording in the Master International Frequency Register of fixed-satellite stations in relation with broadcasting-satellite stations in Region 2 (Document No. DL/X)

The Chairman of Committee 6 Ad Hoc Group introduced the draft Resolution.

On a proposal by the delegate of Denmark, it was agreed to insert the words "stations in" before the words "the Broadcasting-Satellite Service" at the end of the considering paragraph.

The draft Resolution, as amended, was approved.

3. Consideration of draft texts submitted by Working Group 6D  
(Document No. 227 + Add. 1)

The Chairman of Working Group 6D drew attention to Addendum No. 1 to Document No. 227 which contained the text of a draft Resolution relating to the updating of the Master International Frequency Register for Regions 1 and 3. A proposal made towards the end of the Working Group's discussions by the Algerian delegation for the addition of a new paragraph under resolves had been referred to a small group of interested delegations for consideration.

The Chairman said that, as a result of the discussions held between the Algerian and other delegations and the IFRB, agreement had been reached on the following text for a new paragraph resolves 6 :

"that, on the date of entry into force of the Final Acts, the frequency assignments in the Plan will be recorded in the Master Register. The date of signature of the Final Acts, together with an appropriate symbol, will be entered in Column 13c opposite these assignments."

Following a discussion in which the delegates of the United Kingdom, the Federal Republic of Germany and Algeria took part, the text proposed for resolves 6, was approved.

On a proposal by the delegate of Norway, it was agreed to insert the words "in accordance" after the word "operating" in the last line of considering b).

The draft Resolution in Addendum No. 1 to Document No. 227, as amended, was approved.

The delegate of Italy, referring to Article 3 (Document No. 227, page 4), asked what action had been taken in respect of paragraph 3 of the draft which had appeared originally in Document No. DT/40.

The Chairman read out the paragraph in question and said that, if the Committee agreed, it would be included in the Final Acts as a separate Article entitled "Interference". Committee 8 would decide on the most appropriate place for it in the Final Acts.

It was so agreed.

4. Consideration of recommendations by Working Group 4B  
(Document No. 188(Rev.2))

The delegate of Italy observed that the recommendations in paragraphs 3.1 and 3.2 of Document No. 188(Rev.2) were relevant to the work of Committee 6, since draft Recommendations or Resolutions relating to the matters with which they dealt would have to be prepared.

The Chairman said that the recommendations by Working Group 4B to which the previous speaker had referred could only be included in the Appendices to the procedural provisions, which were being discussed by the joint coordination group of Committees 4 and 6. It would not be possible for those recommendations to be taken into consideration by Committee 6; the only possible course would be to bring them to the attention of the joint group.

Following a discussion in which the delegates of Italy and the United Kingdom, the Chairman of Committee 5 and the Chairman took part, it was agreed that the Chairman would discuss the problem with the Chairmen of Committees 4 and 5 in order to determine the most appropriate course to take.

5. Completion of the Committee's work

The Chairman suggested that the joint coordination group of Committees 4 and 6 should be requested to report the results of its work to himself and the Chairman of Committee 4; the draft texts it produced would then be examined by Committee 8 and submitted directly to the Plenary Meeting.

It was so agreed.



The Chairman said that the Committee had now completed its work, which had not been easy. He wished to thank the Chairmen of the various Working Groups as well as the Secretary and his staff for all their help to the Groups and to the Committee as a whole. His only criticism was that the differing views of the permanent organs of the Union had at times made difficult situations no easier to resolve.

The delegate of the United Kingdom said that the Committee's task had been particularly arduous due to the impossibility of considering regulatory procedures without ambiguity in the absence of full knowledge of all the other factors involved. He paid a warm tribute to the Chairman for the masterly way in which he had conducted the Committee's deliberations.

The meeting rose at 1345 hours.

The Secretary :

R. PLUSS

The Chairman :

R.J. BUNDLE

INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 355-E

12 February 1977

Original : English

PLENARY MEETING

United States of America

DOCUMENT No. 248

With reference to the statement made by the delegation of the Republic of Panama in Document No. 248, the delegation of the United States of America wishes to note that negotiations between the United States and the Republic of Panama on a new treaty governing the Panama Canal are presently under way. It is the hope and aim of the United States of America that a new treaty will be in effect by the time a Broadcasting-Satellite Service is a reality.



PLENARY MEETING

FINAL PROTOCOL

For the Kingdom of Morocco and the Islamic Republic of Mauritania

The delegations of the Kingdom of Morocco and the Islamic Republic of Mauritania, having taken note of the declaration made by the Algerian Democratic and Popular Republic in Document No. 333, wish to recall that the dimensions of the beams intended for the coverage of their territories were defined by the planning bodies set up by the Conference. These beams are in full conformity with the provisions of No. 428A of the Radio Regulations.

It should also be noted that the Saharan provinces of the Kingdom of Morocco and the Islamic Republic of Mauritania were recovered legally under the aegis of the international authorities and are an integral part of these countries.

The declaration of the Algerian delegation contained in Document No. 333 is one of the last symbolic acts carried out by the pseudo-revolutionary and expansionist regime of this country after the vain attempts made to impose its will on our Saharan territories.

The Moroccan and Mauritanian delegations consider this declaration to be an act of flagrant interference in their internal affairs and call on the Conference to consider it null and void.



FINAL PROTOCOL

For Japan

The delegation of Japan wishes to state that the ellipse of Japan is established in such a manner as to obtain a most efficient and reasonable broadcasting-satellite system for covering the territory of Japan, while taking every care technically possible so as to reduce to the maximum extent practicable the radiation over the territory of other countries in accordance with the provisions of No. 428A of the Radio Regulations.

In connection with the reservations made by the delegation of any country in this respect, the delegation of Japan reserves for its Administration all the rights necessary to safeguard its interests.

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PLENARY MEETING

FINAL PROTOCOL

For Japan

With reference to the reservation made by the delegation of the Democratic People's Republic of Korea which appears in Document No. 344, the delegation of Japan wishes to state as follows :

The ellipse of Japan is established in such a manner as to obtain a most efficient and reasonable broadcasting-satellite system for covering the territory of Japan, while taking every care technically possible so as to reduce to the maximum extent practicable the radiation over the area outside its own territory in accordance with the provisions of No. 428A of the Radio Regulations. As it is established solely from technical point of view and contains no political elements, the delegation of Japan cannot accept the contention of the delegation of the Democratic People's Republic of Korea in this respect.

The delegation of Japan therefore states that its Administration reserves all the rights necessary to safeguard its interest in connection with the reservations made by the delegation of the Democratic People's Republic of Korea.



INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 359-E

12 February 1977

Original : English

PLENARY MEETING

FINAL PROTOCOL

For Japan

With regard to the declarations made by several equatorial countries in Documents Nos. 340 and 344 in connection with the sovereignty over the geostationary orbit, the delegation of Japan wishes to declare, on behalf of the Japanese Government, that the ITU is not competent to deal with this question and that the delegation of Japan cannot agree with what was expressed in the said documents because of the world-widely accepted principle that outer space is not subject to national appropriation by claim of sovereignty.

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INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 360-E  
12 February 1977  
Original : English

PLENARY MEETING

FINAL PROTOCOL

For the Federal Republic of Germany, Austria, Belgium, Canada, Denmark, United States of America, Finland, France, Ireland, Italy, Luxembourg, Monaco, Norway, Kingdom of the Netherlands, United Kingdom of Great Britain and Northern Ireland, Sweden

With reference to reservations by the Republic of Colombia, the People's Republic of the Congo, the Republic of Ecuador, the Republic of Gabon, the Republic of Kenya, the Republic of Uganda, the Republic of Zaire the above-mentioned delegations consider that such claims cannot be recognized by this Conference and declare that the decisions of this Conference to assign frequencies and orbital positions in the geostationary orbit are fully in accordance with the Convention of the International Telecommunication Union, Malaga-Torremolinos 1973, by which this Conference is bound.



INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 361-E

12 February 1977

Original : English

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PLENARY MEETING

FINAL PROTOCOL

For the Republic of India

With reference to the Final Protocol for the People's Republic of China as contained in Document No. 322, the delegation of India wishes to state the following.

India categorically refutes the contention of the People's Republic of China that certain regions of Chinese territory are shown as Indian territory in the service areas of beams IND 0037 and IND 0038. All the polygon points for these two beams are within India. The service areas of these beams are an integral part of India.

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PLENARY MEETING

FINAL PROTOCOL

For the Republic of Korea

With reference to the statement submitted in Document No. 345, the delegation of the Republic of Korea wishes to make the following statement :

1. The delegation of the Republic of Korea categorically rejects the unfounded allegation of the North Korean authorities with regard to the fair and just ellipse of the Republic of Korea for the Broadcasting-Satellite Service.

The delegation of the Republic of Korea, as it stated many times in the various meetings of this Conference, once again makes it clear that the ellipse for the Republic of Korea is the minimum requirement for its broadcasting services and that the Republic of Korea has no intention to affect any intentional spillover to any adjacent countries.

2. The delegation of the Republic of Korea totally rejects the groundless and malicious political polemics of North Korean authorities which have no relevance at all in light of the objectives and technical nature of this Conference.

3. The delegation of the Republic of Korea declares that it does not recognize the ellipse of North Korean authorities which extends into the territory of the Republic of Korea and further declares that it will take all necessary measures to protect the legitimate interests of the Republic of Korea in this regard.



PLENARY MEETING

Note from the Secretary-General

FINAL PROTOCOL

The following documents (handed in before 1200 hours on 12 February 1977) have been issued in reply to some of the reservations listed in Document No. 269 and contain texts to be published in the Final Protocol of the Final Acts of the Conference :

<u>Document No.</u>	<u>Submitted by</u>
356	Kingdom of Morocco, Islamic Republic of Mauritania
357	Japan
358	Japan
359	Japan
360	Federal Republic of Germany, Austria, Belgium, Canada, Denmark, United States of America, Finland, France, Ireland, Italy, Luxembourg, Monaco, Norway, Kingdom of the Netherlands, United Kingdom of Great Britain and Northern Ireland, Sweden
361	Republic of India
362	Republic of Korea
364	Spain
366	Algerian Democratic and Popular Republic
367	Algerian Democratic and Popular Republic

M. MILI

Secretary-General



INTERNATIONAL TELECOMMUNICATION UNION  
BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 364-E  
11 February 1977  
Original : Spanish

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PLENARY MEETING

FINAL PROTOCOL

For Spain

The Spanish delegation rejects the allusion made to Spain in a reservation referring to the Western Sahara.

In a communication dated 26 November 1975 to the Secretary-General of the United Nations from the Ambassador and Permanent Representative of Spain to that organization (Document A/31/56/S11997), the Spanish Government announced that it had on that date definitively brought to an end its presence in the territory of the Sahara and noted that it considered itself henceforth released of all international responsibility with regard to the administration of that territory. With regard to the attitude of the Spanish Government in connection with the Western Sahara, the Spanish delegation refers to the communications and declarations submitted by Spain to the competent bodies of the United Nations.

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INTERNATIONAL TELECOMMUNICATION UNION

BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 365-E  
12 February 1977  
Original : English

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PLENARY MEETING

Union of Soviet Socialist Republics

DOCUMENTS Nos. 272 AND 273

In connection with the issue of Documents No. 272 and No. 273 the delegation of the USSR considers it necessary to state its disagreement of principle with their contents, in particular in respect of interpretation of provisions of Quadripartite Agreement of 3 September 1971. Paragraph a) of the Document No. 272 constitutes in fact an attempt of interference in the internal affairs of a sovereign state - the German Democratic Republic. As is well known, the city of Berlin is the capital of the German Democratic Republic and it is only natural that the Quadripartite Agreement of 3 September 1971 does not apply to it.

The delegation of the USSR confirms its declaration made in Committee 2 on 7 February (see Annex to Document No. 271).

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INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

(Geneva, 1977)

Document No. 366-E

12 February 1977

Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Algerian Democratic and Popular Republic

In its declaration reproduced in Document No. 346, the delegation of Tunisia alludes to "the coverage area resulting from the assignments to certain neighbouring countries".

In case this allusion should concern the Algerian Democratic and Popular Republic, the Algerian delegation formally draws the attention of the Conference to the fact that the beam 150 TUN allotted to Tunisia intentionally covers part of the territory of Algeria and is therefore subject to the application of No. 428A of the Radio Regulations.



INTERNATIONAL TELECOMMUNICATION UNION  
BROADCASTING SATELLITE CONFERENCE

(Geneva, 1977)

Document No. 367-E  
12 February 1977  
Original : French

PLENARY MEETING

FINAL PROTOCOL

For the Algerian Democratic and Popular Republic

In Document No. 347 the Moroccan delegation claims that it proposed a compromise solution to the Algerian delegation and that the Algerian delegation refused to adopt this solution.

The Algerian delegation wishes to draw attention to the following points :

- 1) The compromise solution was proposed by the Algerian delegation and not by the Moroccan delegation.
- 2) The Algerian delegation consequently submitted the official documents required to the planning groups.
- 3) The Algerian delegation totally rejects the false and misleading statements made in Document No. 347.



Working Group 5A

NOTES CONCERNING NEGATIVE MARGINS AND PROTECTION

RATIOS FOR THE BROADCASTING-SATELLITE SERVICE

WITHIN THE REGION 1 AND 3 PLAN

1. Introduction

The Conference adopted a protection ratio (the ratio of the wanted signal-to-total interferences) of 30 dB, plus a 1 dB additional planning margin. A value as high as 30 dB was chosen on the basis that a new service, such as the Broadcasting-Satellite Service, would need to provide a good quality of reception, even with pictures which are particularly susceptible to the effects of interference. The 1 dB planning margin had several justifications. It provides a small allowance for transmitter-tube aging and for other factors.

The Working Group 5A have produced a plan for Region 1 and 3 which had as its objective the above standard in respect of protection ratio. It was convenient for planning purposes to refer to any carrier-to-interference ratio which did not achieve 1 dB as a "negative margin". However, it is very important to establish that a negative margin of a few decibels (0-3 dB) does not in any way mean harmful interference. Indeed, the concept of negative and positive margins, whilst convenient for making the plan, may be misleading unless put in the proper perspective.

2. Relationship between protection margin, protection ratio and picture quality

The Annex (produced by the European Broadcasting Union) shows the relationship between protection margin and picture quality. It can be seen from Figure 1 that going from a protection ratio of 31 dB to 28 dB (negative margin of -3) represents a change in the numerical value corresponding to the picture quality of less than 0.5. A value of protection ratio of 20 dB (negative margin of -11) would represent harmful interference since it corresponds to a slightly annoying impairment of the picture.

3. Further considerations

i) The 1 dB planning margin is not essential in all cases. For example, tube aging effects can be overcome by providing a slightly higher power-capability, together with simple power control to keep the emitted power within prescribed limits.



ii) The computer calculation has assumed a situation for printing error where the interfering satellites are all displaced by  $0.1^\circ$  towards the wanted-service area taking, at the same time, an adverse  $0.1^\circ$  error in the wanted-service beam. This will give an over-pessimistic result in some cases.

iii) The protection margin for countries having medium and large geographical areas varies considerably over the service area. Typically, a country having a negative margin of -2 dB at one point may have a positive margin of +6 at another point.

iv) A negative margin of -3 dB corresponds to a protection ratio of 28 dB. This is some 10 to 14 dB below the thermal noise level (assuming a minimum carrier-to-noise ratio of 14 dB).

v) The antenna reference pattern is only an envelope defining levels which are not to be exceeded. In practice, there will probably be nulls in the antenna patterns, providing much higher discrimination against interference from some directions.

4. The quality of the plan

The plan was produced by the Sub-Group 5A 2/3 under the Chairmanship of Mr. Amira of Kenya and comprised experts from 18 different countries from all parts of Regions 1 and 3. It must be put on record that from the view-point of achieving a successful compromise between picture quality, technical factors and the requirements presented by administrations to the Conference, the Sub-Group has produced a very good result. The Conference has for its consideration a good Region 1 and 3 plan.

Annex : 1



A N N E XRELATIONSHIP BETWEEN PROTECTION MARGIN  
AND PICTURE-QUALITY

The relationship is derived from equation 1 of CCIR Report 634(Rev.76) :  
This states that

$$PR_o = C - 20 \log \left( \frac{D_v}{12} \right) - Q + 1.1 Q^2$$

where  $PR_o$  : protection ratio, dB

$D_v$  : nominal peak-to-peak frequency deviation

$Q$  : the impairment grade, concerning the effect of interference only, measured on the 5-point scale recommended in draft Recommendation 500(Rev.76)

$C$  : a constant depending on the television standard

The appropriate values of  $PR_o$ ,  $C$  and  $D_v$  are given in Document No. 177 of Committee 4, and the resultant relationship is given in Figure 1 of the present document.

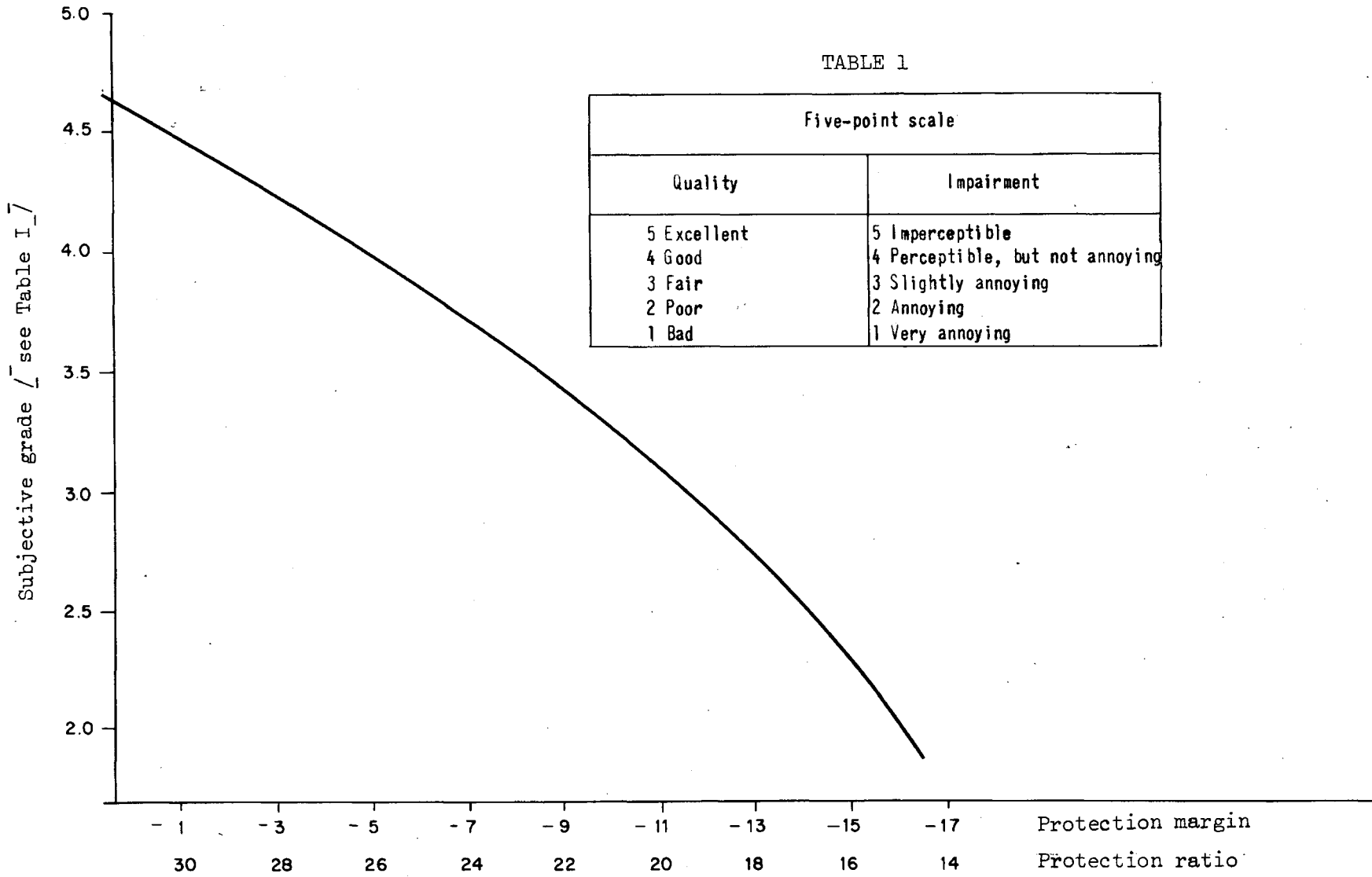


FIGURE 1

Relationship between protection margin/protection ratio and picture quality

TABLE 1

Five-point scale	
Quality	Impairment
5 Excellent	5 Imperceptible
4 Good	4 Perceptible, but not annoying
3 Fair	3 Slightly annoying
2 Poor	2 Annoying
1 Bad	1 Very annoying

INTERNATIONAL TELECOMMUNICATION UNION  
BROADCASTING SATELLITE CONFERENCE

Document No. 369-E  
12 February 1977  
Original : English

(Geneva, 1977)

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PLENARY MEETING

German Democratic Republic

DOCUMENTS NOS. 272 AND 273

The delegation of the German Democratic Republic confirms its statement made in Committee 2 on 7 February (see Annex to Document No. 271).

In connection with the issue of Documents Nos. 272 and 273, the delegation of the German Democratic Republic deems it necessary to state its disagreement of principle with their contents.

Paragraph a) of Document No. 272 constitutes, in fact, an attempt to interfere with the internal affairs of the German Democratic Republic, a sovereign State. As is well known, Berlin is the capital of the German Democratic Republic and it is only natural that the Quadripartite Agreement of 3 September 1971 does not apply to it.



PLENARY MEETING

R.6

6th SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting :

<u>Document No.</u>	<u>Title</u>
DT/49, DT/52	Power flux density produced in the territories of Region 2 by satellites in the broadcasting-satellite service in Regions 1 and 3

Miss M. HUET  
Chairman of the  
Editorial Committee

Annexes : 11 pages



POWER FLUX DENSITY PRODUCED IN THE TERRITORIES OF REGION 2 BY SATELLITES  
IN THE BROADCASTING-SATELLITE SERVICE IN REGIONS 1 AND 3

Method of calculation

1. The power flux density produced, under conditions of free space propagation, at a given point, P, on the surface of the earth, by a satellite in the geostationary orbit, can be calculated from the following data :

- 1.1 - nominal orbit position,
- 1.2 - e.i.r.p.
- 1.3 - characteristics of the antenna beam at half-power points (i.e. the major and minor axes together with the orientation of the associated ellipse),
- 1.4 - geographical coordinates of the boresight (B),
- 1.5 - geographical coordinates of the point P.

2. The values for items 1.1 to 1.4 above are obtained from the Plan for the broadcasting-satellite service in Regions 1 and 3. For the calculations which follow, the point P has been taken as the most easterly point of Brazil (35°W, 8°S).

3. The power flux density produced at P is then, calculated as follows :

- calculate the distance, d, between the satellite and the point P;
  - calculate the spreading attenuation, A, for the distance d
- $$(A = \frac{1}{4\pi d^2})$$
- calculate the angle  $\phi$ , as seen from the satellite, between points B and P;
  - calculate  $\phi_0$ , the half-power beamwidth in the direction of P (in the case of a circular beam  $\phi_0$  will be independent of direction);
  - using the reference pattern for the co-polar component of the satellite transmitting antenna, determine the relative antenna gain, g, for the calculated values of  $\phi$  and  $\phi_0$ ;
  - calculate the power flux density, produced at P, from the relation :
- $$\text{pfd} = \text{e.i.r.p.} + g - A$$

Results

The power flux densities produced at the most easterly point of Brazil (35°W, 8°S) from broadcasting satellites of Regions 1 and 3, to which orbital positions from 37°W to 5°E and channels 1 to 25 have been assigned in the Plan, are given in the following table.

## ANNEX

Document No. 370-E

Page 3

PFD Produced in Region 2 at a Point having

Longitude = 35° W

Latitude 8° S

Nominal orbit position - 37.0			Nominal orbit position - 31.0			Nominal orbit position - 25.0			Nominal orbit position - 19.0		
Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>
AND 0341	4, 8, 12 16, 20	-146.35	AZR 0134	3, 7, 11 15, 19	-140.72	ALG 0252	4, 8, 12 16, 20	-130.26	AUT 0016	4, 8, 12 16, 20	-143.67
GMB 0302	3, 7, 11 15, 19	-137.17	CPV 0301	4, 8, 12, 16, 20	-137.14	LYB 0280	1, 5, 9 13, 17	-138.64	D 0087	2, 6, 10 14, 18	-140.17
LIE 0253	3, 7, 11 15, 19	-146.00	G 0027	4, 8, 12 16, 20	-140.02	LYB 0321	3, 7, 11 15, 19	-139.00	DAH 0233	3, 7, 11 15, 19	-140.20
MLI 0327	2, 6, 10 14, 18	-132.79	GNP 0304	2, 6, 10 14, 18	-137.07	TGO 0226	2, 6, 10, 14, 18	-141.45	F 0093	1, 5, 9 13, 17	-138.67
SMR 0311	1, 5, 9, 13, 17	-145.92	IRL 0211	2, 6, 10 14, 18	-144.38				LUX 0114	3, 7, 11 15, 19	-145.56
GUI 0192	1, 5, 9, 13, 17	-132.98	LBR 0244	3, 7, 11 15	-137.10				ZAI 0322	4, 8, 12 16, 20	-130.94
MLI 0328	4, 8, 12, 16, 20	-131.06	POR 0133	3, 7, 11 15, 19	-142.35				ZAI 0323	2, 6, 10 14, 18	-130.05

Nominal orbit position - 13.0			Nominal orbit position - 7.0			Nominal orbit position - 1.0			Nominal orbit position + 5.0		
Country symbol & IFRB No.	Channel Nos.	PFDF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFDF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFDF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFDF Produced dBW/m <sup>2</sup>
CVA 0085	23	-141.92	CNR 0130	23,27,31, 35,39	-140.93	GHA 0108	23,27,31, 35,39	-134.45	BEL 0018	21,25,29, 33,37	-144.97
MCO 0116	21,25,29, 33,37	-145.75	CTI 0237	22,26,30, 34,38	-132.20	NGR 0115	24,28,32, 36,40	-127.77	GNE 0303	23,27,31, 35,39	-141.30
MTN 0223	22,26,30, 34,38	-129.20	E 0129	23,27,31, 35,39	-137.48	MRC 0209	21,25,29, 33,37	-128.74	HOL 0213	23,27,31, 35,39	-144.77
MTN 0288	24,28,32, 36,40	-135.68	HVO 0107	21,25,29, 33,37	-131.90	TUN 0150	22,26,30, 34,38	-141.14	I 0082	24,28,32, 36,40	-138.57
SEN 0222	21,25,29, 33,37	-133.19	ISL 0049	21,25,29, 33,37	-142.72				NIG 0119	22,26,30, 34,38	-129.39
			SRL 0259	23,29,31, 35,39	-136.72				SUI 0140	22,26,30, 34,38	-143.10
									NMB 0025	25,29,33, 37	-130.13

Nominal orbit position - 13.0			Nominal orbit position - 7.0			Nominal orbit position - 1.0			Nominal orbit position + 5.0						
Country symbol & IFRB No.	Channel Nos.	PF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PF Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PF Produced dBW/m <sup>2</sup>				
CME	0300	1, 5, 9, 13, 17	-132.87	EGY	0026	4, 8, 12, 16, 20	-136.59	BOT	0297	2, 6, 10, 14, 18	-134.49	DNK	0089	12, 16, 20	-143.42
GAB	0260	3, 7, 11, 15, 19	-136.65					BUL	0020	4, 8, 12, 16, 20	-144.97	FNL	0103	2, 6, 10	-138.17
MLT	0147	4, 8, 12, 16	-148.55					MOZ	0307	4, 8, 12, 16, 20	-135.37	GRC	0105	3, 7, 11, 15, 20	-140.87
STP	0241	4, 8, 12, 16, 20	-144.70					POL	0132	1, 5, 9, 13, 17	-142.67	S	0138	4, 8	-138.94
TCD	0143	2, 6, 10, 14, 18	-133.89					ROU	0136	2, 6, 10, 14, 18	-143.17	TUR	0145	1, 5, 9, 13, 17	-138.47
								SWZ	0313	1, 5, 9, 13, 17	-147.30	NOR	0120	14, 18	-139.42
								TCH	0144	3, 7, 11, 15, 19	-143.27				
								ZMB	0314	3, 7, 11, 15, 19	-134.29				



Nominal orbit position - 13.0			Nominal orbit position - 7.0			Nominal orbit position - 1.0			Nominal orbit position + 5.0		
Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>	Country symbol & IFRB No.	Channel Nos.	PFD Produced dBW/m <sup>2</sup>
AGL 0295	23,27,31, 35,39	-129.57	ALB 0296	22,26,30, 34,38	-146.49	DDR 0216	21,25,29, 33,37	-145.17	AFS 0021	21,25,29, 33,37	-132.06
CAF 0258	24,28,32, 34,40	-130.81	SDN 0231	22,26,30, 34,38	-133.37	HNG 0106	22,26,30, 34,38	-145.07	CYP 0086	21,25,29, 33,37	-147.47
COG 0235	22,26,30, 34,38	-134.83	SDN 0230	23,27,31, 35,39	-136.84	MWI 0308	24,28,32, 36,40	-142.67	DNK 0090	24	-135.20
ISR 0110	25,29,33, 37	-145.02	SDN 0232	24,28,32, 36,40	-134.23	RHS 0135	22,26,30, 34,38	-136.51	FNL 0104	22,26	-135.20
			YUG 0148	21,25,29, 33,37	-140.79				ISL 0050	23,27,31, 35,39	-137.87
			YUG 0149	23,27,31, 35,39	-140.79				LSO 0305	24,28,32, 36,40	-145.06

ANNEX 1

LIMITS FOR DETERMINING WHETHER A SERVICE OF AN ADMINISTRATION  
IS CONSIDERED TO BE AFFECTED BY A PROPOSED MODIFICATION  
TO THE PLAN (ARTICLE 4, PARAGRAPH 4.3.1)<sup>1)</sup>

1. Limits on the change in the wanted-to-interfering signal ratio with respect to frequency assignments in accordance with the Plan

With respect to paragraph 4.3.1.1, an administration shall be considered as being affected if the effect of the proposed modification to the Plan would result in the wanted-to-interfering signal ratio at any point within the service area associated with any of its frequency assignments in the 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, whichever is the lower.

Note : In performing the calculation, the effect at the receiver input of all the co-channel and adjacent channel signals is expressed in terms of one equivalent co-channel interfering signal. This value is usually expressed in decibels.

2. Limits on change in power flux density to protect the broadcasting-satellite service in the band 11.7 - 12.2 GHz in Region 2

With respect to paragraph 4.3.1.2 an administration in Region 2 shall be considered as being affected if the proposed modification to the Plan would result in exceeding the following power flux densities at any point in the service area affected :

$-147 \text{ dBW/m}^2/27 \text{ MHz}$	$0^\circ \leq \theta < 0.48^\circ$
$-139 + 25 \log \theta \text{ dBW/m}^2/27 \text{ MHz}$	$0.48^\circ \leq \theta < 27.25^\circ$
$-103 \text{ dBW/m}^2/27 \text{ MHz}$	$\theta \geq 27.25^\circ$

where  $\theta$  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.

- 1) The limits specified in this Annex relate to the power flux densities which would be obtained assuming free space propagation conditions.

3. Limits on the change in power flux density to protect the terrestrial services of other administrations

With respect to paragraph 4.3.1.3, an administration in Region 1 or 3 shall be considered as being affected if the consequence of the proposed modification to the 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 the frequency assignments in the Plan at the time of entry into force of the Final Acts.

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 Annex 5.

An administration in Region 2 shall be considered as being affected if the proposed modification to the Plan would result in exceeding a power flux density, for all angles of arrival, at any point on its territories, of  $-125 \text{ dBW/m}^2/4 \text{ kHz}$  when the broadcasting-satellite station uses circular polarization and  $-128 \text{ dBW/m}^2/4 \text{ kHz}$  when the broadcasting-satellite station uses linear polarization.

