



Documents of the Regional Administrative Conference for the planning of the Broadcasting-Satellite Service in Region 2 (RARC SAT-83) (Geneva, 1983)

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BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/1(Rev.1)-E

13 June 1983

Original : French

PLENARY MEETING

Note by the Secretary-General

DRAFT STRUCTURE

OF THE

REGIONAL ADMINISTRATIVE RADIO CONFERENCE FOR THE PLANNING OF THE BROADCASTING-SATELLITE SERVICE IN REGION 2

Geneva, 1983

The agenda of the Conference appears in Resolution No. 865 which was adopted by the Administrative Council at its 36th session in 1981. This Resolution is reproduced in the Annex to Document No. 1 of the Conference.

The following Committees with their terms of reference are suggested. The terms of reference have been drawn up within the framework of the Conference agenda and in the light of committee structures of previous conferences.

Committee 1 - Steering Committee

Terms of Reference :

To coordinate the work of the Committees, fix the timetable of meetings, etc.

Committee 2 - Credentials Committee

Terms of Reference :

To verify the credentials of delegations and to report on its conclusions to the Plenary Meeting within the time specified by the latter (No. 369 of the International Telecommunication Convention, Malaga-Torremolinos, 1973).

Committee 3 - Budget Control Committee

Terms of Reference :

To determine the organization and the facilities available to the delegates and to examine and approve the accounts of expenditure incurred throughout the duration of the Conference (No. 442 of the International Telecommunication Convention, Malaga-Torremolinos, 1973).

Committee 4 - Technical Committee

Terms of Reference :

To establish the basic technical characteristics for the planning of broadcasting-satellite service in that portion of the band 12.1 - 12.3 GHz allocated to the broadcasting-satellite service and the band 12.3 - 12.7 GHz (and the associated feeder links in a part of the band 17.3 - 18.1 GHz) and the relevant sharing criteria for the use of these bands, taking into account the Report of the CCIR, Geneva, 1982.

Committee 5 - Planning Committee

Terms of Reference :

To divide and allocate the band 12.1 - 12.3 GHz in accordance with agenda item 1.1 if not resolved by the Plenary Meeting.

To establish the bases on which planning should proceed for the broadcasting-satellite service in that portion of the band 12.1 - 12.3 GHz allocated to the broadcasting-satellite service and the band 12.3 - 12.7 GHz taking into account sharing criteria with other services and other basic technical parameters.

To draw up a detailed frequency assignments and orbital positions plan for the broadcasting-satellite service in accordance with agenda item 1.2 and determine the data to be included in the Plan.

To draw up a plan for feeder links for the broadcasting-satellite service in a part of the band 17.3 - 18.1 GHz in accordance with agenda item 1.3.

Committee 6 - Procedures Committee

Terms of Reference :

To establish procedures to govern the use by the broadcasting-satellite service of that portion of the band 12.1 - 12.3 GHz allocated to it and the band 12.3 - 12.7 GHz, and, as necessary, procedures for the corresponding feeder links, in accordance with agenda item 1.4.

To prepare in an appropriate form for consideration by the competent world administrative radio conference the required additions to the Radio Regulations together with pertinent consequential modifications to the provisions of RR836, RR837, RR839-844 and RR846, Article 15 of Radio Regulations and Appendix 30 thereto.

To review the pertinent Resolutions and Recommendations of the World Administrative Radio Conference, Geneva, 1979, to prepare suitable modifications thereto for consideration by the competent world administrative conference.

Committee 7 - Editorial Committee

Terms of Reference :

To perfect the form of the Final Acts of the Conference without altering the sense (No. 527 of the International Telecommunication Convention, Malaga-Torremolinos, 1973).

R.E. BUTLER
Secretary-General

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/l-E

9 June 1983

Original : French

PLENARY MEETING

Note by the Secretary-General

DRAFT STRUCTURE

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OF THE BROADCASTING-SATELLITE SERVICE IN REGION 2

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Terms of Reference :

To divide and allocate the band 12.1 - 12.3 GHz in accordance with agenda item 1.1.

To establish the bases on which planning should proceed for the broadcasting-satellite service in that portion of the band 12.1 - 12.3 GHz allocated to the broadcasting-satellite service and the band 12.3 - 12.7 GHz taking into account sharing criteria with other services and other basic technical parameters.

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R.E. BUTLER

Secretary-General

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/2-E
10 June 1983
Original : French

HEADS OF DELEGATIONS

DRAFT

AGENDA OF THE FIRST PLENARY MEETING

Monday, 13 June 1983, at 1430 hrs

(Room 2)

Document No.

| | |
|---|-----------------|
| 1. Approval of the agenda | - |
| 2. Opening of the Conference | - |
| 3. Election of the Chairman of the Conference | - |
| 4. Election of the Vice-Chairmen of the Conference | - |
| 5. Address by the Secretary-General | - |
| 6. Conference structure | DT/1 |
| 7. Election of the Chairmen and Vice-Chairmen of the Committees | - |
| 8. Composition of the Conference Secretariat | - |
| 9. Allocation of documents to Committees | DT/3 |
| 10. Invitations to the Conference | 21 |
| 11. Notifications sent to international organizations | 22 |
| 12. Date by which the Credentials Committee must submit its conclusions | - |
| 13. Working hours of the meetings of the Conference | - |
| 14. Methods of work of the Conference | 25 |
| [15. Division and allocation of the band 12.1 to 12.3 GHz in accordance with agenda item 1.1 of the Conference | 4, 11, 13, 20] |
| 16. Other business | - |

R.E. BUTLER
Secretary-General

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
**CONFÉRENCE DE RADIODIFFUSION
PAR SATELLITE (RÉGION 2)**

GENÈVE, 1983

V
Document No. DT/3(Rev.1)-F/E/S
13 June 1983
Original : français
 anglais
 espagnol

SEANCE PLENIERE
PLENARY MEETING
SESION PLENARIA

PROJET / DRAFT / PROYECTO

Note du Secrétaire général / Note by the Secretary-General
Nota del Secretario General

ATTRIBUTION DES DOCUMENTS / ALLOCATION OF DOCUMENTS
ATRIBUCIÓN DE LOS DOCUMENTOS

- Séance Plénière : 1, 14, 15, 16
Plenary Meeting
Sesión Plenaria
- C2 - Pouvoirs : 2, 18
Credentials
Credenciales
- C3 - Budgétaire : 7, 8
Budget
Presupuesto
- C4 - Technique : 3, 10 (Rev.1), 11, 13, 20
Technical
Técnica
- C5 - Planification : 3, 4, 5, 6, 9, 10 (Rev.1), 11, 13, 15, 16, 17
Planning 20
Planificación
- C6 - Procédures : 6, 11, 13, 17, 19
Procedures
Procedimientos

R.E. BUTLER
Secrétaire général

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
**CONFÉRENCE DE RADIODIFFUSION
PAR SATELLITE (RÉGION 2)**

GENÈVE, 1983

V
Document No. DT/3-F/E/S
10 June 1983
Original : français
 anglais
 espagnol

SEANCE PLENIERE
PLENARY MEETING
SESION PLENARIA

PROJET / DRAFT / PROYECTO

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Plenary Meeting
Sesión Plenaria

C2 - Pouvoirs : 2, 18
Credentials
Credenciales

C3 - Budgétaire : 7, 8
Budget
Presupuesto

C4 - Technique : 3, 10 (Rev.1), 11, 13
Technical
Técnica

C5 - Planification : 3, 4, 5, 6, 9, 10 (Rev.1), 11, 12, 13, 15, 16, 17,
Planning 20
Planificación

C6 - Procédures : 6, 11, 12, 13, 17, 19, 20
Procedures
Procedimientos

R.E. BUTLER
Secrétaire général

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
**CONFÉRENCE DE RADIODIFFUSION
PAR SATELLITE (RÉGION 2)**

GENÈVE, 1983

Document No. DT/4-F/E/S ✓
16 June 1983
Original : French
English
Spanish

GROUPE DE TRAVAIL 6B
WORKING GROUP 6B
GRUPO DE TRABAJO 6B

L'index de propositions ci-joint a été préparé dans le but de faciliter les travaux du Groupe de travail.

The attached index of proposals has been prepared with a view to facilitating the work of the Working Group.

El índice de propuestas adjunto se ha preparado a fin de facilitar los trabajos del Grupo de Trabajo.

M. STEPHENS

Président - Chairman - Presidente

Index des propositions - Index of proposals - Indice de propuestas

| Reference Referencia (1) | ADD MOD SUP (2) | Proposition No / Proposal No. / Propuesta No (3) | | |
|--|--------------------------|---|-----------|----------|
| <u>RR Art. 8</u> | | | | |
| Table 11.7 - 12.75 GHz | MOD | USA/11/2 | CAN/13/53 | B/20/1,2 |
| RR 836 | MOD | USA/11/3 | CAN/13/54 | B/20/3 |
| RR 837 | MOD | CAN/13/55 | B/20/4 | |
| RR 839 | MOD | B/20/5 | | |
| RR 840 | MOD | CAN/13/56 | B/20/6 | |
| RR 841 | SUP | USA/11/4 | CAN/13/57 | B/20/7 |
| RR 842 | SUP | USA/11/5 | B/20/8 | |
| RR 843 | SUP | USA/11/6 | CAN/13/58 | B/20/9 |
| RR 844 | MOD | USA/11/7 | CAN/13/59 | B/20/10 |
| RR 846 | MOD | USA/11/8 | CAN/13/60 | B/20/11 |
| RR 869 | MOD | CAN/13/61 | | |
| <u>RR Art. 11</u> | | | | |
| A.11.1 | MOD | CAN/13/62 | USA/19/91 | |
| <u>RR Art. 12</u> (Titre/Title/Título) | MOD | CAN/13/63 | USA/19/92 | |
| A.12.3 | MOD | CAN/13/64 | USA/19/93 | |
| A.12.4 | ADD | CAN/13/65 | USA/19/94 | |
| <u>RR Art. 13</u> | | | | |
| A.13.2 | MOD | CAN/13/66 | USA/19/95 | |
| <u>RR Art. 15</u> (Titre/Title/Título) | MOD | CAN/13/67 | USA/19/96 | |
| RR 1656 | MOD | CAN/13/68 | USA/19/97 | |
| <u>RR Art. 15A</u> | ADD | CAN/13/69 | USA/19/98 | |
| RR 1668 | ADD | CAN/13/69 | USA/19/99 | |

Resolutions/Resoluciones

| | | |
|--------------|-----|------------|
| Res. A | ADD | CAN/13/124 |
| Res. B | ADD | CAN/13/125 |
| Res. No. 31 | SUP | CAN/13/126 |
| Res. No. 504 | SUP | CAN/13/126 |
| Res. No. 700 | SUP | CAN/13/126 |
| Res. No. 701 | SUP | CAN/13/126 |

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/5-E
14 June 1983

COMMITTEE 5

Note from the Chairman of Committee 5

INFORMATION ON SYMBOLS DESIGNATING COUNTRIES OR GEOGRAPHICAL AREAS IN REGION 2

1. In Region 2 there are
 - 51 country symbols designating countries or geographical areas (based on Table No. 1 of the Preface to the International Frequency List) ¹⁾
 - 35 Administrations of countries, Members of the Union, involved (including DNK, F, G, HOL) ²⁾
 - 3 independant countries, Members of UN, but NOT yet Members of the Union (ATG, DMA, LCA) ³⁾
2. Attached for ease of reference, is the list of the 51 country symbols with indications of:
 - a) those designating a country, Member of the Union,
 - b) the notifying Administration,
 - c) the name of the country or geographical area.
3. One symbol, CRB, has been created for the purposes of the present Conference only to designate a geographical area in the Caribbean Area. The beam has been requested by BRB and GRD.