4. Limits on the change in power flux density to protect fixed-satellite service in the band 11.7 - 12.2 GHz in Region 2

With respect to paragraph 4.3.1.4, an administration in Region 2 shall be considered as being affected if the proposed modification to the 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 Plan at the time of entry into force of the Final Acts.

Where an assignment in the Plan or its subsequent modification gives a power flux density less than  $-138$  anywhere in the territory of an administration of Region 2, that administration shall be considered as not affected.

ANNEX 10ORBITAL POSITION LIMITATIONS

In applying the procedure of Article 4 for modifications to the Plan, administrations shall observe the following criteria :

- 1) No broadcasting-satellite serving an area in Region 1 and using a frequency in the range 11.7 - 12.2 GHz shall occupy a nominal orbital position further West than  $37^{\circ}$  W or further East than  $146^{\circ}$  E.
- 2) Any new nominal orbital position in the Plan in the range of orbital arc between  $37^{\circ}$  W and  $10^{\circ}$  E associated with a new assignment, or resulting from a modification of an assignment in the Plan, shall be coincident with, or within  $1^{\circ}$  to the East of, a nominal orbital position in the Plan at the date of entry into force of the Final Acts.

In the event of a modification to an assignment in the 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 shall be associated with an 8 dB reduction in the e.i.r.p. compared to that appearing in the Plan for the assignment before modification.

## ARTICLE 10

POWER FLUX DENSITY LIMITS BETWEEN 11.7 AND 12.2 GHz  
TO PROTECT SPACE SERVICES IN REGION 2 FROM INTERFERENCE FROM  
BROADCASTING-SATELLITE SPACE STATIONS OF REGIONS 1 AND 3

Broadcasting-satellite space stations of Regions 1 and 3 shall employ transmitting antennae whose side lobe characteristics fall within the reference antenna pattern given in Figure 5 of Annex 8. Therefore, the power flux density falling on the territory of any administration of Region 2 in the band 11.7 - 12.2 GHz prior to any modifications to the Plan shall not exceed, under all conditions and methods of modulation, the values produced by broadcasting-satellite stations operating in accordance with the Plan on the date of its entry into force and using the technical characteristics specified in the Plan. The power flux density values shall be calculated using the method described in Annex 11.

In particular, the power flux densities at a reference test point (longitude 35°W, latitude 8°S) prior to any modifications to the Plan shall not exceed the values shown in Annex 12.

ANNEX 11METHOD OF CALCULATING THE POWER FLUX DENSITY PRODUCED IN THE TERRITORIES OF  
REGION 2 BY SPACE STATIONS IN THE BROADCASTING-  
SATELLITE SERVICE IN REGIONS 1 AND 3.

1. The power flux density produced, under conditions of free space propagation, at a given point, P, on the surface of the earth, by a satellite in the geostationary orbit, can be calculated from the following data :
  - 1.1 - nominal orbit position,
  - 1.2 - e.i.r.p.,
  - 1.3 - characteristics of the antenna beam at half-power points (i.e. the major and minor axes together with the orientation of the corresponding ellipse),
  - 1.4 - geographical coordinates of the boresight (B),
  - 1.5 - geographical coordinates of the point P.
2. The values relevant to items 1.1 to 1.4 are indicated in the Plan. The point P can be chosen with reference to the objective of calculation. In the present context P could be, for instance, the most easterly point of Brazil.
3. To obtain the power flux density produced at P, calculate :
  - the distance, d, between the satellite and the point P;
  - the spreading attenuation, A, for the distance d
$$(A = \frac{1}{4\pi d^2});$$
  - the angle  $\phi$ , as seen from the satellite, between points B and P;
  - $\phi_0$ , the half-power beamwidth, in the direction of P (in the case of a circular beam  $\phi_0$  will be independent of direction);

- the relative antenna gain,  $g$ , for the calculated values of  $\phi$  and  $\phi_0$  using the reference pattern for the co-polar component of the satellite transmitting antenna.

Then apply the expression :

$$pfd = e.i.r.p. + g - A$$

to obtain the power flux density produced at P.

INTERNATIONAL TELECOMMUNICATION UNION  
BROADCASTING SATELLITE CONFERENCE

Document No. 371-E  
12 February 1977  
Original : English/French

(Geneva, 1977)

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PLENARY MEETING

United States of America, France,  
United Kingdom of Great Britain and Northern Ireland

DOCUMENT No. 365

The above-mentioned three delegations hereby state that :

- a) they cannot accept the assertions made in Document No. 365 by the delegation of the USSR; and
- b) they reaffirm the statements made in Document No. 272.





INTERNATIONAL TELECOMMUNICATION UNION

**BROADCASTING SATELLITE CONFERENCE**

**(Geneva, 1977)**

Document No. 372-E

12 February 1977

Original : English

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PLENARY MEETING

Federal Republic of Germany

DOCUMENTS Nos. 365 AND 369

The delegation of the Federal Republic of Germany fully associates itself with the view stated in Document No. 371 by the delegations of France, the United States of America and the United Kingdom of Great Britain and Northern Ireland.

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SEANCE PLENIERE  
PLENARY MEETING  
SESIÓN PLENARIA

R.7

7ème SERIE DE TEXTES SOUMISE PAR LA COMMISSION DE  
REDACTION A LA SEANCE PLENIERE

Les textes ci-après sont soumis à la séance plénière en deuxième  
lecture :

7th SERIES OF TEXTS SUBMITTED BY THE  
EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second  
reading :

7.<sup>a</sup> SERIE DE TEXTOS SOMETIDOS POR LA COMISION DE  
REDACCIÓN AL PLENO DE LA CONFERENCIA

Los textos seguidamente relacionados se someten al Pleno de la  
Conferencia en segunda lectura :

M. HUET  
Présidente de la  
Commission de Rédaction

Annexe : 2 pages



## NOTES - NOTAS

1. Le  $\Delta$ G de cette assignation est ... dB.
1. The  $\Delta$ G of this assignment is ... dB.
1. El  $\Delta$ G de esta asignación es ... dB.
  
2. A affecter au programme islamique prévu dans les documents de la Conférence
2. To be allocated to the Islamic programme envisaged in the Conference documents.
2. Se destinará al programa islámico previsto en los documentos de la Conferencia
  
3. Cette assignation résulte d'un besoin commun des Administrations du Danemark et de l'Islande. La zone de service comprend les îles Féroé et l'Islande. L'assignation peut, à l'issue de consultations entre les deux administrations, être utilisée par l'une ou l'autre d'entre elles.
3. This assignment results from a common requirement of the Administrations of Denmark and Iceland. The service area includes the Faeroe Islands and Iceland. The assignment may after consultations between the two Administrations, be used by either of them.
3. Esta asignación proviene de una solicitud formulada en común por las Administraciones de Dinamarca e Islandia. La zona de servicio incluye las Islas Feroe e Islandia. Previa consulta entre las dos Administraciones, la asignación podrá ser utilizada por cualquiera de ellas.
  
4. IFB - IFRB. Cette assignation a été incluse dans le Plan par la Conférence.
4. IFB - IFRB. This assignment has been included in the Plan by the Conference.
4. IFB - IFRB. La Conferencia ha incluido esta asignación en el Plan.

5. Assignation destinée à assurer la couverture de l'Algérie, de la Libye, du Maroc, de la Mauritanie et de la Tunisie, suite à un accord entre ces pays. En cas de besoin, elle peut être utilisée avec les caractéristiques du faisceau TUN150.
5. Assignment intended to ensure coverage of Algeria, Libya, Morocco, Mauritania and Tunisia, with the agreement of the countries concerned. If required, this assignment may be used with the characteristics of the beam TUN 150.
5. Asignación destinada a asegurar la cobertura de Argelia, Libia, Marruecos, Mauritania y Túnez como consecuencia de un acuerdo entre estos países. De ser necesario, la presente asignación puede utilizarse con las características del haz TUN 150.
6. Les assignations inscrites dans le Plan au nom de la Somalie doivent être coordonnées avec chacun des pays intéressés et en particulier avec l'Ethiopie.
6. Assignments appearing in the Plan for Somalia should be coordinated with each country concerned and in particular with Ethiopia.
6. Esta asignación deberá coordinarse con cada uno de los países interesados y en particular con Etiopía.

COMMITTEE 4

SUMMARY RECORD

OF THE

TWELFTH MEETING OF COMMITTEE 4

(TECHNICAL)

Sunday, 6 February 1977 at 0940 hrs

Chairman : F. KRÁLÍK (Czechoslovakia)

Subjects discussed

Document No.

Approval of documents

188(Rev.2)

Approval of documents (Document No. 188(Rev.2) (continued))

The Chairman of the Conference, speaking as Chairman of the ad hoc group convened the previous day to consider paragraph 2.3 of Document No. 188(Rev.2), said that a group of countries in Region 1 had proposed to improve the antenna reference pattern on page 2 of Document No. 108 by 5 dB for all countries in Regions 1 and 3, on condition that paragraph 2.3 would be deleted. That proposal had been supported by other Region 1 and 3 countries in the ad hoc group, but the Region 2 countries, while accepting the first part of the proposal, could not accept the conditional part, and the United States delegation had proposed that the power flux-density figure of - 134 dBW/m<sup>2</sup> in paragraph 2.3 should be changed to - 132 dBW/m<sup>2</sup>, provided that value was entered in the Plan for only a few countries. That proposal had been supported by other Region 2 countries, but had not been accepted by the other delegations concerned.

In view of that deadlock, he wished to submit a third possibility, namely, that Committee 4 should immediately bring to the notice of Committee 5 for use in its planning work the proposal to improve the antenna reference pattern by 5 dB; that would both facilitate planning and ease the situation with regard to Fixed-Satellite Service in Region 2. At the same time Committee 4 might decide to leave out the figures in square brackets in the first subparagraph and place square brackets round the whole of paragraph 2.3; when the draft Plan was made known, on Tuesday, 8 February, the necessary data - concerning the most westerly positions - would be communicated immediately to Committee 4

or to Working Group 5C, the IFRB would carry out the necessary calculations and the power flux-density value laid down for Region 2 could be evaluated for all the parties concerned. It was to be hoped that agreement could then be reached on paragraph 2.3 - either to insert figures correlating with Plan calculations, to insert figures to which there might be a few specified exceptions, or to delete the paragraph altogether.

The delegates of Italy and the USSR supported that proposal.

The delegate of Senegal said that, although the proposal had some useful aspects, it should be borne in mind that the proposal to improve the antenna pattern by 5 dB was conditional on the results of the Plan calculations of power flux-density in Region 2. Yet the countries of that Region were in fact awaiting the Plan results before deciding whether they could accept the 5 dB concession; if they decided against acceptance, the Plan, though satisfactory to many countries, would be unsatisfactory to a few, namely the countries of Western Africa directly confronting Region 2, which would be faced with a fait accompli; interference in Region 2 should be regarded from the point of view of its effect on other countries irrespective of whether broadcasting-satellite or fixed-satellite systems were concerned.

The delegate of Mauritania endorsed those remarks. The countries of Region 2 should take into account the concession proposed by the countries of Western Africa and altruistically supported by other Region 1 countries and those of Region 3. The Chairman's proposal would certainly enable the Conference to proceed with its work, but the result of that work must not entail different standards for any countries : ultimately, the values now in square brackets must only reflect the calculations that would emerge from the Plan and could not be based on considerations involving the Fixed-Satellite Service.

The delegate of the United States of America said that his delegation had no objection to the adoption of a new reference antenna pattern by Regions 1 and 3 or to making that pattern applicable to all countries. Indeed, the pattern would be taken as a basis for the Region 2 Plan at the 1982 Planning Conference; it would certainly improve the present Plan, by leading to positive protection margins in most cases. He could support the proposal of the Chairman of the Conference to place the whole of paragraph 2.3 in square brackets until information on expected interference to Region 2 became available. Moreover, he agreed with the Mauritanian delegate that the values in paragraph 2.3 should apply to all countries; that was the spirit in which the Region 2 countries had proposed certain figures - incidentally, similar to those required by Regions 1 and 3 to protect their Terrestrial Services. Where concessions were concerned, it would be recalled that the Region 2 countries had made roughly equivalent ones at a recent meeting of Working Group 4B.

The delegate of Mauritania proposed that the new reference antenna pattern should be assumed to be applicable to all countries and that the IFRB should be asked to calculate on that basis the minimum p.f.d. for the national service in every territory covering a country and the effect that it would have on Region 2. Those data could be listed in columns in paragraph 2.3, which could then be approved, if the Region 2 countries accepted those calculations.

The delegates of Senegal and the United Kingdom supported that proposal.

The delegates of Canada, the United States of America and New Zealand said that, although the Mauritanian proposal had some merits, paragraph 2.3 could not be approved until the relevant values were definitively inserted in it. The procedure proposed by the Chairman of the Conference should be followed for the time being.

The delegate of Mauritania said that the Region 2 countries seemed to be waiting for the results of calculations before deciding whether to accept or reject the Plan. That course, however, was also open to the countries of Regions 1 and 3.

The delegate of the United States of America pointed out that it was not for the Region 2 countries to approve the Plan for Regions 1 and 3. All they were concerned with was the establishment of interference levels for their Region.

The delegate of Senegal thought it was not difficult technically to position fixed satellites further over the territory of Region 2 so that the receiving antenna were almost vertical, which would reduce interference without changing the e.i.r.p. He could agree to leaving the whole of paragraph 2.3 in square brackets provided the Plan was established on the basis of the antenna reference diagrams improved by 5 dB.

The delegate of Algeria feared that a Plan would be drawn up and be judged acceptable or not by Region 2 depending on a certain protection value; he proposed that that value be calculated by a method adopted by the Conference as a whole as soon as possible and not as the result of a unilateral decision.

That view was supported by the delegates of the Ivory Coast and of the United Kingdom, the latter agreeing that the contents of the square brackets should be worded along the lines proposed by Mauritania and Senegal.

The delegate of New Zealand thought it preferable to await the information which would become available on Tuesday 8 February before changing the paragraph.

In view of the support expressed for the Mauritanian proposal, the Chairman asked the delegate of the United Kingdom to chair a drafting group to produce a new version and it was agreed that the delegations of Mauritania, Senegal, the United States of America, Brazil and India would also take part.

In answer to the Chairman of Committee 5, the Chairman confirmed that the antenna diagrams should be improved. The delegate of Switzerland felt that an improvement of 5 dB would not be possible for the left-hand part of the curves. The Chairman said that a diagram had already been prepared and would be presented to the meeting at a later stage.

Following a short break to allow the drafting group to meet, the delegate of the United Kingdom read out the following new paragraph, to be retained in square brackets for the time being :

## "2.3 To protect space services in Region 2

The Broadcasting Satellite Service of Regions 1 and 3 shall employ satellite antennae whose side lobe characteristics fall within the / new / reference antenna pattern given in Figure / / and the power flux-density falling on the territory of any administration of Region 2 in the band 11.7-12.2 GHz shall not exceed, under all conditions and methods of modulation, the following :

Country	Assignment in the Plan	Max. P.F.D. over Region 2
	<u>/</u> Note 1 - assignment refers to orbit position, channel, beam major axis, azimuth, sub-satellite point etc. <u>/</u>	<u>/</u> Note 2 - the values of max. P.F.D. over Region 2 would be those values resulting from the Plan <u>/</u> "

The delegate of Algeria said he could accept that text.

The delegate of the USSR said that the heading should be altered to read "To protect Fixed-Satellite Services in Region 2". Nothing had been said about the Broadcasting Service because the Fixed-Satellite Service, with which the paragraph was concerned, was much more sensitive to interference.

The Chairman of Working Group 4B said he understood the paragraph to cover protection of both space services in Region 2. The title had not given rise to any discussions in the working group and he saw no justification for changing it.

The delegates of the United Kingdom, Spain and Brazil agreed with that view and the delegate of the USSR withdrew his suggestion.

At the proposal of the delegate of Denmark, it was agreed to insert the words "(except Greenland)" after "Region 2" in the fourth line.

Paragraph 2.3, as amended, was approved, subject to retention of the square brackets.

At the Chairman's invitation, the Chairman of Working Group 4B introduced the remainder of Document No. 188(Rev.2).

He proposed further equations to make the curve in Figure 1 more explicit and indicated changes to the text of paragraph 2.2, which had not been approved in the Working Group due to lack of agreement on the content of paragraph 2.3 and difficulties in indicating protection levels for Terrestrial Services in Region 2.



The square brackets around the figure of - 111 dBW should be deleted and the text of the right-hand column read :

"For territories of administrations in the western part of Region 1 (west of longitude 30°E) and for the Broadcasting and the Mobile (except aeronautical) Services and systems in the Fixed Service (excluding FDM/FM systems in Region 3).

For territories of administrations in Region 1 and for the FDM/FM systems in the Fixed Service in Region 3."

The Chairman of the Working Group said that the values in paragraphs 2.1 and 2.2 had been provided by the Administrations of Regions 1 and 3.

In reply to the delegate of the United States of America, the delegates of the Federal Republic of Germany and the Netherlands confirmed that they were prepared to modify the figure of - 134 dBW/m<sup>2</sup>/5 MHz to - 132 dBW.

The Chairman of the Working Group said that paragraph 3 was intended for the guidance of Committee 6, the figures having been provided by the Chairman of Committee 5 and the delegation of the USSR. The intention of the group in drafting the paragraph had been to reduce restrictions on modifications to the Plan to a minimum.

The delegate of the USSR thought it had been decided that paragraph 3 would be considered by Working Group 5C and might be subject to alteration as a result of planning activities. The Chairman of Committee 5 said that the paragraph could not be included in the final acts in its present form and in his view it was a matter for Committee 6.

The Chairman of Working Group 4B did not recall any decision on the disposition of the paragraph but could not agree that its contents would be affected by planning.

It was agreed to continue discussion on the document at the following meeting of the Committee.

The meeting rose at 1300 hours.

The Co-Secretaries :

J. RUTKOWSKI/M. AHMAD

The Chairman :

F. KRÁLÍK

COMMITTEE 4

SUMMARY RECORD  
OF THE  
THIRTEENTH AND LAST MEETING OF COMMITTEE 4  
(TECHNICAL)

Monday, 7 February 1977, at 0925 hrs

Chairman : Mr. F. KRÁLÍK (Czechoslovakia)

<u>Subjects discussed</u>	<u>Document No.</u>
1. Approval of documents	188(Rev.2)
2. Completion of the Committee's work	

1. Approval of documents (Document No. 188(Rev.2)) (continued)

The Chairman of Working Group 4B read out the following text of a new paragraph 2.4 to be inserted in Document No. 188(Rev.2) :

"2.4 Protection of Terrestrial Services in Region 2 from the Broadcasting-Satellite Service in Regions 1 and 3

2.4.1 A power flux-density limit should be adopted to protect Terrestrial Services in Region 2 from the Broadcasting-Satellite Service in Regions 1 and 3. This limit should be :

2.4.2 To protect FDM/FM systems in the Fixed Service :

- 125 dBW/m<sup>2</sup> in any kHz band, for circular polarization, for all angles of arrival;

2.4.3 This limit may be exceeded with the agreement of the Administrations concerned, that is, in those territories where the p.f.d. would be exceeded".

On second thoughts, he would suggest that sub-paragraph 2.4.3 might be omitted, since the relatively high figure of  $\sim 125 \text{ dBW/m}^2$  could be regarded as the upper limit and since the same figure approved for the protection of Terrestrial Services in Regions 1 and 3 in paragraph 2.2 represented an absolute limit rather than a trigger level for coordination.

The delegate of Iceland, supported by the delegates of the United Kingdom, Japan and Finland, said that, in view of his country's proximity to Region 2, his delegation would prefer that provision to remain and to be worded identically with the second sentence of paragraph 2.2.

The delegate of India observed that spacecraft in Regions 1 and 3 would be penalized in relation to those of Region 2 by the proposed 2 dB difference in the p.f.d. limits for protection of space services in Region 2 and in Regions 1 and 3.

The Chairman of Working Group 4B said that the proposed level was high enough to afford protection without any significant penalty for any Region 1 or 3 country with respect to the sidelobe performance of a spacecraft antenna.

The delegate of India said that the goal should be to achieve uniform sidelobe suppression.

The delegate of the USSR, supported by the delegate of India, said that, since the Conference documents showed a strong probability of the use of linear polarization in Region 2, the words " $\sim 128 \text{ dBW/m}^2/4 \text{ kHz}$  for linear polarization" should be added after " $\sim 125 \text{ dBW/m}^2/4 \text{ kHz}$  for circular polarization" in paragraph 2.2, to cover all eventualities.

The delegate of the United States of America agreed with that proposal and suggested that the same addition be made in paragraph 2.4.

Paragraph 2.4, as amended, was approved.

After a discussion on the action to be taken with regard to paragraph 3, during which the Chairman of Working Group 4B and the delegates of Canada, the Federal Republic of Germany, Brazil and Mexico expressed the view that the provisions of the paragraph should take the form of a recommendation by Committee 4 to the Plenary Meeting of specific technical criteria for interregional sharing, to be observed by Committee 5 and Joint Working Group 4/6, while the delegates of India and the USSR considered that such a recommendation would unnecessarily restrict the freedom of action of Committee 5 and that the best course would be to refer paragraph 3 to that Committee and to Joint Working Group 4/6, the Chairman of Committee 5 proposed that the contents of paragraph 3 should be incorporated in the cover page of Committee 4's report to the Plenary Meeting, that after approval by the Plenary the text should be forwarded to Committee 5 for planning purposes and to Joint Working Group 4/6 for incorporation in the Appendix on modification procedures and that the remainder of Document No. 188(Rev.2) should be annexed to the report and forwarded to the Editorial Committee for publication in a B Series document.

That proposal, supported by the delegates of Canada and Brazil, was approved.

Document No. 188(Rev.2), as amended, was approved.

2. Completion of the Committee's work

The Chairman thanked all those concerned for their valuable contributions and announced that Committee 4 had completed its work.

The meeting rose at 1040 hours.

The Co-Secretaries :

J. RUTKOWSKI/M. AHMAD

The Chairman

F. KRÁLÍK

COMMITTEE 5

SUMMARY RECORD

OF THE  
SIXTH MEETING OF COMMITTEE 5  
(Planning)

Monday, 7 February 1977, at 1410 and at 1945 hrs

Chairman : Mr. A. PETTI (Italy)

<u>Subjects discussed</u>	<u>Documents Nos.</u>
1. Characteristics given in the Plan	DT/47
2. Report by Working Group 5B	204(Rev.1) and Corr.1, 226
3. Technical data used for drawing up the Plan/ s_/ and to be used in implementing the Plan/ s_/ (paragraphs 3.7 and 3.8.1)	DT/48

1. Characteristics given in the Plan (Document No. DT/47)

The Chairman invited the Committee to consider the column headings he had prepared in conjunction with the Secretariat which were needed for preparing copies of the Plan in time for the signature of the Final Acts. They were set out in Document No. DT/47 and might be taken seriatim.

It was so agreed.

Column 1 - Country symbol and IFRB serial number

The Technical Secretary said that it might be useful for administrations not represented at the Conference if the Secretariat were authorized to insert a cross-reference to the source of the symbols used in the preface.

Subject to such an insertion, the heading for column 1 was approved.

Column 2 - Nominal longitude in degrees

At the suggestion of the United Kingdom delegate, it was agreed to modify the heading of column 2 to read : "Nominal orbital position in degrees" so that it should tally with the definition.

Column 3 - Channel number

The Chairman observed that under column 3 data would also have to be given concerning the frequency.

The heading of column 3 was approved.

Column 4 - Boresight geographical coordinates (in degrees and tenths)

The delegate of Chile considered that in the interests of uniformity both columns 2 and 4 should be expressed in degrees and tenths.

The delegate of the United States of America agreed that degrees and tenths would be more in line with computer usage.

The heading of column 4 was approved as it stood.

Column 5 - Antenna aperture. For an elliptical antenna this column contains two figures corresponding to the major axis and the minor axis respectively

The delegate of Denmark said that the words "these figures contain pointing errors" should be added in brackets at the end of the heading. That addition was necessary because as indicated in Document No. 103(Rev.1) in many cases, if not all, the figures included such errors.

The delegate of France feared that such an amendment would complicate matters because the column would then no longer indicate the antenna aperture.

The representative of the IFRB suggested that the point be met by the insertion of the words "half-power" before the words "antenna aperture" and the insertion of the words "in degrees and tenths" at the end of the first sentence in the heading of Column 5.

Those amendments were approved.

The heading of column 5, as amended, was approved.

Column 6 - Orientation of the ellipse determined as follows : in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anti-clockwise from a line parallel to the equatorial plane to the major axis of the ellipse, to the nearest degree

Approved.

Column 7 -  $\Delta G$  (Difference between the e.i.r.p. directed towards the edge of the coverage area and the e.i.r.p. in the beam axis)

The delegate of the USSR considered that column 7 was superfluous because the exceptions to values of less than 3 dBW would be so few.

The Chairman explained that a value of 3 dBW had been fixed except for small countries where it would be smaller. Perhaps column 7 might be deleted and an explanatory footnote on that point added under column 11 "Remarks".

It was so agreed.

Column 8 - Polarization (1 = direct, 2 = indirect)

The delegate of the Federal Republic of Germany, referring to point 3.2 concerning polarization (Document No. 224, page 6) said that a definition was lacking; the proposed heading for column 8 did not make clear whether direct or circular polarization was to be used.

The Chairman suggested the insertion of a footnote to column 8 containing a definition of direct or indirect polarization on the lines of that contained in Document No. 321 of the CCIR.

It was so agreed.

Subject to that addition, the heading of column 8 was approved.

Column 9 - E.i.r.p. in dBW

The delegate of France said that the heading was too imprecise.

The representative of the IFRB suggested that the heading be amended to bring it into line with the wording already used in column headings of the IFRB Frequency Register. It might read "E.i.r.p. in the direction of maximum radiation in dBW".

It was so agreed.

The heading of Column 9, as amended, was approved.

Column 10 - Equivalent protection margin

The delegate of the Federal Republic of Germany observed that columns 1 to 9 dealt with the basic characteristics of certain beams whereas column 10 was more concerned with qualitative data. For example a country might wish to change its type of beam which would have repercussions on others. Perhaps column 10 should be dropped and some indication given that data on equivalent protection margins would be published from time to time either by IFRB or in some other form. If column 10 were retained some difficulties of definition would undoubtedly arise.

The delegate of Japan believed that data on equivalent protection margins was essential for administrations and should be published in a separate document and not included in the Final Acts.

The delegate of the USSR agreed that such data was extremely useful for the assessment of channel qualities.

The delegate of Italy, while agreeing that a definition of values would have to be attached to column 10, considered it to be indispensable for the application of procedures for modifying the Plan.

The Technical Secretary pointed out that it would also be necessary to mention the test point otherwise the values given under column 10 would be meaningless.

The delegate of France considered that it would be difficult to include a protection margin because if a modification were made in the Plan and subsequently accepted some margins would then be altered and would become obsolete.

The delegate of Italy pointed out that the IFRB would have to keep the Plan up to date with any modifications and consequential adjustments in protection margins.

The delegate of France said that would meet his objection.

The delegate of the Federal Republic of Germany pointed out that in Document No. DT/34 the three main interferers were not mentioned in column 11 or identified.

The representative of the IFRB pointed out that the term "protection margin" had not yet been defined. Test points might differ from those in the Plan.

The Chairman said that six test points were to be examined in the Annex. Perhaps the problem of protection margins in service areas could be dealt with in a draft resolution.

The delegate of France expressed doubts about such a solution : six test points were too few because a deterioration in a small service area could affect a large part of a territory in a large service area but it would be too complicated to choose numerous test points.

The Chairman suggested that a draft resolution might be prepared for examination at a later stage requesting the IFRB to publish a separate document on test points and protection margins which would not form part of the Final Acts. Column 10 might then be eliminated.

It was so agreed.

Column 11 - Remarks

The delegate of the United Kingdom pointed out that it was important to include a column indicating the minimum angle of elevation for protection



of the Broadcasting-Satellite Service. Delegations could indicate before the conclusion of the Conference what value they regarded as useful and there should be no difficulty in making the calculations for small service areas not far from the equator or for large service areas in more northerly or more southerly latitudes.

The delegate of France said that the angle of elevation was difficult to define because it depended on the point from which it was calculated and he questioned whether such data needed to be included either in the Plan or its annexes.

The delegate of Chile agreed with the United Kingdom delegate.

The delegate of the USSR observed that the values in question could vary widely according to the point from which measurements were taken. Surely they could be calculated by reference to the formula set out in point 2.4.1 of Document No. 232. He was unable to understand the reason for the United Kingdom proposal since it was hoped that by the end of the week there would be a plan indicating the nominal orbital position for each satellite within a country or area within its territory. When the problem of the protection of Broadcasting-Satellite Services from Terrestrial Services arose then the angle of elevation would have to be determined as from different points and that would become a matter of mere trigonometrical calculation and geographical coordinates in accordance with the actual data set out in the Plan and the formulae established.

The delegate of Belgium considered that the best course would be for the IFRB to prepare a formula for the angle of elevation on the basis of which each administration could make its own calculation.

The delegate of Mauritania believed that an average value should be chosen which would meet the requirements of both small and large countries covered by large beams.

The delegate of France endorsed the judicious proposal advocated by the Belgian delegate and shared the doubts expressed by the USSR delegate concerning the United Kingdom proposal.

The delegate of the United Kingdom explained that he was only concerned with the need for an administration to specify a coordination angle in order for another administration to protect its Terrestrial Services. If any administration found it difficult to specify a single value it could choose more.

It was up to administrations to make their own calculations but his own would like to see included in the Plan an elevation angle for its Broadcasting-Satellite Service so that its neighbours had a value which the United Kingdom Administration knew was a good one in order that they could determine whether or not to coordinate their Terrestrial Services with it. It was not for Committee 5 to go into the problem of coordination which was being dealt with in another committee. Administrations ought to be in a position to provide the data by 9 February.

The representative of the IFRB pointed out that the relevant data could not be assembled in the time available.

After some discussion, the delegate of the United Kingdom proposed that the IFRB be requested to prepare a list of all the elevation angles for different countries after the conclusion of the Conference.

It was so decided.

The delegate of the USSR, supported by the delegate of India, proposed that the Committee should request the IFRB to supply all delegations with maps on which ellipses were plotted, not only for their own countries' services, but also for the neighbouring areas.

After a discussion in which the delegates of France, Italy and Turkey, the representative of the IFRB and the Deputy Secretary-General took part, that proposal was adopted.

2. Report by Working Group 5B (Document No. 204(Rev.1))

The Chairman of Working Group 5B, introducing Document No. 204(Rev.1) said that it reflected a consensus of all Region 2 countries represented at the Conference. In addition to providing the basis for a future Conference of Region 2 Administrations to be held not later than 1982, the document also included provisions to govern the introduction of Space Services in the 11.7-12.2 GHz band in Region 2 in the interim period. Annex A set out the principles used in drafting the agreement, while Annex B dealt with the efficient use of the geostationary orbit and frequency spectrum, without, however, drawing any conclusions with regard to the problem of inter-regional sharing, which was left to the Committees and Working Groups directly concerned with it. Drawing special attention to paragraph 4 of the document, he indicated that the words "at or" should be inserted before the word "within" in the penultimate line, so that the paragraph as a whole now read as follows :

"The intent of the second paragraph of Section 2 of the Annex is to ensure that, if broadcasting satellites are operated in accordance with the technical characteristics for the Broadcasting-Satellite Service for Region 2 as given in the relevant Appendix of the Final Acts, they may operate without further restrictions at or within the limits of the orbit, referred to in Section 1 of the Annex, for the Broadcasting-Satellite Service."

The document, if approved, should in his opinion appear as a separate section of Article III of the Final Acts, all references to "Appendix / of the Final Acts /" being replaced by references to the contents of Documents Nos. 224 and 231 wherever and in whatever form they appeared in the Final Acts. That point would undoubtedly be taken into account by the Editorial Committee. Lastly, a number of corrections to the Spanish text of Document No. 204(Rev.1) would be handed in to the Secretariat.

The Chairman invited the Committee to consider the Annex to the document.

The title and introductory paragraph of the Annex were approved.

Paragraph 1

After a brief discussion in which the delegates of Chile and Guatemala, as well as the Chairman, took part, the Chairman of Working Group 5B proposed the insertion of the word "however", before the words "for service to" in the third line.

It was so decided.

Paragraph 1, as amended, was approved.

Paragraph 2

The delegate of Australia wondered why the provisions for the location of space stations in the Fixed-Satellite Service were not as specific as those for the Broadcasting-Satellite Service.

The delegate of the United States of America explained that the decision not to provide specific limits for the location of fixed-satellite stations had been taken deliberately because of inter-regional sharing considerations.

Paragraph 2 was approved without change.

Paragraphs 2.1 and 3

Approved.

Paragraph 4

The delegate of Mauritania proposed the deletion of the word "relevant" in the second line.

With that amendment, paragraph 4 was approved.

Paragraph 5

The representative of the IFRB suggested that the paragraph should be placed in square brackets pending the publication of the report of Committee 6.

The delegate of Venezuela supported that suggestion.

It was so decided.

Paragraph 6

Approved.

The delegate of Chile proposed that paragraphs 7.1, 7.2, 7.3, 7.4 and 7.5 should be renumbered 7, 7.1, 7.2, 7.3 and 7.4 respectively.

It was so decided.

Paragraph 7

The delegate of Finland, drawing attention to Document No. 215 of the Convention, pointed out that the Conference could only recommend the holding of a regional administrative radio conference. Accordingly, the word "shall" in the first line should be replaced by "should".

It was so decided.

The Chairman of Working Group 5B said that the asterisk in the first line of the English text should be deleted.

Paragraph 7, as amended, was approved.

Paragraphs 7.1, 7.2, 7.3, 7.4, 8, 9 and 10

Approved.

Paragraph 11

The Chairman of Working Group 5B said that the passage in square brackets should be deleted, as the matter was being dealt with by Committee 6.

Paragraph 11, thus amended, was approved.

Annex A - PLANNING PRINCIPLES

Title and introductory paragraph

Approved.

Paragraph 1

Approved.

Paragraph 2

The delegate of the United Kingdom recalled that at the Committee's third meeting his delegation had already made the point that the text of paragraph 2 was based on a misapprehension. The geostationary orbital arc was not shared between Regions but between Services. In his opinion, the paragraph was irrelevant and should be deleted.

The delegate of Portugal agreed.

The delegate of the United States of America opposed the deletion of the paragraph. Annex A was, in part, historical in nature; Paragraph 2 represented a statement of fact, and could not be suppressed. Furthermore, it was in accordance with the Convention, which called for equitable access to the geostationary orbit.

After further discussion, the Chairman suggested that an attempt to reconcile the conflicting views with regard to paragraph 2 should be made during the suspension of the meeting.

The meeting was suspended at 1725 hours and resumed at 1945 hours.

The Chairman of Working Group 5B said that following informal discussions a compromise solution appeared to be acceptable whereby the title and the text of paragraph 2 would be reworded to read :

"Equality of the right to operate by services in different regions

In accordance with No. 117 of the Radio Regulations, the principle is recognized of equality of the right to operate by different services of the same category in the various regions without causing harmful interference to services in the other regions".

Adoption of that text would require a consequential amendment in the title of paragraph 1 whereby the words "in Region 2" should be added at the end of the existing title. That would explain the scope of paragraph 1.

The delegates of the United Kingdom and the United States of America signified their acceptance of such a compromise.

The amended text of paragraph 2 and the consequential amendment to the title of paragraph 1 were approved.

#### Paragraph 3

Approved.

#### Paragraph 4

The delegate of the United Kingdom, supported by the delegates of Norway, Portugal, France, Switzerland, Italy, Ireland, Japan, Sweden, India and Luxembourg, proposed the deletion of the sentence in brackets at the end of paragraph 4 on the grounds that its contents were outside the competence of Working Group 5B. The matter should be dealt with elsewhere in the Final Acts.

The delegate of Colombia opposed the deletion of the sentence in brackets as a matter of principle since it referred to any agreement that might be reached by the countries of Region 2.

The delegates of Guatemala and Chile supported the previous speaker.

The Chairman said there appeared to be a clear majority in favour of the United Kingdom proposal.

The delegate of Colombia said that the content of Annex A to Document No. 204 was the result of a gentleman's agreement among all the Region 2 delegations, and consequently all administrations in that Region should support it.

Despite the fact that the agreement related exclusively to Region 2, it was administrations in Regions 1 and 3 who were supporting the United Kingdom proposal for the deletion of the sentence in brackets at the end of paragraph 4.

In his view, the principle stated therein, whose deletion was being requested by some developed countries in Western Europe, had been discussed, agreed, accepted and stated by the countries in Region 2.

Paragraph 4 was approved with the deletion of the last sentence within brackets.

#### Paragraph 5 and the footnote

The delegation of Finland supported by the delegate of the United States of America said that in order to avoid ambiguity references to the "plan" for Regions 1 and 3 throughout the text should be given a capital letter so as to distinguish it from the plan for Region 2. Perhaps the point could be referred to Committee 8.

It was so agreed.

At the Chairman's suggestion it was agreed to insert the words "for Region 2" after the word "plan" in the first and penultimate lines of paragraph 5.

Paragraph 5, as amended, and the footnote was approved.

#### Paragraph 6

The delegate of France proposed that the penultimate line be corrected to read : "the requirements of Region 2 ...".

It was so agreed.

Paragraph 6, as amended, was approved.

#### Paragraphs 7 and 8

Approved.

The delegate of Chile proposed, in the interests of clarity, the addition of the words "in Region 2" in the title of Annex A.

It was so agreed.

#### Annex B

##### First two paragraphs

Approved.

Paragraphs 1 - 9

Approved.

Paragraph 10

In order to meet an objection raised by the delegate of France, the delegate of the United States of America proposed the deletion of the words "for a TV channel (or any channel in the Fixed-Satellite Service)".

That amendment was approved.

Paragraph 10, as amended, was approved.

Document No. 226

The Chairman of Working Group 5B, presenting its second report (Document No. 226) said that some corrections to the Spanish version would be handed direct to the Secretariat. The report contained four draft resolutions in Annexes A to D.

Annex A

The delegate of Finland, referring to the heading of the first draft resolution considered that it should be designated as a "recommendation" in conformity with No. 215 of the 1973 Malaga-Torremolinos Convention. As a consequential amendment the word "recommends" should be substituted for the word "resolves" in the fourth paragraph.

It was so decided.

The delegate of Sweden proposed the deletion of considering a) which was superfluous.

It was so decided.

In order to meet a point made by the delegate of Bolivia, the Deputy Secretary-General suggested the substitution of the words "present Conference" for the words "WARC-BS (Geneva, 1977)" and the addition of the words "for Region 2" at the end of considering b).

That amendment was approved.

The delegate of Algeria pointed out that as the text was now in the form of a recommendation and not a draft resolution consequential amendments would have to be made in recommends a) and b) so that the verbs were changed to the correct tense. Clearly the provisions of a recommendation could not be mandatory. That comment applied to both recommends a) and b).

It was so agreed.

"recommends" paragraph c)

The representative of the IFRB suggested that the Recommendation might be greatly simplified by deleting the last two sentences of paragraph b) and paragraphs c) and d) in their entirety and replacing those texts by a paragraph c) reading "that the agenda of this Conference shall take into account the principles contained in Annexes A and B to the present Final Acts".

The Chairman of Working Group 5B said that the Region 2 countries had unanimously decided that the relevant provisions of Document No. 204 should be repeated in the operative part of the Recommendation, since there was still some controversy concerning the form that the plan for Region 2 would take in the Final Acts.

The delegates of Cuba, Guatemala, Mexico, Chile, Bolivia, Uruguay, Paraguay, Venezuela and Brazil endorsed that statement.

The delegate of the United States of America also endorsed the statement of the Chairman of Working Group 5B, adding that the provision in paragraph d) did not appear in Document No. 204.

The delegate of Algeria, supported by the delegate of Benin, proposed that the second sentence should begin with the words "Account should also be taken of the provisions of No. 47 of the International Telecommunication Convention (Malaga-Torremolinos, 1973), of the decisions ...".

The delegate of the United States of America said that a reference to the Convention was out of place in paragraph c), since the 1977 and 1979 WARCs and the relevant CCIR Recommendations had been mentioned there for very specific reasons - their direct effect on planning parameters in 1982. Moreover, it was self-evident that the Convention governed the proceedings of all ITU conferences.

The Chairman suggested that the phrase proposed by the Algerian delegate might be added at the end of paragraph a).

The Deputy Secretary-General suggested that the opening words of paragraph a) might be amended to read "that a Regional Administrative Radio Conference should be convened, in accordance with the provisions of Articles 7 and 54 of the Convention, ...".

The delegate of Algeria said he would prefer the specific reference to No. 47 of the Convention to be inserted after the words "in accordance with" in paragraph a).

The delegate of Togo supported the Algerian proposal.

The delegate of the United States of America supported the text suggested by the Deputy Secretary-General.

The delegates of Canada, Chile, Uruguay, Portugal, Mexico and Paraguay said that the proposed insertion was superfluous, since the Convention in any case governed all ITU activities.



The Chairman suggested that, in view of the considerable opposition to the proposal, the phrase should not be inserted in either paragraph a) or c), but that he should refer to the Algerian amendment in the Committee's report to the Plenary Meeting.

It was so decided.

Paragraph c) was approved.

"recommends" paragraph d)

Approved.

"recommends" paragraph e)

The delegate of France proposed that the words "Fixed-Satellite Service" be replaced by "other services", since that would correspond more closely to the relevant provisions of Document No. 204(Rev.1).

The delegates of Cuba, Togo and Algeria supported that proposal.

The delegates of the United States of America, Canada and Bolivia said that they would prefer the text to remain unchanged. The reference to the Fixed-Satellite Service followed logically from paragraph a), which specified that the purpose of the Regional Conference was to carry out detailed planning for the Broadcasting-Satellite and Fixed-Satellite Services in Region 2.

After some discussion, it was decided to approve paragraph e) in its existing form and to add a new paragraph f) reading as follows :

"that in drafting the detailed plan referred to above, account should also be taken of the Terrestrial Services with which the band is shared."

"invites the Administrative Council" paragraph

Approved.

Annex A, as amended, was approved.

Annex B

Approved, subject to the insertion of the words "a Regional" before "Administrative Radio Conference" in the title.

Annex C

Title, introductory paragraph and "considering" paragraph a)

Approved.

"considering" paragraph b)

The delegate of France proposed that the words "Fixed-Satellite Service" be replaced by "other services".

Approved as amended.

"considering" paragraph c) and "invites the IFRB" section

Approved.

Annex C, as amended was approved.

Annex D

The delegate of Venezuela suggested that Annex D be placed in square brackets pending the circulation of a similar but more comprehensive Resolution which Committee 6 had adopted and which might well supersede the text in Annex D.

It was so decided.

Annex D was approved on that understanding.

3. Technical data used for drawing up the Plan(s) and to be used in implementing the Plan(s) (paragraphs 3.7 and 3.8.1)  
(Document No. DT/48)

The Chairman said that the Chairman of the Editorial Committee had drawn his attention to two omissions from Document No. 224 (B.3). He had accordingly drafted texts for paragraph 3.7 on channel spacing - the exact frequencies to be supplied later by Working Group 5A - and paragraph 3.8.1 on orbital spacing.

Document No. DT/48 was approved.

The meeting rose at 2235 hours.

The Secretary :

D. KANE

The Chairman

A. PETTI

SUMMARY RECORD

OF THE

SEVENTH MEETING OF COMMITTEE 5

(PLANNING)

Wednesday, 9 February 1977, at 1130 hrs

Chairman : Mr. A PETTI (Italy)

<u>Subjects discussed</u>	<u>Documents Nos.</u>
1. Draft resolution	DT/50
2. Table showing correspondence between channel numbers and assigned frequencies	DT/51
3. Draft recommendation submitted by Australia	250
4. Draft resolution relating to experimental broadcasting-satellite systems	253
5. Communication from the delegate of France	

1. Draft resolution (Document No. DT/50)

The Chairman reminded the Committee that at its last meeting it had agreed that after the present Conference the IFRB should prepare a document giving information on the geographical coordinates of the various test points and on the corresponding elevation angles. The draft resolution in Document No. DT/50 was designed to give effect to that decision.

Before inviting the Committee to consider the draft resolution paragraph by paragraph, he asked whether there were any suggestions for its title.

The delegate of Canada thought that the title should indicate that the resolution applied to planning in Regions 1 and 3.

It was decided that the draft resolution should be given its title later, due regard being paid to the delegate of Canada's comment.

First preambular paragraph

It was decided to replace the paragraph by the abbreviated title of the Conference just adopted at the eighth Plenary Meeting.

Preambular paragraphs a) and b)

The delegate of France proposed that the expression "protection ratio" should be replaced by "protection margins".

The Technical Secretary said that in the light of the comment made by the delegate of Canada concerning the title of the resolution, the words "for Regions 1 and 3" should be added in paragraph a) after the word "work" and at the end of paragraph b) after the word "Plan".

With those amendments, preambular paragraphs a) and b) were approved.

Preambular paragraph c)

Preambular paragraph c) was approved without change.

Introductory phrase of the operative part

The Chairman invited the Committee to decide whether the IFRB should publish the information requested as an annex to the Plan or as a separate document.

The delegate of Japan reminded the Committee that at an earlier meeting it had been agreed to publish the information in an information document. He therefore proposed that the words "an annex to the Plan" should be replaced by "a document".

The Chairman, replying to a question from the delegate of Thailand, said that the document would be published in the course of 1977.

It was decided to amend the introductory phrase of the operative part of the resolution to read as follows : "to prepare, with a view to its publication by the Secretary-General, during 1977, a document containing the following information :".

Operative paragraph a)

Operative paragraph a) was approved without change.

Operative paragraph b)

The Technical Secretary said that the document referred to in the paragraph was Annex 3 to Document No. 103(Rev.2).

The delegate of Spain observed that some test points did not seem to lie within the polygon delimiting a country's territory. He wondered whether it was intended to publish a new document containing the definitive list of test points.

The Technical Secretary explained that the Annex to Document No. 103(Rev.2) had been drawn up on the basis of the latest amendments or corrections submitted by delegations. The list of test points contained in the Annex was therefore to be regarded as definitive, on the understanding that if any problems should arise they would be settled directly with the delegation concerned.

Operative paragraphs c) and d)

Operative paragraphs c) and d) were approved without change.

Operative paragraph e)

Operative paragraph e) was approved, the words "protection ratio" being replaced by "protection margins".

The delegate of Germany (Federal Republic of) thought that the draft resolution should include a note defining protection margins.

The delegate of France pointed out that the definition was to be found in CCIR Report 633.

It was decided that after the words "protection margins" in preambular paragraphs a) and b) and operative paragraph e), an asterisk should be added referring to the following footnote : "\*" for the definition of protection margins, see CCIR Report 633".

The draft resolution in Document No. DT/50, as amended, was approved.

2. Table showing correspondence between channel numbers and assigned frequencies (Document No. DT/51)

The Chairman said that the table had been drawn up in the light of the decisions taken by Committee 4 on the subject of guard bands. However, in order to avoid having figures with too many decimals, it had been decided to adopt the value 19.18 MHz for channel spacing and to reduce slightly the lower guard band fixed by Committee 4 from 14 MHz to 13.98 MHz.

The Technical Secretary said that only channels 1 to 24 were to be used in Region 3.

It was decided that the table in Document No. DT/50 should be included in the part of the Plan relating to Regions 1 and 3.

The meeting was suspended at 1215 hrs and resumed at 1415 hrs.

3. Draft recommendation submitted by Australia (Document No. 250)

The delegate of Australia, introducing his delegation's draft recommendation, explained that it was based on Document No. 35.

The delegate of India supported the Australian delegation's draft recommendation, subject to an addition in preambular paragraph c).

The delegate of the USSR considered that the draft recommendation dealt with a purely administrative question which did not come within the Conference's competence. He thought the CCIR could hardly be invited to undertake a study which might lead it to make recommendations affecting frequency assignments. At all events, only the 1979 World Administrative Radio Conference would be competent to amend the table of frequency assignments, should it be decided that the Broadcasting-Satellite Service was to use the band 12.2-12.5 GHz.

The delegates of Canada, Japan, the United Kingdom and the United States of America shared the previous speaker's view.

The Chairman asked whether any other delegations supported the Australian draft recommendation.

Since none did, it was decided not to adopt the draft recommendation in Document No. 250.

The meeting was suspended at 1545 hrs and resumed at 1900 hrs.

4. Draft resolution relating to experimental broadcasting-satellite systems (Document No. 253)

The delegate of the United Kingdom said that the purpose of the proposal submitted by his delegation was to enable countries which so wished to pool their resources so that they could set up an experimental broadcasting-satellite system without having to resort to lengthy and complex coordination procedures. It involved setting aside two channels which would be protected against Terrestrial Services in Regions 1 and 3 and which several administrations could use in turn for a few months in order to carry out experiments. The formula was attractive in that it would enable countries with limited resources to acquire some experience of satellite broadcasting at low cost before they embarked on the highly expensive process of setting up an operational system. All the countries in Regions 1 and 3, moreover, could benefit from the results of the experiments.

The delegates of Greece and of Switzerland supported the draft resolution submitted by the delegation of the United Kingdom.

The delegate of the United States said that the proposal could be of considerable value and deserved to be supported. It would be advisable, however, to insert a clause in the operative part of the draft resolution stipulating that experimental systems of that kind should be used in such a way that they did not interfere with the functioning of any other system set up in accordance with the sharing criteria defined in the Final Acts of the Conference.

The delegate of the USSR said that in principle he had no objection to the draft resolution. However, the choice of the two channels to be set aside for experimental broadcasting would raise a practical difficulty in that all the channels mentioned in the Plan had already been allocated. It would therefore be advisable to choose the two channels from those allocated to the administrations wishing to undertake such experiments and to say so clearly in the draft resolution.

The delegates of Sudan and of Egypt shared the view of the previous speaker.

The delegate of China considered that the Committee should not adopt a draft resolution recommending the use for experimental purposes of two channels already allocated in the Plan.

The delegate of the United Kingdom acknowledged that the use of a channel already allocated in the Plan could pose practical problems since the various countries were doubtless going to organize their terrestrial systems on the basis of the allocations in the Plan. However, if a group of countries decided to move one of the channels allocated to it in order to carry out an experiment in another country, there was bound to be some impact on the proper functioning of the Terrestrial Services of neighbouring countries. It was precisely to obviate such difficulties that it was proposed to designate two channels which would be set aside for experimental work and which could not be used for Terrestrial Services over a given period. One way to solve the problem of the designation of the channels would be for one or two administrations to offer to make one of their channels available to administrations wishing to set up joint experimental systems.

The delegate of Australia pointed out that any Experimental Satellite Service had to be designed and operated in accordance with the Plan and the sharing criteria defined by the Conference.

The delegates of Switzerland and of Norway said that the formula put forward by the delegate of the United Kingdom was very valuable insofar as it would promote technological development, since the results of the experiments could be shared by all the countries in Regions 1 and 3. The problem of determining which channels should be set aside could probably be solved without too much difficulty.

The delegate of Sudan agreed that the possibility of setting up experimental systems was indeed attractive, but considered it unacceptable to set aside for that purpose one or two of the forty channels in the Plan since all those channels had already been allocated. It would have been better to submit the request at the beginning of the Conference so that it could have been taken into account in Document No. 103(Rev.2) containing the list of requests submitted by administrations.

The delegate of Saudi Arabia shared that view.

The Chairman pointed out that the list contained only requests submitted individually by countries. As far as the request under discussion was concerned, it was a question of setting aside two channels for use by groups of countries.

The delegate of Mauritania suggested that administrations should be asked whether some of them were willing to loan one of the channels allocated to them.

The delegate of Australia said that it was the administrations wishing to carry out experiments which should make their channels available. For instance, Australia, New Guinea and New Zealand had planned, as an initial step, to set up a single system in which the orbital positions and frequencies specified in the final plan would be used. Other countries might well follow that example.

The delegate of Papua New Guinea agreed with the previous speaker. In his opinion, countries wishing to carry out satellite broadcasting experiments should form a group and establish the necessary coordination procedures so that they could be taken into account in the operation of terrestrial systems.

The delegate of France supported the suggestion of the previous speaker. While the United Kingdom proposal was of value, the choice of the two channels to be set aside for experimental broadcasting would raise considerable difficulties insofar as it would have to be based on the use made of the channels and in particular the implications for the Terrestrial Services would have to be considered.

The delegate of the USSR said that the period of ten years mentioned in the draft resolution was far too long. Quite a number of broadcasting-satellite systems would already be in service in ten years' time and their operation was likely to be jeopardized by the existence of experimental systems.

The delegate of Switzerland thought that there were no real grounds for the doubts expressed by the previous speaker inasmuch as there would no longer be any need for experimental satellites once several operational systems were in service. Countries wishing to become familiar with the operation of such systems could then do so directly. However, the period planned for the use of channels for experimental purposes could be shortened.

The delegates of Spain and Belgium supported that suggestion.

The Chairman asked whether, if the Committee did not approve the draft resolution submitted by the delegation of the United Kingdom, the procedures laid down in the Final Acts of the Conference allowed for the possibility of using, on a temporary basis and without amending the Plan, some of the channels already allocated in a manner which was not entirely in conformity with the Plan.



The delegate of the USSR suggested that the delegation of the United Kingdom should revise its draft resolution to take into account the views expressed during the discussion.

The delegates of Ivory Coast, Mauritania and Sudan supported that proposal.

The delegate of the United Kingdom undertook to submit a new draft resolution to the Committee.

It was so decided, on the understanding that the amended document should be examined in Plenary Meeting.

5. Communication by the delegate of France

Speaking as a member of the Organisation Télédiffusion-France (TDF), the delegate of France wished to inform delegations, particularly Working Group 5A and the Group on Planning, that the computer and staff made available to the Conference by that organization would no longer be available as from that day.

The Chairman expressed his thanks to the personnel of TDF for their valuable assistance.

The meeting rose at 2100 hours.

The Secretary :

D. KANE

The Chairman :

A. PETTI

INTERNATIONAL TELECOMMUNICATION UNION  
BROADCASTING SATELLITE CONFERENCE  
(Geneva, 1977)

Document No. 378-E  
25 March 1977  
Original : English

COMMITTEE 5

SUMMARY RECORD

OF THE

EIGHTH MEETING OF COMMITTEE 5  
(PLANNING)

Thursday, 10 February 1977, at 1815 hrs

Chairman : Mr. A. PETTI (Italy)

<u>Subjects discussed</u> :	Document No.
1. Approval of the summary record of the fourth meeting of Committee 5	239
2. Third report of Working Group 5B	254
3. Request by the delegation of Iceland	

1. Approval of the summary record of the fourth meeting of Committee 5  
(Document No. 239)

The delegate of the German Democratic Republic asked that the first two lines in the last paragraph on page 7 be corrected by substituting the words "his Delegation had written to the IFRB that" for the words "his Administration had written to say that".

The delegate of Switzerland asked that the last sentence in the first paragraph of the summary of his statement (page 8) be amended to read : "Since all neighbouring countries had agreed to it, the spillover could be regarded as a technical spillover".

Subject to those corrections, the summary record of the fourth meeting of Committee 5 was approved.

2. Third Report of Working Group 5B (Document No. 254)

The Chairman of Working Group 5B, presenting its third report (Document No. 254), said that it contained the results of some planning exercises

for Region 2 and had been submitted for information in order to assist administrations in Region 2 when preparing for their future regional conference.

Some purely editorial corrections would have to be made to bring the French and Spanish texts into line with the English version.

The delegate of Mexico said that as the planning exercises outlined in the document were not intended to prejudge the development of the plan in Region 2, he proposed that the third sentence in the second paragraph of the introduction be deleted.

The Chairman of Working Group 5B, speaking as the delegate of Canada, said that although that sentence did reflect the discussions in Working Group 5B he could accept the Mexican amendment for the sake of reaching agreement quickly.

The Mexican amendment to the second paragraph of the introduction was approved.

The delegate of Venezuela said that as the purpose of the exercises had been to provide information that might be useful to Region 2 countries for a future regional conference, he asked that copies of the document be sent also to administrations which had not attended the present Conference with some explanatory notes indicating the source of the data contained in the annexes. It would also be useful to circulate to them IFRB's report (Document No. 27).

The delegate of Cuba, endorsing the comments by the previous speaker, expressed his delegation's appreciation for the help given by the IFRB and the Sub-Group (and particularly Mr. Kovačs) which had carried out the planning exercises. He hoped that Document No. 254 could be kept up to date lest the data it contained were to become obsolete by 1982 because of technological progress.

The Chairman of the IFRB said that he had understood from the Chairman of Working Group 5B that none of the annexes to Document No. 254 would form part of the Final Acts and accordingly the whole document, together with its annexes, could be transmitted by circular letter to administrations which had not been represented at the present Conference.

Referring to the point raised by the delegate of Cuba, he said that in accordance with No. 482 of the Radio Regulations, the IFRB could assist in bringing the document up to date as part of its task of helping in the technical planning of a regional conference.

The Chairman suggested that the Committee take note of Document No. 254 and that the IFRB be instructed to despatch a corrected version to administrations not present at the Conference and to keep the annexes up to date in the light of technological progress.

It was so decided.

The Chairman of Working Group 5B thanked the members of the Sub-Group and Mr. Kovačs who had worked long hours in preparing the document.

The Chairman said that Committee 5 owed a debt of gratitude to the Chairman of Working Group 5B and its members who by strenuous efforts had found common ground and prepared data that would surely be most useful in preparing for the 1982 regional conference.

3. Request by the delegation of Iceland

The delegate of Iceland stated that he had handed in to the IFRB for inclusion in the final version of the Plan, certain amendments to the requirements of Denmark and Iceland together with a note X reading : "This assignment results from a common requirement of the Administrations of Denmark and Iceland. The service area includes the Faroe Isles and Iceland. The assignment may after consultations between the two Administrations be used by either of them."

The Chairman said that the request would be taken into account in preparing the final version of the Plan.

The meeting rose at 1850 hours.

The Secretary :

D. KANE

The Chairman :

A. PETTI

SUMMARY RECORD

OF THE

NINTH MEETING OF COMMITTEE 5

(PLANNING)

Friday, 11 February 1977, at 0940 hrs

Chairman : Mr. A. PETTI (Italy)

<u>Subjects discussed</u> :	<u>Document No.</u>
1. Approval of the summary record of the fifth meeting of Committee 5	264
2. Report of Working Group 5A (examination of the Plan)	265

1. Approval of the summary record of the fifth meeting of Committee 5  
(Document No. 264)

The delegate of Italy asked for the second sentence of his intervention on page 6 to be amended as follows :

"The Italian delegation, which had not been officially informed of a request for agreement on the part of Monaco, considered that Monaco should reduce its service area in the direction of Italy to the technically necessary minimum."

The summary record was approved, with that amendment.

2. Report of Working Group 5A (examination of the Plan) (Document No. 265)

The Chairman invited the Committee to make a preliminary examination of Document No. 265. Approval would be deferred until the following day, when a new run-through from the computer would be available.

The delegate of the United Kingdom, speaking as Chairman of Working Group 5A, introduced Document No. 265 which contained a draft Plan produced by

Working Group 5A-2/3 based on the requirements given in Document No. 103(Rev.2) with a number of further changes and reductions emanating from the Conciliation Group. The draft Plan was more promising, in respect both of interferences and negative margins, than either of the draft Plans produced by Sub-Working Groups 5A2 and 5A3. Moreover, the large interferences which did appear in the new draft Plan had been traced mainly to errors in the transfer of data from one computer to another, so it was to be expected that they could be substantially reduced. It had not been possible, in the draft Plan, fully to meet the wishes of every administration but all requests had been studied and only lack of time had prevented their full incorporation.

He would submit a document in writing giving corrections to the draft Plan.

In reply to a question by the Technical Secretary, regarding the omission of AND 262 from the draft Plan, the Chairman explained that it had been due to a misunderstanding in the planning groups. Since the characteristics were the same, it had been thought that AND 262 duplicated AND 238 and the latter, which had been submitted first, had been chosen.

The delegate of Spain said that the requirement submitted by Spain, No. AND 262, referred solely to the polygon delimiting the territory of Andorra. His delegation considered that the proposal to be taken into account in the allocation of channels should be the one whose coverage area corresponded to that polygon. He had therefore submitted a note requesting the IFRB to analyze the coverage area of both requirements so as to determine which would cause least interference in the Plan, and then to choose a single group of 5 channels for Andorra.

The delegate of the United Kingdom assured the Spanish delegate that the entry in Document No. 265 gave the minimum value to which the latter had referred, and urged him not to introduce any extra work for the IFRB at that stage.

The Chairman confirmed that page 10, line 35, gave the minimum value corresponding to the territory of Andorra.

In reply to a question by the delegate of Turkey, as to the form in which the boresight geographical coordinates would appear in the final Plan, the Technical Secretary said that for the time being it was not the intention to convert them so as to show 2 decimal places although that might be considered after the Conference.

In reply to a further question by the delegate of Turkey, the Secretary of the Committee said that the maximal gain given in Column 7 had been calculated in accordance with the formula in Document No. 27, but that could be altered when the numbers were entered in the Plan so as to bring it into line with the modified formula approved in Document No. 224.

The delegate of the Federal Republic of Germany, commenting on page 3 of Document No. 265, suggested that "7. Polarization" should refer to "right hand circular and left hand circular polarization" instead of "1 = direct, 2 = indirect."

The Technical Secretary said that comment would be borne in mind during the first reading of the relevant document.

The delegate of Laos, referring to Channel 1, line 18, on page 6, said that beam THA0142A covered almost the whole of his country's territory and he was therefore obliged to request a reduction of the ellipse of that beam.

The Chairman of Working Group 5A gave a detailed explanation of the method employed by the Working Group to ensure that all ellipses were, in fact, the smallest possible and that any spillover was technical rather than intentional.

The Chairman asked the delegate of Laos to accept that explanation as an assurance to the effect that the spillover was indeed technical and minimal.

The delegate of the Federal Republic of Germany, referring to Channel 2, line 34, on page 6 said that the real values of the figures appearing in Column 4 were 9.66 and 49.90. The same applied to all entries under serial No. D87 in Channels 6, 10, 14 and 18.

The delegate of Saudi Arabia, referring to Channel 2, lines 40 and 41 on page 7, announced that in order to improve the protection margins of assignments to the Yemen Arab Republic, his Administration had agreed to exchange the channels assigned to it under Serial No. 003 with those assigned under No. 0275, and vice versa. Accordingly, the entries under Serial No. 0275 in Channels 4, 8, 12, 16 and 20 should be transferred to the 0003 beam and those under Serial No. 0003 in Channels 2, 6, 10, 14 and 18 to the 0275 beam.

The delegate of Egypt expressed the hope that the changes announced by the previous speaker would not in any way degrade the protection margin figures given in the draft Plan.

The delegate of Spain, referring to Channel 4, line 35 on page 10, as well as to the relevant lines in Channels 8, 12, 16 and 20, said that his delegation had handed a note to the IFRB requesting a recalculation of the Andorra coverage.

The delegate of France assured the delegate of Spain that the power of the Andorra beam as shown in Document No. 265 provided coverage of the territory of Andorra only.

The Technical Secretary announced that the new Serial No. for AND 262 and other entries for Andorra would henceforth be 341.

The delegate of Bulgaria drew attention to an error in column 4 of Channel 4, line 45 on page 10 and in the corresponding entries in Channels 8, 12, 16 and 20.

The Chairman of Working Group 5A wondered whether changes already handed in to the IFRB and relating strictly to the correction of errors need be reported to the Committee.

The Technical Secretary explained the procedure for handling changes used by the IFRB. Any requests which gave rise to difficulties would be put before the Committee en bloc at a later stage.

The representative of the IFRB said that in accordance with a decision taken on the previous day by Working Group 5A, the IFRB had provided teams of engineers from 0800 hours to assist administrations in connection with changes of ellipses. As the problems which had arisen had proved more difficult than expected, it was felt that they should be reported to Committee 5.