P.D. CROSS
Chairman of Committee 5

Annex: 1

- 1) There exist 3 additional symbols for internal ITU administrative purposes designating geographical areas in IOB
CAY CAYMAN ISLANDS
TUC TURKS AND CAICOS ISLANDS
VGB BRITISH VIRGIN ISLANDS
- 2) DNK DENMARK
F FRANCE
G UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND
HOL NETHERLANDS (KINGDOM OF THE)
- 3) ATG ANTIGUA
DMA DOMINICA
LCA ST LUCIA

ANNEXE - ANNEX - ANEXO

INFORMATIONS SUR LES SYMBOLES UTILISES POUR DESIGNER LES PAYS OU ZONES GEOGRAPHIQUES DE LA REGION 2
(Fondé sur le Tableau N° 1 de la Préface à la Liste Internationale des Fréquences)

INFORMATION ON SYMBOLS DESIGNATING COUNTRIES OR GEOGRAPHICAL AREAS IN REGION 2
(Based on Table No. 1 of the Preface to the International Frequencies List)

INFORMACIÓN SOBRE SÍMBOLOS DESIGNATIVOS DE PAÍSES O ZONAS GEOGRÁFICAS DE LA REGIÓN 2
(Sobre la base del Cuadro N° 1 del Prefacio a la Lista Internacional de Frecuencias)

| N° | Symbole de pays | Membres de l'UIT M | Administration notificatrice si elle utilise un symbole différent | Nom du pays ou de la zone géographique | | |
|----|-----------------|-----------------------|---|--|---------|----------|
| 1 | 2 | 3 | 4 | 5 | | |
| | | | | Français | Anglais | Espagnol |
| | | | | | | |

| No. | Country Symbol | Members of ITU M | Notifying Administration: when different symbol | Name of country or geographical area | | |
|-----|----------------|---------------------|---|--------------------------------------|---------|---------|
| 1 | 2 | 3 | 4 | 5 | | |
| | | | | French | English | Spanish |
| | | | | | | |

| N.º | Símbolo del país | Miembro de la UIT M | Administración notificante, cuando el símbolo es diferente | Nombre del país o zona geográfica | | |
|-----|------------------|------------------------|--|-----------------------------------|--------|---------|
| 1 | 2 | 3 | 4 | 5 | | |
| | | | | Francés | Inglés | Español |
| | | | | | | |

| 1 | 2 | 3 | 4 | 5 | | |
|----|-----|---|----------|---|--|--|
| | | | | Français | English | Español |
| 1 | ALS | - | USA | Alaska | Alaska | Alaska |
| 2 | ARG | M | | Argentine | Argentine Republic | Argentina |
| 3 | ATG | - | | Antigua-et-Barbuda 1) | Antigua and Barbuda 1) | Antigua y Barbuda 1) |
| 4 | ATN | - | HOL | Antilles néerlandaises | Netherlands Antilles | Antillas neerlandesas |
| 5 | B | M | | Brésil | Brazil | Brasil |
| 6 | BAH | M | | Bahamas | Bahamas | Bahamas |
| 7 | BER | - | G | Bermudes | Bermuda | Bermudas |
| 8 | BLZ | M | | Belize | Belize | Belice |
| 9 | BOL | M | | Bolivie | Bolivia | Bolivia |
| 10 | BRB | M | | Barbade | Barbados | Barbados |
| 11 | CAN | M | | Canada | Canada | Canadá |
| 12 | CHL | M | | Chili | Chile | Chile |
| 13 | CLM | M | | Colombie | Colombia | Colombia |
| 14 | CTR | M | | Costa Rica | Costa Rica | Costa Rica |
| 15 | CUB | M | | Cuba | Cuba | Cuba |
| 16 | DMA | - | | Dominique 1) | Dominica 1) | Dominica 1) |
| 17 | DOM | M | | Dominicaine (République) | Dominican Republic | Dominicana (República) |
| 18 | EQA | M | | Equateur | Ecuador | Ecuador |
| 19 | FLK | - | G F | Falkland et Dépendances (Iles) (Malvinas) | Falkland Islands and Dependencies (Malvinas) | Malvinas y Dependencias (Islas) (Falkland) |
| 20 | GDL | - | | Guadeloupe (Département français de la) | Guadeloupe (French Department of) | Guadalupe (Departamento francés de la) |
| 21 | GRD | M | | Grenade | Grenada | Granada |
| 22 | GRL | - | DNK | Groenland | Greenland | Groenlandia |
| 23 | GTM | M | | Guatemala | Guatemala | Guatemala |
| 24 | GUB | M | | Guyane | Guyana | Guayana |
| 25 | GUF | - | F | Guyane (Département français de la) | Guiana (French Department of) | Guayana (Departamento francés de la) |
| 26 | HND | M | | Honduras | Honduras | Honduras |
| 27 | HTI | M | | Haïti | Haiti | Haiti |
| 28 | HWA | - | USA G | Hawaï | Hawaii | Hawai |
| 29 | IOB | - | | Indes occidentales britanniques 2) | British West Indies 2) | Indias occidentales británicas 2) |
| 30 | JMC | M | | Jamaïque | Jamaica | Jamaica |

1) + 2) Voir page suivante

1) + 2) See next page

1) + 2) Véase página siguiente

| 1 | 2 | 3 | 4 | 5 | | |
|----|-----|---|-------------|--|--|---|
| | | | | Français | English | Español |
| 31 | JON | - | USA | Johnston (Ile) | Johnston Island | Johnston (Isla) |
| 32 | LCA | - | LCA | Sainte-Lucie 1) | Saint Lucia 1) | Santa Lucia 1) |
| 33 | MDW | - | USA | Midway (Iles) | Midway Islands | Midway (Islas) |
| 34 | MEX | M | | Mexique | Mexico | México |
| 35 | MRT | - | F | Martinique (Département français de la) | Martinique (French Department of) | Martinica (Departamento francés de la) |
| 36 | NCG | M | | Nicaragua | Nicaragua | Nicaragua |
| 37 | PAQ | - | CHL | Pâques (Ile de) | Easter Island | Pascua (Isla de) |
| 38 | PNR | M | | Panama | Panama | Panamá |
| 39 | PRG | M | | Paraguay | Paraguay | Paraguay |
| 40 | PRU | M | | Pérou | Peru | Perú |
| 41 | PTR | - | USA | Porto-Rico | Puerto Rico | Puerto Rico |
| 42 | SLV | M | | El Salvador | El Salvador | El Salvador |
| 43 | SPM | - | F | Saint-Pierre et Miquelon (Département français de) | Saint Pierre and Miquelon (French Department of) | San Pedro y Miquelón (Departamento francés de) |
| 44 | SUR | M | | Suriname | Suriname | Suriname |
| 45 | SWN | - | [HND] [USA] | Swan (Iles) | Swan Islands | Swan (Islas de) |
| 46 | TRD | M | | Trinité-et-Tobago | Trinidad and Tobago | Trinidad y Tabago |
| 47 | URG | M | | Uruguay | Uruguay | Uruguay |
| 48 | USA | M | | Etats-Unis d'Amérique (à l'exception des Etats de l'Alaska et d'Hawaï) | United States of America (with the exception of the States of Alaska and Hawaii) | Estados Unidos de América (a excepción de los Estados de Alaska y de Hawai) |
| 49 | VCT | M | | Saint-Vincent-et-Grenadines | Saint Vincent and the Grenadines | San Vicente y las Granadinas |
| 50 | VEN | M | | Venezuela | Venezuela | Venezuela |
| 51 | VIR | - | USA | Vierges américaines (Iles) | United States Virgin Islands | Virgenes americanas (Islas) |

1) Pays indépendant, Membre de l'Organisation des Nations Unies et qui n'EST PAS encore Membre de l'Union

2) IOB c'est-à-dire
Anguille
Cayman (Iles)
Vierges Britanniques (Iles)
Montserrat
St. Christophe-Nevis
Turques et Caïques (Iles)

1) Independent country, Member of UN, NOT yet Member of the Union

2) IOB comprising
Anguilla
Cayman Islands
British Virgin Islands
Montserrat
St. Christopher-Nevis
Turks and Caicos Islands

1) País independiente Miembro de las Naciones Unidas pero que todavía NO es Miembro de la Unión

2) IOB es decir
Anguilla
Caimanes (Islas)
Virgenes Británicas (Islas)
Montserrat
San Cristobal-Nevis
Turquesas y Caicos (Islas)

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/6-E

15 June 1983

Original : English

COMMITTEE 5

DRAFT REPORT OF THE CHAIRMAN OF COMMITTEE 5 TO THE
PLENARY MEETING

1. As requested at the first Plenary Meeting, Committee 5 has dealt with the division and allocation of the band 12.1 - 12.3 GHz. It was decided to divide the band at 12.2 GHz, allocating 12.1 - 12.2 to the fixed satellite service and 12.2 - 12.3 to the broadcasting-satellite service as far as space services are concerned. This decision will be reconsidered only if, as a result of planning, any administration obtains less than four channels as specified under Decides 4 of Administrative Council Resolution No. 865.
2. It was also decided to fix the date of Monday, 20 June 1983, 1200 hours as the deadline after which modifications by administrations to the List of Requirements will not be accepted. Regarding the List of Requirements in Document No. 16, the delegation of Guyana reserved its position. The delegation of Argentina also reserved its right to object to some requirements.
3. In order to ensure that all Administrations in Region 2 be guaranteed equitable access to the spectrum/orbit resource, it was decided to request the IFRB to protect the interests of those administrations that are not present at the Conference.

P.D. CROSS
Chairman of Committee 5

Annex : 1

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/7-E

15 June 1983

Original : English

COMMITTEE 5

DRAFT PLANNING PRINCIPLES

1. The Plan should, to the extent possible, meet the administrations' requirements as they were presented prior to the cut-off date.
2. The channelization scheme should be composed of families of channels with regular spacings between channels.
3. [The assignment of polarizations to the frequency assignments in the Plan should be optional, bearing in mind the impact this may have on capacity.]
4. A standard reference system should be used to develop and describe a detailed frequency assignments and orbital positions plan so that the interference potential and protection requirements can be clearly identified. (In some special cases, different technical characteristics may be used in the Plan.)
5. The Plan should be responsive to the high intrinsic orbital capacity available as a result of the geography in Region 2.
6. The Plan should not necessarily have regularly-spaced orbital positions.
7. Provision should be made for assigning different numbers of channel families to different service areas.
8. The Plan should be responsive to a wide range of service requirements and technical parameters. This would, for example, permit the implementation, in accordance with the substantive principles recommended in Chapter 7, of systems different from the reference system.
9. Each entry in the Plan should be a frequency [assignment] to a station associated with a specified service area.