Changes affecting the orientation of ellipses or calling for a reduction of the axis of the ellipse had been requested in respect of the following beams :

URS 81	NZL 287
URS 59	D 87
SUI 140	CVA 85
GRC 105	INS 28
CHN 159	INS 38
CKH 52	AUS 4, 5, 6, 7, 8 and 9
CKN 53	PNG 271
G 27	DNK 91
ZAI 328	ISL 50
BUL 20	PAK 283
SEN 222	IND 37 and 38.

Unresolved difficulties were still outstanding between Morocco and Algeria in respect of MAR 209 and ALG 251, between the Republic of Korea and the Democratic People's Republic of Korea, and the Yemen Arab Republic and the People's Democratic Republic of Yemen. A difficulty between the People's Democratic Republic of Yemen and the Sultanate of Oman would be dealt with after the Conference with the consent of both Administrations and in accordance with the procedures provided for the purpose. Belgium had requested a power increase of 1.3 dB in respect of BEL 18 because it considered that the  $\Delta G$  for that beam had not been correctly calculated. The CHN 160 beam had been changed by agreement between the Administrations concerned. Settlement was pending of a problem still outstanding between Ethiopia and Sudan. Lastly, a considerable amount of reciprocal overspill between Ethiopia and Somalia had had to be noted without further action in view of the absence of Somalia from the Conference.

The delegate of Morocco, referring to the list read out by the representative of the IFRB, said that the modification requested by his Administration was merely a correction and not a modification properly speaking. With regard to the problem which subsisted between his and the Algerian delegation, he said that every effort had been made to avoid raising the matter in the Committee. However, the ellipses listed for Algeria in the draft Plan were not in accordance with the agreement which his delegation believed to have been reached during informal discussions with the Algerian delegation. Those ellipses were larger than the minimum required to cover Algerian national territory, and his delegation would be unable to accept them if they were retained in the Plan as they stood. They could, in his view, be further reduced, and his delegation would be willing to discuss the matter with the experts in the hope that a compromise solution could be found.

The delegate of Algeria said that Sub-Working Group 5A1 had, at the specific request of his delegation, minimized the ellipses for Algeria. It should be noted that the calculations had been made by that Group and not by his Administration. The ellipse submitted that morning for beam 251 was the smallest one possible to meet his Administration's minimum requirements.



The delegate of Tunisia observed that although the ellipse to which the Algerian delegate had referred had been reduced vis-a-vis its coverage of parts of Italy and Spain, it still covered a very large area of Tunisia. However, his delegation continued to hope that a satisfactory solution could be found to the problem.

The delegate of Afghanistan made the following statement :

"I would like to draw the attention of the Committee and the IFRB to the fact that four of our channels, numbered 1, 5, 9 and 13, are subjected to serious interference of (protection margin of - 2) as a result of requirements submitted by various Administrations. I have already raised this question with the Chairman of Sub-Working Group 5A, the Conciliation Group and the Administrations concerned. The results obtained by my Administration up to the present are a matter of great concern to me. I am confident that, through this Committee, some effort will be made to reduce this interference figure, having regard to the fact that the figures which appear in the plans drawn up by Sub-Working Groups 5A2 and 5A3 were perfectly satisfactory to my Administration."

The Chairman of Working Group 5A said that the interference figure to which the previous speaker had referred was not considered by the experts to constitute serious interference.

The representative of the IFRB said that a decision by the Committee was needed in respect of the modification submitted by the Democratic People's Republic of Korea, since a beam increase was involved.

The delegate of the Republic of Korea, referring to the proposal by the North Korean Delegation, observed that his country's territory included several islands situated at some distance from the mainland. The draft Plan in Document No. 265 contained the minimum requirements of his Administration for coverage of the service area in question. His delegation had no wish to cause intentional spillover into other countries, nor was it prepared to accept such spillover. The proposal by North Korea to increase its ellipse over and above its just and reasonable requirements was, therefore, quite unacceptable to his delegation.

The delegate of the Democratic People's Republic of Korea said that the beam requested by South Korea was far larger than the minimum necessary to cover its service area and in fact covered a very large share of his country's territory as well. His delegation's request for the reduction of that beam had been refused. Consequently, it was only natural that his Administration should, on a reciprocal basis, wish to provide coverage for its islands; it had chosen, for that purpose, a minimum ellipse which did not even fully cover the islands in question.

The delegate of China said that, under No. 405 of the Radio Regulations, beams should be reduced to the minimum dimensions necessary with a view to reducing the interference caused to other administrations. Consequently, his delegation supported the position of the Democratic People's Republic of Korea.

In reply to a request by the Chairman, the representative of the IFRB provided information on the characteristics of the requirements submitted by the Democratic People's Republic of Korea. Replying to a question by the Chairman of Working Group 5A, he said that the IFRB could not check whether the ellipses in question were the minimum necessary for the coverage originally requested, nor could it take any other action of that kind, without the prior agreement of the Administrations concerned.

The Chairman said that the modification submitted by the Democratic People's Republic of Korea involved an ellipse that was greater than the one in that country's original requirements and was therefore not the type of modification which the Committee had decided to accept at the present stage of its work. Consequently, the only course open to the Committee would be to take note of the request by the Democratic People's Republic of Korea and its rejection by the Republic of Korea.

The delegate of the USSR said that the principles adopted by Working Group 5A in relation to the structuring of ellipses had been observed by the IFRB when drawing the related maps. However, errors had been made in certain individual cases. For instance, the ellipse plotted for URS 0059 had been increased so that it now covered not only the required area in the Soviet Union but also an area of approximately the same size involving several neighbouring European countries. He wished to make it clear that the ellipse thus plotted did not correspond to the requirements submitted by his Administration. That error, together with others concerning URS 0160 and URS 0081, had been brought to the attention of the IFRB. Furthermore, he requested that the necessary action be taken to correct an error which he had just detected in respect of the orientation of the ellipse for URS 0068.

The Chairman said that any corrections resulting from solutions found by Administrations to the unsettled problems mentioned by the representative of the IFRB earlier in the meeting should be handed in to the Secretariat not later than 1400 hours that day.

The meeting rose at 1240 hours.

The Secretary :

D. KANE

The Chairman :

A. PETTI

COMMITTEE 5

SUMMARY RECORD

OF THE

TENTH MEETING OF COMMITTEE 5

(PLANNING)

Friday, 11 February 1977, at 2145 hrs

Chairman : Mr. A. PETTI (Italy)

Subject discussed

Document No.

1. Preliminary examination of the Plan (continued)

265  
DT/53

1. Preliminary examination of the Plan (Documents Nos. 265 and DT/53)  
(continued)

Channels 8 to 20

No comments.

Channel 21

The delegate of Algeria said that entry 35 was a case of intentional spillover about which a letter had already been forwarded to the IFRB asking for the beam to be reduced to correspond to the size of the country concerned.

The Chairman of Working Group 5A said that a procedure had been set up on reduction of beams in which all delegations were treated in the same way. The minimum beam was calculated from equations using both the TDF and ITU computers and the smaller of the two selected.

The delegate of Algeria wished to place on record his delegation's formal reservation with regard to beam MRC0209A.

Channel 22

The delegate of Algeria said that the above remark applied also to entry 25 (MTN0223A).

The delegate of Tunisia said the figure in column 6 of Document DT/53 should read 135°.

Channel 23

The delegate of Spain indicated with satisfaction that a compromise solution had been found in relation to entry 33 (beam CVA0085A), thanks to a spirit of collaboration. The information on change of ellipse and reduction of 0.5 dB would have to be inserted manually as it did not appear in Document No. DT/53.

Channels 24 to 40

No comments.

The Chairman then invited general comments on the plan as a whole.

The delegate of Afghanistan drew attention to this special problem of his country which had been discussed in the Conciliation Group; the Group had called upon the views of Sub-Group 5A2/3 which had considered that an increase in power of 0.7 dB would go some way towards solving the problem without having adverse effects on the Plan. He accordingly proposed that amendment to the Committee (entry 14 in Channel 1, 45 in Channel 5, 45 in Channel 9 and 46 in Channel 13).

The Chairman of Working Group 5A confirmed that that increase would lower the negative protection margin for Afghanistan to a figure which would be consistent with acceptable picture quality. In his opinion, there should be no effect on the Plan.

The delegate of the Netherlands supported the request.

It was so decided.

The delegate of Pakistan wished to record that the Conciliation Group had not been able to settle the case of spillover from Indian beam 0038B which affected large areas of Pakistan (entry 49 in Channel 23).

The delegate of the Yemen Arab Republic asked for correction of a protection margin which had been calculated erroneously.

The delegate of the Democratic People's Republic of Korea referred to an official note addressed to the Chairman of the IFRB regarding a problem which had now been solved with the cooperation of the delegation of China; he asked for the beam in question to be extended in reply to the increased coverage now being asked for by the South Korean authorities.

The Chairman of the IFRB said that the delegation of the Democratic People's Republic of Korea, having approached Mr. Berrada and himself, had been given the results of calculations carried out by the IFRB to ascertain the effect of an increase in beam; the delegation was informed that the IFRB had no authority to make changes and that the decision was to be made by Committee 5.

The delegate of the Democratic People's Republic of Korea said that the only effect of the change in Channels 14, 16, 18, 20 and 22 (to increase the major axis to  $1.3^{\circ}$  and the minor axis to  $1.1^{\circ}$ ) would be with regard to China.

The delegate of China confirmed that his delegation had agreed to the change.

The delegate of the Republic of Korea said, with regard to the North Korean delegation's proposal to enlarge its beam size, that such enlarged expansion of beam size based on polygon points beyond its service area would cause excessive spillover which was not recognized by the Conference and was not consistent with the provisions of No. 428A of the Radio Regulations. His delegation would not accept such an undue proposal insofar as it would cause undue harmful interference to the service area of the Republic of Korea. He also wished to record that the delegation of the Republic of Korea had never requested any polygon points beyond its territory and his delegation therefore totally rejected any unfounded and illegal allegations on that subject.

The delegate of the Democratic People's Republic of Korea said that his delegation was satisfied with the result reached by the Conciliation Group and saw no reason to change it.

The Chairman noted that the increases in the axes were accepted, on condition that the calculations confirmed that the resulting increased interference was only in the direction of China and the USSR, which had agreed to accept it.

The representative of the IFRB asked for a decision by the Committee with regard to Iraq which was not represented at the Conference. The greater part of that country was situated in Region 3 and the remainder in Region 1. At its request, it had been included in the European broadcasting area at the 1959 Conference and also in the LF/MF Plan.

In the absence of any objections, the Chairman declared that on the present occasion Committee 5 considered Iraq as belonging to Region 1.

The delegate of Turkey referred to correction of the beam DNK 0091 which did not appear to be a reduction. In reply the delegate of Denmark explained that it was to be read in conjunction with entry ISL0050, as there had been a re-arrangement of five channels with the same coverage between Denmark and Iceland.

The delegate of Tunisia asked the IFRB to draft a Note to entry 21 in Channel 38 to the effect that the channel could be exploited in common, with the proviso that Tunisia could use it otherwise. The representative of the IFRB said that that would be done.

The delegate of India wondered if the figure of - 8 dB for entry 57 in Channel 16 was a stray error. The Chairman of Working Group 5A said that the Group had felt the value was excessive but could not explain it. In other such cases studies had shown that the figures were due to errors and not to the quality of the Plan itself. The representative of the IFRB said that certain corrections to test points had been submitted and perhaps the case in point should be rectified; the problem would be re-examined the following morning.

In reply to a query by the delegate of Switzerland on the effect of the change of orientation of beam TUN150, the representative of the IFRB said it was not possible to alter the data submitted but it was accepted that certain modifications would have to be made.

In reply to the delegate of Togo who wondered whether slightly increased power would not improve the situation of - 2 dB margins in all Togo's five channels, the Chairman of Working Group 5A said that such points needed careful study and would have to be taken up on a bilateral basis. It was the opinion of the planning experts that a - 2 dB margin could not be regarded as serious interference, as picture quality would hardly be affected. In deriving the protection margins a number of worst case factors had been taken into account but it was obvious that in reality that situation would not occur. Further to a request by the Chairman of the Committee, the Chairman of the Working Group said he would try to produce a paper showing the correspondence between the picture quality scale and negative margins from - 1 to - 4 or - 5 dB.

The delegate of the Netherlands agreed that the terminology "negative margin" was misleading and reference should be to interference levels and margins of + 30 or + 29. On that understanding, it was evident that 1 dB more or less was an extremely small difference.

The delegate of Morocco said that the Algerian modification in Document No. DT/53 could not satisfy his delegation. He therefore maintained the reservation formulated that morning with regard to intentional coverage of Moroccan territory and asked for it to be entered in the Remarks column.

The delegate of Ethiopia said that his delegation was encountering problems with the beam of Somalia, which was not represented at the Conference. If the beam in question was included in the Plan, his own delegation would wish to include a Note stating that the assignment was to be coordinated with Ethiopia and any other country concerned.

The delegate of Tunisia pointed out that Somalia had submitted its requirements at the preparatory meeting organized by the Arab Broadcasting Union and the IFRB had stated that the Somali ellipse was technically acceptable.

The meeting rose at 2310 hours.

The Secretary :

D. KANE

The Chairman :

A. PETTI

COMMITTEE 5

SUMMARY RECORD

OF THE

ELEVENTH AND LAST MEETING OF COMMITTEE 5

(PLANNING)

Saturday, 12 February 1977, at 1630 hrs

Chairman : Mr. A. PETTI (Italy)

Subjects discussed :

Document No.

1. Examination of the draft Plan for Regions 1 and 3 (continued)

335 + Corr. 1  
and 2,  
DL/63

2. Completion of the work of the Committee

1. Examination of the draft Plan for Regions 1 and 3 (contd.)  
(Documents Nos. 335, Corr. 1 and 2, DL/63)

The Chairman explained that some of the corrections indicated the previous evening were not included in the documents but would be read out by the Secretary; Document DL/63 contained the Notes requested by the Committee and the entries in the Plan had now been listed in alphabetical order in each channel.

The Technical Secretary added that the symbols AFS and RHS would be replaced throughout by the symbol IFB and the symbol DMH by BEN.

The Chairman proposed that the Committee examine the draft Plan page by page.

The delegate of India made the following statement :

"The Indian delegation has studied the draft Plan contained in Document No. 335 dated 11 February 1977 and notes with disappointment and regret that of the 48 channels assigned to India, 15 have negative protection margins although its own contribution of interference to the assigned channels of adjacent countries in Region 3 is relatively small. Of these 15 channels, 6 channels have margins of - 3 dB and one of - 6 dB. This position is obviously unsatisfactory to the Indian Administration.

The Indian delegation firmly believes that had more time been available to this Conference, a better Plan giving greater satisfaction to all Administrations could have been evolved. Considering that the guidelines for planning adopted by the Conference are sound, it should be possible to achieve further improvements in the Plan. The Indian delegation therefore suggests that the Conference entrust this task to the IFRB to examine this matter further with a view to making available its suggestions for improvement to the Administrations, at least six months before the entry into force of the Final Acts of the Conference."

Channel 2

The Secretary said that a recalculation of test points which had been incorrectly indicated for Saudi Arabia beam ARS 0275A affected the entry in Channel 2 as well as Channel 14.

The delegate of the Republic of Korea, referring to entry 47, proposed increasing the e.i.r.p. in column 9b to 64.6, as the negative protection margin had been altered from - 2 to - 3 dB.

The delegate of China said that increase would affect interference in the direction of China and was unacceptable.

The Chairman of Working Group 5A explained that certain sacrifices had had to be made in an endeavour to correct an error by the Sub-Group which had "lost" one of the USSR channels. The Japanese Administration had agreed to a power reduction and China had accepted an increase in negative margin and he therefore appealed to the Republic of Korea to assist with the problem, which was the fault of the Sub-Group.

The delegate of the Republic of Korea accepted that explanation.

The Chairman of Working Group 5A said that for entry 51 (MLI 0327A) the e.i.r.p. would be reduced by 1 dB with a consequential power adjustment; that result, which had been reached through the conciliation procedure, applied equally to Channels 6, 10, 14 and 18.

The IFRB agreed to make the necessary corrections to the interference calculations.



Channel 3

The Chairman of Working Group 5A, in reply to a query by the delegate of Singapore concerning entry 59, said that the negative margin was produced by beam VTN 0325A.

Channel 4

The delegate of Austria said that in entry 39 the first figure in column 4 should read 12.2 instead of 12.1.

The Secretary said that a correction would be made in every channel with beam ARS 0003A.

Channel 13

The delegate of the USSR, referring to entry 58, said he would submit in writing the fact that the USSR was prepared to reduce power by 0.5 dB in four channels to alleviate the negative protection margin of Afghanistan. The delegate of Afghanistan expressed his appreciation of that action.

Channel 14

The delegate of Saudi Arabia said that in compliance with the request of the delegation of Iran, his delegation would reduce the beam ARS 0275 and in a spirit of cooperation between the two countries, reduce the minor axis of the said beam to 1.2° instead of 1.4°, all other parameters remaining unchanged. The delegate of Iran expressed his gratitude for the Saudi Arabian initiative.

The delegate of the Republic of Korea read out corrected figures for entry 46 and asked what decision had been taken at the previous meeting with regard to the request by the delegation of the Democratic People's Republic of Korea.

The Chairman explained that the only objection to the request had come from the Republic of Korea so the Committee had decided in favour of the inclusion provided it did not cause increased interference to the Republic of Korea. The IFRB calculations had shown that there was no such interference. If the delegation of the Republic of Korea so wished, a Note could be inserted in the Remarks column stating its views.

The delegate of the Republic of Korea considered that the Committee's decision to authorize such an increase was a violation of the discussions in that Committee. In order not to prolong the debate unduly, he proposed that equal beams with equal orientation be adopted, i.e., that for the beam of the Republic of Korea the major axis be 1.3° and the minor, 1.1°.

The delegate of the Democratic People's Republic of Korea said that with the proposed increase the South Korean beam would cause interference over 50 % of the Northern part, including the capital.

The Chairman of Working Group 5A said that it was impossible to determine exactly what the effect of such an increase on the Plan would be.

The Chairman asked if there were objections to the proposal.

The delegates of the People's Democratic Republic of Lao and China were opposed to the increase.

The delegate of Japan said he had no objection.

The Chairman asked the IFRB, if possible, to examine the consequences of such an increase so that a decision on it could be taken in Plenary meeting.

Channel 15

The Secretary, replying to the delegate of Indonesia, said that the improved results were due to a reduction in the Australian beam.

Channel 22

The delegate of Tunisia said that the figure 153 should be corrected to 135 in column 6 of entry 53; the same remark applied to the other four channels in which the beam was listed.

The Technical Secretary said that some reductions in power had been made in Channels 22, 24, 25, 26, 28, 29, 30, 32, 33 and 34 in order to alleviate high levels of interference to one particular country. The delegations of Norway, Sweden, Belgium, Finland and Denmark had also agreed to reduce power to improve the situation of the German Democratic Republic on four of its channels.

Channel 23

The Technical Secretary said that Note 3 should be added against entry 48; also in Channels 31 and 39 and for Denmark, in Channels 27 and 35.

Notes (Document No. DL/63)

Note 1

The Technical Secretary explained that the Note was required in certain cases because the Committee had decided not to have a column for ΔG.

Note 2

The Technical Secretary asked for information on the assignments, channel and beam number against which the Note should appear.

The delegate of Saudi Arabia indicated that for Indonesia it was entry 44 in Channel 19. The delegate of Japan said that for Malaysia it was entry 52 in Channel 16. The information for Iran would be provided later.

Note 3

To be inserted, as indicated by the Technical Secretary, during consideration of the draft Plan.

Note 4

The Technical Secretary said that the Note would appear against every entry for the symbols AFS and RHS.

Note 6

The Technical Secretary said that certain information had already been submitted. The delegate of Tunisia asked for the words "upon the agreement of those countries" to be added, with regard to entry 33 in Channel 38. The delegate of Algeria agreed to that addition to the Note.

Note 7

The Technical Secretary said that the necessary information was available to the Secretariat.

The delegate of Iran requested a Note 8 to read "This assignment will be used with linear polarization" to appear against entry 47 in Channels 3, 7 and 15, entry 46 in Channel 11 and entry 45 in Channel 19.

The delegates of the USSR and France expressed concern about the implications of such a Note. All the planning work had been based on the use of circular polarization and the use of linear polarization would increase interference by a considerable number of dB. The delegate of New Zealand added that the Plan had a very tight orbital spacing of 6° and much of the benefit would be lost if a large area of one country were to use linear polarization.

The delegate of Iran said that no objection had been raised when he had brought up the matter in Committee 4, nor when the documents had been approved on first reading in Plenary meeting. Document No. 224(Rev.1) had a Note to the effect that the Administration of Iran expressed a reservation about circular polarization and intended to use linear polarization.

The Chairman pointed out that when that document had been examined he himself had expressed doubts about the advisability of including such a reservation in the Final Acts of the Conference. He proposed that the point be studied further and an answer given at a later stage.

The Technical Secretary asked for instructions from the Committee to meet the request by several delegations that when the Plan was printed after the Conference, the figures in column 5 (antenna aperture) should be given to 2 decimal places.

It was so agreed.

2. Completion of the work of the Committee

The Chairman of Committee 5 thanked all participants for their collaboration and their efforts permitting the preparation of a Plan for Regions 1 and 3. He was grateful in particular to the Chairmen of Working

Groups, to the IFRB, including the Committee Secretary and the Technical Secretary, and to the interpreters and the entire secretariat.

The meeting rose at 1850 hours.

The Secretary :

D. KANE

The Chairman :

A. PETTI

PLENARY MEETING

MINUTES

OF THE

TENTH PLENARY MEETING

Thursday, 10 February 1977, at 0920 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

<u>Subjects discussed</u> :	<u>Document No.</u>
1. Approval of the minutes of the fifth plenary meeting	251
2. Texts submitted by the Editorial Committee for first reading (B.3(Rev.1), Add.1 to E.5, B.10)	224(Rev.1) 231(Add.1) 246 (pages 12-15)

1. Approval of the minutes of the fifth plenary meeting (Document No. 251)

The delegate of Japan requested the insertion of the words "Supporting the views expressed by the delegate of the United Kingdom," before the statement by the delegate of Japan in the middle of page 5 of Document No. 251.

The delegate of the United Kingdom said it would be more appropriate to indicate that his statement at the foot of page 10, had been made in his capacity as Chairman of Working Group 5A.

The delegate of Afghanistan said that while he agreed with the summary of his statement, as given on page 10, he had asked for the text of his remarks to be annexed in extenso to the minutes.

The Chairman said that that would be done.

Subject to those amendments, the minutes of the fifth plenary meeting (Document No. 251) were approved.

2. Texts submitted by the Editorial Committee for first reading (B.3(Rev.1), B.5(Add.1), B.10) (Documents Nos. 224(Rev.1), 231(Add.1), 246 (pages 12-15)).

The Chairman of Committee 8 introduced the revised third series of texts submitted by the Editorial Committee (B.3(Rev.1) - Document No. 224(Rev.1)), the addendum to the fifth series of texts on the use of energy dispersal in the Broadcasting-Satellite Service (B.5(Add.1) - Document No. 231(Add.1), and the resolutions in Document No. 246, pages 12 - 15).

Document No. 224(Rev.1)

Title

The Chairman of Committee 8 indicated that the title of Document No. 224(Rev.1) should be corrected to read "...should be used for the application of the Plan."

On the proposal of the delegate of Canada, it was agreed that the title should read : "Technical data used in establishing the provisions and associated Plan and which should be used for their application."

Section 2

On the proposal of the Chairman of Committee 8, it was agreed to delete the explanatory note in square brackets on page 4 of Document 224(Rev.1).

The delegate of the United Kingdom, supported by the Chairman of Committee 4, said that paragraph 2.2 did not deal with propagation factors and could be more appropriately inserted in a later section of the document. He therefore proposed its deletion from Section 2.

On the proposal of the representative of the IFRB, it was agreed that paragraph 2.2, which referred to Figure 1, should be retained in its present position, and that the United Kingdom delegate should draft an additional paragraph for insertion in Section 3.13.

On the proposal of the representative of the CCIR, it was agreed that Committee 8 should change the note at the foot of page 6 in accordance with the text of paragraph 2.2

The delegate of Turkey pointed out that the map on page 6 was not strictly in accordance with the tables of climatic zones given in Document No. DT/29, and after a brief discussion, it was agreed that the map should be replaced by the tables in question.

Section 3

It was agreed to delete the explanatory notes from the Editorial Committee which appeared in square brackets in paragraphs 3.1 and 3.3.

The delegate of the United States of America said that to avoid any possibility of confusion with the formal reservations for whose submission a dead-line was set, we would like the words "a reservation" to be replaced by the word "concern" in the footnote regarding the administration of the United States of America on page 7.

The Chairman noted that amendment.

The delegate of the United States of America remarked that the values of the protection ratios given in paragraph 3.4.3 came from Committee 5, and not from Committee 4.

The delegate of Canada pointed out that Figure 4 showed a protection ratio of 30 dB, whereas paragraph 3.4.3 mentioned a protection ratio of 31 dB; he wondered how the apparent contradiction could be resolved.

The delegate of the United Kingdom proposed that the words "for the purpose of calculating protection margins" should be added after the words "have been adopted" in paragraph 3.4.3.

The delegate of the United States of America supported that proposal, while recalling that the purpose of the 1 dB addition to protection ratio values recommended by Committee 4, was to allow for ageing of the transmitting tubes.

The representative of the IFRB said that if the term "protection margins" was introduced, it would have to be defined in the Final Acts.

It was agreed that for the next reading of the text Committee 8 should produce a footnote to paragraph 3.4.3 defining "protection margins" on the basis of CCIR Report 633(Rev.76).

The amendment proposed by the United Kingdom delegate to paragraph 3.4.3 was adopted.

The delegate of Australia, supported by the delegate of India, said that paragraph 3.4.2 should be deleted, and the subject of energy dispersal should be treated in a separate paragraph with the heading "Use of energy dispersal" to be inserted as paragraph 3.20 of Document No. 224(Rev.1), and the text of which would be that of paragraph 3.9.4 of Document No. 224 (page 16).

The Director of the CCIR proposed the deletion of paragraph 3.4.2 including Figure 4.

The delegate of the United Kingdom supported that proposal and further suggested that the reference to Figure 4 in paragraph 3.4.1 should be deleted and that paragraph 3.4.3 should be renumbered 3.4.2.

It was so decided.

The delegate of the United Kingdom, referring to paragraph 3.5, said that the words "taken in the example below as 150 K" in line T<sub>a</sub> under "where" should be deleted.

It was so decided.

The delegate of Canada proposed that the last line of paragraph 3.8 should read : "525 - line system (Region 2) : values of 18 and 23 MHz".

It was so decided.

The Chairman of Committee 5 said that the square brackets round "11 MHz" in paragraph 3.9 should be deleted.

The delegate of Canada proposed that the last two paragraphs on page 13 of Document No. 224 should be inserted below the Table in paragraph 3.9 and appropriately numbered by the Editorial Committee.

It was so decided.

The delegate of the United States of America wondered whether the entry for Region 2 in the second column of the Table was necessary as there were no space services adjacent to that band edge.

The delegate of the United Kingdom thought that a guard band at the upper edge of the 12.2/12.5 GHz band was necessary also to protect terrestrial services in the adjacent band.

The delegate of France said that the words "de la largeur" in the French text of the first sub-paragraph of paragraph 3.9 should be deleted.

The delegate of Canada proposed the addition of the words "in the Plan" to the heading of paragraph 3.10.

It was so decided.

The Chairman of Committee 5 said that the square brackets round "19.18" should be removed.

The delegate of the United Kingdom proposed that the words "two adjacent" in the first line of paragraph 3.10 should be replaced by the words "the assigned frequencies of".

It was so decided.

The delegate of the Federal Republic of Germany, supported by the delegate of the United Kingdom, proposed the deletion of the words "is considered feasible for broadcasting satellites" in the third line of paragraph 3.12.

It was so decided.

The delegate of the United Kingdom suggested the addition of the following sentence at the end of the first sub-paragraph of paragraph 3.13 : "Attention is also directed to Section 2.2".

It was so decided.

The delegate of Kenya proposed that the words "up to" in the third line of the second sub-paragraph of paragraph 3.13 should be replaced by the words "at least" and that the words "or even higher" should be deleted.

It was so decided.



The Director of the CGIR proposed the addition of a new paragraph 3.14.4 entitled "Direction of rotation of circularly polarized waves" and containing the two definitions appearing in CCIR Report 321.

The delegate of the United Kingdom supported the proposal, but thought that sub-section 3.2 might be a more appropriate place.

The Chairman suggested that the Editorial Committee should be requested to insert the new paragraph under sub-section 3.2.

It was so decided.

The delegate of the Federal Republic of Germany observed that an indication should be provided to the effect that "direct" polarization meant right-hand and "indirect", left-hand polarization.

The Chairman of Committee 5 said that such an indication had already been transmitted to the Editorial Committee with the list of characteristics given in the Plan.

The delegate of Senegal requested that the French text of the penultimate sub-paragraph of paragraph 3.14.1 (beginning with the words "a et b sont respectivement ...") should be reviewed by the Editorial Committee.

The delegate of Venezuela requested that Figure 7 in the Spanish text should be brought into line with that appearing in the English text.

It was so decided.

The delegate of France proposed that the title of paragraph 3.15 should be brought into line with the text of the paragraph, to read : "Spacing between two channels feeding a common antenna".

The delegate of Australia remarked that it would be more correct to speak of "assigned frequencies" than of "channels".

The delegate of the United States of America suggested that paragraphs 3.7, 3.10 and 3.15, all of which dealt with channel spacing, should be grouped together near the beginning of the Section.

The Chairman requested the Editorial Committee to rearrange those paragraphs accordingly, taking account of the points raised by the delegates of France and Australia with regard to paragraph 3.15.

The delegate of France remarked that the second and third factors listed in paragraph 3.16.2 were not, in fact, additional ones.

The delegate of the United Kingdom suggested that the word "additional" in the first line of paragraph 3.16.2 should be deleted and that the order of paragraphs 3.16.3 and 3.16.4 should be reversed.

It was so decided.

The delegate of the United States of America proposed that the last line of paragraph 3.16.2 should read : "the effect of yaw error increases as the beam ellipse lengthens".

It was so decided.

The Chairman said that the Notes from the Editorial Committee in paragraphs 3.7, 3.9, 3.10, 3.18 and 3.19 should be deleted and that a new paragraph 3.20 should be added in accordance with the proposals made earlier in the meeting by the delegate of Australia.

The 3rd series of texts (B.3(Rev.1)) was approved on first reading, as amended and subject to editorial changes.

The Chairman invited delegates to consider the addendum to the 5th series of texts (B.5(Addendum)) (Document No. 231, Addendum No. 1).

The Chairman of the Editorial Committee wondered whether paragraph 3.4 should not be deleted as its subject matter was dealt with elsewhere.

The delegate of the United Kingdom, supported by the delegate of the USSR, urged that paragraph 3.4 should be retained.

The addendum to the 5th series of texts (B.5(Addendum)) was approved on first reading, subject to editorial changes.

The Chairman invited delegates to consider Resolutions Nos. D, E and F in the 10th series of texts (B.10) (Document No. 246).

#### Resolution No. D

The delegate of Finland proposed the insertion of the words "administrative radio" between the words "competent" and "conference" in the paragraph under "resolves".

It was so decided.

#### Resolution No. E

The delegate of the United Kingdom proposed the insertion of the word "the" between the words "concerning" and "broadcasting-satellite" in considering c), the insertion of letters "i.e." between "Radio Regulations" and "Nos." in resolves 1., and the replacement of the word "occupied" in the first and second lines of the first sub-paragraph of resolves 3. by the word "necessary".

The delegate of Canada proposed that the word "expounded" in considering b) should be replaced by the word "contained".

It was so decided.

The Chairman of Committee 6 said that the square brackets in resolves 2.1 should be removed.

Resolution No. F

The delegate of the United Kingdom proposed the deletion of the first two lines of the title and of the square brackets round the remaining three lines of the title, as well as the replacement of the words "radiocommunication services" under "resolves" by the word "stations".

It was so decided.

The delegate of the USSR wondered whether the Resolution served any useful purpose.

The Chairman of Committee 6 said that, following proposals made earlier in the Conference, Committee 6 at its last meeting had decided that Resolution No. F should go forward in order to make it absolutely clear that the use of any orbit other than the geostationary orbit would be incompatible with the Plan.

Resolutions Nos. D, E and F in the 10th series of texts (B.10) were approved on first reading, as amended and subject to editorial changes.

The meeting rose at 1240 hours.

The Secretary-General

M. MILI

The Chairman

Ib LØNBERG

PLENARY MEETING

MINUTES

OF THE

ELEVENTH PLENARY MEETING

Friday, 11 February 1977, at 1335 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

<u>Subjects discussed :</u>	<u>Document No.</u>
1. Tribute to the memory of the late President of the Republic of India	
2. Texts submitted by the Editorial Committee for first reading (Add.2 to B.4, B.11, B.12, B.14, B.15)	225(Add.2), 261, 268, 297, 298
3. Texts submitted by the Editorial Committee for second reading (R.1)	257
4. Reports of Committee 5 to the Plenary Meeting	255, 270
5. Documents submitted by Committee 4	243(+ Corr.1, 2 and 3) (except page 5), DL/61
6. 13th series of texts submitted by the Editorial Committee for first reading (B.13)	296
7. Credentials	
8. Statement concerning South Africa and Rhodesia	

1. Tribute to the memory of the late President of the Republic of India

The Chairman, speaking on behalf of the Conference and on his own behalf, expressed condolences to the delegation of India on the occasion of the sudden death of Mr. Fakhruddin Ali Ahmed, President of the Republic of India.

The Plenary Meeting observed a minute's silence in memory of the late President.

2. Texts submitted by the Editorial Committee for first reading  
(Add.2 to B.4, B.11, B.12, B.14, B.15) (Documents Nos. 225(Add.2),  
261, 268, 297, 298)

Addendum No. 2 to the 4th Series of texts (Add.2 to B.4)  
(Document No. 225(Add.2))

The Chairman of Committee 6 explained that the first option in the document had been supported by certain members of Ad Hoc Joint Working Group 4/6, but that, in revising Document No. 224, the Chairmen of Committees 4 and 6 had been unable to agree on the use of energy dispersal techniques in the preparation of the Plan. He had therefore proposed the second variant, which had still not satisfied the delegations concerned; in the light of the Plenary Meeting's decisions on the revision of the 3rd Series of texts (B.3(Rev.1), Document No. 224(Rev.1)) and of the fact that energy dispersal had been used in the preparation of the Plan and would be used in its application, the Plenary Meeting might consider that neither variant was necessary.

The delegates of the USSR and the United Kingdom said that, although they preferred the second variant, they did not consider it necessary to include the provision in the Final Acts.

The delegate of India, supported by the delegate of Iran, said that he, too, preferred the second variant, but considered that the option to employ energy dispersal should appear somewhere in the Final Acts.

It was decided to retain the second variant of Note 1) to Article 4.

The delegate of Australia said that the paragraph in question should include a reference to the new paragraph 3.20 added at the end of the basic technical characteristics in the revised 3rd Series of texts (Document No. 224(Rev.1), page 21), rather than to paragraph 3.4 of the 5th Series of texts (Document No. 231).

Addendum No. 2 to the 4th Series of texts (Add.2 to B.4) was approved on first reading, as amended and subject to editorial changes.

11th Series of texts (B.11) (Document No. 261)

The Chairman of the Editorial Committee explained that the text had been drafted in the form of a Recommendation because it had been considered that it did not belong among the technical data. Perhaps the square brackets might be removed from the title.

The 11th Series of texts was approved on first reading, subject to editorial changes.

12th Series of texts (B.12) (Document No. 268)

The Chairman of the Editorial Committee said that all the texts related to arrangements for Region 2, except for the heading of the Plan columns on page 13, which were, of course, entirely separate.

Article [ 10 ] - Provisions governing the Broadcasting-Satellite Service in Region 2 pending the establishment of a detailed plan

The Chairman of Committee 6 said that the square brackets round paragraph 5 could be removed, but that the following words should be added at the end of that paragraph : "and, where appropriate, with the provisions of Article [ 7 ] of these Final Acts."

Article [ 10 ], as amended, was approved.

Annexes A and B

Approved.

Recommendation No. HH

The Chairman of the Editorial Committee said that the references to "b), c), d) and e) below" in recommends 1 should be changed to "2, 3, 4 and 5 below".

The delegate of Algeria proposed that the reference in recommends 1 should read "2, 3, 4, 5 and 6 below".

Recommendation No. HH, as amended, was approved.

Resolutions Nos. G and H

Approved.

Headings of the Plan columns

The delegate of the United Kingdom proposed that the title be changed to "Column headings of the Plan", that the word "aperture" in heading 5 be replaced by "beamwidth" and that heading 8 be amended to read : "E.i.r.p. in the direction of maximum radiation in dbW."

The delegate of Sweden proposed that the words ", in degrees and tenths of a degree" be added at the end of heading 5.

In reply to a comment by the delegate of the United Kingdom concerning heading 7, the Director of the CCIR said that the CCIR used the terms "clockwise" and "anti-clockwise" rather than "direct" and "indirect" and suggested that the appropriate cross-references be made.

The column headings of the Plan, as amended, were approved.

The 12th Series of texts (B.12) was approved on first reading, as amended and subject to editorial changes.

14th Series of texts (B.14) (Document No. 297)

Resolution No. I

Approved, with removal of square brackets round the word "equivalent" in considering b) and invites the IFRB e).

Table showing correspondence between channel numbers and assigned frequencies

Approved.

The 14th Series of texts (B.14) was approved on first reading, as amended and subject to editorial changes.

15th Series of texts (B.15) (Document No. 298)

The 15th Series of texts (B.15) was approved on first reading, subject to editorial amendments.

3. Texts submitted by the Editorial Committee for second reading (R.1)  
(Document No. 257)

The 1st Series of texts (R.1) was approved on second reading, subject to editorial amendments.

4. Reports of Committee 5 to the Plenary Meeting (Documents Nos. 255 and 270)

The Chairman of Committee 5 introduced the two above-mentioned documents.

It was decided to take note of Documents Nos. 255 and 270.

5. Documents submitted by Committee 4 (Documents Nos. 243, Corr.1, 2 and 3 (except for page 5) and DL/61)

Introducing Document No. 243, the Chairman of Committee 4 said that, when considering point 2.3, reference should be made to Document No. DT/52 which contained the values calculated by the IFRB for the power flux-densities produced in Region 2 by space broadcasting stations in Regions 1 and 3.

Referring to the first page of Document No. 243, the Chairman of Committee 6 asked whether the values given in paragraph 3 of Document No. 188(Rev.2) had been approved by Committee 5.

The Chairman of Committee 5 said that they had and that the square brackets could be removed.

On the proposal of the delegate of the USSR, it was decided to study paragraph 3 during the consideration of Document No. 296.

The Chairman invited the delegates to consider the Annex to Document No. 243 point by point.

The delegate of the United States of America said that point 2.1 corresponded to Annex 4 to Document No. 296, point 2.2 to Article 9 on page 2 of that document and to Annex 5, and point 2.3 to Annex 6.

#### Point 2.1

At the request of the delegate of France, it was decided to replace the words "Fixed-Satellite Service" at the end of the first paragraph by "satellite services".

The delegate of Denmark said that the sign < in the second equation in the first paragraph should be replaced by the sign ≤.

It was so decided.

Point 2.1, as amended, was approved.

#### Point 2.2

The delegate of the United States of America said that the second paragraph (right-hand column) was incomplete compared with the text the Committee had approved. The words "and systems in the Fixed Services in Region 3" should be replaced by "and FDM/FM systems in the Fixed Service in Region 3".

Point 2.2 was approved subject to that amendment.

#### Point 2.3

The delegate of Canada said that the text was still in square brackets in Document No. 243 because, at the time it was prepared, Committee 4 did not have the values of the power flux-density in Region 2. Those values had been calculated subsequently by the IFRB and were given in Document No. DT/52 and in the addendum to that document.

The delegate of the United States of America said that his delegation and the Canadian delegation had drafted a text which was intended to replace point 2.3 in Document No. 243, namely, Document No. DL/61, which was based on the existing text of point 2.3, with certain amendments deriving from a proposal submitted by the delegation of Mauritania in Committee 5. Document No. DL/61 also referred to the method of calculation explained in Document No. DT/49 and to the values given in Document No. DT/52. The delegations of the United States of America and Canada hoped that, if approved, the new text of point 2.3 would be included in the Final Acts of the Conference.

The Chairman invited participants to consider Document No. DL/61.



The delegate of the United States of America said that, at the end of the first two paragraphs, the word "Annex" should be replaced by "Document". In the third paragraph, the words "some time in the future" should be replaced by "some considerable time in the future".

At the request of the delegate of Algeria, it was decided to add the word "Consequently" at the beginning of the second sentence of the first paragraph.

The delegate of Italy said that the Committee had unanimously taken the view that the possibility of amending the Plan must be provided for. Committee 6 had accordingly defined the procedures to be followed for amending the Plan without upsetting the position of the various services operating in the band in question. The provisions set forth in Document No. DL/61 made no allowance for possible amendments to the Plan in that they stipulated that the values of the power flux-density must remain unchanged in all cases. In his view, what should be specified was the limit value of the radiated power flux-density which must not be exceeded. Furthermore, the words "without the consent of administrations which may be affected" should be inserted in the sixth line of the first paragraph after the word "modulation".

That proposal was supported by the delegates of the Netherlands and of Mauritania.

The delegate of Canada said that the limit value above which an administration must be consulted was given in Annex 1 on page 4 of Document No. 296.

The delegate of Italy said that he would revert to his proposal during the consideration of Document No. 296 if it was then decided to include in that document the text in Document No. DL/61.

The first paragraph was approved subject to the insertion proposed by the Algerian delegate.

Referring to the second paragraph of Document No. DL/61, the representative of the IFRB said that there were some errors in the values given in Document No. DT/52 which would be corrected later. The second paragraph might be deleted because it dealt with a question already referred to in the first paragraph.

The delegate of the United States of America, supported by the delegate of Canada, said that the second paragraph should be retained because it contained information which would be very useful for the South American countries. Those countries needed to know the exact values of the power flux-density they would have to take into account when planning their satellite-broadcasting systems.

The delegate of Algeria, supported by the delegate of the Netherlands, proposed that the word "theoretical" should be inserted before the word "values" in the second line of the paragraph.

The delegate of the United States of America said that the values given in Document No. DT/52 could not be regarded as theoretical because they were those which would have to be used in systems operated in accordance with the Plan. Moreover, the insertion proposed by the delegate of Algeria would mean that similar amendments would have to be made in the case of all the values of power flux-density approved so far, which would give rise to practical difficulties.

The delegates of New Zealand and of the United Kingdom agreed with the delegate of the United States of America.

The second paragraph of the document was approved without amendment.

The delegate of India said that the last paragraph of Document No. DL/61 might be deleted because it amounted to a general recommendation.

The delegates of Italy, Mauritania and the United Kingdom supported that suggestion.

It was so decided.

It was decided to replace point 2.3 of Document No. 243 by the text in Document No. DL/61, subject to the insertion in the first paragraph proposed by the delegate of Algeria and the deletion of the last paragraph.

Point 2.3, as amended, was approved.

#### Point 2.4

The delegate of the United States of America pointed out that the sentence appearing in Corrigendum No. 1 to Document No. 243 should be added to point 2.4.

Point 2.4 was approved without amendment.

Document No. 243, as amended, was approved.

The Chairman of Committee 4 thanked all those who had helped his Committee to complete its work for their valuable assistance.

#### 6. 13th Series of texts submitted by the Editorial Committee for first reading (B.13) (Document No. 296)

The Chairman of Committee 6 said that the Annexes in the document might be rather controversial, because Ad Hoc Joint Working Group 4/6 had not received all the necessary technical criteria approved at Committee level for proper coordination. Although many of the square brackets could be removed as a result of the approval of Document No. 243 and Corrigenda, some points still remained outstanding, especially where Annex 1 was concerned.

Article 9 - Power flux-density limits between 11.7 and 12.2 GHz to protect Terrestrial Services in Regions 1 and 3 from interference from Region 2 broadcasting-satellite space stations

Approved.

Annex 1 - Limits for determining whether a service of an administration is considered to be affected by a proposed modification to the Plan (Article / 4 /, paragraph 4.3.1)

The Chairman of Ad Hoc Joint Working Group 4/6 said that his Group had been hampered in its work by the lack of technical data referred to by the Chairman of Committee 6 and also by the fact that it had consisted of only about a dozen delegations, which could obviously not represent the ideas of the whole Conference. Although some discussions had been held with other delegations, the Group's conclusions must be regarded as a minority report.

Paragraph 1 - Limits on the change in the wanted-to-interfering signal ratio to protect the Broadcasting-Satellite Service of other administrations' frequency assignments in conformity with the Plan

The delegate of the United Kingdom proposed that the title be simplified to read "Limits on the change in the wanted-to-interfering signal with respect to frequency assignments in accordance with the Plan".

After a brief discussion on the wording of the second part of the paragraph, it was agreed that the French text be aligned on the English, in which the word "below" used for the second time in the fifth line would be deleted.

At the suggestion of the representative of the IFRB, it was agreed that the term "equivalent co-channel interfering signal" would be defined in the final version.

Paragraph 1, as amended, was approved.

Paragraph 2 - Limits on change in power flux-density to protect the Broadcasting-Satellite Service in the band 11.7-12.2 GHz in Region 2

The Chairman of Ad Hoc Joint Working Group 4/6 said that two variants had been proposed by the Group because the decisions concerning the protection of the Broadcasting-Satellite Service in Region 2 had not yet been known.

The delegate of the United States of America proposed that, since there was as yet no plan for Region 2, the first variant should be retained.

The delegate of the USSR observed that the figures in the first variant had not been agreed by Committee 4 and that it was not certain whether those figures could be met under the Plan agreed upon for Regions 1 and 3. He therefore preferred the second variant.

The delegate of the United Kingdom pointed out that the question was not one of complying with the Plan, since the frequencies in the first variant were to be used only to assess whether coordination procedures would be needed in the event of modifications. In fact, those figures were all derived from data agreed upon in Committee 4 and were patterned on Annex 4, with slight amendments to take into account certain characteristics peculiar to Region 2. He therefore agreed with the United States delegate that the first variant should be retained.

The Chairman of Ad Hoc Joint Working Group 4/6 endorsed that statement.

The first variant in paragraph 2 was approved.

Paragraph 3 - Limits on the change in power flux-density to protect the Terrestrial Services of other administrations

The Chairman of Ad Hoc Joint Working Group 4/6 said that the value in the second sub-paragraph had been omitted because Committee 4 had taken no decision in that respect.

The representative of the IFRB said that the Board interpreted paragraph 3 to mean that calculations must be made on the basis of coefficients of attenuation due to rain and other atmospheric factors corresponding to the countries for which the calculations were made, not the country responsible for the broadcasting-satellite station concerned. He therefore proposed the inclusion of a footnote to the title of the whole Annex, reading "1) The limits specified in this Annex relate to the power flux-densities which could be obtained assuming free space propagation conditions."

He also observed that it was not specified for what percentage of the time the calculations in question should be made, the 99 % provided for the Broadcasting-Satellite Service or the 99.9 % stipulated by the CCIR for the Terrestrial Service. In his opinion, pfd increases should be specified to the thousandth degree.

The Chairman of Ad Hoc Joint Working Group 4/6 endorsed the preceding speaker's first statement but said that it would be too difficult to calculate very small percentages and that it would be better to keep to the figure provided for the Broadcasting-Satellite Service.

Speaking as the delegate of Italy, he said that for Terrestrial Services it would clearly be more practical not to consider the protection of each station, but the general protection of the territory of a country, since the number of stations was very large and certain countries did not intend to notify all their earth stations to the IFRB. There were two ways of bringing the number of countries with which coordination must be effected down to reasonable limits : the pfd margin in the first sub-paragraph could be made higher and the figure in the second sub-paragraph lower, so as to decrease the number of consultations, although the number of countries included in the consultations would be considerable; conversely, a low figure could be kept for the pfd margin, so that consultations would have to be held on most modifications to the Plan, but the value in the second-sub-paragraph could be increased, with

the result that in most cases the consultations would involve only a few neighbouring countries. His delegation believed the second alternative to be preferable and therefore proposed to retain the figure 0.25 dB in the first sub-paragraph and to insert in the second the same figures as for Region 2, - 125 dBW/m<sup>2</sup>/4 kHz for circular polarization and - 128 dBW/m<sup>2</sup>/4 kHz for linear polarization.

The delegate of the United Kingdom said that the figures for Regions 1 and 3 and for Region 2 could not be correlated on a 4 kHz basis. It might be best to use the figure - 132 dBW/m<sup>2</sup>/5 MHz, appearing in Annex 5, for both polarizations.

The delegate of the United States of America observed that, since many of the services to be protected in Regions 1 and 3 were channelled on a 4 kHz basis, it might be more practical also to use that basis for the power flux-density limit.

The delegate of the United Kingdom pointed out that many countries in Regions 1 and 3 would like to use their assignments in the band allocated to the Terrestrial, Fixed and Mobile Services for television, in which case 4 kHz would not be appropriate. He proposed that the words "the values expressed in Annex 5" be inserted in the blank space in the second sub-paragraph.

The delegates of India, New Zealand and Ethiopia supported that proposal.

The delegate of Italy said that that wording would make the Plan unduly rigid and would render the modification procedure practically inapplicable. His delegation's proposal, on the other hand, would limit consultations to neighbouring countries only.

The delegate of the Netherlands supported the Italian proposal.

After a brief discussion, the Chairman suggested that consideration of the paragraph be deferred until a later stage of the debate.

It was so agreed.

Paragraph 4 - Limits on the change in power flux-density to protect Fixed-Satellite Services in the band 11.7-12.2 GHz in Region 2

The Chairman of Ad Hoc Joint Working Group 4/6 said that two variants were proposed for that paragraph and said that the pfd figures to be inserted should probably not differ greatly from those approved for paragraph 2.

The delegate of Canada said he could not agree with that statement, since the Fixed-Satellite Services in Region 2 were by nature closer to the Broadcasting-Satellite Services in Regions 1 and 3 than were the Terrestrial Services. His delegation was therefore in favour of the option in sub-paragraph a). Moreover, to meet the wish expressed by the Italian delegate during the discussion of Documents Nos. 243 and Corrigenda and DL/61 to accommodate minor changes to the Plan, he suggested that a reference to paragraph 4.3.1.3 be included in the first line of the paragraph.

The delegate of Italy said that there was no need for such an additional reference, since paragraph 4.3.1.3 was already mentioned in paragraph 3 of Addendum 1. He had no objection to variant a) except for the figure 0.25 dB, approval of which would completely nullify all the work of Committee 6 by making it virtually impossible to introduce even slight modifications resulting from technical advances. The figure of 2 dB had been proposed in Ad Hoc Joint Working Group 4/6.

The delegate of Canada observed that, since Regions 1 and 3 had proposed the figure of 0.25 dB for the protection of their Terrestrial Services, it seemed logical to insert the same figure for triggering coordination procedures in Region 2.

The delegate of the USSR supported that view.

The delegate of Mauritania supported the Italian delegate's remarks. The figure 2 dB should appear in paragraphs 3 and 4.

The delegate of Italy reiterated that adoption of a pfd limit of 0.25 dB for modification purposes in paragraph 4 was likely to lead to a situation in which all the countries of Region 2 would have to be consulted on every change in the Plan, however slight. The position with regard to paragraph 3 was quite different : the Ad Hoc Group had agreed to suggest the figure of 0.25 dB in that case because its effect would be mitigated by a reasonable figure, such as the  $-125 \text{ dBW/m}^2/4 \text{ kHz}$  he had proposed, in the second sub-paragraph, so that only the few countries immediately concerned would have to be consulted. Retention of the figure 0.25 dB for paragraph 4 would result in an anomalous situation where only a few of the countries of Regions 1 and 3 would have to be consulted concerning modifications affecting their assignments, while coordination would have to be effected with all the Region 2 countries, thus giving them what amounted to a veto over all modifications in Regions 1 and 3.

The delegate of the United Kingdom, supported by the delegates of Canada, the USSR and the United States of America, proposed that sub-paragraph a) be retained with the figure 0.25 dB and that another sub-paragraph be added, restating the second sub-paragraph of paragraph 3 with the value  $-138 \text{ dBW/m}^2$  inserted at the end.

The delegate of Italy, supported by the delegate of Mauritania, said that adoption of those values would have the very effect he had described. Moreover, the value  $-138 \text{ dBW/m}^2$  had been proposed in Committee 4 but had not been accepted.

The delegate of the United States of America said he thought that the Italian delegate's fears were exaggerated. The value  $-138 \text{ dBW/m}^2$  would in fact exempt many modifications from the coordination procedure; it should also be borne in mind that modifications did not automatically lead to pfd increases.

After some further discussion, it was agreed to defer consideration of Annex 1 until a revised version of the document was issued.

The Chairman of Committee 5 proposed that a new paragraph 5 be added at the end of Annex 1, entitled "Conditions relating to the modulating signal", referring to point 3.1 of the basic technical characteristics as approved in the revised 3rd Series of texts and reproducing the second paragraph of that point 3.1 as it appeared on page 6 of the unrevised version (B.3, Document No. 224).

It was so decided.

Annex 2 - Basic characteristics to be furnished in notices relating to space stations in the Broadcasting-Satellite Service

The representative of the IFRB pointed out that Ad Hoc Joint Working Group 4/6 had requested the Board to supply explanatory notes on the characteristics and on the manner in which they were to be notified. In point 12, the characteristics "isotropic gain" and "ΔG" were very similar, and it would be advisable to delete the reference to isotropic gain to avoid confusion.

In response to a comment by the delegate of France, it was agreed that that delegate should consult with the representative of the IFRB and the Chairman of Ad Hoc Joint Working Group 4/6 with a view to improving the definition of ΔG.

The delegate of Australia proposed that point 11 be amended to read "Power supplied to the antenna (watts)".

The delegate of the United Kingdom, referring to point 14, proposed that "TV standards" be replaced by "TV systems" and that the words "for reference frequency" after "frequency deviation" be deleted.

Annex 2, as amended, was approved.

Annex 4 - Need for coordination of a fixed-satellite space station or a broadcasting-satellite space station in Region 2 with respect to the Plan (Article 7)

The Chairman said that the reference in square brackets could be deleted.

The delegate of the United Kingdom proposed the deletion of the words "on the surface of the Earth" in the fourth line.

Annex 4, as amended, was approved.

Annex 5 - Power flux-density limits to protect the Terrestrial Services in Regions 1 and 3 from interference from Region 2 broadcasting-satellite space stations in the band 11.7-12.2 GHz (Article / \_/)

The Chairman of Ad Hoc Joint Working Group 4/6 said that the square brackets round the figure - 111 could be removed, in the light of decisions taken on Document No. 243.

The delegate of Egypt pointed out that the word "latitude" in the second line of paragraph 1) should read "longitude".

The delegate of the United Kingdom proposed that the order of paragraphs 1) and 2) be reversed and that the word "and" be added at the end of the new paragraph 1).

Annex 5, as amended, was approved.

#### Annex 6 - Orbital position limitations

The Chairman of Ad Hoc Joint Working Group 6 said that the square brackets round the figure  $37^{\circ}$  W could now be removed and suggested that the figure  $140^{\circ}$  E be inserted at the end of paragraph 1). Since Article 4 was mentioned in Annex 6, a cross-reference to that Annex should be inserted in the Article.

The delegate of the USSR proposed that Annex 6 be deleted, since the approval of paragraphs 1 and 2 of Annex 1 seemed to make that text redundant.

The delegate of the United States of America, supported by the delegates of Canada and the United Kingdom, said he could not agree to that proposal, since Annex 6 was an essential provision for interregional orbit sharing and avoidance of interference between regions. The text of the Annex was derived from paragraph 3 on page 1 of Document No. 243 and had been agreed upon by all delegations, including that of the USSR; indeed, that country had proposed the figure of  $140^{\circ}$  E as a solution for the problem existing at the Pacific frontier between Regions 1 and 2, where the territories of the United States and the Soviet Union were very close and where the USSR had generously agreed to use frequencies above 12.2 GHz. The subject of Annex 6 was thus quite different from that of Annex 1, and it was important to retain it in the Final Acts.

The delegate of the USSR said that he would not press his proposal, although he would have thought that Annexes 2 and 4 provided all the necessary technical parameters for the coordination at issue. He would, however, propose the figure  $146^{\circ}$  E instead of  $140^{\circ}$  E, as a compensation for the concession already made by his country.

The delegate of the United States of America observed that  $140^{\circ}$  E had been originally proposed by the USSR delegation and had been confirmed by the Chairman of Committee 5 as the most easterly position in the Plan for Region 1. The United States had accepted that figure as a compromise, although it was aware that it was not far enough west to guarantee the absence of interference to Region 2 stations; in fact, his delegation would have greatly preferred the figure  $136^{\circ}$  E.

The delegate of the USSR said that further studies had caused his delegation to reconsider the figure  $140^{\circ}$  E that it had proposed. If the figure  $146^{\circ}$  E was not accepted, the USSR would be obliged also to reconsider its use of frequencies between 12.2 and 12.5 GHz in the area concerned.



The Chairman suggested that Annex 6 should be left in abeyance pending the issue of a revised version of the outstanding sections in the 13th Series of texts.

It was so decided.

The 13th Series of texts, with the exception of paragraphs 3 and 4 of Annex 1 and Annex 6, was approved on first reading, as amended and subject to editorial changes.

7. Credentials

The Chairman of Committee 2 said that the delegations of Argentina and Mongolia had handed in their credentials which had been found to be in order. Both delegations could therefore take part in the voting and sign the Final Acts.

8. Statement concerning Rhodesia and the Republic of South Africa

Speaking on behalf of the Group of African Countries, the delegate of Senegal made a statement, which is annexed below, recommending that the names of the Administrations of South Africa and Rhodesia should not appear in the Plan.

The delegates of Nigeria, Zaire and Togo supported that statement.

It was decided that the names of the Administrations of South Africa and Rhodesia should not appear in the Plan although the corresponding assignments would be maintained and appear under appropriate symbols.

The meeting rose at 2000 hours.

The Secretary-General :

M. MILLI

The Chairman :

Ib LØNBERG

Annex : 1

A N N E X

STATEMENT BY THE GROUP OF AFRICAN COUNTRIES CONCERNING  
RHODESIA AND THE REPUBLIC OF SOUTH AFRICA

Science and technology, however sophisticated, have no inherent moral value. Those who are responsible for their application may intend and take it upon themselves to place them at the service of civilization, to promote the material welfare and intellectual and moral advancement of nations; or they may turn them into powerful tools of physical, intellectual and moral discrimination and oppression. The application of science and technology by men professing opposing ideologies, with a different attitude to life and a different scale of values, leads to different and even opposite results.

If a regime, in the name of its constitution, deliberately flouts and contravenes the Universal Declaration of Human Rights in its economic and social development policies, it is the responsibility of the international community to recognize the fact and to take any action needed to bring such a dangerous enterprise to an end. In particular and in all circumstances the international community has the duty to withhold the powerful instruments of technology from regimes whose constitution is grounded in ethnic discrimination and whose national and international policies tolerate repression and aggression.

Such regimes actually exist in South Africa and Rhodesia.

The natural resources comprising the radiofrequency spectrum and the geostationary orbit cannot be used productively and beneficially for all nations unless they are the subject of multilateral or international agreement and coordination.

By virtue of Resolution No. 31 of the Plenipotentiary Conference (Malaga-Torremolinos, 1973), the Government of the Republic of South Africa was excluded from the Plenipotentiary Conference and from all the other conferences and meetings of the ITU.

It is not against the peoples of Rhodesia and South Africa that the measures taken by the United Nations are directed. In fact, these peoples, whatever their race, ethnic origin or religion, are increasingly united in opposing these regimes. The United Nations have taken and will continue to take the necessary steps to safeguard the present and future interests of these peoples, as they do for the people of Namibia under their trusteeship.

The ITU, in providing for the sharing of spectrum-orbit space, must take the rights of these peoples into account.

The Group of African Countries present at this Conference, drawing the attention of the honourable delegates to the discriminatory and oppressive nature of the Rhodesian and South African regimes, recalling the decisions adopted by the United Nations on these regimes, and mindful of the equal rights of all nations, large or small, to use spectrum-orbit space, requests of the Conference that :

- the provisions and resolutions adopted by the Conference for the benefit of Member countries should not be applied to the Government of the Republic of South Africa;
  - the Republic of South Africa and the Republic of Rhodesia should not be mentioned in the Final Acts or in the Plan.
-

PLENARY MEETING

MINUTES

OF THE

TWELFTH PLENARY MEETING

Saturday, 12 February 1977, at 0900 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

Subjects discussed :

Documents Nos.

- |  |                       |
|--|-----------------------|
| 1. New deadline for the submission of reservations                                       |                       |
| 2. Texts submitted by the Editorial Committee for second reading (R.2, R.3 + Corr., R.4) | 262, 302 + Corr., 306 |
| 3. Protection of Terrestrial Services in Regions 1 and 3                                 | 247                   |
| 4. Final Protocol  | 269                   |
| 5. Texts submitted by the Editorial Committee for first reading (B.13(Rev.1) and Add.1)  | 296(Rev.1) + Add.1    |
| 6. 5th Series of texts submitted by the Editorial Committee for second reading (R.5)     | 351                   |

1. New deadline for the submission of counter-reservations

The Secretary-General announced, in reply to a request by the delegate of Spain, that the deadline for submitting counter-reservations was postponed until midday that day, Saturday, 12 February 1977.

2. Texts submitted by the Editorial Committee for second reading second series (R.2) (Document No. 262)

Article 3

The reference to " [ Annex ... ] to" should be replaced by "Article 11 of".

Article 4

The Chairman of the Editorial Committee said that there would be a Note relating to energy dispersal (new Note 1) and that existing Note 1 would be completed to indicate that modifications to orbital positions were dealt with in an Annex.

The Chairman of Committee 6 assured the delegate of Japan that "frequency assignment" in the context took into consideration all the technical characteristics which appeared in the Plan.

Article 5

The square brackets in the title to be deleted.

Article 7

Sections II and III

The Chairman of Committee 6 pointed out that reference to footnote 1 (and the note itself) in Section II and the asterisk and footnote to Section III should both be deleted, footnote 2 in Section II being renumbered accordingly.

Article 12

Square brackets in paragraph 1 to be deleted.

The 2nd series of texts were thus approved, as amended, on second reading.

Third Series (R.3) (Document No. 302 + Corr.)

Annex 3

The delegate of Canada said that the word "wanted" in paragraph 2.1 should be replaced by "necessary", in accordance with the earlier decision.

The delegate of Australia proposed the following additional sentence to paragraph 2.3.3 :

"This criterion takes no account of possible overload in the broadcasting-satellite receiver caused by signals from Fixed, Mobile and Broadcasting Services resulting in harmful interference".

After the explanation by the United Kingdom delegate that the overload situation was a national concern and not likely to arise in coordination between administrations, the delegate of Australia agreed to withdraw the proposal.

Annex 5

The delegate of the United Kingdom pointed out that the words "interfered with" in paragraph 1.3 should be replaced by "wanted".

Annex [7]

The Chairman of the Editorial Committee said that in the final text the Annex would be numbered 8.

She also pointed out that associated Tables 1 and 2 (beginning on page 19) were replaced by those given in the Corrigendum and that Table 3 (page 23) was to be deleted entirely.

Table 1

The representative of the CCIR said that the square brackets in the Corrigendum were to be deleted, as they concerned data already used by the IFRB in its calculations for the Plan. In some cases the figures concerned countries or territories for which there was no entry in the Plan, but they were included for the sake of completeness.

The delegate of China said that the symbol MAC should be deleted from the Country symbol column.

The delegate of Portugal said that the figure against the entry MDR should be 4 and not 5.

The delegate of Mauritania, objected to the inclusion in Table 1 of the symbol AOE which did not correspond to any distinct entity as far as the Conference was concerned. The former Spanish territory had been reunified partly within the Islamic Republic of Mauritania and partly within the Kingdom of Morocco, and its requests were reflected in those countries' national coverage.