Note : With respect to Principle 1, the delegation of Guyana reserves its right to refer to this matter at a later date.

With respect to Principle 3, an ad hoc Drafting Group will prepare a Report to the Committee.

P.D. CROSS
Chairman of Committee 5

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/7-E

15 June 1983

Original : English

COMMITTEE 5

DRAFT PLANNING PRINCIPLES

1. The Plan should, to the extent possible, meet the administrations' requirements as they were presented prior to the cut-off date.
2. The channelization scheme should be composed of families of channels with regular spacings between channels.
3. [The assignment of polarizations to the frequency assignments in the Plan should be optional, bearing in mind the impact this may have on capacity.]
4. A standard reference system should be used to develop and describe a detailed frequency assignments and orbital positions plan so that the interference potential and protection requirements can be clearly identified. (In some special cases, different technical characteristics may be used in the Plan.)
5. The Plan should be responsive to the high intrinsic orbital capacity available as a result of the geography in Region 2.
6. The Plan should not necessarily have regularly-spaced orbital positions.
7. Provision should be made for assigning different numbers of channel families to different service areas.
8. The Plan should be responsive to a wide range of service requirements and technical parameters. This would, for example, permit the implementation, in accordance with the substantive principles recommended in Chapter 7, of systems different from the reference system.
9. Each entry in the Plan should be a frequency [assignment] to a station associated with a specified service area.

Note : With respect to Principle 1, the delegation of Guyana reserves its right to refer to this matter at a later date.

With respect to Principle 3, an ad hoc Drafting Group will prepare a Report to the Committee.

P.D. CROSS
Chairman of Committee 5

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/8-E

17 June 1983

Original : English

WORKING GROUP 4B

SUMMARY TABLES OF TECHNICAL PARAMETERS
FOR PLANNING (RECOMMENDATIONS)

The attached table provides a summary of some of the technical parameters being considered by Committee 4. The last column contains parameter values recommended by Committee 4.

This table is a compact way of representing the Recommendations and is useful to quickly notify Committee 5 of the status of Committee 4 work. The complete texts of Committee 4 Recommendations will follow.

TABLE 1

Draft changes to Annex 8 of Appendix 30 of the Radio Regulations
(down-link planning elements)

| RR § | PARAMETER | COMMITTEE 4 RECOMMENDATIONS |
|-------|--|--|
| 3.1 | Type of Modulation | Frequency modulation, video with 2 audio sub-carriers |
| 3.2.1 | Polarization type | Circular |
| 3.2.2 | Polarization of different beams | If possible, no restrictions in Region 2 |
| 3.3 | Carrier-to-noise ratio (99% of Worst Month) | |
| 3.4 | Protection Ratio (FMTV into FMTV) | |
| 3.5.1 | Channel spacing | |
| 3.6 | Figure of Merit (G/T) (Individual Reception) | |
| 3.7.1 | Minimum diameter of receiving antenna (and half-power beamwidth) | |
| 3.7.2 | Receiving antenna reference patterns | |
| 3.8 | Necessary bandwidth | [24 MHz] |
| 3.9.2 | Guard bands Lower band edge Upper band edge | [\approx 20 MHz] |
| 3.10 | Orbital spacing | Irregular |
| 3.11 | Satellite station keeping | $\pm 0.1^\circ$ E-W [No restriction N-S] |

TABLE 1 (continued)

| RR § | PARAMETER | COMMITTEE 4 RECOMMENDATIONS |
|--------|--|---|
| 3.12 | Minimum elevation angle of receiving antenna | |
| 3.13.1 | Cross-section of transmitted beam | |
| 3.13.2 | Minimum beamwidth of satellite transmitting antenna | 0.8° |
| 3.13.3 | Transmitting antenna reference pattern | |
| 3.14.1 | Pointing accuracy of satellite antenna | ± 0.1° from beam axis ± 1° rotation about beam axis |
| 3.15 | Variation of output power in satellite transmitter | |
| 3.16 | Power flux density at edge of coverage area for 99% of worst month | |
| 3.17 | Difference between beam axis and edge-of-coverage e.i.r.p.s | 3 dB (nominal) |
| 3.18 | Use of energy dispersal | Not required unless absolutely necessary for sharing between services |

TABLE 2

Feeder-link planning elements

| NUMBER | PARAMETER | COMMITTEE 4 RECOMMENDATIONS |
|--------|--|--------------------------------|
| 1 | C/N as guideline for plan synthesis | |
| 2 | Satellite receiving antenna reference pattern | |
| 3 | Earth station minimum antenna diameter | |
| 4 | Earth station antenna reference pattern { Co-polar Cross-polar | |
| 5 | Transmitter power at antenna input per TV channel (Maximum) | |
| 6 | Satellite receiving system noise temperature | 1500 K |
| 7 | Protection ratio (single-entry) C/I as guideline for plan synthesis | |

TABLE 2 (continued)

| NUMBER | PARAMETER | COMMITTEE 4 RECOMMENDATIONS |
|--------|---|---|
| 8 | Power control | |
| 9 | Polarization | |
| 10 | Depolarization compensation | |
| 11 | Limit on satellite AGC range | |
| 12 | Frequency translation between down-link and feeder link plan | Simple translation / 5.1 GHz / ¹⁾ |
| 13 | Separation between "co-located" satellites with same feeder link service areas operating on adjacent channels | |

1) Use of different values of frequency translation could lead to harmonic or intermodulation interference with the down-link transmission.

TABLE 2 (continued)

| NUMBER | PARAMETER | COMMITTEE 4 RECOMMENDATIONS |
|--------|---|--|
| 14 | Minimum separation between "co-located" satellites of different administrations | |
| 15 | Frequency band | 17.3 - 17.8 GHz |
| 16 | Propagation (Working Group 4A) | |
| 17 | Sat. Ant. Pointing Accuracy | $\pm 0.1^\circ$ from beam axis $\pm 1.0^\circ$ rotation about beam axis |
| 18 | Transportable feeder link stations | |
| 19 | E.I.R.P. | |
| 20 | Site diversity | |

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

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ADDITION TO APPENDIX 30

2.4.1 Atmospheric absorption

The loss due to atmospheric absorption (i.e. clear air attenuation) is given by (CCIR Report 719-1) :

$$A(\theta) = \frac{0.0584 + 0.0028\ell}{\sin \theta} \quad \theta \geq 5^\circ$$

where

θ = the elevation angle;

ℓ = the surface water vapour concentration, g/m³;

being $\ell = 10$ g/m³ for climates A to K and $\ell = 20$ g/m³ for climates M to P (see figure ...).

ADDITION TO APPENDIX 30A

The loss due to atmospheric absorption (i.e. clear air attenuation) is given by (CCIR Report 719-1) :

$$A(\theta) = \frac{0.0669 + 0.0091\ell}{\sin \theta} \quad \theta \geq 5^\circ$$

where

θ = the elevation angle;

ℓ = the surface water vapour concentration, g/m³;

being $\ell = 10$ g/m³ for climates A to K and $\ell = 20$ g/m³ for climates M to P (see figure ...).

M. SOARES DE ASSIS
Chairman

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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WORKING GROUP 4B

PROPOSED CHANGE TO RADIO REGULATIONS

(Annex 8, Appendix 30)

MOD

3.13.2 Minimum beamwidth of transmitting antenna

A minimum value of 0.6° for the half-power beamwidth of a transmitting antenna has been agreed on for planning for Regions 1 and 3, whereas for Region 2, the corresponding value agreed upon is 0.8° .

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

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WORKING GROUP 6A

CONSOLIDATED TEXTS OF PROPOSALS

The Annex to this document contains consolidated texts of proposals relating to the regulatory provisions for the broadcasting-satellite service and the feeder link plans for Region 2.

E.D. DuCHARME
Chairman of Working Group 6A

Enclosure : 1

A N N E X

FINAL ACTS

of the regional administrative radio conference
for the planning, in Region 2, of the broadcasting-satellite service
in the frequency band 12.2 - 12.7 GHz and the planning of feeder links
for the fixed-satellite service (Earth-to-space) in
the frequency band []

TABLE OF CONTENTS

(to be prepared)

TITLE

PREAMBLE

(to be prepared)

PART I

PROVISIONS AND ASSOCIATED PLAN
FOR THE BROADCASTING-SATELLITE SERVICE
IN THE FREQUENCY BAND 12.2 - 12.7 GHz
IN REGION 2

ARTICLE 1

General Definitions

For the purposes of these Final Acts the following terms shall have the meanings defined below:

| | |
|--|---|
| <i>Union:</i> | The International Telecommunication Union; |
| <i>Secretary-General:</i> | The Secretary-General of the Union; |
| <i>WARC.</i> | World Administrative Radio Conference; |
| <i>Conference</i> (Regions 1 and 3) | 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), called in short World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977; |

CAN/13/2

Region 2 Conference: Regional Administrative Radio Conference (RARC) for the Planning of the Broadcasting-Satellite Service in the 12.2-12.7 GHz Band and Associated Feeder Links in the 17.3-17.8 GHz Band (Geneva 1983);

Regions 1 and 3 Plan: The Plan for Regions 1 and 3 and its annexes;

Region 2 Plan: The Plan for Region 2 and its annexes;

Plan/s: The Plan for Regions 1 and 3 and/or for Region 2 and their annexes;

Same Plan: - For the Members of Regions 1 and 3, the Regions 1 and 3 Plan, and

- for the Members of Region 2, the Region 2 Plan

Other Plan: - For the Members of Regions 1 and 3, the Region 2 Plan and,

- for the Members of Region 2, the Regions 1 and 3 Plan.

USA/19/2

Region 2 Conference: Regional Administrative Radio Conference (RARC) for the Planning of the Broadcasting-Satellite Service in the 12.2-12.7 GHz Band and Associated Feeder Links in the 17.3-17.8 GHz Band (Geneva 1983);

Regions 1 and 3 Plan: The Plan for Regions 1 and 3 and its annexes;

Region 2 Plan: The Plan for Region 2 and its annexes;

Plans: The Plan for Regions 1 and 3 and for Region 2 and their annexes;

Same Plan: - For the Members of Regions 1 and 3, the Regions 1 and 3 Plan, and

- for the Members of Region 2, the Region 2 Plan

IFRB (Board): The International Frequency Registration Board;
CCIR: The International Radio Consultative Committee;
Convention: The International Telecommunication Convention (Malaga-Torremolinos, 1973);
Radio Regulations: The Radio Regulations annexed to the Convention;
Regions 1, 2 and 3: The geographical areas defined in Nos. 393 to ³⁹⁹ of the Radio Regulations;
Master Register: The Master International Frequency Register;
IFRB weekly circular: The publication referred to in No. ¹²³⁵ of the Radio Regulations;
Plan: The Plan for Regions 1 and 3 and its annexes;
Administration: Any governmental department or service responsible for discharging the obligations undertaken in the Convention and the Radio Regulations.

CAN/13/2

Frequency assignment in accordance with the Plans: Any frequency assignment which appears in the Plans or for which the procedure of Article 4 of this Appendix has been successfully applied.

USA/19/2

Frequency assignment in accordance with appearing in the a Plan: Any frequency assignment which appears in the a Plan or for which the procedure of Article 4 of this Appendix has been successfully applied:

Frequency assignment in conformity with the Region 2 Plan: Any frequency assignment which employs a nominal orbital position designated in the Plan and does not as a result of the characteristics of the assignment reduce the total aggregate protection margin of any frequency assignment appearing in the Plan.

ARTICLE 2

Frequency Bands

CAN/13/3 MOD 2.1 The provisions of this Appendix apply to the broadcasting-satellite service in the frequency bands between 11.7 GHz and 12.5 GHz in Region 1, ~~and between 11.7 GHz and 12.2 GHz in Regions 2 and 3¹~~ and between 12.2 and 12.7 GHz in Region 2 and to the other services to which these bands are allocated, so far as their relationship to the broadcasting-satellite service in these bands is concerned.

CAN/13/4 ADD ¹In the application of No. 847 of the Radio Regulations pertaining to the broadcasting-satellite service in the frequency band 12.5-12.75 GHz in Region 3, refer to Resolution No. 34 of the Radio Regulations.

USA/19/3 MOD 2.1 The provisions of this Appendix apply to the broadcasting-satellite service in the frequency bands between 11.7 GHz and 12.5 GHz in Region 1, ~~and between 11.7 GHz and 12.2 GHz in Regions 2 and 3~~ and between 12.2 and 12.7 GHz in Region 2 and to the other services to which these bands are allocated, so far as their relationship to the broadcasting-satellite service in these bands is concerned.

ARTICLE 3

Execution of the Provisions and Associated Plan

3.1 The Members of the Union in Region 2 shall adopt, for their broadcasting-satellite space stations operating in the frequency bands referred to in this Appendix, the characteristics specified in the Plan for that Region.

CAN/13/8 ADD 3.2~~1~~ An administration may implement its assignments in the Region 2 Plan using different characteristics but not different orbital positions than that of the Plan without applying the procedure of Article 4 and proceed directly with the application of Article 5 provided that the overall protection margin¹ associated with all assignments of other administrations are not consequently reduced. The use of this assignment will only be protected to the extent of the limits associated with that entry in the Plan.

CAN/13/9 ADD ¹The expression "overall protection margin" is defined in Annex 1.

USA/19/8 ADD 3.2~~1~~ An administration 2/ may bring into use its assignments in the Region 2 Plan using characteristics, including service areas, that are different from those of the Plan, but not different orbital positions, provided that the total protection margins associated with all assignments of other administrations appearing in the Plan are not consequently reduced. The Plan must be modified before any assignment may be brought into use that would consequently reduce the total protection margin of any assignment appearing in the Plan.

USA/19/9 ADD 2/ The use of the word "administration" in this Appendix does not preclude the application of these provisions to the case where more than one administration agrees to undertake a project jointly.

USA/19/10 MOD 3.3 The Members of the Union shall not otherwise change the characteristics specified in the Plans, or establish new broadcasting-satellite space stations or stations in the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

ARTICLE 4

Procedure for Modifications to the Plan

4.1 When an administration intends to make a modification to the Plan, i.e. either:

- to modify the characteristics of any of its frequency assignments to a space station¹ in the broadcasting-satellite service which are shown in the Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; or
- to include in the Plan a new frequency assignment to a space station in the broadcasting-satellite service; or
- to cancel a frequency assignment to a space station in the broadcasting-satellite service;

the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix).

¹ The expression "frequency assignment to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See Annex 10 for the orbital position limitations.

CAN/13/14 ADD 4.1.1 Before an administration proposes to include in the Region 2 Plan under the provisions of 4.1 b), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan to this administration, all of the assignments of this administration in the Plan shall normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix.

USA/19/16 ADD 4.1.2 An administration in proposing a modification of the Region 2 Plan may request that certain of its frequency assignments appearing in the Plan not be taken into account in determining when the limits shown in Annex 1 are exceeded. The assignment not taken into account shall not be brought into use until the conditions of paragraph 3.2 of Article 3 have been fulfilled.

CAN/13/15 ADD 4.1.2 An administration may also propose to modify under the provisions of 4.1 a) for a specified period¹, the characteristics of its frequency assignment(s) to a space station in the broadcasting-satellite service which are shown in the Region 2 Plan. During that specified period, the frequency assignment that has been modified shall not be available for use by that administration. At the end of this specified period, the modification shall lapse and the frequency assignment in the Plan shall be available for use by that administration.

CAN/13/19 ADD ¹In applying the provisions of 4.1.2 and 4.3.1.1 for Region 2 administrations, account shall be taken of the relevant effective period associated with assignments in the Region 2 Plan which have been modified or are being modified in accordance with this Article.

USA/19/14 ADD 4.1.1 An administration may also propose to modify temporarily the characteristics of one of its frequency assignments appearing in the Region 2 Plan. After the temporary period 3/, the modification shall lapse and the frequency assignment that had been modified may be brought into use subject to the conditions of paragraph 3.2A of Article 3.

USA/19/15 ADD 3/ In the event that no expiration date is given the temporary period shall expire when the modified assignment is cancelled under paragraph 4.4.

4.2 The term "frequency assignment in accordance with the Plan" used in this and the following Articles is defined in Article 1.

4.3 *Proposed modifications to a frequency assignment in accordance with the Plan or the inclusion in the Plan of a new frequency assignment*

4.3.1 An administration proposing a modification to the characteristics of a frequency assignment in accordance with the Plan or the inclusion of a new frequency assignment in the Plan shall seek the agreement of those administrations:

CAN/13/18 MOD 4.3.1.1 having a frequency assignment in the same Plan to a space station in the broadcasting-satellite service in the same channel or an adjacent channel, which is in accordance with ~~the~~ that Plan or in respect of which modifications to ~~the~~ that Plan have been published by the Board in accordance with the provision of this Article¹; or

CAN/13/19 ADD ¹In applying the provisions of 4.1.2 and 4.3.1.1 for Region 2 administrations, account shall be taken of the relevant effective period associated with assignments in the Region 2 Plan which have been modified or are being modified in accordance with this Article.

USA/19/20 MOD 4.3.1.1 ↓ in countries of Region 2 having a frequency assignment in the same Plan to a space station in the broadcasting-satellite service in the same channel or an adjacent channel, which is appearing in accordance with the that Plan or in respect of which modifications to the that Plan have been published by the Board in accordance with the provision of this Article ; or

in countries of Regions 1 and 3
4.3.1.2 ↓ having a frequency assignment to a space station in the broadcast-
ing-satellite service with the necessary bandwidth, any portion
of which falls within the necessary bandwidth of the proposed assignment,
which is in accordance with the Plan contained in
Appendix 30 or in respect of which modifications have
been published by the Board in accordance with the
provisions of that Appendix;

4.3.1.3 having no frequency assignment in the broadcasting-satellite service
in the channel concerned but in whose territory the power flux-density
value exceeds the prescribed limit as a result of the proposed modification;
or

CAN/13/22 MOD 4.3.1.4 of Region 2 having a frequency assignment in the band
USA/19/23 11.7-12.2 GHz to a space station in the fixed-satellite service
which is recorded in the Master Register or which has been
coordinated or is being coordinated under the provisions of No. 1060
of the Radio Regulations; or those of paragraph 7.2.1 of this
Appendix; or which-are-considered-to-be-affected

CAN/13/23 ADD 4.3.1.5 of Regions 1 and 3 having a frequency assignment in the
USA/19/24 band 12.5-12.7 GHz to a space station in the fixed-satellite service
which is recorded in the Master Register or which has been
coordinated or is being coordinated under the provisions of No. 1060
of the Radio Regulations; or those of paragraph 7.2.1 of this
Appendix;

USA/19/25 ADD

4.3.1.6 having a frequency assignment to a space station in the broadcasting-satellite service in the band 12.5 to 12.7 GHz in Region 3 with the necessary bandwidth, and portion of which falls within the necessary bandwidth of the proposed assignment and which

- is recorded in the Master Register or
- has been coordinated or is being coordinated under the provisions of Resolution 33; or
- appears in a Region 3 plan to be adopted at a future administrative radio conference, taking account of modifications which may be introduced subsequently in accordance with the final acts of that conference; or

CAN/13/24
USA/19/26
CAN/13/25

(MOD) ~~4.3.1.6~~ 7 which are considered to be affected.

MOD 4.3.1.7 8 A frequency assignment is considered to be affected when the limits shown in Annex 1 are exceeded. When an administration of Region-2 proposes a modification under 4.1 a), the total effect of replacing one or more assignments by one or more other assignments shall be considered in applying Annex 1.

CAN/13/26

MOD 4.3.2 An administration intending to modify characteristics in ~~the~~ a Plan shall send to the Board, not earlier than five years but not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2. If the assignment is not brought into use by that date, the modification shall lapse and the original assignment shall remain in that Plan.

USA/19/28 MOD

4.3.2 An administration intending to modify characteristics in the Plan shall send to the Board, not earlier than five years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2. If the assignment is not brought into use by that date, the modification shall lapse (See paragraph 5.3).

4.3.2.1 Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Board the information required by 4.3.2. The Board shall then publish this information in a special section of its weekly circular.

4.3.2.2 In all other cases the administration shall notify the Board of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in 4.3.1 as well as of those with which agreement has already been reached.

4.3.3 The Board shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of 4.3.1. The Board shall include the names of those administrations with the information received under 4.3.2.2 and shall publish the complete information in a special section of its weekly circular. The Board shall immediately send the results of its calculations to the administration proposing the modification to the Plan.

4.3.4 The Board shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall send them the results of its calculations.

4.3.5 An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Board to include its name. The Board shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Plan.

USA/19/29

4.3.6 Any modification to a frequency assignment which is appearing in ~~in accordance with~~ the Plan or any inclusion in the Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all affected administrations.

4.3.7 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Board of such requests.

4.3.8 Comments from administrations on the information published pursuant to 4.3.3 should be sent either directly to the administration proposing the modification or through the Board. In any event the Board shall be informed that comments have been made.

USA/19/30 MOD

4.3.9 An administration that has not notified its comments either to the administration seeking agreement or to the Board within a period of one hundred twenty days ~~four months~~ following the date of the weekly circular referred to in 4.3.2.1 or 4.3.3 shall be understood to have agreed to the proposed assignment. This time limit may be extended by eighty days up to three months for an administration that has requested additional information under 4.3.7 or for an administration that has requested the assistance of the Board under 4.3.17. In the latter case the Board shall inform the administrations concerned of this request.