The delegate of Morocco supported that statement; he added that the figures 4 and 5 against the entry for Morocco should be deleted and that he would provide the ITU at a later stage with more precise information.

The delegate of Algeria was strongly opposed to the deletion of the symbol AOE and did not consider the matter to fall within the scope of the present Conference.

The delegate of Mauritania said that the Algerian delegation was in no way concerned by the point he had raised. He proposed to request the Secretary-General to delete reference to the territory in question from all documents of the Union.

The delegate of the United Kingdom suggested the insertion of a Note such as that appearing in the Annex to Document No. 131.

At the Chairman's suggestion, it was agreed to defer consideration of the entire Table until a later stage of the meeting.

(The Chairman later proposed that as Table 1 had given rise to even more problems in the meantime, it should be deleted and the map on page 6 of Document No. 224 be reinstated.

It was so decided).

Table 2

The delegate of Algeria said that entry 0250 should be deleted.

The delegate of the United Kingdom and the Chairman of the Editorial Committee explained that the section on Basic technical characteristics (pages 32 - 36) should precede existing pages 24 - 31. The latter also said that the Editorial Committee had had difficulty finding a text to define the exact meaning of direct and indirect polarization, as used in the Plan.

The Director of the CCIR said that use of "direct" and "indirect" was unusual and the more conventional terms would be more readily understood by the user. He therefore suggested rewording the first sentence of paragraph 3.2.3 to read :

"3.2.3 The terms "direct" and "indirect" used in the Plan to indicate the direction of rotation of circularly polarized waves correspond to right-hand (clockwise) and left-hand (anti-clockwise) polarization respectively according to the following definitions :"

The titles should read :

"Direct polarization (right-hand or clockwise polarization)" and  
"Indirect polarization (left-hand or counter-clockwise polarization)".

The above amendment was approved, subject to the use of anti-clockwise in place of counter-clockwise.

The Chairman of the Editorial Committee said that the use of the word "déplacement" in the French text should be aligned to the English "field".

Paragraph 3.4

The Chairman of the Editorial Committee explained that Note 1) had been added after the first reading.

Paragraph 3.5.1

The delegate of the United Kingdom pointed out that an amendment approved on first reading did not appear in the document. The first sentence should read : "The spacing between the assigned frequencies of two adjacent ..."

Paragraph 3.5.3

Similarly, the title of paragraph 3.5.3 should read : "Spacing between two channels feeding a common antenna" and the text "... the spacing between the assigned frequencies of two channels ..."

The Chairman of the Editorial Committee noted that the French text was correct in both cases.

Paragraph 3.7.2

The delegate of Canada said that the second line should read : "... in Figures 3 and 4."

Figure 3

The delegate of Thailand, requested that the text for curve A' be aligned to that of curves A and B.

Paragraph 3.8

The delegate of Japan, supported by the delegate of the Republic of Korea, asked for an addition to the second line so that it read :

"625-line systems, and 525-line systems in Region 3 : 27 MHz."

Paragraph 3.10

The Chairman of Committee 5 said that the orbital spacing of  $6^\circ$  had not been adhered to strictly, so the sentence should read : "The Plan for Regions 1 and 3 had been based generally on nominal ...".

Figure 5

The delegate of Venezuela said that the Spanish version should be aligned to the English and French, the co-polar component curve and equation corresponding not to -25 but to -30 dB.

The Chairman of the Editorial Committee assured him that the original had been corrected.

The delegate of Canada said that the reference to the CCIR document should be deleted.

The third series of texts was approved, as amended, on second reading.



4th Series of texts (R.4) (Document No. 306)

Resolution No. A

The delegate of the United Kingdom said that the words "at the" in the considering paragraph should be replaced by "by this".

Approved, as amended.

Resolutions Nos. B, C and D

Approved.

Resolution No. E

The Chairman of the Editorial Committee said that the Annexes to be referred to in considering b) were 6 and 7.

Approved, as amended.

Resolution No. F and Recommendations Nos. AA, BB, CC, DD, EE and FF

Approved.

The 4th Series of texts (R.4) was approved on second reading, as amended and subject to editorial changes.

3. Protection of Terrestrial Services in Regions 1 and 3 (Document No. 247)

The delegate of the United Kingdom said that, in view of the short time available to the Conference, his delegation would withdraw Document No. 247, being sure that it could rely on No. 117 of the Radio Regulations for the proposed provisions to be implemented.

4. Final Protocol (Document No. 269)

The Chairman explained that the list of reservations entered within the fixed time-limit was being submitted to the Plenary Meeting so that it could take note thereof. Countries would be referred to by their full names in the final document.

In reply to the delegate of the United States of America, the Secretary-General said that further counter-reservations could be submitted later, subject to the approval of the Plenary Meeting.

The delegates of Tunisia, Algeria, Pakistan and Sudan said they wanted their countries' names to be included among the countries listed in Document No. 311.

In reply to the delegate of Venezuela, the Secretary-General said that the text submitted by the Republic of Panama (Document No. 248) would appear in the Final Protocol.

The delegates of Mauritania, Senegal, Mali, Afghanistan and Guinea said that their countries' names should be included in the list in Document No. 313.

The delegate of Egypt said that the Arab Republic of Egypt should be added to the list of countries in Document No. 312.

The delegate of Brazil said that the reference "paragraph 1 of Document No. 204" in the second line of Document No. 332 should be replaced by "Section 1 of the Annex to Document No. 204".

The delegate of the United Kingdom said that in Document No. 349 the words "International Telecommunication Convention" should be replaced by "Final Acts".

5. Texts submitted by the Editorial Committee for first reading (B.13(Rev.1) and Addendum ) (Document No. 296(Rev.1) and Addendum No. 1)

Addendum to the revised 13th Series of texts (B.13(Rev.1) (Addendum No. 1 to Document No. 296(Rev.1))

Article [ ] - Power flux-density limits between 11.7 and 12.2 GHz to protect space services in Region 2 from interference from Regions 1 and 3 broadcasting-satellite space stations

The Chairman of the Editorial Committee said that the new Article should be placed after the procedural Articles of the Agreement.

The delegate of Canada said that the text was intended to apply to the Plan at the time of its signature and to provide long-term protection for Region 2 space stations. The authors of the Article had, however, overlooked a provision on how the calculating methods should interrelate with the new Article; he suggested that a sentence be added, reading as follows : "These limits could be exceeded, subject to the agreement of the administrations concerned".

The delegate of Italy supported that addition and said that the text should be checked for possible contradictions with paragraphs 2 and 4 of Annex 1.

The delegate of Mauritania said he could not support the Canadian amendment. The fact that the Article reflected the situation at the time of the signature of the Final Acts should be stated explicitly in the text, which, in his opinion, should be an Annex, not an Article.

After some discussion, it was decided to set up a small ad hoc group to study the text.

Revised 13th Series of texts (B.13(Rev.1)) (Document No. 296(Rev.1))

Annex 1 - Limits for determining whether a service of an administration is considered to be affected by a proposed modification to the Plan (Article 4, paragraph 4.3.1)

The Chairman observed that paragraphs 1 and 2 had already been approved.

Paragraph 3 - Limits on the change in power flux-density to protect the terrestrial services of other administrations

The delegate of the United Kingdom, supported by the delegates of New Zealand and Japan, proposed that the square brackets round the value 0.25 dB in the first sub-paragraph be removed and that the words "the limits expressed in Annex 5" be inserted in the blank space at the end of the second sub-paragraph.

The delegate of Italy said that he would not oppose the United Kingdom proposal at that late stage, although he was sure that the proposed figures would make coordination of modifications to the Plan very difficult.

Paragraph 3, as amended was approved.

Paragraph 4 - Limits on the change in power flux-density to protect the Fixed-Satellite Service in the band 11.7 - 12.2 GHz in Region 2

The delegate of Canada proposed that all the square brackets be removed from paragraph 4 and that the reference in the first line should read "paragraphs 4.3.1.3 and 4.3.1.4".

The delegate of Italy and the Chairman of Committee 6 said they considered the additional reference to be inappropriate.

The delegate of the United Kingdom drew attention to the proposal he had made at the preceding meeting, namely, to include at the end of paragraph 4 the wording of the second sub-paragraph of paragraph 3, but with the value - 138 dBW/m<sup>2</sup> inserted at the end.

The delegate of the USSR supported that proposal and suggested that the Ad Hoc Group set up to consider Addendum No. 1 should also examine paragraph 4.

It was so decided.

Paragraph 5 - Conditions relating to the modulating signal

The delegate of Japan suggested that the text should be either deleted or extended to cover other technical parameters, since small satellites that might be launched in the near future would probably not be able to conform with the requirements of the Plan.

The Chairman of Committee 6 said that, under the procedural provisions already approved, there would be no problem if the power flux-density limits were respected; if they were exceeded, the procedures for modification of the Plan would come into operation. There was therefore no need to delete or amend the text, which, in his opinion, did not seem to belong in Annex 1.

The Chairman of Committee 5 said that the text had been transferred from the basic technical characteristics as a result of decisions taken on the revised 4th Series of texts.

Paragraph 5 was approved, on the understanding that it would be returned to the Annex containing the basic technical characteristics.

#### Annex / 6 / - Orbital position limitations

The delegate of the United States of America said that, after some discussion, his delegation had decided to accept for the purposes of the Final Acts the figure of  $146^{\circ}$  E proposed by the USSR delegation at the preceding meeting.

Annex / 6 /, as amended, was approved.

The meeting was suspended at 1300 hours and resumed at 1515 hours.

The delegate of Canada, who had convened the Ad Hoc Group on Article / 7 / and paragraph 4 of Annex 1, said that the Group had decided to recommend that the text in Addendum No. 1 to the revised 13th Series (B.13(Rev.1)) should appear as Article 10 of the Final Acts, with the insertion of the words "prior to any modification of the Plan" after "band 11.7 - 12.2 GHz" in the fifth line of the first paragraph and after "(longitude  $35^{\circ}$  W, latitude  $8^{\circ}$  S)" in the second line of the second paragraph and insertion of the words "on the date of its entry into force" after "in accordance with the Plan" in the seventh line of the first paragraph.

Addendum No. 1 to the revised 13th Series of texts (Addendum No. 1 to B.13(Rev.1)) was approved on first reading, as amended and subject to editorial changes.

The delegate of Canada said that the majority of the Ad Hoc Group had decided to recommend that the introductory paragraph of paragraph 4 of Annex 1 should be immediately followed by the text of sub-paragraph a), which should end with the words "Final Acts". The square brackets round the value 0.25 dB should be removed and a second paragraph, based on the second sub-paragraph of paragraph 3 of Annex 1, should be added, worded as follows : "Where an assignment in the Plan or its subsequent modification gives a power flux-density less than  $-138$  dBW/m<sup>2</sup> anywhere in the territory of an administration of Region 2, that administration shall be considered as not affected".

After a discussion during which the delegate of Mauritania asked for clarifications of the new second paragraph, the English text of paragraph 4, as amended, was approved, on the understanding that a suitable French version would be agreed upon.

The revised 13th Series of texts (B.13(Rev.1)) was approved on first reading, as amended and subject to editorial changes.

6. 5th Series of texts submitted by the Editorial Committee for second reading (R.5) (Document No. 351)

Recommendation No. GG and Corrigendum to Article 4

Approved.

Annex 2

Approved, on the understanding that the IFRB would provide more detailed information after the Conference.

Annexes 4 and 5 and Article 9

Approved.

Article 11

The Chairman of the Editorial Committee said that the reference in the first line should be to Annex 6.

The delegate of the United States of America said that in paragraph 5 the word "and" before "particularly" should be deleted and a comma should be added after "Radio Regulations".

Article 11, as amended, was approved.

Final Protocol, Annexes 6 and 7, Recommendation HH, Resolutions Nos. G, H and I and Column headings of the Plan

Approved.

Table showing correspondence between channel numbers and assigned frequencies

The delegate of India proposed that the title be changed to "Table showing channel numbers and corresponding assigned frequencies". That change would also affect heading 3 of the Column headings of the Plan.

The Table, as amended, was approved.

The 5th Series of texts (R.6) was approved on second reading, as amended and subject to editorial changes.

The meeting rose at 1615 hours.

The Secretary-General :

M. MILI

The Chairman :

Ib LØNBERG

PLENARY MEETING

MINUTES

OF THE

THIRTEENTH PLENARY MEETING

Saturday, 12 February 1977, at 2120 hrs

and Sunday, 13 February 1977

Chairman : Mr. Ib LØNBERG (Denmark)

<u>Subjects discussed :</u>	<u>Document Nos.</u>
1. Minutes of the Sixth and Eighth Plenary Meetings	293, 352
2. Final Protocol	363
3. Texts submitted by the Editorial Committee for second reading (R.6, R.7)	370, 373
4. Approval of the draft Plan for Regions 1 and 3	335 + Corr. 1 and 2, 368

1. Minutes of the Sixth and Eighth Plenary Meetings (Documents Nos. 293, 352)

Approved.

2. Final Protocol (Document No. 363)

The delegate of Japan said that the figures 281 and 331 should be substituted for 340 and 344 in Document No. 359.

The Plenary Meeting took note of Document No. 363.

3. Texts submitted by the Editorial Committee for second reading (R.6, R.7) (Documents Nos. 370, 373)

6th Series of texts (R.6) (Document No. 370)

The Chairman of the Editorial Committee pointed out that two versions of the method of calculating the power flux-density produced in the territories of Region 2 by space stations in the Broadcasting-Satellite Service in Regions 1 and 3 had inadvertently been included in the document and suggested that the Meeting should disregard the version on page 2, which had not been examined by the Editorial Committee, and should begin its consideration with Annex 1 on page 7, go through the document and then return to the Results and Annex on pages 2 to 6.

Annex 1

Paragraphs 1 and 2

Approved, with editorial changes.

Paragraph 3

The Director of the CCIR suggested that the words "for all angles of arrival" in the third line of the third sub-paragraph be replaced by "for any angle of arrival".

Approved, as amended.

Paragraph 4

The delegate of France proposed that the word "However," be added at the beginning of the second sub-paragraph, to make it clear that the two sub-paragraphs were not consequential upon each other.

Approved, as amended.

Annex 1, as amended, was approved.

Annex 10

The delegate of Canada said that the word "range" in the second line of paragraph 1) should be replaced by "band".

Approved, as amended.

Article 10

The Chairman of the Editorial Committee said that the reference in the third line should be to Figure 6 and that the reference in the last line should be to Annex 11.

Approved, as amended.

Annex 11

The delegate of the United States of America proposed that the units used in the method of calculation be inserted in the appropriate places.

The delegate of France proposed that the formula in the second indentation in paragraph 3 be changed to " $A = 10 \log \frac{1}{4\pi d^2} \text{ dB}(1/\text{m}^2)$ ".

It was agreed that the CCIR and the IFRB would make the necessary changes.

In reply to a request for clarification of paragraph 2 by the delegate of Mauritania, the delegate of Brazil proposed that the words "the most easterly point of Brazil" be replaced by the coordinates "longitude 35° W, latitude 8° S" in that paragraph and in the Results paragraph on page 2.

Annex 11, as amended, was approved.

Results paragraph and Annexed Table

The Vice-Chairman of the IFRB said that the figures at the top of the columns on page 4 should be - 37.0, - 31.0, - 25.0 and - 19.0 instead of - 13.0, - 7.0, - 1.0 and + 5.0.

The delegate of Algeria pointed out that on page 3, under nominal orbit position - 25.0, his country's second beam had been omitted.

The Vice-Chairman of the IFRB said that the necessary correction would be made.

In reply to queries by the delegates of the Vatican City State and Tunisia concerning the omission of entries for their countries in channels 27, 31, 35, 38 and 39, the delegate of Canada drew attention to the passage in the Results paragraph which specified that the table related only to channels 1 to 25.

The Results paragraph and the annexed table, as amended, were approved.

The 6th Series of texts was approved on second reading, as amended and subject to editorial changes.

7th Series of texts (R.7) (Document No. 373)Notes to the Plan

The Chairman of Committee 5 said that the delegation of Iran had asked in Committee 5 that another note be inserted, concerning the use of linear polarization by Iran's broadcasting-satellite service. Other delegations had objected to such a note, pointing out that the Plan was based on circular polarization. The Iranian delegation had asked for time to reflect on the matter.



The delegate of Iran made the following statement :

"The Conference is well aware of the importance attached by our delegation to the adoption of linear polarization for our future broadcasting-satellite services.

We have expressed our views on the advantages of linear polarization in the Technical Committee and have therefore requested this mode of polarization to be recorded in the new column 15 of Document No. 335.

It still remains our wish to use linear polarization. However, in the spirit of international goodwill and of the necessity of the success of this Conference, the Iranian delegation will not press the inclusion of that reference in Document No. 335."

The Deputy Secretary-General said that the word "allocated" in the English text of Note 5 should read "dedicated".

The 7th Series of texts (R.7) was approved on first and second readings, as amended and subject to editorial changes.

4. Approval of the draft Plan for Regions 1 and 3 (Document No. 335 + Corr. 1 and 2)

The Chairman of Committee 5, at the request of the delegate of India, drew attention to that delegation's disappointment that the planning work had resulted in negative protection margins (in one case of - 6 dB) for 14 of that country's 48 frequency assignments. The delegation considered that, given more time, some improvements might be made and was requesting the Plenary meeting to authorize the IFRB to carry out studies with that in view.

The Chairman of the Committee also put to the Plenary meeting the question of the enlarged ellipse of the Democratic People's Republic of Korea, which had been accepted as calculations had shown that interference would be increased only in the direction of China, which had given its agreement; however, the Republic of Korea had disputed that increase and no solution had been found in the Committee.

Satisfactory solutions had been found to several other problems that had arisen in reading the Plan, and certain reductions of power were indicated in Corrigendum No. 2. The Committee had decided to increase by 0.7 dB the power of the channels allocated to Afghanistan, but that did not appear in any document.

The delegate of India made the statement annexed hereto.

The Chairman of Committee 5 drew attention to Document No. 368 which gave the relationship between protection margins and quality of service and stressed that even a negative margin of - 3 dB in fact represented "good" picture quality.

The Chairman of Working Group 5A repeated that the concept of positive and negative margins had been developed for planning purposes but in reality

the reference was to interference ratios, and under no circumstances could margins of up to - 3 dB be considered harmful. The single case of - 6 dB had been studied carefully but without solution; on the other hand, in one case India had a record positive margin of + 9 dB.

In his view some slight adjustments in power levels might be made to improve the situation and the IFRB could facilitate bilateral discussions. Administrations, however, could do much for themselves, by recalculating tests points, producing higher receiving dish performance, etc.

The delegate of India thought it would have been useful if the above-mentioned document had been circulated earlier to make the position clearer but still requested the Plenary's support for his proposal.

The delegate of New Zealand said he would be prepared to support the proposal, but only on condition that no other assignments were affected, or that the agreement of all Administrations concerned was sought.

The delegate of Iran supported the Indian proposal.

The delegate of Indonesia also endorsed the proposal, though recognizing that it was impossible to satisfy all requirements. He also would like a recalculation to check that the orbital positions requested could not be allocated to Indonesia.

The delegate of the United Kingdom said that the Indian request amounted to a modification procedure. The idea behind the modification procedure already agreed was that it not be undertaken unless entry into service was planned within five years. He wondered whether India was intending to use all 48 channels immediately and if not, why it could not use the most favourable ones first. He felt that to consider modifications at the present stage was contrary to the spirit and letter of the agreement reached.

The delegate of India agreed that none of the channels were for immediate use but thought that the IFRB might study possible refinements while the planning criteria were familiar.

The delegate of Mexico considered the Indian proposal reasonable but had some doubts as to the form; if improvements were to be introduced into the Plan (which formed part of the Final Acts), No. 531 of the Convention would not be respected.

The Chairman assumed that any proposed change, following such a study by the IFRB, would have to be made in accordance with the modification procedures adopted in the Final Acts.

The delegate of the United Kingdom doubted whether further refinements were possible without calling another Conference and he was concerned about giving the IFRB authority to improve a Plan which was the subject of a signed agreement.

The Chairman asked the Indian delegation whether it was prepared to request assistance from the IFRB in accordance with usual procedures.

The delegate of India said he realized that Member Administrations could consult the IFRB at any time; he had wished for approval by the Plenary so that it would carry greater weight.

The Chairman noted only partial support for the proposal, as it was highly unlikely that no other countries would be affected. Of course, in such a planning Conference requirements were fulfilled to a varying degree but he thought the maximum possible effort had been made. He took it that there were no objections to the IFRB being asked to study the matter and to make its findings available. The Indian Administration could then use that information at the proper time in accordance with the agreed modification procedure.

The delegate of India said he could agree with that suggestion.

It was therefore decided that the Plenary should request the IFRB to carry out the studies and make the findings available to all parties concerned.

In reply to questions by the delegate of Singapore, the Chairman of Committee 5 explained that Note 1 was not marked against any country in Corrigendum No. 2 to Document No. 335 because it was intended to cover the special case of the choice of AG for small countries, to be agreed upon with the IFRB. It did not have to be included in the Plan at that stage.

The delegate of the Republic of Korea asked what conclusion the IFRB had reached concerning his country's counter-declaration to the declaration of the Democratic People's Republic of Korea to the effect that it intended to increase its beamwidth and to move the centre point of its beam 1° southward. The effect would be that the beam of the Democratic People's Republic of Korea would cover nearly all of his country's territory.

The Chairman of the IFRB said he had not understood that any request to the Board for the relevant calculations had emerged from the debate on the subject in Committee 5.

The Chairman of Committee 5 pointed out that at the last meeting of the Committee the delegation of the Republic of Korea had requested calculation of the effects on the Plan of the enlargement of its beam-width to correspond to the enlargement obtained by the Democratic People's Republic of Korea. Perhaps the IFRB had not had time to carry out the necessary calculations.

The Chairman of the IFRB reiterated that he had not understood the Board to have been given any such instructions.

The delegate of the Democratic People's Republic of Korea said that according to the calculations of his delegation the coverage of his country's service area by the orbital position of the Republic of Korea would also be practically complete. The best course would be to leave matters as they stood and to try to reach optimal results at the 1979 WARC.

The delegate of the Republic of Korea regretted that the IFRB had not seen fit to carry out calculations which would have made it possible to solve the problem at the current Conference.

After further discussion, the Chairman proposed that the IFRB should be asked to study the problem after the Conference and that the Board's findings should be used in accordance with the Plan modification procedures, if necessary.

It was so decided.

The Chairman then invited the meeting to examine the draft Plan channel by channel and drew attention to Corrigendum No. 2.

The Technical Secretary explained that the above Corrigendum contained amendments adopted in Committee 5, in abridged form.

The delegate of Afghanistan said that for beam AFG 246 the value in column 8 should be increased to 63.4 in entry 1 of channels 1, 5, 9 and 13.

The delegate of Austria said that for AUT 016 the second value in column 4 should read 12.2 and not 12.1 in entry 39 of channels 4, 8 and 16, entry 38 of channel 12 and entry 34 of channel 20.

The delegate of Saudi Arabia said that for ARS 340 the second value in column 5 should be changed to 0.7 in entry 34 of channel 23.

The delegate of Denmark said that Note 3 should appear in column 9 for DNK 091 in entry 24 of channels 27 and 35.

The draft Plan for Regions 1 and 3 (Document No. 335 and Corr. 1 and 2) was approved, on first reading, as amended.

The draft Plan for Regions 1 and 3 was then approved on second reading.

The delegate of Japan made the following statement :

"The Japanese delegation would like to clarify its position with regard to the maps, the polygon and the checkpoints which appear in all documents or information in connection with the establishment of the Plan for the Broadcasting-Satellite Service in the 12 GHz band.

My Administration has drawn the maps and the polygon and has decided on the checkpoints in such a manner as to obtain the most efficient and reasonable system for Japan, regardless of the exact boundary of its territory, taking into account the technical and economic aspects.

Therefore, on behalf of the Japanese Government, my delegation would like to make it clear that the maps and the polygon drawn by my Administration and the checkpoints decided upon by the Administration have, as clearly stated in paragraph 5 of IFRB Circular-letter No. 367 dated 1 November 1976, no bearing on the territorial delimitation of Japan."

The delegate of the United States of America made the following statements :

1. "In signing the Final Acts of this Conference, the delegation of the United States of America wishes to express agreement with the statement made by

the delegation of the Federative Republic of Brazil with regard to the possible impact of the Plan adopted for Regions 1 and 3 on the development of space services in the frequency band 11.7 - 12.2 GHz in Region 2."

2. "While supporting adoption of the Final Acts of this Conference, the United States does not regard decisions taken by the Conference on technical matters within its proper scope to be determinative of the resolution of related issues currently before the United Nations Outer Space Committee, particularly its Legal Sub-Committee. The United States reserves the right to deal with the related issues in the political fora of the United Nations, as appropriate."

The delegate of the Federal Republic of Germany associated his delegation with the second statement of the United States delegation.

The delegate of Japan said that his Administration would sign the Final Acts of the Conference subject to the approval of the Japanese Government.

The meeting rose at 0145 hours on Sunday, 13 February.

The Secretary-General :

M. MILI

The Chairman :

Ib LØNBERG

Annex : 1

A N N E X

STATEMENT BY THE DELEGATION OF INDIA

The Indian Delegation has studied the draft Plan contained in Document No. 335 dated 11 February 1977 and notes with disappointment and regret that of the 48 channels assigned to India, 15 have negative protection margins although its own contribution of interference to the assigned channels of adjacent countries in Region 3 is relatively small. Of these 15 channels, 6 channels have margins of - 3 dB and one of - 6 dB. This position is obviously unsatisfactory to the Indian Administration.

The Indian Delegation firmly believes that had more time been available to this Conference a better plan giving greater satisfaction to all Administrations could have been evolved. Considering that the guidelines for planning adopted by the Conference are sound, it should be possible to achieve further improvements in the Plan. The Indian Delegation therefore suggests that the Conference entrust this task to the IFRB to examine this matter further with a view to making available its suggestions for improvement to the Administrations, at least six months before the entry into force of the Final Acts of the Conference.

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PLENARY MEETING

SIGNATURE OF THE FINAL ACTS

Sunday, 13 February 1977, at 0930 hrs

Chairman : Mr. Ib LØNBERG (Denmark)

1. Signature of the Final Acts
2. Closing of the Conference

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1. Signature of the Final Acts

The Deputy Secretary-General explained the procedure for signature of the Final Acts and then called the roll of those delegations whose credentials had been found in order.

The delegations signed the Final Acts and the Final Protocol as indicated in Annex 1.

2. Closing of the Conference

The Chairman made the statement reproduced in Annex 2.

The Deputy Secretary-General made the statement reproduced in Annex 3.

The delegate of the United States of America made the following statement :

"Our Captain has piloted his craft through very troublesome skies - after sounding many warnings on the perils of the trip and offering coffee, tea or milk. He has piloted his passengers to safety on what I consider to be a very successful voyage indeed. Typical of world conferences, we all arrived with high hopes and aspirations; we depart somewhat subdued but with stiffened sinews and girded loins for another encounter in 1979. We in the United States have had a perennial presidential candidate named Harold Stassen. After about his eighth successive defeat, when asked for his comments, he said "Well, you can't win them all."

Would the 1979 conference be blessed with the calibre of leadership that our captain has so ably demonstrated here. He speaks slowly but carries a big stick.

In times like this one searches for superlatives. In this case they are in great abundance. "Superb" is the word I found to describe a combination of leadership, patience, endurance, skill and indeed something close to divine guidance to lead us out of the jungle from whence we sought a path. His good judgment is exceeded only by his patience.

I have no doubt that all will share my wish for a long, useful and happy life to the pilot of our ship.

And so, Mr. Chairman, adieu. May God be with you - but not too soon."

The delegate of Mexico, in paying tribute to the Chairman's able guidance of the Conference, recalled his predecessor at the 1971 Space Conference, Mr. Gunnar Pedersen, who was well-remembered for his outstanding qualities.

He wished in particular to stress a point mentioned by the Deputy Secretary-General, namely that despite the prolonged debates the necessity of voting had been avoided. He also noted the reference to the necessity for collaboration between all the permanent organs of the Union, a vital factor for the success of such a Conference. In conclusion, he thanked the Chairman warmly and wished him every personal success.

The delegate of Iran said it was a privilege for him to extend sincere congratulations to the Chairman on behalf of the Asian delegations. His own delegation was particularly grateful for the Chairman's understanding of certain questions which arose and which were solved thanks to his efforts. He also wished to thank all those who had assisted the Chairman in his task and made the work of the Conference pleasant as well as profitable, and associated himself with the gratitude expressed for the tireless efforts and cooperation received from the ITU Secretariat. He had been greatly assisted in the task entrusted to him and thanked all delegations.

The delegate of the Federal Republic of Germany said that the present Conference was unique in that it opened new horizons in many respects. The burden of chairing such a Conference was a heavy one and he could only admire the Chairman for his skill. He also wished to thank and congratulate all who had contributed to the success of the Conference and especially the planning groups whose efforts had been so well rewarded.

The delegate of India said that the outcome of the Conference was of great satisfaction to his Administration, particularly as India had been one of the first countries to embark on an experimental broadcasting satellite project. They looked forward to more extensive use of such a powerful and high-credibility medium as an instrument of social and economic development. In that respect, he was expressing the views of all developing nations in the world.

The Chairman had been largely responsible for lifting the Conference out of its mood of despondency and many awkward moments had been eased by his forbearance and sense of humour. The delegate of India was therefore happy to associate himself with the expressions of gratitude and also with the thanks to all those who had contributed to the successful outcome.



The delegate of Nigeria joined in the appreciation expressed of the Chairman's able guidance of a very difficult Conference and also of the efforts of the Secretariat and of all delegations.

The Chairman of Committee 3 wished to pay tribute to the Chairman's handling of the affairs of the Steering Committee.

The delegate of Egypt congratulated the Chairman on behalf of the Arab and Islamic countries, and the CCIR, the IFRB and all those who had taken part in the work of the Conference. The successful result was largely due to the Chairman himself and he wished him a long, happy and successful life.

The delegate of the United States of America paid tribute to the Chairman of the Working Group which had produced the Plan, and without whose skill and leadership success would not have been possible; he considered that in recognition of his services, the outcome of the Conference should be known as the Temple Plan.

The delegate of India congratulated the special Vice-Chairman for conciliation activities, Mr. Fadami of Iran, who had so ably handled such questions at the LF/MF Broadcasting Conference.

The delegate of Mauritania, in the absence of the Chairman of the African Group, extended sincere congratulations to the Chairman for his remarkable conduct of the meetings, and his personal contribution to the progress of the Conference.

The delegate of Zaire added his congratulations on the Chairman's tenacity and patience, and also thanked all the organs of the ITU for their assistance.

The delegate of Algeria asked the Chairman to pass to his wife the congratulations and appreciation of all delegations.

The Chairman thanked all those who had spoken in appreciation of his services and wished all participants a safe return to their countries.

The Chairman then declared closed the World Broadcasting-Satellite Administrative Radio Conference, Geneva 1977.

The meeting rose at 1100 hours.

The Secretary-General :

M. MILI

The Chairman :

Ib LØNBERG

Annexes : 3

A N N E X I

The following delegations signed the Final Acts and Final Protocol :

Republic of Afghanistan, Algerian Democratic and Popular Republic, Federal Republic of Germany, Kingdom of Saudi Arabia, Argentine Republic, Australia, Austria, State of Bahrain, People's Republic of Bangladesh, Belgium, People's Republic of Benin, Byelorussian Soviet Socialist Republic, Republic of Bolivia, Federative Republic of Brazil, People's Republic of Bulgaria, Republic of Burundi, Canada, Central African Empire, Chile, People's Republic of China, Republic of Cyprus, Vatican City State, Republic of Colombia, State of the Comoros, People's Republic of the Congo, Republic of Korea, Republic of Ivory Coast, Cuba, Denmark, Arab Republic of Egypt, United Arab Emirates, Ecuador, Spain, United States of America, Ethiopia, Finland, France, Gabon Republic, Ghana, Greece, Guatemala, Republic of Guinea, Republic of Haiti, Republic of Upper Volta, Hungarian People's Republic, Republic of India, Republic of Indonesia, Iran, Ireland, Iceland, Italy, Japan, Republic of Kenya, State of Kuwait, People's Democratic Republic of Lao, Lebanon, Libyan Arab Republic, Principality of Liechtenstein, Luxembourg, Democratic Republic of Madagascar, Malaysia, Republic of Mali, Republic of Malta, Kingdom of Morocco, Mauritius, Islamic Republic of Mauritania, Mexico, Monaco, Mongolian People's Republic, Federal Republic of Nigeria, Norway, New Zealand, Sultanate of Oman, Republic of Uganda, Pakistan, Republic of Panama, Papua New Guinea, Republic of Paraguay, Kingdom of the Netherlands, Republic of the Philippines, People's Republic of Poland, Portugal, German Democratic Republic, Democratic People's Republic of Korea, Ukrainian Soviet Socialist Republic, Socialist Republic of Roumania, United Kingdom of Great Britain and Northern Ireland, Republic of Senegal, Republic of Singapore, Democratic Republic of the Sudan, Sweden, Confederation of Switzerland, United Republic of Tanzania, Republic of the Chad, Czechoslovak Socialist Republic, Thailand, Togolese Republic, Tunisia, Turkey, Union of Soviet Socialist Republics, Oriental Republic of Uruguay, Republic of Venezuela, Yemen Arab Republic, People's Democratic Republic of Yemen, Socialist Federal Republic of Yugoslavia, Republic of Zaire.

A N N E X 2

STATEMENT BY MR. IB LØNBERG, CHAIRMAN OF THE BROADCASTING-SATELLITE  
CONFERENCE, AT THE CLOSING SESSION

Ladies and Gentlemen,

We have now arrived at the end of our five-week conference devoted to the broadcasting of the future. It was obvious to all of us that the conference would encounter difficulties because never has an ITU conference been asked to accomplish such a complicated task in such a short time. You have succeeded in accomplishing the nearly impossible, and you have therefore every reason to be proud of the result of the conference.

I think after such a conference it is important to draw out specific features. I must first express appreciation of the amount of the technical preparation made by the CCIR during recent years; some more points had to be defined during the conference but they were solved due mainly to the existence of the CCIR texts.

A second element of this conference was the great importance of the computer and data processing. As some of you will remember it was in Stockholm in 1961 that the computer was used for the first time for the analysis of a plan. This present conference could not even have been dreamt of without the assistance of the computer.

In this connection I would like to pay special tribute to the delegation of France for their generous gesture in putting at our disposal the use of the TDF Computer. On behalf of the conference I would ask the French delegation to convey our gratitude to the President and Director of the TDF.

But still it is the human factor which was the basis for the success of this conference. I must pay tribute to the spirit of cooperation and the goodwill which were continuously present during the duration of the conference. I consider this attitude especially worthy of praise because, in addition to the normal subjects of discussion, there were the different conditions prevailing in the various continents.

Once more the structure of our long-established Union has proved to be flexible enough to permit a conference to fulfil its mandate. 112 years after its creation the ITU has just laid the foundation stone of satellite broadcasting. The conclusions of this conference will have important consequences, not only in the Union itself, but also in other international concerns interested in specific aspects of satellite broadcasting.

I should like to thank those people responsible for the success of the conference and in particular the Vice-Chairmen of the conference and the Chairmen and Vice-Chairmen of committees. They have had a tremendous task and I am grateful to them for their good advice and strong support. Especially I would mention the enormous work carried out by the Chairman of the Editorial Committee.

I must also thank the Chairmen of the Working Groups and the delegates who spent night after night preparing acceptable texts for us. And I would especially like to pay tribute to the very few doing the real planning work - they have been the real nucleus of the conference.

I also wish to thank the Secretary-General of the ITU, the Deputy Secretary-General, the Director of the CCIR, the Chairman of the IFRB and the IFRB Members for their invaluable help and guidance.

Even more than on previous occasions, I feel I have to pay tribute to the people whose work ensured the material success of the conference. I think first of the Executive Secretary and the Technical Secretary and also of the officer responsible for the delegates service, the interpretation and the documentation; the engineers and all the staff of the IFRB and of the Computer Division who worked day and night for us, and also the CCIR engineers. It goes without saying that I also thank all the administrative services : the interpreters who helped us to understand each other, the minute-writers, the Document Service and the Order of the Day staff. I also want to mention in particular all the people who worked very hard behind the scenes for this conference : the translators, the Typing Pool, the Reproduction and Distribution Services and also the messengers and the staff of this Conference Centre.

I would ask you, Mr. Deputy Secretary-General, to transmit to them my deepest thanks and appreciation for all they have done for the conference.

I wish you all a safe and speedy return to your countries.

A N N E X 3

STATEMENT BY THE DEPUTY SECRETARY-GENERAL

The signature of the Final Acts which has just been completed brings to a close another very important ITU Administrative Conference which has been of very special interest to the Broadcasting Services. It has been devoted to the drawing up of detailed plans and associated policy considerations and procedures to permit the future development of radiocommunication services - not merely for the Broadcasting and Television Services, but also for the other service interests - and especially the future use of the Fixed Satellite and the Terrestrial Services in the 11.7 GHz-12.2 GHz (Regions 2 and 3) - 12.5 GHz (Region 1) bands concerned.

As the Conference comes to a close, there are two ways in which we can look at the achievements.

First, we can refer to the detailed side of telecommunication policy and frequency planning; or second to the much broader international, human and social long term consequences for nations and their people at large.

Just because we have been so deeply engrossed in the telecommunication policy and frequency planning, I feel that a brief look towards the end product of the result of the Conference is appropriate.

Here at this Conference, we cannot but have only a simple view of all that the policy achievements, discussions and negotiations will mean. It is not merely the form of the investment in the equipment and the development of the detailed national plans to which there has been some allusion vis-a-vis the sharing of the spectrum concerned for the space radiocommunication service and the orderly development (and relationships) with the Terrestrial Services during the next 17 years or so.

The many millions of future users of the frequencies which you have planned here will know very little of how this Conference made possible policy agreements which you have reached, resolving also by new international telecommunication law some principles which elsewhere in the international and the United Nations family have been difficult to solve, if not impracticable. It needs no emphasis to state that without these telecommunication solutions, orderly programme transmissions and receptions could not take place.

Your results as government representatives will be of special interest to the United Nations and its Peaceful Uses Outer Space Committee. Many of you well know that the United Nations organs have been studying the benefits and implications of satellite broadcasting. They have been evolving various principles for the use of the new medium. Some principles had indeed been already incorporated in the various international telecommunication policy legislation in 1971 and 1973. Their practical application has now been augmented in a very substantial measure through the detailed planning agreements of your Conference. Here, I speak of considerations of equality of all nations and the avoidance of spill over to the maximum technical extent practicable consistent with the art of present technology.

Thus, the opportunity now exists for the orderly evolution of space technology for satellite broadcasting when required by nations in accordance with the Final Acts in which you have suitably inscribed a world agreement.

The formalities by the Members of the Union in the establishment of the agenda and the preparatory directives to the organs of the Union were arranged through the Plenipotentiary Conference and the Administrative Council as far back as 1973. However, I cannot help but recall our contacts with various national authorities and regional organizations when it became evident that much more seemed to be needed to assure adequate national and international preparation to bring to successful fruition a conference of this nature. Hence, our concern and practical arrangements for the special preparatory seminars.

I would like to express our appreciation for the world wide collaboration that prevailed throughout the various regions in those seminars, and for the frank and open discussions that took place between the many experts of the Administrations and international organizations concerned. Those preparations enabled everyone to move forward to the collective understanding and good will which has dominated the work of this Conference. The fact that all this was achieved without a formal vote speaks for itself.

At the Conference, the Union owes its gratitude to the many experts in planning and procedures who were aided by the various computer facilities, including not only our own computer, but those of the United Nations family in Geneva and of TéléDiffusion de France (TDF), which made such a significant contribution to the planning results, and in this connection we would like to pay special tribute to Mr. Sauvet-Goichon.

We thank you, Mr. Chairman, for the forbearance with us, and wish you all a pleasant return to your countries with a proud reflection of what has been made possible here for the millions of people who will have the opportunity of benefiting from the planned development of all the Broadcasting, Television and Radiocommunication Services that will result, as and when each individual country takes its national decision for investment in the facilities that could now be operated with the necessary international safeguards in the future.

"Made possible" I think, is a concept which you, as the representatives of the Members of the Union, can justly be proud of, because this is really what this Conference has done to permit the development of a new range of space and terrestrial operations of which the users and nations will reap the benefits for many years to come.

Finally, Mr. Chairman, on behalf of Mr. Mili, the Secretariat and of various colleagues in the Headquarters of the Union, I would like to thank you warmly for your remarks on the contribution that we have endeavoured to make in the services to the Members.

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UNION INTERNATIONALE DES TELECOMMUNICATIONS  
CONFERENCE DE RADIODIFFUSION  
PAR SATELLITE

Document N° 387-F/E/S  
Genève, le 14 février 1977

(Genève, 1977)

LISTE DES PARTICIPANTS

LIST OF PARTICIPANTS

LISTA DE PARTICIPANTES

- I. Cette liste comprend les sections suivantes - This list includes the following sections -  
Esta lista comprende las secciones siguientes
1. Délégations - Delegations - Delegaciones
  2. Organisations internationales - International Organizations - Organizaciones Internacionales
    - 2.1 Nations Unies - United Nations - Naciones Unidas
    - 2.2 Institutions spécialisées - Specialized Agencies - Instituciones especializadas
    - 2.3 Organisations régionales (Art. 32 de la Convention) - Regional Organizations (Art. 32 of the Convention) - Organizaciones regionales (Art. 32 del Convenio)
    - 2.4 Autres Organisations - Others Organizations - Otras Organizaciones
  3. Siège de l'Union - Union Headquarters - Sede de la Unión
  4. Secrétariat de la Conférence - Secretariat of the Conference - Secretaría de la Conferencia
- II. Les symboles suivants sont utilisés - The following symbols are used - Se utilizan los símbolos siguientes
- C : Chef de délégation - Head of delegation - Jefe de delegación  
CA : Chef adjoint de délégation - Deputy Head of delegation - Jefe adjunto de delegación  
D : Délégué - Delegate - Delegado  
A : Conseiller - Adviser - Consejero  
O : Observateur - Observer - Observador  
S : Membre du secrétariat de la délégation - Member of delegation secretariat - Miembro de la secretaría de la delegación  
At : Suppléant - Alternate - Suplente  
+ : Assistant de la délégation - Assistant to the delegation - Asistente de la delegación  
\* : Interprète - Interpreter - Intérprete

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Inde (Rép. de l') - India (Rep. of) -  
India (Rep. de) (suite)

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Indonésie (Rép. d') - Indonesia (Rep. of) -  
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Iran - Irán

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Iran - Iran (suite)

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Irlande - Ireland - Irlanda

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- D M. MOUNTJOY J.H.  
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- D M. SLOWEY E.J.  
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Irlande - Ireland - Irlanda (suite)

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- A M. GAYNOR Sean  
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Islande - Iceland - Islandia

- CA M. ARNAR Gustav  
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- D M. FRIMANSSON Hördur  
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Italie - Italy - Italia

- C M. PETTI Angelo  
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- D M. BRUNI M.C.  
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Rome
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Italie - Italy - Italia (suite)

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- D M. LARI Mario  
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- D M. MASTINI Mario  
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- D M. POLACCO Gian Mario  
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- D M. RODINO DI MIGLIONE Francesco  
Radiotelevisione Italiana, Rome
- D M. ROSSI Giuliano  
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- D M. SETTI Remo  
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Japon - Japan - Japon

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Japon - Japan - Japon (suite)

- C++ M. KADOTA Hiroshi  
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- 
- ++ du 27.1.1977 au 13.2.1977
- CA M. UESHIMA Shiro  
Head, Frequency Division, Radio  
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Mission permanente du Japon, Genève
- A M. HARA Hiroshi  
Controller  
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Ministry of Posts & Telecommunications  
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- A M. IZUMI Takehiro  
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++ du 10.1.1977 au 26.1.1977

Japon - Japan - Japon (suite)

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++ Attaché

Jordanie (Royaume Hachémite de) - Jordan  
(Hashemite Kingdom of) - Jordania (Reino  
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- C M. ALKHAS Radi  
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- CA M. KABARITI Saleh  
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- D M. ABDULLA Raféa  
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Jordanian Broadcasting, Amman
- D M. ASAD Rafé Abdallah  
Broadcasting Engineer, Broadcasting Amman  
Amman
- D M. ASFOURAH Osameh  
Head Engineering Broadcasting  
Jordan Broadcasting, Amman
- D M. ZU'BI Naif  
Video Engineer  
Jordan Television, Amman

Kenya (Rép. du) - Kenya (Rep. of) -  
Kenya (Rep. de)

- C M. AMIRA Charles  
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Ministry of Information and Broadcasting  
Nairobi
- D M. KIMANI James Peter  
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- D M. KINYVA Peterson John  
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Koweït (Etat de) - Kuwait (State of) -  
Kuwait (Estado de)

- C M. AL-MAZEEDI Jawad A.  
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- CA M. DASHTY Yacob Yosif  
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Ministry of Information, Kuwait
- D M. SOUD Ibrahim A.  
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Lao (Rép. Démocratique Populaire) -  
Lao (People's Democratic Republic) -  
Lao (Rep. Democrática Popular)

- C M. BO Thao  
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Liban - Lebanon - Líbano

- C M. GHAZAL Maurice  
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- C M. BANNA Mahmoud  
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Liban - Lebanon - Líbano (suite)

- CA M. SINNO Ashraf  
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- S Mme HOMSY Ruby  
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Libyenne (Rép. Arabe) - Libyan Arab Republic - Libia (Rep. Árabe)

- CA M. ABUGOFFA Ali Khalifa  
Director of Long Lines Department  
P & T Corporation, Tripoli
- D M. ALSABEY Mohamed Saleh  
Frequency Coordination  
P & T Corporation, Tripoli

Liechtenstein (Principauté de) - Liechtenstein (Principality of) - Liechtenstein (Principado de)

- C M. von LEDEBUR M.  
Councillor  
Princely Government, Vaduz

Luxembourg - Luxemburgo

- C M. REICHLING Charles  
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Directeur des Relations Economiques Internationales  
Administration des Postes et Télécommunications, Luxembourg
- CA M. RETTEL Jean  
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Secrétaire de Légation  
Représentation permanente du Luxembourg auprès de l'ONU, Genève
- D M. DONDELINGER Charles  
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Luxembourg - Luxemburgo (suite)

- D M. GRAAS G.  
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Madagascar (Rép. Démocratique de) - Madagascar (Democratic Rep. of) - Madagascar (Rep. Democrática de)

- D M. RATIARISON Maximilien  
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Malaisie - Malaysia - Malasia

- C M. CHIN Fiang Khoon  
Controller of Telecommunications  
Department of Telecommunications  
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- D M. MANICKAM Shanmugam  
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- D Dr TAN Soon Hie  
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- Mali (Rép. du) - Mali (Rep. of) - Mali (Rep. del)
- C M. SIDIBE Oumar  
Chef de la Division technique de la Radio-Mali, Radiodiffusion Nationale du Mali, Bamako
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- Malte (Rép. de) - Malta (Rep. of) - Malta (Rep. de)
- C M. SALIBA Evarist  
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- Maroc (Royaume du) - Morocco (Kingdom of) - Marruecos (Reino de)
- C M. WAKRIM Mohamed  
Ingénieur en Chef, Chef de la Division des Transmissions, Ministère des PTT Rabat
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- Maurice - Mauritius - Mauricio
- C M. CHASLE Louis Raymond  
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Chief Engineer, Mauritius Broadcasting Corporation, Curepipe
- D M. SAINT LAMBERT Herbert  
Engineer, Mauritius Broadcasting Corporation, Curepipe
- D M. TSANG MANG KIN Joseph  
Premier Conseiller, Ambassade de l'Ile Maurice, Bruxelles
- Mauritanie (Rép. Islamique de) - Mauritania (Islamic Rep. of) - Mauritania (Rep. Islámica de)
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- Mexique - Mexico - México
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Mexique - Mexico - México (suite)

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Monaco - Mónaco

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Mongolie (Rép. Pop. de) - Mongolian  
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Niger (Rép. du) - Niger (Rep. of the) -  
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Niger (Rép. du) - Niger (Rep. of the) -  
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Nigeria (Rép. Fédérale de) - Nigeria  
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Oman (Sultanat d') - Oman (Sultanate of) -  
Omán (Sultania de)

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Ouganda (Rép. de l') - Uganda (Rep. of) -  
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- D M. MEERBURG Arend Y.  
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- D M. SCHÜTTENHELM Emile A.  
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- D M. de TROYE Jan Louis  
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Pays-Bas (Royaume des) - Netherlands  
(Kingdom of the) - Países Bajos (Reino  
de los) (suite)

- D M. VAN DEN BERG Willem F.  
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- D M. VAN WILLIGEN Peter W.  
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- D M. WAGENAAR William Joh. Alb.  
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- D M. WILBERS W.A.F.  
Directeur de la Direction Radio-Télévision  
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- D M. WILLEMS P.E.  
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Philippines (Rép. des) - Philippines  
(Rep. of the) - Filipinas (Rep. de)

- C M. CARLOS Zosimo  
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- D M. BISUNA Ramon  
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- D M. ESPEJO C.V.  
Attaché, Mission permanente des Philippines  
Genève
- D M. LIM Vivencio T.  
Director Operation Engineering  
Makati, Rizal

Pologne (Rép. Pop. de) - Poland (People's  
Rep. of) - Polonia (Rep. Popular de)

- C M. KOZŁOWSKI Konrad  
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- CA Mme SMOLEŃSKA Halina  
Director of Radio Department, Ministry  
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- D M. FIECKO Tadeusz  
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- D M. JAKUBIK Jerzy  
Ingénieur, Ministère des PTT, Warszawa
- D M. KUPCZYK Zbyszko-Henryk  
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Telecommunications, Warszawa
- D M. STROJWAS Tadeusz  
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Portugal

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Nations Unies, Genève
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- Portugal (suite)
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- Qatar (Etat du) - Qatar (State of) -  
Qatar (Estado de)
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- République Démocratique Allemande -  
German Democratic Republic - República  
Democrática Alemana
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- D M. BROBERG Fritz  
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- D Mme CALOV Hannelore  
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- République Populaire Démocratique de  
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- République Socialiste Soviétique  
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Assistant Secretary, Broadcasting  
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Directorate of Radio Technology  
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- D M. HOWARTH Frederick H.  
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- D M. TEMPLE Stephen Robin  
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Directorate of Radio Technology  
Home Office, London
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Office des Postes et Télécommunications  
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- D M. MBAYE Malick  
Directeur technique Adjoint, Office de  
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Dakar
- Singapour (Rép. de) - Singapore (Rep. of) - Singapur (Rep. de)
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- D M. MOHAMED DIRIÉ Ismail  
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Suède - Sweden - Suecia (suite)

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- D M. STENBERG Berndt V.  
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Suisse (Confédération) - Switzerland  
(Confederation of) - Suiza (Confederación)

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PTT, Berne
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générale des PTT, Berne
- D M. EBERT Walter  
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de la Radio et de la Télévision de la  
Direction générale des PTT, Berne
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Suisse (Confédération) - Switzerland  
(Confederation of) - Suiza (Confederación)  
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Tanzanie (Rép. Unie de) - Tanzania  
(United Republic of) - Tanzania (Rep.  
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Tchad (Rép. du) - Chad (Rep. of the) -  
Chad (Rep. del)

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Tchécoslovaque (Rép. Socialiste) -  
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Thaïlande - Thailand - Tailandia (suite)

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Togolaise (Rép.) - Togolese Republic -  
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Tunisie - Tunisia - Túnez

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Turquie - Turkey - Turquia

- C M. YAVUZALP Ercüment  
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Union des Républiques Socialistes  
Soviétiques - Union of Soviet Socialist  
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Soviéticas

- C M. BADALOV A.L.  
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Socialistas Soviéticas (suite)

- CA M. BORODITCH S.V.  
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Soviéticas (suite)
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- A M. ANGELI RADOVANI Kosta  
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- A M. BRAJAN Berislav  
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Direction fédérale des Radiocommunications  
Beograd
- A M. JANKOVIC Milenko  
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Direction fédérale des Radiocommunications  
Beograd
- Zaire (Rép. du) - Zaire (Rep. of) - Zaire (Rep. del)
- C Citoyen MWAMBA KASONGO  
Ingénieur, Sous-Directeur des Transmissions à la Direction des Etudes et de la Planification, Office national des Postes et Télécommunications  
Kinshasa
- CA Citoyen YEMBI NSAMPALA  
Sous-Directeur des Fréquences à la Direction de l'Exploitation des Télécommunications, Office national des Postes et Télécommunications, Kinshasa
- D Citoyen MBONGO-IYEME  
Conseiller de Cabinet  
Ministère des PTT  
Kinshasa
- D Citoyen N'SIALA-MAVAMBU Mbuete  
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- Zambie (Rép. de) - Zambia (Rep. of) - Zambia (Rep. de)
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Broadcasting Engineer  
Zambia Broadcasting Services, Lusaka
- D M. MHENDE Ronald Ronnie  
Assistant Senior Maint. Engineer  
Television Studios and Transmission  
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## 2. ORGANISATIONS INTERNATIONALES - INTERNATIONAL ORGANIZATIONS - ORGANIZACIONES INTERNACIONALES

### 2.1 Nations Unies - United Nations - Naciones Unidas

C M. PEREK Luboš  
Chief, Outer Space Affairs Division  
UN - New York

M. DMITRICHEV Timour  
Legal Officer, Legal Department  
UN - New York

M. ZOUPANOS Théodore S.  
External Relations and Inter-Agency  
Affairs Officer  
UN - Genève

Programme des Nations Unies pour l'Environnement - United Nations Environment Programme - Programa de las Naciones Unidas para el medio ambiente

M. BIRYUKOV Gennady  
Programme Officer  
United Nations Environment Programme

Bureau du Coordonnateur des Nations Unies pour les secours en cas de catastrophe - Office of the United Nations Disaster Relief Co-ordinator (UNDRO) - Oficina del Coordinador de las Naciones Unidas para el Socorro en Caso de Desastre

M. KORJENKO Viatcheslav  
Co-ordinator Officer, UNDRO, Genève

### 2.2 Institutions spécialisées - Specialized Agencies - Instituciones especializadas

Organisation des Nations Unies pour l'éducation, la science et la culture (UNESCO) - United Nations Educational, Scientific and Cultural Organization (UNESCO) - Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO)

M. SOMMERLAD E. Lloyd  
Chief, Division of Free Flow of Information and Communication Policies  
UNESCO, Paris

### 2.3 Organisations régionales (Art. 32 de la Convention) - Regional Organizations (Art. 32 of the Convention) - Organizaciones regionales (Art. 32 del Convenio)

Asociación de Empresas Estatales de Telecomunicaciones Andinas (ASETA) - Association des Entreprises d'Etat exploitant des Télécommunications dans le cadre de l'Accord sous-régional des Andes (ASETA) - Association of State telecommunication undertakings of the Andean Sub-regional Agreement (ASETA)

M. COLINA-MARIE Miguel  
Secretario General, Asociación de Empresas Estatales de Telecomunicaciones del Acuerdo Subregional Andino, Quito Ecuador

Union arabe des télécommunications - Arab Telecommunication Union - Unión Árabe de Telecomunicaciones

M. GHAZAL Maurice  
Directeur des Services techniques des Télécommunications, Administration générale des Téléphones et Télégraphes, Beyrouth

### 2.4 Autres Organisations - Others Organizations - Otras Organizaciones

Agence spatiale européenne - European Space Agency - Agencia Espacial Europea

M. ARETS Jean  
Chef de la Division des Affaires internationales, Paris

Dr KALTENECKER H.K.  
Directeur de la Division des Affaires internationales, ESA, Paris

M. ROSETTI Calin  
Mission Manager, Paris

Organisation internationale de radio-diffusion et télévision (OIRT) - International Radio and Television Organization - Organización Internacional de Radiodifusión y de Televisión

M. DEMENTIEV Viktor Yefimovich  
Director of the Technical Centre, OIRT Prague

M. JERKOV Jerko  
Directeur-Adjoint du Centre technique Prague

Organisation internationale de télé-  
communications par satellite (INTELSAT) -  
International Telecommunications Satellite  
Organization - Organización Internacional  
de Telecomunicaciones por satélite

Dr PONTANO Benjamin A.  
Communications Specialist  
Washington

Organisation internationale de télécommu-  
nications spatiales (INTERSPOUTNIK) -  
International Space Telecommunication  
Organization - Organización Internacional  
de Telecomunicaciones Espaciales

M. KRUPIN Jurij Ivanovitsh  
General Director, International  
Organization of Space Communications  
Moscou

Union asiatique de radiodiffusion -  
Asian Broadcasting Union (ABU) -  
Unión Asiática de Radiodifusión

M. BALASUBRAMANYAM V.  
Director of Engineering  
Kuala Lumpur

Union de radiodiffusion des Etats Arabes -  
Arab States Broadcasting Union (ASBU) -  
Unión de Radiodifusión de los Estados  
Árabes

Dr YOUSIF A.M.  
Director, Technical Centre, ASBU  
Khartoum

Union des radiodiffusions et télévisions  
nationales d'Afrique (URTNA) - Union of  
National Radio and Television Organizations  
of Africa - Unión de las Radiodifusiones y  
Televisiones Nacionales de Africa

M. NDIAYE Amady  
Responsable du Centre technique  
URTNA, Bamako

Union européenne de radiodiffusion (UER) -  
European Broadcasting Union (EBU) -  
Unión Europea de Radiodifusión (UER)

M. BROWN Alan  
Senior Engineer, Bruxelles

M. GRESSMANN Rudolf  
Director Technical Centre, Bruxelles

Union européenne de radiodiffusion (UER) -  
European Broadcasting Union (EBU)  
Unión Europea de Radiodifusión (UER)  
(suite)

M. de KALBERMATTEN Régis  
Secrétaire général, Bruxelles

M. KOPITZ Dietmar  
Ingénieur principal, Bruxelles

M. LEBERT Philippe F.I.  
Informaticien, Bruxelles

M. MERTENS Henri  
Ingénieur en Chef, Bruxelles

Union internationale des radio-amateurs -  
International Amateur Radio Union (IARU) -  
Unión Internacional de Aficionados de  
Radio

M. EATON Noël B.  
Président, Newington, Conn.

M. JOHNSON Bruce Alan  
Assistant Secretary, Newington, Conn.

M. RÖTTGER Jürgen  
Assistant  
International Amateur Radio Union  
Londres

M. STEVENS Roy F.  
Secretary  
International Amateur Radio Union  
Londres



3. SIEGE DE L'UNION - HEADQUARTERS OF THE UNION - SEDE DE LA UNIÓN

Secrétariat général

M. M. Mili, Secrétaire général

Assistante : Mlle M. Knight

M. R.E. Butler, Vice-Secrétaire général

Assistante : Mlle P. Taillefer

M. R. Cook, Département des conférences et services communs

M. M. Bardoux, Département du personnel

M. R. Prélaz, Département des finances

M. I. Uygur, Département de l'ordinateur

IFRB

M. F.G. Perrin, Président

Assistante : Mme J. Fox

M. C.W. Sowton, Vice-Président

Assistante : Mlle M. Iglesias

M. A. Berrada, membre

Assistante : Mme D. Phené

M. S. Fujiki, membre

Assistante : Mme A. Tovey

M. A. Gromov, membre

Assistante : Mme M. Zinovieff

M. W. García-Rios, ingénieur

M. C. Glinz, ingénieur

CCIR

M. R.C. Kirby, Directeur

Assistante : Mme S. Dherin

M. N.V. Gadadhar, conseiller supérieur

M. Y.Y. Mao, conseiller supérieur

M. R.F. Froom, conseiller

M. A.W. Boyle, ingénieur

Assistante : Mme K. Wagner

CCITT

M. L. Burtz, Directeur

M. I. Savitsky, conseiller supérieur

M. F. Bigi, ingénieur

4. SECRETARIAT DE LA CONFERENCE - CONFERENCE SECRETARIAT - SECRETARÍA DE LA CONFERENCIA

4.1 Secrétaire de la Conférence : M. M. Mili, Secrétaire général  
Secrétaire exécutif : M. A. Winter-Jensen  
Assistant : M. P.A. Traub (17-21.I.1977)  
Secrétaire technique : M. A.A. Matthey  
Conseiller juridique, chargé  
des relations extérieures : M. M. Ibnou Zekri

4.2 Séances plénières, commissions

Séance plénière : M. H. Pouliquen  
Commission 1 : M. H. Pouliquen  
" 2 : M. A. Winter-Jensen  
" 3 : M. J. Schuway  
" 8 : M. R. Macheret

Assistants

- Mme Ch. Bocard  
- Mlle R. Einhorn  
- Mlle S. Frankel  
- Mlle F. Maurice  
- Mlle D. Service  
- Mme J. Teyssier

4.3 Division technique

M. A.A. Matthey, Secrétaire technique  
Commission 4 : M. J. Rutkowsky  
Assisté de M. M. Ahmad  
" 5 : M. D. Kane  
" 6 : M. R. Pluss

Assistants

- M. J.P. Berthet  
- M. J.J. Bozonnet  
- M. I. Dolezel  
- M. F. Ekman  
- M. T. Horie  
- M. L.S. Huang  
- M. M. Khabiri  
- M. J.J. Koehli  
- M. P. Korovenkov  
- M. G. Kovacs  
- M. R. Macheret  
- M. D. Nasution  
- M. G. Renn  
- Mme M. Sage  
- M. M. Sant  
- M. L. Sonesson  
- M. S. Tsukada  
- M. J. Wyss

- Mlle M.L. Arocena
- M. T. Bahi
- Mlle M. Bieri
- Mme R. Reinhard
- Mme M.C. Revenga
- M. G. Serlooten
- M. A. Sigris

4.4 Division "Réarrangement du Règlement des radiocommunications"

Commission 7 : M. A. Zaccagnini

Assistants

- M. J. Pelegri
- Mlle S. Peter
- Mlle G. Soto Robles
- M. I. St.Q. Severin
- M. P.A. Traub

4.5 Division "Services de la Conférence"

Service des délégués, de l'interprétation  
et de la documentation : M. U. Petignat

Relations avec la presse/Information  
publique : M. R. Fontaine

Division linguistique : M. J. Revoy

- traduction française : M. M. Brodsky
- traduction anglaise : M. T. Jones
- traduction espagnole : Mlle M.A. Delgado

Service des interprètes : Mme M. Johner

Service des procès-verbalistes : Mlle J. Barley

Salles : Mme M. Grand

Contrôle des documents : Mme L. Jeanmonod

Dactylographie : M. J. Escudero

Reprographie : MM. R. Probst  
P. Constantin  
A. Schaffner

Renseignements : Mme M.M. de Rejod

Economat : M. J. Barreau

Distribution des documents : M. W. Gantert

Messagers : M. C. Glappey

Huissiers : M. G. Brunet

## BROADCASTING SATELLITE CONFERENCE

Document No. 388-E

4 March 1977

(Geneva, 1977)

## FINAL LIST OF DOCUMENTS

A. Basic Documents of the Conference

	Doc. No.		Doc. No.
<u>Conference Chairmen and Vice-Chairmen</u>	46(Rev.)	<u>Committee 3 (Budget Control Committee)</u>	
<u>Terms of reference of Committees</u>	47	<u>Summary Records</u>	
<u>List of participants</u>	387	1st Meeting	74
<u>Plenary Meeting</u>		2nd "	193
<u>Minutes</u>		3rd "	263
1st Meeting	81	<u>Report</u>	
2nd "	95	Report	217
3rd "	167	<u>Committee 4 (Technical)</u>	
4th "	199	<u>Summary Records</u>	
5th "	251+Corr.1	1st Meeting	82
6th "	293	2nd "	94
7th "	314	3rd "	145
8th "	352	4th "	147
9th "	353	5th "	182
10th "	382	6th "	202
11th "	383	7th "	211
12th "	384	8th "	267
13th "	385	9th "	288
Signing Ceremony	386	10th "	289
<u>Committee 1 (Steering Committee)</u>		11th "	290
<u>Committee 2 (Credentials Committee)</u>		12th "	374
<u>Summary Records</u>		13th "	375
1st Meeting	72	<u>Reports</u>	
2nd "	271+Corr.	1st Report	108(Rev.) +Corr.1,2
<u>Report</u>		2nd "	122
Report	241	3rd "	159
		4th "	177+
		5th "	Corr.1,2
			243+
			Corr.1,2,3