4.3.10 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of 4.3.2 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.3.11 If no comments have been received on the expiry of the periods specified in 4.3.9, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Board, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

4.3.12 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

4.3.13 When the proposed modification to the Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

USA/19/31 MOD

4.3.14 The Board shall publish in a special section of its weekly circular the information received under 4.3.11 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned ~~shall enjoy the same status as those appearing in the Plan and will thenceforth be considered as a frequency assignment in accordance with appearing in the Plan.~~

CAN/13/27

ADD 4.3.14A When a modification to the ~~Region-2~~ Plan is in effect for a specified period in accordance with the provisions of 4.1.2, the Board shall, three months prior to the expiration of the period, draw the attention of the administration concerned of the forthcoming change to the status of the modified assignment.

4.3.15 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.3.16 If no agreement is reached between the administrations concerned, the Board shall carry out any study that may be requested by these administrations; the Board shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.3.17 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Board, particularly in seeking the agreement of another administration.

4.3.18 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Board.

CAN/13/28 ADD 4.3.19 Upon successful completion of the modification procedure of this Article, the Board shall make the appropriate changes to those assignments in the Master Register which are involved including a special remark with the dates referred to in 4.3.2 and the period referred to in 4.1.2 as applicable.

4.4 *Cancellation of frequency assignments*

When a frequency assignment in accordance with the Plan is released, whether or not as a result of a modification, the administration concerned shall immediately so inform the Board. The Board shall publish this information in a special section of its weekly circular.

4.5 *Master copy of the Plan*

including the total protection margins of each assignment,

USA/19/32

4.5.1 The Board shall maintain an up-to-date master copy of the Plan, taking account of the application of the procedure specified in this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.

4.5.2 The Secretary-General shall be informed by the Board of modifications made to the Plan and shall publish an up-to-date version of the Plan in an appropriate form when justified by the circumstances.

ARTICLE 5

Notification, Examination and Recording in the Master Register of Frequency Assignments to Space Stations in the Broadcasting-Satellite Service in Region ~~1 and 3~~

2

5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a space station in the broadcasting satellite service, it shall notify this frequency assignment to the Board. For this purpose, the notifying administration shall apply the following provisions.

5.1.2 For any notification under 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also apply any other data it may consider useful.

USA/19/34 ADD

5.1.2.1 An administration may request that certain of its assignments appearing in the Plan not be taken into account when the calculations are performed to determine the consequent total aggregate protection margins of the assignments appearing in the Plan. These assignments not taken into account shall not be brought into use until the conditions of paragraph 3.2A of Article 3 have been fulfilled.

USA/19/35 MOD

5.1.3 Each notice must reach the Board not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Board not later than ~~ninety days~~ three months before that date.¹

¹ Where appropriate, the notifying administration shall initiate the procedure for modifying the Plan in sufficient time to ensure that this limit is observed.

5.1.4 Any frequency assignment the notice of which reaches the Board after the applicable period specified in 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with 5.1.3.

5.1.5 Any notice made under 5.1.1 which does not contain the characteristics specified in Annex 2 shall be returned by the Board immediately by airmail to the notifying administration with the relevant reasons.

5.1.6 Upon receipt of a complete notice, the Board shall include its particulars, with the date of receipt, in its weekly circular which shall contain the particulars of all such notices received since the publication of the previous circular.

5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

5.1.8 Complete notices shall be considered by the Board in order of receipt. The Board shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

5.2 Examination and recording

5.2.1 The Board shall examine each notice:

- a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations and Annex 1 of this Appendix (with the exception of those relating to conformity with the Plan);
- b) with respect to its conformity with the Plan.¹⁾

CAN/13/31 ADD ¹When examining a notice with respect to its conformity with the provisions of 3.2A, the Board shall ensure that the orbital position is as shown in the Plan and that the effects of all other characteristics of the notified assignment shall not reduce the overall protection margin of other assignments in the Plan.

USA/19/37 ADD ¹ The Board shall not take into account the assignments so requested under paragraph 5.1.2.1 in determining the conformity of the notice with the Region 2 Plan.

5.2.2 Where the Board reaches a favourable finding with respect to 5.2.1, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a.

5.2.4 Where the Board reaches an unfavourable finding with respect to 5.2.1, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 Where the notifying administration resubmits the notice and the finding of the Board becomes favourable with respect to 5.2.1, the notice shall be treated as in 5.2.2.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Board's finding with respect to 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in 5.2.5 is fulfilled. The agreement of the administrations affected can also be obtained in accordance with Article 4 for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently invoke this fact to justify the continued use of the frequency beyond the period specified unless it obtains the agreement of the administration(s) concerned.

CAN/13/32

ADD 5.2.6A In the application of the provisions of 3.2A associated with the Region 2 Plan, the different characteristics shown in the notice are given for information only and the Board shall so identify all such assignments in the Master Register.

5.2.7 If a frequency assignment notified in advance of bringing into use has received in conformity with 5.1.3 a favourable finding by the Board with respect to the provisions of paragraph 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Board has received confirmation that the frequency assignment has been brought into use, the Board shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. It is given for information only.

5.3 *Cancellation of entries in the Master Register*

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under 5.2.8, the Board will make inquiries of the administration not earlier than six months after the expiry of the period specified in 5.1.3. On receipt of the relevant information, the Board will either modify the date of coming into use or cancel the entry.

USA/19/39 (MOD)

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Board within ~~ninety days~~ three months, whereupon the entry shall be removed from the Master Register.

ARTICLE 6

CAN/13/33 MOD (Title) Coordination, Notification and Recording in the Master
USA/19/40 International Frequency Register of Frequency Assignments to
Terrestrial Stations Affecting Broadcasting-Satellite Frequency
Assignments in the Bands 11.7-12.2 GHz (in Regions 2 and 3),
11.7-12.5 GHz (in Region 1),² and 12.2-12.7 GHz (in Region 2)¹

¹ These procedures do not involve any dispensation from the procedures prescribed for terrestrial stations in Article 9 of the Radio Regulations where stations other than those of the broadcasting-satellite service are involved.

Section I. Coordination Procedure to Be Applied

USA/19/42 6.1.1 Before an administration notifies to the Board a frequency assignment to a terrestrial transmitting station, it shall initiate coordination with any other administration having a frequency assignment to a broadcasting-satellite station ~~in conformity with the Plan if~~

appearing in

- the necessary bandwidths of the two transmissions overlap;
and
- the power flux-density which would be produced by the proposed terrestrial transmitting station exceeds the value derived in accordance with Annex 3 at one or more points on the edge of the service area which is within the coverage area of the broadcasting-satellite station of that administration.

6.1.2 For the purpose of effecting coordination, the administration responsible for the terrestrial station shall send to the administrations concerned, by the fastest possible means, a copy of a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other data of the proposed frequency assignment and the approximate date on which it is planned to bring the station into use.

USA/19/43 6.1.3 An administration with which coordination is sought shall acknowledge receipt of the coordination data ~~immediately~~ by telegram. If no acknowledgement is received within ~~fifteen~~ days of dispatch, the administration seeking coordination may dispatch a telegram requesting acknowledgement of receipt of the coordination data, to which the receiving administration shall reply. Upon receipt of the coordination data an administration with which coordination is sought shall promptly examine the matter with regard to interference³⁰ which would be caused to its frequency assignments ~~in conformity with the Plan~~ and shall, within an overall period of ~~sixty days~~ from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

appearing in

within a further 15 days.

4 months

USA/19/44

6.1.4 No coordination is required when an administration proposes to change the characteristics of an existing assignment in such a way as not to increase the ~~level of~~ interference to the service to be rendered by the broadcasting-satellite stations of other administrations, in conformity with the Plan.

USA/19/45

6.1.5 An administration seeking coordination may request the Board to endeavour to effect coordination where:

- a) an administration with which coordination is sought fails to acknowledge receipt under paragraph 6.1.3 within ~~thirty~~ ⁴⁵ days of dispatch of the coordination data;
- b) an administration which has acknowledged receipt under paragraph 6.1.3 fails to give a decision within ~~ninety days~~ ^{4 months} of dispatch of the coordination data;
- c) the administration seeking coordination and an administration with which coordination is sought disagree on the acceptable ~~level of~~ interference; or
- d) coordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such coordination.

USA/19/46

6.1.6 Either the administration seeking coordination or an administration with which coordination is sought, or the Board, may request any additional information which they may require to assess the ~~level of~~ interference to the services concerned.

6.1.7 Where the Board receives a request under paragraph 6.1.5 a), it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

6.1.8 Where the Board receives an acknowledgement following its action under paragraph 6.1.7 or where the Board receives a request under paragraph 6.1.5 b), it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

6.1.9 Where the Board receives a request under paragraph 6.1.5 d), it shall endeavour to effect coordination in accordance with the provisions of paragraph 6.1.2. Where the Board receives no acknowledgement of its request for coordination within the period specified in paragraph 6.1.3, it shall act in accordance with paragraph 6.1.7.

¹ The criteria to be employed in evaluating interference levels shall be based on the relevant CCIR Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned.

USA/19/47

6.1.10 Where an administration fails to reply within thirty days of dispatch of the Board's telegram sent under paragraph 6.1.7 requesting an acknowledgement or fails to give a decision on the matter within ~~sixty days~~ 2 months of dispatch of the Board's telegram of request sent under paragraph 6.1.8, the administration with which coordination was sought shall be considered to have undertaken that no complaint will be made in respect of any harmful interference which may be caused by the terrestrial station being coordinated to the service rendered or to be rendered by its satellite-broadcasting station.

USA/19/48

6.1.11 Where necessary, as part of the procedure under paragraph 6.1.5, the Board shall assess the ~~level of~~ interference. In any case, the Board shall inform the administrations concerned of the results obtained.

6.1.12 In the event of continuing disagreement between one administration seeking to effect coordination and one with which coordination has been sought, the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

Section II. Notification Procedure for Frequency Assignments

6.2.1 Any frequency assignment to a fixed, land or broadcasting station shall be notified to the International Frequency Registration Board if the use of the frequency concerned is capable of causing harmful interference to the service rendered or to be rendered by a broadcasting-satellite station of any other administration, or if it is desired to obtain international recognition of the use of the frequency¹.

6.2.2 For this notification, an individual notice for each frequency assignment shall be drawn up as prescribed in Section A of Appendix 1 to the Radio Regulations, which specifies the basic characteristics to be furnished as required. It is recommended that the notifying administration should also supply the additional data called for in that Appendix, together with such further data as it may consider appropriate.

USA/19/49

6.2.3 Whenever practicable, each notice should reach the Board before the date on which the assignment is brought into use. The notice made in accordance with paragraph 6.2.2 must reach the Board not earlier than three years and not later than ~~ninety days~~ three months before the date on which the assignment is to be brought into use.

USA/19/50

6.2.4 Any frequency assignment, the notice of which reaches the Board less than ~~ninety days~~ before it is brought into use, shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with paragraph 6.2.3. three months

Section III. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register

6.3.1 Whatever the means of communication, including telegraph, by which a notice is transmitted to the Board, it shall be considered complete if it contains at least the appropriate basic characteristics specified in Section A of Appendix 1 to the Radio Regulations.

6.3.2 Complete notices shall be considered by the Board in the order of their receipt.

6.3.3 Any notice which is incomplete shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor.

¹ The attention of administrations is specifically drawn to the provisions of Section I of this Article.

6.3.4 Upon receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in its weekly circular; this circular shall contain the particulars of all such notices received since publication of the previous circular.

6.3.5 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

6.3.6 Complete notices shall be considered by the Board in the order specified in paragraph 6.3.2. The Board cannot postpone the formulation of a finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

6.3.7 The Board shall examine each notice:

6.3.8 a) with respect to its conformity with the Convention, the relevant provisions of the Radio Regulations and the provisions of this Appendix (with the exception of those relating to the coordination procedure and the probability of harmful interference);

6.3.9 b) with respect to its conformity with the provisions of paragraph 6.1.1 relating to coordination of the use of the frequency assignment with the other administrations concerned;

6.3.10 c) where appropriate, with respect to the probability of harmful interference to a broadcasting-satellite station whose frequency assignment is in accordance with the Plan.

6.3.11 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 6.3.8, 6.3.9 and 6.3.10, further action shall be as follows:

6.3.12 *Finding unfavourable with respect to paragraph 6.3.8*

6.3.13 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be examined immediately with respect to paragraphs 6.3.9 and 6.3.10.

6.3.14 If the finding is favourable with respect to paragraph 6.3.9 or 6.3.10, as appropriate, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

6.3.15 If the finding is unfavourable with respect to paragraph 6.3.9 or 6.3.10, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. In those circumstances the notifying administration shall undertake not to bring into use the frequency assignment until the condition specified in paragraph 6.3.14 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

6.3.16 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

6.3.17 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 6.3.16.

6.3.18 If the notifying administration resubmits the notice with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of paragraphs 6.3.13 and 6.3.14 or 6.3.15, as appropriate.

6.3.19 If the notifying administration resubmits the notice with modifications which, after re-examination, result in a favourable finding by the Board with respect to paragraph 6.3.8, the notice shall be treated under the provisions of paragraphs 6.3.20 to 6.3.32. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

6.3.20 *Finding favourable with respect to paragraph 6.3.8*

6.3.21 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has been successfully completed with all administrations whose broadcasting-satellite services may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

6.3.22 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has not been applied, and the notifying administration requests the Board to effect the required coordination, the Board shall take the appropriate action necessary and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with paragraph 6.3.21. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of paragraph 6.3.10.

6.3.23 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has not been applied and the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

6.3.24 Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has been successfully completed with all administrations whose broadcasting-satellite services may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

6.3.25 Where the notifying administration resubmits the notice with a request that the Board effect the required coordination, it shall be treated in accordance with the provisions of paragraph 6.3.22. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

6.3.26 Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the coordination, it shall be examined by the Board with respect to the provisions of paragraph 6.3.10. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

6.3.27 *Finding favourable with respect to paragraphs 6.3.8 and 6.3.10*

6.3.28 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

6.3.29 *Finding favourable with respect to paragraph 6.3.8 but unfavourable with respect to paragraph 6.3.10*

6.3.30 The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

6.3.31 Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to paragraph 6.3.10, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

6.3.32 Should the notifying administration resubmit the notice, either unchanged or with modifications which decrease the probability of harmful interference but not sufficiently to permit the provisions of paragraph 6.3.31 to be applied and should that administration insist upon reconsideration of the notice but the Board's finding remain unchanged, the notification shall again be returned to the notifying administration in accordance with paragraph 6.3.30. In those circumstances, the notifying administration shall undertake not to bring into use the proposed frequency assignment until the condition specified in paragraph 6.3.31 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the frequency assignment for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the assignment is valid only for the specified period. The notifying administration using the frequency assignment during a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration or the administrations concerned.

6.3.33 *Change in the basic characteristics of assignments already recorded in the Master Register*

USA/19/51

2c.
6.3.34 A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 to the Radio Regulations (except those entered in Columns 3 and 4a of the Master Register), shall be examined by the Board in accordance with paragraphs 6.3.8 and 6.3.9 and, where appropriate, paragraph 6.3.10 and paragraphs 6.3.12 to 6.3.32 inclusive applied. Where the change should be recorded, the original assignment shall be amended according to the notice.

6.3.35 However, in the case of a change in the basic characteristics of an assignment which is in conformity with paragraph 6.3.8, should the Board reach a favourable finding with respect to paragraph 6.3.9 and, if applicable, paragraph 6.3.10, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in Column 2d. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

USA/19/52 ADD

6.3.35A The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by three months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be provided but it shall in no case exceed six months from the original projected date of bringing into use.

6.3.36 In applying the provisions of this Section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.

6.3.37 *Recording of frequency assignments notified before being brought into use*

6.3.38 If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to paragraphs 6.3.8 and 6.3.9, and, where appropriate, 6.3.10, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

6.3.39 If, within the period of thirty days after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of bringing into use, the special symbol shall be deleted from the Remarks Column. If, in the light of a request from the notifying administration received before the end of the thirty-day period, the Board finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days.

USA/19/53 SUP

6.3.39

USA/19/54 ADD

6.3.39A Within thirty days after the date of bringing into use, either as originally notified or as modified in application of paragraph 6.3.35A, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

USA/19/55 ADD

6.3.39B If the Board does not receive this confirmation within the period referred to in paragraph 6.3.39A, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

6.3.40 If use by a terrestrial station of an assignment which is not in conformity with the foregoing causes harmful interference to the reception of emissions from a space station in the broadcasting-satellite service using an assignment in conformity with the Plan, the administration having jurisdiction over the terrestrial station shall, on being advised, take immediate measures to eliminate the interference.

ARTICLE 7

**Preliminary Procedures, Notification and Recording in the
Master International Frequency Register of Frequency
Assignments to Stations in the Fixed-Satellite Service in the
Frequency Band 11.7 - 12.2 GHz (in Region 2) When
Frequency Assignments to Broadcasting-Satellite Stations in
Accordance with the Plan Are Involved¹**

Appendix 30

¹ These provisions do not replace the procedures prescribed in Articles 11 and 13 of the Radio Regulations when stations other than those of the broadcasting-satellite service having frequency assignments in conformity with the Plan are involved.

Appendix 30

**Section 1. Procedure for the Advance Publication of Information
on Planned Fixed-Satellite Systems**

(Note : Proposal USA/19/57 (ADD 7.0) is not necessary in an appendix dealing only with Region 2, if the title of the article mentions the band 11.7-12.2 GHz.)

CAN/13/36

ADD 7.0

The provisions of this Article apply to:

- Region 2 fixed satellite systems in the frequency band 11.7-12.2 GHz to protect the Regions 1 and 3 Plan;
- Region 2 fixed-satellite systems which are to be operated in accordance with No. 846 of the Radio Regulations.

USA/19/58 ADD

Publication of Information

USA/19/59 MOD

7.1.1 An administration which intends to establish a fixed-satellite system shall, prior to the procedure in accordance with paragraph 7.2.1 where applicable, send to the International Frequency Registration Board, not earlier than five years and preferably not later than two years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix 4 to the Radio Regulations.

CAN/13/37 ADD 7.1.1A The provisions of 7.1.1 are not applicable to Region 2 administrations who intend to establish a fixed-satellite system in accordance with No. 846 of the Radio Regulations.

7.1.2 Any amendments to the information concerning a planned satellite system sent in accordance with paragraph 7.1.1 shall also be sent to the Board as soon as they become available.

USA/19/60 MOD 7.1.3 The Board shall publish the information sent under paragraphs 7.1.1 and 7.1.2 in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall include the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station.

USA/19/61 ADD 7.1.3A If the information is found to be incomplete, the Board shall publish it under paragraph 7.1.3 and immediately seek, from the administration concerned, any clarification and information not provided. In such cases, the period of four months specified in paragraph 7.1.5 shall count from the date of publication, under paragraph 7.1.3, of the complete information.

USA/19/62 ADD Comments on Published Information

USA/19/63 7.1.4 If, after studying the four months information published under paragraph 7.1.3, any administration is of the opinion that interference which may be unacceptable may be caused to its frequency assignments in conformity appearing in with the Plan, it shall, within ~~ninety days~~ after the date of the weekly circular publishing the information listed in Appendix 4 to the Radio Regulations, send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned fixed-satellite network(s) of that system of which details have been published.

USA/19/64 ADD Resolution of Difficulties

7.1.5 An administration receiving comments sent in accordance with paragraph 7.1.4 shall endeavour to resolve any difficulties that may arise without considering the possibility of adjustment to broadcasting-satellite stations of other administrations. If no such means can be found, the administration concerned is then free to apply to other administrations concerned in order to solve these difficulties, provided that any modifications which may result to the Plan are in accordance with Article 4.

7.1.6 In their attempts to resolve the difficulties mentioned above, administrations may seek the assistance of the Board.

USA/19/65 ADD

Results of Advance Publication

USA/19/66 ADD

7.1.6A An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 7.1.1 and 7.1.2 shall, after the period of four months specified in paragraph 7.1.4, inform the Board whether or not comments provided for in paragraph 7.1.4 have been received and of the progress made in resolving any remaining difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Board at intervals not exceeding six months prior to the commencement of coordination or the sending in of notices to the Board. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

USA/19/67 ADD

Commencement of Coordination or Notification Procedure

USA/19/68

7.1.7 In complying with the provisions of paragraphs 7.1.5 and 7.1.6, an administration responsible for a planned fixed-satellite system shall, if necessary, defer its commencement of the coordination procedure of paragraph 7.2.1 or, where this is not applicable, the sending of its notices to the Board until six months ~~one hundred and fifty days~~ after the date of the weekly circular containing the information listed in Appendix 4 to the Radio Regulations on the relevant satellite network. However, in respect of those administrations with which difficulties have been resolved or which have responded favourably, the coordination procedure, where applicable, may be commenced prior to the expiry of the ~~one hundred and fifty days~~ mentioned above.

six months

7.1.8 An administration, on behalf of which details of planned fixed-satellite networks in its system have been published in accordance with the provisions of paragraphs 7.1.1 to 7.1.3, shall periodically inform the Board whether or not comments have been received and of the progress made with other administrations in resolving any difficulties. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

Section II. Coordination Procedures to Be Applied in Appropriate Cases

USA/19/69

7.2.1 Before an administration notifies to the Board or brings into use any frequency assignment to a space station in the fixed-satellite service, it shall seek the agreement of any other administration having a frequency assignment ~~in conformity with~~ the Plan, if

appearing in

- any portion of the necessary bandwidth proposed for the space station in the fixed-satellite service falls within the necessary bandwidth associated with the frequency assignment to the broadcasting-satellite station; and
- the power flux-density which would be produced by the proposed fixed-satellite assignment exceeds the value specified in Annex 4.

For this purpose, the administration seeking agreement shall send to any other such administration the information listed in Appendix 3 to the Radio Regulations.

CAN/13/38

ADD 7.2.1A No coordination is required under 7.2.1 for assignments that are to be notified by Region 2 administrations under the provisions of No. 846 of the Radio Regulations.