	Doc. No.		Doc. No.
<u>Committee 5 (Planning)</u>		<u>Committee 6 (Procedures)(cont.)</u>	
<u>Summary Records</u>		<u>Report</u>	
1st Meeting	136	<u>Report</u>	101
2nd "	137		
3rd "	183	<u>Committee 7 (Rearrangement of the RR)</u>	
4th "	239	<u>Summary Records</u>	
5th "	264	1st Meeting	118
6th "	376	2nd "	155+Corr.
7th "	377	3rd "	184
8th "	378	<u>Report</u>	
9th "	379	<u>Report</u>	RR7
10th "	380		
11th "	381	<u>Committee 8 (Editorial)</u>	
<u>Reports</u>		<u>Summary Record</u>	
1st Report	255	1st Meeting	146
2nd "	270		
<u>Committee 6 (Procedures)</u>			
<u>Summary Records</u>			
1st Meeting	83		
2nd "	114		
3rd "	115		
4th "	119		
5th "	203+Add.		
6th "	244+Corr.		
7th "	292		
8th "	321		
9th "	354		

B. The attached Annex 1 contains the complete List of Documents in numerical order.

C. The List of Documents of the "RR" series is shown in Annex 2

PL = Plenary Meetings
C = Committee
WG = Working Group

A N N E X 1

LIST OF DOCUMENTS

No.	Origin	Title	Destination
1 + Corr.	SG	Agenda of the Conference	PL
2 +Corr. +Add.1,2	SG	Report by the Joint Working Party of the CCIR Study Groups on the Conference for the Planning of the Broadcasting-Satellite Service in the 12 GHz Band	C.4,C.5 and C.6
3	SG	Credentials of delegations	C.2
4	SG	Possible re-arrangement of the Radio Regulations and the additional Radio Regulations	C.7
5	Chile	Proposals on the agenda	C.4,C.5 and C.6
6 +Corr.1,2	SG	Final Report by CCIR Working Party PLEN./2	C.4 and C.5
7 +Add.1,2,3	United States of America	Proposals for the work of the Conference	C.4,C.5 and C.6
8	France	General technical principles proposed to the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Frequency Bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1)	C.4 and C.5
9	Canada	Proposals for the work of the Conference	C.4,C.5 and C.6
10	Switzerland	The need for the Conference to establish a frequency assignment/orbital position plan	C.4,C.5 and C.6
11 +Corr.	Italy	Regulatory procedures	C.6
12	New Zealand	Proposals for the work of the Conference	C.4,C.5 and C.6

No.	Origin	Title	Destination
13 +Corr.	New Zealand	World-wide satellite broadcasting planning considerations	C.4 and C.5
14	USSR	Proposals for the work of the Conference	C.4,C.5 and C.6
15 +Corr.1,2	Fed.Rep.of Germany	Procedure for the determination of the limiting power flux-density at the boundary of a country operating a Broadcasting-Satellite Service and for predicting the power flux-density produced by a terrestrial station in the band 11.7 - 12.2 GHz (12.5 GHz in Region 1)	C.4 and C.5
16 +Add.1,2,3	SG	List of foreseeable requirements for the Broadcasting-Satellite Service in the 12 GHz band	C.5
17	United Kingdom	Use of the geostationary orbit by broadcasting satellites in the band 11.7 - 12.2 GHz (12.5 GHz in Region 1) and by Region 2 fixed satellites in the band 11.7 - 12.2 GHz	C.4 and C.5
18	Japan	Proposals for the work of the Conference	C.4,C.5 and C.6
19 + Corr.	SG	Convening of the Conference	PL
20	SG	Contributions of unexempted Recognized Private Operating Agencies and International Organizations	C.3
21	SG	Budget for the Conference	C.3
22	France	Use of energy dispersal in the Broadcasting-Satellite Service	C.4
23	Liberia	Proposals for the work of the Conference	C.4 and C.5
24	Mexico	Proposals for the Conference	C.4,C.5 and C.6
25 + Corr.1,2,3	SG	Invitations to the Conference	PL
26 +Add.	SG	Notifications to International Organizations	PL
27	SG	Report of the IFRB	C.4,C.5 and C.6

No.	Origin	Title	Destination
28(Rev.) + Corr.1,2,3, 4,5,6,7	SG	Situation of countries with respect to the International Telecommunication Convention	PL
29(Rev.)	Kenya	Proposals for the work of the Conference	C.4,C.5 and C.6
30(Rev.)	Nigeria	Proposals for the work of the Conference	C.4,C.5 and C.6
31	France	Contribution to the study of reception characteristics	C.4 and C.5
32	France	Contribution to the study of general reception configurations	C.4 and C.5
33	Brazil	Proposals for the work of the Conference	C.5 and C.6
34	Australia	Principles of radio-frequency (RF) channel selection in the 12 GHz band	C.4 and C.5
35	Australia	Possible sharing of the band 11.7 - 12.5 GHz between the Broadcasting-Satellite and Terrestrial Services	C.4
36	Australia	Earth-space links for the Broadcasting-Satellite Service - draft Recommendation	C.4
37	Australia	Recommended changes to the Radio Regulations	C.6
38	Australia	Studies of interference from a 12 GHz Broadcasting-Satellite Service into a line-of-sight radio-relay system	C.4
39	Australia	Areas of concern to users of the Fixed-Satellite Service; out-of-band emissions below 11.7 GHz	C.4 and C.5
40	Denmark	Proposals for the work of the Conference	C.4
41	Norway	Spurious emission of a broadcasting-satellite repeater	C.4



No.	Origin	Title	Destination
42	Venezuela	Proposals for the work of the Conference	C.4 and C.5
43	Yugoslavia	Proposals for the work of the Conference	C.5
44	Italy	Basis of determining whether a service of an administration is considered to be affected by a proposed modification to the plan	C.6
45	New Zealand	Additional world-wide satellite broadcasting planning considerations	C.5
46(Rev.)	PL	Conference Chairmen and Vice-Chairmen	-
47	PL	Terms of reference of committees	-
48	SG	Allocation of documents (Nos. 1 to 39)	PL
49	Mexico	Frequency allocations - 10 kHz to 275 GHz	C.6
50 + Corr.	USSR	The maximum power flux-density produced by a space station in the Broadcasting-Satellite Service at the edge of the service area	C.4
51	USSR	The figure of merit of receiving equipment for individual reception at about 12 GHz	C.4
52	India	Proposal for the work of the Conference	C.5
53	India	Preferred orbits for tropical countries	C.4
54	Egypt	Comments on Doc. No. 2 (CCIR)	C.5

No.	Origin	Title	Destination
55	SG	Memorandum concerning the terms of reference of the World Administrative Radio Conference for the planning of the Broadcasting-Satellite Service in the 12 GHz frequency band	PL
56	Iran - Senegal	Election of an additional Vice-Chairman to the Conference	PL
57	SG	Secretariat of the Conference	-
58	France	Contribution to the choice of diameter of the reference receiving antenna for purposes of planning	C.4 and C.5
59	C.5	Confirmation of requirements	C.5
60	Cuba	Proposals for the work of the Conference	C.5
61	Sudan	Attenuations due to rain as obtained from meteorological data using CCIR reports 233, 563 and 564	C.4
62	Sudan	Some technical considerations in connection with multibeams covering the same country	C.4
63	Chile	Comments on Document No. 5, point 2.1	C.4
64	Chile	Comments on Document No. 5, point 2.2	C.5
65	Chile	Comments on Document No. 5, point 2.3	C.6
66	WG 4A	Maximum dimension of an antenna beam in the Broadcasting-Satellite Service	C.4
67	WG 4A	Antenna reference patterns	C.4
68	WG 4A	Protection ratio between two frequency-modulation television systems	C.4

No.	Origin	Title	Destination
69	WG 4A	Type of modulation, bandwidth and channel spacing	C.4
70(Rev.)	C.6	Organization of the Working Groups	C.6
71	Fed. Rep. of Germany	Pointing accuracy of a broadcasting-satellite transmitting antenna	C.4
72	C.2	Summary record of the first meeting of Committee 2 (Credentials)	C.2
73	Japan	Computer programme for planning the Broadcasting-Satellite Service in the 12 GHz band	C.5
74	C.3	Summary record of the first meeting of Committee 3 (Budget control)	C.3
75	WG 4B-4	Minimum size of a receiving antenna for the Broadcasting-Satellite Service	WG 4B
76	Spain	Foreseeable requirements for the Broadcasting-Satellite Service in the 12 GHz band for the Principality of Andorra	PL
77	WG 4A	Polarization of emissions	C.4
78	WG 4A	Tuning range of television receivers	C.4
79	WG 4A	Station keeping of satellites	C.4
80	WG 4A	Angle of elevation of receiving antennae	C.4
81 + Corr.	PL	Minutes of the first plenary meeting	PL
82	C.4	Summary record of the first meeting of Committee 4	C.4

No.	Origin	Title	Destination
83	C.6	Summary record of the first meeting of Committee 6	C.6
84	C.5	Structure of Committee 5	C.5
85	WG 4A-2	Radio propagation factors	C.4
86(Rev.)	WG 4A-1	Pointing accuracy of satellite antenna	C.5
87	Sudan	The effects of dust storms on microwave propagation	WG 4A-2
88	WG 6C	Report of Working Group 6C to Committee 6	C.6
89	WG 4B	Protection ratios and other primary specifications of maximum allowable interference between services	C.4
90	WG 4B	Information regarding the use of energy dispersal in planning the Broadcasting-Satellite Service	C.4
91	WG 4B	Factors to be considered in the choice of polarization for planning the Broadcasting-Satellite Service	C.4
92	WG 4B	Power flux-density at edge of service area	C.4
93	WG 4B	Figure of merit (G/T) of a broadcasting-satellite receiving station	C.4
94	C.4	Summary record of the second meeting of Committee 4	C.4
95	PL	Minutes of the second plenary meeting	PL
96(Rev.2)	WG 4B-3	Out-of-band spurious emissions from broadcasting-satellites - planning considerations	C.4

No.	Origin	Title	Destination
97	WG 4A	Difference between the e.i.r.p. directed towards the edge of the coverage area and that on the axis of the beam	C.4
98	USA	Safeguarding future access to the geostationary orbit	C.5
99(Rev.)	WG 4B-2	Sharing criteria between space services within Region 2	C.4
100	SG	List of documents (1 to 100)	-
101	C.6	First report of Committee 6 relating to the form of the Final Acts of the Conference	PL
102	WG 4B	The use of energy dispersal in planning for the Broadcasting-Satellite Service	C.4
103(Rev.2) +Annex 3 + Corr.1,2	C.5	List of requirements	C.5
104	WG 4A3	Definitions	WG 4A
105(Rev.)	WG 4A	Radio propagation factors	C.4
106	WG 4B	Characteristics of broadcasting-satellite receiving systems for community reception	C.4
107	WG 4B3	Out-of-band spurious emissions, draft recommendation	C.4
108(Rev.) + Corr.1,2	C.4	Technical parameters required for planning	C.4,C.5 & PL
109	WG 4B3	Up-link considerations for the Broadcasting-Satellite Service	C.4
110	WG 5B	Planning principles	C.5
111(Rev.3) + Corr.	WG 4B	Protection requirements for sharing between services in the 12 GHz band	C.4
112	WG 4B	Choice of polarization to be used in planning for the Broadcasting-Satellite Service	C.4
113(Rev.)	WG 4B	Out-of-band spurious emissions from broadcasting satellites, planning considerations	C.4
114 + Corr.	C.6	Summary record of the second meeting of Committee 6	C.6

No.	Origin	Title	Destination
115	C.6	Summary record of the third meeting of Committee 6	C.6
116	Egypt	Proposals concerning the work of the Conference	PL
117(Rev.)	WG 4A	Cross-section of antenna beams	C.4
118	C.7	Summary record of the first meeting of Committee 7	C.7
119	C.6	Summary record of the fourth meeting of Committee 6	C.6
120	Spain	Foreseeable requirements for the Broadcasting-Satellite Service in the 12 GHz band for the Principality of Andorra	PL
121 + Corr.	Colombia, Congo, Ecuador, Gabon, Kenya, Uganda, Zaire	Equatorial countries	C.5 and C.6
122	C.4	Technical parameters for planning (Report No. 2)	C.5 and PL
123 + Add.	C.5	Instructions for the Sub-Working Group of Group 5A on orbit position assignments to be used in the establishment of the Plan	WG 5
124	C.5	Intentional extended service area	WG 5
125	Sudan	Maximum antenna beamwidth corresponding to the feasible satellite output power	C.4 and C.5
126 + Add.	SG	Situation concerning expenditure for the Broadcasting-Satellite Conference at 21 January 1977	C.3
127	Yugoslavia	Basic consideration on the planning principles	C.5 and PL
128	C.4	Draft CCIR Recommendation on out-of-band spurious emissions	PL
129(Rev.)	WG 4A	Limitation of output power in the satellite transmitter	C.4

No.	Origin	Title	Destination
130(Rev.)	WG 4A	Effects of propagation on cross-polarization	C.4
131	SG	Note by the Secretary-General (Symbols designating countries of a geographical area)	
132	WG 4A3	Definitions	WG 4A
133(Rev.)	C.8	B.1	PL
134	WG 5A3	Note from Sub-Working Group 5A3 on the beams to be used for the first planning studies under its terms of reference	WG 5A
135	WG 5A3	Note from Sub-Working Group 5A3 on the provisional proposals for the orbit positions	WG 5A
136 + Corr.	C.5	Summary record of the first meeting of Committee 5	C.5
137	C.5	Summary record of the second meeting of Committee 5	C.5
138	WG 5A3	Problems of the parts of Regions 1 and 3 with the highest density of requirements in the orbital arc	WG 5A
139	WG 5A2	Progress report, Sub-Working Group 5A2	WG 5A
140	WG 5A2 and 5A3	Report of joint meeting of Sub-Working Groups 5A2 and 5A3 on planning parameters	WG 5A
141	WG 6B2	Procedures for coordination, notification and registration for stations of terrestrial services in the bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1) in the case broadcasting-satellite stations are involved	WG 6B
142	France	Note from the French Delegation to the Broadcasting-Satellite Conference	PL
143	United States of America	Contribution to the question of intraservice sharing in the Broadcasting-Satellite Service	C.4
144	WG 4B3	Draft Recommendation to the CCIR on up-link considerations	WG 4B
145	C.4	Summary record of the third meeting of Committee 4	C.4

No.	Origin	Title	Destination
146	C.8	Summary record of the first meeting of Committee 8	C.8
147	C.4	Summary record of the fourth meeting of Committee 4	C.4
148	WG 4B3	Up-link carrier-to-interference ratio - Planning consideration	WG 4B
149	C.5	Note by the Chairman of Committee 5 List of test points	C.5
150	WG 5A2	Report of Sub-Working Group 5A2	WG 5A
151	WG C.2	Credentials	C.2
152	WG 6D	Terms of reference of Working Group 6D	C.6
153	WG 4B2 and 4B4	Reference antenna diameter for a fixed-satellite earth station, for calculating interference from satellites in the Broadcasting Service	WG 4B
154	Chairman	Note by the Chairman of the Conference (Replacement of Vice-Chairman)	-
155 + Corr.	C.7	Summary Record of the second meeting of Committee 7	C.7
156	C.4	Note from the Chairman of Committee 4 to Committee 6	C.6
157(Rev.2)	WG 4A	Relation between the antenna beamwidth and the feasible output power from a satellite	C.4
158	Venezuela	Proposals for planning the Broadcasting-Satellite Service in Region 2	C.5
159	C.4	Third report of Committee 5 (Technical parameters for planning)	C.5, C.6 and PL
160	Cuba	Proposals for the work of Committee 5	C.5
161(Rev.)	WG 4B3	Spurious emissions - Power flux-density levels, planning considerations	WG 4B
162	WG 4B3	Information relating to up-links for the Broadcasting-Satellite Service	WG 4B
163	WG 4B3	Draft Recommendation to Administrations and to the CCIR on up-links for the Broadcasting-Satellite Service	WG 4B



No.	Origin	Title	Destination
164 (Rev.)	WG 4B3	Draft recommendation to the CCIR on the implementation and operation of up-links for the Broadcasting-Satellite Service	WG 4B
165	Colombia, Ecuador, Kenya, Uganda, Zaire	Planning of the orbit	C.5
166	WG 4B	Interregional sharing	WG 4B
167	PL	Minutes of the third Plenary Meeting	PL
168 (Rev.)	WG 4B	Interregional sharing criteria to protect the Fixed-Satellite Service against interference from the Broadcasting-Satellite Service organized in a priori plan	C.4
169 (Rev.) + Corr.	WG 4B	Criteria for sharing between the Broadcasting-Satellite Service and Terrestrial Services	C.4
170	WG 5A3	Report of Sub-Group 5A3	WG 5A
171	Comoros	Transfer of right to vote	-
172 + Add. 1 & 2	C.5	Annex 3 (revised) to the List of requirements	C.5
173	Australia	The interdependence of receiver design, channel grouping and sharing criteria	C.4 and C.5
174 (Rev.)	WG 6A1	Report of Sub-Working Group 6A1	WG 6A
175	C.8	B.2	PL
176		(This number has not yet been allocated)	
177+Corr.1,2	C.4	Fourth Report of Committee 4 (Technical parameters for planning)	C.5, C.6 and PL
178	C.5	Note by the Chairman of Committee 5	Working Groups C.5
179	Iceland, Sweden	Proposal for further work of Sub-Group 5A2	WG 5A
180	WG 4B2	Interference within and between space services using the geostationary satellite orbit in the frequency band 11.7 - 12.2 GHz	WG 4B

No.	Origin	Title	Destination
181	Australia	Sovereignty of the geostationary orbit	C.4, C.5 and C.6
182	C.4	Summary record of the fifth meeting of Committee 4	C.4
183	C.5	Summary record of the third meeting of Committee 5	C.5
184	C.7	Summary record of the third meeting of Committee 7	C.7
185 + Corr.	WG 6B	First Report of Working Group 6B	C.6
186	Argentina, Cuba, Mexico, Paraguay, Venezuela	Changes to be made in Document DL/22(Rev.1)	C.5
187	WG 6A	Report of Working Group 6A	C.6
188(Rev.2)	Drafting Group 4B	Interregional sharing criteria	C.4
189 + Add.	C.5	Minimum requirements	C.5
190	C.4	Note from the Chairman of Committee 4 to the Chairman of Committee 6	C.6
191	C.4	Note from the Chairman of Committee 4	C.5
192	C.4	Note from the Chairman of Committee 4	C.6
193	C.3	Summary record of the second meeting of Committee 3	C.3
194	C.6	Note to the Chairman of Committee 4 from the Chairman of Committee 6	C.4
195	WG 5A2	Proposals for improving the planning work for final Plan	WG 5A
196	WG 6A2	Report of Sub-Working Group 6A2	WG 6A
197(Rev.)	C.4	Note from the Chairman of Committee 4	C.4
198	France	Note by the French Delegation (relative to the Principality of Andorra)	-
199	PL	Minutes of the fourth Plenary Meeting	PL
200	-	List of documents (101 to 200)	-

No.	Origin	Title	Destination
201	Mauritius	Statement	PL
202	C.4	Summary record of the sixth meeting of Committee 4	C.4
203 + Add.	C.6	Summary record of the fifth meeting of Committee 6	C.6
204 (Rev.)	WG 5B	First report of Working Group 5B	C.5
205	Spain	Note by the Spanish Delegation to the Broadcasting-Satellite Conference	-
206	Morocco, Tunisia, Mauritania, Egypt, Sudan, Syria, Lebanon, Jordan, Yemen (A.R.), Yemen (P.D.R. of), Kuwait, Qatar, United Arab Emirates, Bahrain, Oman, Pakistan, Malaysia, Bangladesh, Indonesia, Uganda, Senegal, Chad, Niger	Islamic programme coverage	PL
207	Chairman	Requirements to be taken into consideration for planning in Regions 1 and 3	PL
208	C.5	Intentional extended service area	WG 5A & C.5
209	Saudi Arabia	(Multiple coverage beams)	
210	C.6	First series of texts adopted by Committee 6	C.8
211	C.4	Summary record of the seventh meeting of Committee 4	C.4
212	WG 5A5	Permitted characteristics of assignments in the Broadcasting-Satellite Service in the band 11.7-12.5 GHz	WG 5A
213	WG 2	2nd report (Credentials)	C.2
214	C.4	Note from the Chairman of Committee 4	C.6
215	United Kingdom	Provisions to regulate the services in the 12 GHz band	C.6

No.	Origin	Title	Destination
216 + Add.	4B Editorial Group	Information concerning the power flux-density limit necessary to protect the Fixed-Satellite Service in Region 2	WG 4B
217	C.3	Final report of the budget control committee to the Plenary Meeting	PL
218	United States	Suggested amendment to Document No. 204	WG 5B
219	United Arab Emirates	Proxy	-
220	WG 6A	Second report of Working Group 6A	C.6
221	WG 6B	Second report of Working Group 6B	C.6
222	Viet Nam	(Archipelagos of the Paracels and Spratleys)	-
223 + Corr.	Colombia	(Concepts of the geostationary orbit)	C.5 & C.6
224 (Rev.)	C.8	B.3 (Rev.)	PL
225 + Add. 1, 2	C.8	B.4	PL
226	WG 5B	Second report by Working Group 5B	C.5
227 + Add.	WG 6D	Resolution relating to the updating of the master international frequency register for Regions 1 and 3 on the date of entry into force of the Final Acts	C.6
228	Turkey	Islamic programme coverage	PL
229	Ecuador	Geostationary orbit	PL
230	United States	Power flux-density limits to initiate coordination	C.4 & C.6
231 + Add.	C.8	B.5	PL
232	C.8	B.6	PL
233	C.5	Antenna beam characteristics	C.5
234	C.8	B.7	PL
235	C.8	B.8	PL
236	Comoros	Final protocol	PL
237	Indonesia	Final protocol	PL
238	Iran	Islamic programme coverage	PL
239	C.5	Summary record of the fourth meeting of Committee 5	C.5

No.	Origin	Title	Destination
240	France	Final protocol	PL
241	C.2	Report of Committee 2	PL
242	C.8	B.9	PL
243 + Corr. 1,2,3	C.4	Fifth report by Committee 4	C.5, C.6 and PL
244 + Corr.	C.6	Summary record of the sixth meeting of Committee 6	C.6
245	France	Final protocol	PL
246	C.8	B.10	PL
247	United Kingdom	Protection of terrestrial services in Regions 1 and 3	PL
248	Panama	Statement concerning frequency registrations for the Broadcasting- Satellite Service in its territory, including the Panamanian territory known as the Canal Zone	PL
249	Indonesia	Reflections on state sovereignty in space	-
250	Australia	Draft Recommendation to the CCIR relating to the use of the 12.2-12.5 GHz band	C.5
251 + Corr.	PL	Minutes of the fifth Plenary Meeting	PL
252	Ivory Coast	Final Protocol	PL
253	United Kingdom	Draft resolution relating to the use of experimental broadcasting satellites by administrations in Regions 1 and 3	C.5
254 (Rev.)	WG 5B	Third report of Working Group 5B to Committee 5	C.5
255 + Corr.	C.5	First report by Committee 5	PL
256 + Corr.	WG 5A2/3	Report of Sub-Working Group 5A2/3	C.5
257	C.8	R.1	PL
258	Zaire	Final protocol	PL
259	Iran	Final protocol	PL
260	Afghanistan	Final protocol	PL
261	C.8	B.11	PL
262	C.8	R.2	PL
263	C.3	Summary record of the third and last meeting of Committee 3	C.3

No.	Origin	Title	Destination
264	C.5	Summary record of the fifth meeting of Committee 5	C.5
265	WG 5A-2/3	Draft plan for Regions 2 and 3	WG 5A & C.5
266(Rev.)	Byelorussia, Bulgaria, Hungarian (P.R.), Mongolia, Poland, GDR, Ukraine, Czechoslovakia, USSR	Final protocol	PL
267	C.4	Summary record of the eighth meeting of Committee 4	C.4
268	C.8	B.12	PL
269	SG	Recapitulatory list of final protocols	PL
270	C.5	Second report of Committee 5	PL
271 + Corr.	C.2	Summary record of the second meeting of Committee 2	C.2
272	United States, France, United Kingdom	Summary record of the second meeting of Committee 2 - Document No. 271	PL
273	Germany (F.R.of)	Summary record of the second meeting of Committee 2 - Document No. 271	PL
274	Zambia	Final protocol	PL
275	Bangladesh	Final protocol	PL
276	Mauritania	Final protocol	PL
277	Algeria	Islamic programme coverage	PL
278	India	Final protocol	PL
279	Mauritius	Final protocol	PL
280	Liechtenstein	Final protocol	PL
281	Congo	Final protocol	PL
282	Upper Volta	Final protocol	PL
283	Australia	Final protocol	PL
284	Guatemala	Final protocol	PL
285	Ghana	Final protocol	PL
286	Nigeria	Final protocol	PL
287	WG 5A5	Report of Sub-Working Group 5A5	C.5

No.	Origin	Title	Destination
288	C.4	Summary record of the ninth meeting of Committee 4	C.4
289	C.4	Summary record of the tenth meeting of Committee 4	C.4
290	C.4	Summary record of the eleventh meeting of Committee 4	C.4
291	Philippines	Final protocol	PL
292	C.6	Summary record of the seventh meeting of Committee 6	C.6
293	PL	Minutes of the sixth plenary meeting	PL
294	Oman	Final protocol	PL
295(Rev.2)	Germany (F.R.of), Austria, Belgium, Canada, Denmark, United States, Finland, France, Ireland, Italy, Japan, Luxembourg, Monaco, Norway, New Zealand, Netherlands, Portugal, United Kingdom, Sweden	The geostationary orbit	PL
296(Rev.) + Add.	C.8	B.13(Rev.)	PL
297	C.8	B.14	PL
298	C.8	B.15	PL
299	Mali	Final protocol	PL
300	C.6	Note from the Chairman of Committee 6	PL
301	Kenya	Final protocol	PL
302 + Corr.	C.8	R.3	PL
303	Bangladesh	Final protocol	PL
304	Senegal	Final protocol	PL
305	Benin	Final protocol	PL
306	C.8	R.4	PL
307	Togo	Final protocol	PL
308	Guinea	Final protocol	PL

No.	Origin	Title	Destination
309	Australia, New Zealand, Papua New Guinea	Final protocol	PL
310	Bolivia	Final protocol	PL
311	Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Kuwait, Morocco, Mauritania, Oman, Yemen (A.R.) Yemen (P.D.R. of)	Final protocol	PL
312	Algeria, Saudi Arabia, Kuwait, Morocco, Sudan, Tunisia, Yemen (A.R.)	Final protocol	PL
313	Algeria, Saudi Arabia, Bahrain, Bangladesh, Egypt, United Arab Emirates, Kuwait, Malaysia, Morocco, Oman, Pakistan, Sudan, Tunisia, Yemen (A.R.), Yemen (P.D.R. of)	Final protocol	PL
314	PL	Minutes of the seventh plenary meeting	PL
315	Tanzania	Final protocol	PL
316	Brazil	Final protocol	PL
317	Sudan	Final protocol	PL
318	Yemen (P.D.R. of)	Final protocol	PL
319	Central African Empire	Final protocol	PL
320	Bahrain, United Arab Emirates	Final protocol	PL
321	C.6	Summary record of the eighth meeting of Committee 6	C.6



No.	Origin	Title	Destination
322	China	Final protocol	PL
323	Lao P.D.R.	Final protocol	PL
324	Saudi Arabia	Final protocol	PL
325	Pakistan	Final protocol	PL
326	Byelorussia, Bulgaria, Hungarian P.R., Poland, German D.R., Ukraine, Czechoslovakia, USSR	Final protocol	PL
327	Thailand	Final protocol	PL
328	Burundi	Final protocol	PL
329	Chad	Final protocol	PL
330	Ethiopia	Final protocol	PL
331	Colombia, Congo, Ecuador, Gabon, Kenya, Uganda, Zaire	Final protocol	PL
332	Brazil	Final protocol	PL
333	Algeria	Final protocol	PL
334	Venezuela	Final protocol	PL
335+Corr.	C.5	Draft Plan for Regions 1 and 3	C.5
336	Uruguay	Final protocol	PL
337	Bulgaria	Final protocol	PL
338	Panama	Final protocol	PL
339	Argentina	Final protocol	PL
340	Korea (Rep. of)	Final protocol	PL
341	Pakistan	Final protocol	PL
342	India	Final protocol	PL
343	Brazil	Final protocol	PL
344	Korea D.P.R.	Final protocol	PL
345	Korea D.P.R.	Final protocol	PL
346	Tunisia	Final protocol	PL
347	Morocco	Final protocol	PL
348	Turkey	Final protocol	PL

No.	Origin	Title	Destination
349	United Kingdom	Final protocol	PL
350	Mexico	Final protocol	PL
351	C.8	R.5	PL
352	PL	Minutes of the eighth plenary meeting	PL
353	PL	Minutes of the ninth plenary meeting	PL
354	C.6	Summary record of the ninth and last meeting of Committee 6	C.6
355	United States	Document No. 248	PL
356	Morocco, Mauritania	Final protocol	PL
357	Japan	Final protocol	PL
358	Japan	Final protocol	PL
359	Japan	Final protocol	PL
360	Germany (F.R.of) Austria, Belgium, Canada, Denmark, United States, Finland, France, Ireland, Italy, Luxembourg, Monaco, Norway, Netherlands, United Kingdom, Sweden	Final protocol	PL
361	India	Final protocol	PL
362	Korea (Rep.of)	Final protocol	PL
363	SG	Second recapitulatory list of final protocols	PL
364	Spain	Final protocol	PL
365	USSR	Documents Nos. 272 and 273	PL
366	Algeria	Final protocol	PL
367	Algeria	Final protocol	PL
368	WG 5A	Notes concerning negative margins and protection ratios for the Broadcasting-Satellite Service within the Regions 1 and 3 Plan	C.5
369	German D.R.	Documents Nos. 272 and 273	PL

No.	Origin	Title	Destination
370	C.8	R.6	PL
371	United States, France, United Kingdom	Document No. 365	PL
372	Germany (F.R. of)	Documents Nos. 365 and 369	PL
373	C.8	R.7	PL
374	C.4	Summary record of the twelfth meeting of Committee 4	C.4
375	C.4	Summary record of the thirteenth and last meeting of Committee 4	C.4
376	C.5	Summary record of the sixth meeting of Committee 5	C.5
377	C.5	Summary record of the seventh meeting of Committee 5	C.5
378	C.5	Summary record of the eighth meeting of Committee 5	C.5
379	C.5	Summary record of the ninth meeting of Committee 5	C.5
380	C.5	Summary record of the tenth meeting of Committee 5	C.5
381	C.5	Summary record of the eleventh and last meeting of Committee 5	C.5
382	PL	Minutes of the tenth plenary meeting	PL
383	PL	Minutes of the eleventh plenary meeting	PL
384	PL	Minutes of the twelfth plenary meeting	PL
385	PL	Minutes of the thirteenth plenary meeting	PL
386	PL	Minutes of the closing meeting	-
387	SG	List of participants	-
388	SG	List of documents	-

A N N E X 2

No.	Origin	Title	Destination
RR1	SG	Possible re-arrangement of the Radio Regulations and the Additional Radio Regulations	C.7
RR2	Canada	Possible re-arrangement of the Radio Regulations	C.7
RR3	SG	Report by the IFRB on the possible re-arrangement of the Radio Regulations and the Additional Radio Regulations	C.7
RR4	Mexico	Re-arrangement of the Radio Regulations	C.7
RR5	WG 7A	Draft - First report of Working Group 7A to Committee 7	C.7
RR6 + Corr.	WG 7A	Report of Working Group 7A1 to Committee 7	C.7
RR7	C.7	Report of Committee 7 to the Plenary Meeting	PL