7.2.2 No additional agreement is necessary when an administration proposes to change the characteristics of an existing assignment in such a way as will, in respect of the broadcasting-satellite service of another administration, meet the requirements of paragraph 7.2.1 above, or when this assignment has previously been the subject of an agreement and when the change will not cause any increase in the interference potential specified in that agreement.

7.2.3 An administration seeking coordination under paragraph 7.2.1 shall at the same time send to the Board a copy of the request for coordination together with the information listed in Appendix 3 to the Radio Regulations and the name(s) of the administration(s) whose agreement is sought. The Board shall determine on the basis of Annex 4 which frequency assignments in conformity with the Plan are considered to be affected. The Board shall include the names of those administrations with the information received from the administration seeking coordination and shall publish this information in a special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.

7.2.4 An administration believing that it should have been included in the procedure under paragraph 7.2.1 shall have the right to request that it be brought into the procedure.

USA/19/70

7.2.5 An administration whose agreement is sought under paragraph 7.2.1 shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within thirty days after the date of the weekly circular publishing the information under paragraph 7.2.3, the administration seeking coordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of ~~thirty~~ fifteen days. Upon receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which agreement was requested, promptly examine the matter with regard to interference¹ which would be caused to the service rendered by its stations in respect of which agreement is sought under paragraph 7.2.1, and shall, within ~~ninety days~~ four months from the date of the relevant weekly circular, notify its agreement to the requesting administration. If the administration with which coordination is sought does not agree, it shall, within the same period, send to the administration seeking coordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

¹ The criteria to be employed in evaluating interference levels shall be based upon the technical information contained in this Appendix or upon relevant CCIR Recommendations and shall be agreed between the administrations concerned.

USA/19/71

7.2.6 An administration seeking coordination may request the Board to endeavour to effect coordination in those cases where:

- a) an administration whose agreement is sought under paragraph 7.2.1 fails to acknowledge receipt, under paragraph 7.2.5, forty five ~~within sixty~~ days after the date of the weekly circular publishing the information relating to the request for coordination;
- b) an administration has acknowledged receipt under paragraph 7.2.5, but fails to give a decision within ~~ninety days~~ four months from the date of the relevant weekly circular;
- c) there is disagreement between the administration seeking coordination and an administration whose agreement is sought as to the acceptable ~~level of~~ interference;
- d) agreement between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such coordination.

USA/19/72

7.2.7 Either the administration seeking coordination or an administration whose agreement is sought, or the Board, may request additional information which they may require to assess the ~~level of~~ interference to the services concerned.

7.2.8 Where the Board receives a request under paragraph 7.2.6 a), it shall forthwith send a telegram to the administration whose agreement is sought requesting immediate acknowledgement.

7.2.9 Where the Board receives an acknowledgement following its action under paragraph 7.2.8, or where the Board receives a request under paragraph 7.2.6 b), it shall forthwith send a telegram to the administration whose agreement is sought requesting an early decision in the matter.

7.2.10 Where the Board receives a request under paragraph 7.2.6 d), it shall endeavour to effect coordination in accordance with the provisions of paragraph 7.2.1. The Board shall also, where appropriate, act in accordance with paragraph 7.2.3. Where the Board receives no acknowledgement to its request for coordination within the periods specified in paragraph 7.2.5, it shall act in accordance with paragraph 7.2.8.

7.2.11 Where an administration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under paragraph 7.2.8, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under paragraph 7.2.9, it shall be deemed that the administration whose agreement was sought has undertaken:

- a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its broadcasting-satellite stations by the use of the assignment for which coordination was requested;
- b) that its broadcasting-satellite stations will not cause harmful interference to the use of the assignment for which coordination was requested.

7.2.12 Where necessary, as part of the procedure under paragraph 7.2.6, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.

USA/19/73

7.2.13 In the event of continuing disagreement between one administration seeking to effect coordination and one whose agreement has been sought, provided that the assistance of the Board has been requested, the administration seeking coordination may, after one hundred and fifty days from the date of the request for coordination, taking into consideration the provisions of paragraph 7.3.4, send its notice concerning the proposed assignment to the Board. In those circumstances the notifying administration shall undertake not to bring the frequency assignment into use until the condition in paragraph 7.4.11.2 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period. ← 6 months

Section III. Notification of Frequency Assignments

CAN/13/39

MOD 7.3.1 Any frequency assignment to a space station in the fixed satellite service shall be notified to the Board:

- a) if the use of the frequency concerned is capable of causing harmful interference to a frequency assignment of another administration which is in accordance with the Plans¹; or
- b) if it is desired to obtain international recognition of the use of the frequency,
- c) if this frequency assignment is to be used in Region 2 under the provisions of No. 846 of the Radio Regulations.

¹ The attention of administrations is specifically drawn to the application of paragraph 7.2.1 above.

7.3.2 Similar notice shall be given for any frequency to be used for reception by an earth station where one or more of the conditions specified in paragraph 7.3.1 are applicable.

7.3.3 For any notification under paragraph 7.3.1 or 7.3.2, an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix 3 to the Radio Regulations, the various Sections of which specify the basic characteristics to be furnished according to the case. The notifying administration shall furnish such further data as it considers appropriate.

CAN/13/40 ADD 7.3.3A An administration of Region 2 which intends to apply the provisions of No 846 of the Radio Regulations for transmissions in the fixed-satellite service (space-to-Earth) shall, in addition to the information referred to in 7.3.3, specify the frequency assignments in the Region 2 Plan which will be employed by the fixed-satellite system.

USA/19/74 7.3.4 Each notice must reach the Board not earlier than three years before the date on which the assignment is to be brought into use. The notice must reach the Board in any case not later than ~~ninety days~~¹ before this date. 6 months

¹ The notifying administration shall take this limit into account when deciding, where appropriate, to initiate the coordination procedure(s).

7.3.5 Any frequency assignment to an earth or space station, the notice of which reaches the Board after the applicable period specified in paragraph 7.3.4, shall, where it is to be recorded, bear a mark in the Master Register to indicate that it is not in conformity with paragraph 7.3.4.

Section IV. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register

7.4.1 Any notice which does not contain at least those basic characteristics specified in Appendix 3 to the Radio Regulations shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor.

7.4.2 Upon receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in its weekly circular which shall contain the particulars of all such notices received since the publication of the previous circular.

7.4.3 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

7.4.4 Complete notices shall be considered by the Board in the order of their receipt. The Board shall not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such earlier notice.

7.4.5 The Board shall examine each notice:

7.4.5.1 with respect to its conformity with the Convention, the relevant provisions of the Radio Regulations and the provisions of this Appendix (with the exception of those relating to the coordination procedures and the probability of harmful interference);

7.4.5.2 where appropriate, with respect to its conformity with the provisions of paragraph 7.2.1, relating to the coordination of the use of the frequency assignment with the other administrations concerned having a frequency assignment in conformity with the Plan;

7.4.5.3 where appropriate, with respect to the probability of harmful interference to the service rendered or to be rendered by a broadcasting-satellite station whose frequency assignment is in conformity with the Plan.

CAN/13/41

ADD 7.4.5.3A where the notice is submitted under the provisions of No 846 of the Radio Regulations, with respect to its compatibility, using the criteria of 3.2A of this Appendix, with frequency assignments in conformity with the Region 2 Plan.

7.4.6 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 7.4.5.1, 7.4.5.2 and 7.4.5.3, as appropriate, further action shall be as follows:

7.4.7 *Finding favourable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are not applicable*

7.4.7.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.8 *Finding unfavourable with respect to paragraph 7.4.5.1*

7.4.8.1 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is favourable with respect to paragraphs 7.4.5.2 and 7.4.5.3, as appropriate, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.8.2 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is unfavourable with respect to paragraph 7.4.5.2 or 7.4.5.3, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. In those circumstances the notifying administration shall undertake not to bring into use the frequency assignment until the condition in paragraph 7.4.8.1 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.

7.4.8.3 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.8.4 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 7.4.8.3. If it is resubmitted with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of paragraph 7.4.8.1 or 7.4.8.2, as appropriate. If it is resubmitted with modifications which, after re-examination, result in a favourable finding by the Board with respect to paragraph 7.4.5.1, it shall be treated as a new notice.

7.4.9 Finding favourable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are applicable

7.4.9.1 Where the Board finds that the coordination procedures mentioned in paragraph 7.4.5.2 have been successfully completed with all administrations whose frequency assignments in accordance with the Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.9.2 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration requests the Board to effect the required coordination, the Board shall take appropriate action and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with paragraph 7.4.9.1. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3.

7.4.9.3 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.9.4 Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has been successfully completed with all administrations whose frequency assignments in conformity with the Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

7.4.9.5 Where the notifying administration resubmits the notice with a request that the Board effect the required coordination under paragraph 7.2.1, it shall be treated in accordance with the provisions of paragraph 7.4.9.2. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

7.4.9.6 Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the coordination, the Board shall inform the administrations concerned thereof. The notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

CAN/13/42

7.4.10 Finding favourable with respect to paragraphs 7.4.5.1, and 7.4.5.3 and 7.4.5.3A

7.4.10.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.10.1 bis

CAN/13/43

ADD ~~7.4.11A.1~~ If the finding is favourable with respect to 7.4.5.1 and 7.4.5.3A, the assignment shall be recorded in the Master Register with a symbol in the Remarks Column against the assignment of the Region 2 Plan which is to be employed by the fixed-satellite system.

7.4.11 *Finding favourable with respect to paragraph 7.4.5.1, but unfavourable with respect to paragraph 7.4.5.3 and 7.4.5.3A*

7.4.11.1 The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.11.2 Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to paragraph 7.4.5.3, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

7.4.11.3 Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of paragraph 7.4.11.2 to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the notification shall again be returned to the notifying administration in accordance with paragraph 7.4.11.1. In those circumstances, the notifying administration shall undertake not to bring into use the proposed frequency assignment until the condition in paragraph 7.4.11.2 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note in the Remarks Column indicating that the assignment is valid only for the specified period. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.

7.4.12 *Change in the basic characteristics of assignments already recorded in the Master Register*

USA/19/75

or the date of
bringing into use

7.4.12.1 A notice of a change in the basic characteristics of an assignment in the fixed-satellite service already recorded, as specified in Appendix 3 to the Radio Regulations (except the name of the station or the name of the locality in which it is situated), shall be examined by the Board according to paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and the provisions of paragraphs 7.4.7 to 7.4.11.3 inclusive shall apply. Where the change should be recorded, the original assignment shall be amended accordingly.

7.4.12.2 However, in the case of a change in the characteristics of an assignment which is in conformity with paragraph 7.4.5.1, should the Board reach a favourable finding with respect to paragraphs 7.4.5.2 and 7.4.5.3, where appropriate, or find that the changes do not increase the probability of harmful interference to frequency assignments in accordance with the Plan, the amended assignment shall retain the original date in Column 2d. The date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

USA/19/76 ADD

7.4.12.2A The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by four months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be provided but it shall in no case exceed eighteen months from the original projected date of bringing into use.

7.4.12.3 In applying the provisions of this section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.

7.4.13 *Recording of frequency assignments in the fixed-satellite service notified before being brought into use*

7.4.13.1 If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

7.4.13.2 If, within thirty days after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of putting into use, the special symbol shall be deleted from the Remarks Column. In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days.

USA/19/77 SUP 7.4.13.2

USA/19/78 ADD 7.4.13.2A Within thirty days after the date of bringing into use either as originally notified or as modified in application of paragraph 7.4.12.2A the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

USA/19/79
consult 7.4.13.3 If the Board does not receive this confirmation within the period referred to in paragraph 7.4.13.2, the entry concerned shall be cancelled. The Board shall advise the administration concerned before taking such action.

Section V. Recording of Findings in the Master Register

7.5 In any case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a. In addition, a remark indicating the reasons for any unfavourable finding shall be inserted in the Remarks Column.

Section VI. Categories of Frequency Assignments

7.6.1 The date in Column 2c shall be the date of putting into use notified by the administration concerned. It is given for information only.

7.6.2 If harmful interference is actually caused to the reception of any broadcasting-satellite station whose frequency assignment is in accordance with the Plan by the use of a frequency assignment to a space radiocommunication station subsequently recorded in the Master Register in accordance with the provisions of paragraph 7.4.11.3, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

7.6.3 If harmful interference to the reception of any broadcasting-satellite station whose frequency assignment is in accordance with the Plan is actually caused by the use of a frequency assignment which is not in conformity with paragraph 7.4.5.1, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

Section VII. Review of Findings

7.7.1 The review of a finding by the Board may be undertaken:

- at the request of the notifying administration;
- at the request of any other administration interested in the question, but only on the grounds of actual harmful interference;
- on the initiative of the Board itself when it considers this is justified.

7.7.2 The Board, in the light of all the data at its disposal, shall review the matter, taking into account paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and shall render an appropriate finding, informing the notifying administration prior either to the promulgation of its finding or to any recording action.

7.7.3 If the finding of the Board is then favourable it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favourable.

7.7.4 If the finding with regard to the probability of harmful interference remains unfavourable, no change shall be made in the original entry.

Section VIII. Modification, Cancellation and Review of Entries in the Master Register

USA/19/80 ADD

7.8A The Board shall at intervals not exceeding two years, request confirmation from the notifying administration that its assignment has been and will continue to be in regular use in accordance with its recorded characteristics.

7.8.1 Where the use of a recorded assignment to a station in the fixed-satellite service is suspended for a period of eighteen months, the notifying administration shall, within this eighteen-month period, inform the Board of the date on which such use was suspended and of the date on which the assignment is to be brought back into regular use.

7.8.2 Whenever it appears to the Board, whether or not as a result of action under paragraph 7.8.1, that a recorded assignment to a space station in the fixed-satellite service has not been in regular use for more than eighteen months, the Board shall inquire of the notifying administration as to when the assignment is to be brought back into regular use.

USA/19/81 7.8.3 If no reply is received within six months of action by the Board under paragraph 7.8.2, or if the reply does not confirm that the assignment to a space station in the fixed-satellite service is to be brought back into regular use within this six-month limit, a symbol should be entered against the entry in the Master Register. mark

USA/19/82 7.8.4 In case of permanent discontinuance of the use of any recorded frequency assignment, the notifying administration shall inform the Board three months within ~~ninety days~~ of such discontinuance, whereupon the entry shall be removed from the Master Register.

USA/19/83 7.8.5 Whenever it appears to the Board from the information available that a recorded assignment has not been brought into regular operation in accordance with the notified basic characteristics, or is not being used in accordance with those basic characteristics, the Board shall consult the notifying administration and, subject to its agreement, shall either cancel or suitably modify the entry. or retain the basic characteristics of

USA/19/84 7.8.6 If, in connection with an inquiry by the Board under paragraph 7.8.5 the notifying administration has failed to supply the Board three months within ~~forty-five days~~ with the necessary or pertinent information, the Board shall make suitable entries in the Remarks Column of the Master Register to indicate the situation.

ARTICLE 8

Miscellaneous Provisions Relating to the Procedures

USA/19/85 8.1 If it is requested by any administration, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these provisions or of harmful interference.

8.2 The Board shall thereupon prepare and forward to the administration concerned a report containing its findings and recommendations for the solution of the problem.

USA/19/86 ADD 8.2A On receiving the Board's recommendations for the solution of the problem, an administration shall promptly acknowledge the receipt by telegram and shall subsequently indicate the action it intends to take. In cases when the Board's suggestions or recommendations are unacceptable to the administrations concerned, further efforts should be made by the Board to find an acceptable solution to the problem.

USA/19/87 MOD 8.3 In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these administrations within a period of ~~ninety~~ days, four months the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall close the study.

USA/19/88 MOD 8.4 If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

- a) computation necessary in the application of Annexes 1, 3 and 4;
- b) any other assistance of a technical nature for completion of the procedures in this Appendix.

USA/19/89 ADD 8.5 In making a request to the Board under paragraph 8.4, the administration shall furnish the Board with the necessary information.

CAN/13/44 MOD (Title)

ARTICLE 9

Power Flux-Density Limits Between ~~11.7~~ 12.2 GHz and ~~12.2~~ 12.5 GHz to Protect Terrestrial Services in Regions 1 and 3 from Interference from Region 2 Broadcasting-Satellite Space Stations

9.1 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 10

12.2 GHz and 12.7 GHz

Power Flux-Density Limits Between ~~11.7 GHz and 12.2 GHz~~ to Protect Space Services in Regions 1 and 3 from Interference from Broadcasting-Satellite Space Stations of ~~Regions 1 and 2~~ of Region 2

ARTICLE 11

Plan for the broadcasting-satellite service
in the frequency band 12.2 - 12.7 GHz in Region 2

ARTICLE ~~14~~ 12

Interference

- 12.1 ~~14.1~~ The Members of the Union shall endeavour to agree on the action required to reduce harmful interference which might be caused by the application of these provisions and the associated Plan.

ARTICLE ~~16~~ 13

Period of Validity of the Provisions and Associated Plan

- 13.1 ~~16.1~~ The provisions and associated Plan have been prepared in order to meet the requirements of the broadcasting-satellite service in the bands concerned for a period of at least ~~fifteen years~~ from 1 January 1979.
- 13.2 ~~16.2~~ In any event, the provisions and associated Plan shall remain in force until their revision by a competent administrative radio conference convened in accordance with the relevant provisions of the Convention in force.

CAN/13/52 ADD

APPENDIX 30A

(Title) Provisions for Feeder Links for the Broadcasting-Satellite Service utilizing the Fixed-Satellite Service (Earth-to-Space) in the Frequency Band 17.3-17.8 GHz (in Region 2)

(see Article 15A)

Note: Wherever the Canadian proposals differ from those of the USA only by the addition of the words "or allotment", the text proposed by the USA is shown in this document.

USA/19/90 ADD

~~APPENDIX 30A-~~

Provisions for All Services and Associated Plan for Feeder Links for the Broadcasting-Satellite Service utilizing the Fixed-Satellite Service (Earth-to-Space) in the Frequency Band 17.3 - 17.8 GHz (in Region 2)

ARTICLE 1

General Definitions

CAN/USA 1.1 For the purposes of this Appendix the following terms shall have the meanings defined below:

Conference: Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the 12.2 - 12.7 GHz Band and Associated Feeder Links in the 17.3 - 17.8 GHz Band (Geneva, 1983);

Plan: The Feeder Link Plan for Region 2 and its annexes;

USA Frequency assignment appearing in the Plan: Any frequency assignment which appears in the Plan or for which the procedure of Article 4 of this Appendix has been successfully applied;

Frequency assignment in conformity with the Plan: Any frequency assignment which employs a nominal orbital position designated in the Plan and does not as a result of the characteristics of the assignment reduce the total aggregate protection margin of any frequency assignment appearing in the Plan.

CAN Frequency assignment in accordance with the Plan: Any frequency assignment which appears in the Plan and is in the Master Register or for which the procedure of Article 4 of this Appendix has been successfully applied;

Frequency allotment in accordance with the Plan: Any frequency allotment which appears in the Plan or for which the Article 4 procedure of this Appendix have been successfully applied.

ARTICLE 2

Frequency Bands

CAN/USA

2.1 The provisions of this Appendix apply to the feeder links for the broadcasting-satellite service utilizing the fixed-satellite service (Earth-to-Space) in the frequency band 17.3-17.8 GHz in Region 2 and to the other services to which this band is allocated, so far as their relationship to the fixed-satellite service (Earth-to-Space) in this band is concerned.
in Region 2

Note: Addition recommended by the IFRB.

ARTICLE 3

Execution of the Provisions and Associated Plan

CAN/USA

3.1 The Members of the Union in Region 2 shall adopt for their feeder link space and earth stations in the fixed-satellite service (Earth-to-Space) in the frequency band referred to in this Appendix, the characteristics specified in the Region 2 Plan.

CAN

3.2 An administration may implement its assignments/allotments in the Region 2 Plan using different characteristics but not different orbital positions than that of the Plan without applying the procedure of Article 4 and proceed directly with the application of Article 5 provided that the overall protection margins¹ associated with all assignments/allotments of other administrations are not consequently reduced. The use of this assignment/allotment will only be protected to the extent of the limits associated with that entry in the Plan.

¹The expression "overall protection margin" is defined in Annex 1 of ~~Appendix-30~~ 7

USA

3.2 An administration 1) may bring into use its assignments in the Plan using characteristics, including service areas, that are different from those of the Plan, but not different orbital positions, provided that the total protection margins associated with all assignments of other administrations appearing in the Plan are not consequently reduced. The Plan must be modified before any assignment may be brought into use that would consequently reduce the total protection margin of any assignment appearing in the Plan.

1) The use of the word "administration" in this Appendix does not preclude the application of these provisions to the case where more than one administration agrees to undertake a project jointly.

- CAN 3.3 The Members of the Union in Region 2 shall not change the characteristics specified in the Plan, or establish new feeder link space stations or earth stations in the fixed-satellite service or stations of other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes to this Appendix.
- USA 3.3 The Members of the Union in Region 2 shall not otherwise change the characteristics specified in the Plan, or establish new feeder link space stations or earth stations in the fixed-satellite service or stations in the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

ARTICLE 4

Procedure for Modifications to the Region 2 Plan (17.3-17.8 GHz)

- CAN 4.1 When an administration intends to make a modification to the Plan, i.e. either;
- a) to modify the characteristics of any of its frequency assignments or allotments to a space¹ or earth station in the fixed-satellite service which are shown in the Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use, or
 - b) to include in the Plan a new frequency assignment or allotment to a space or earth station in the fixed-satellite service, or
 - c) to cancel a frequency assignment/allotment to a space or earth station in the fixed-satellite service,
- the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix).

¹The expression "frequency assignment/allotment to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment/allotment associated with a given orbital position.

USA 4.1 When an administration intends to make a modification to the Plan, i.e. either:

- a) to modify the characteristics of any of its frequency assignments to a space ¹⁾ or earth station in the fixed-satellite service which appear in the Plan; or
- b) to include in the Plan a new frequency assignment to a space or earth station in the fixed-satellite service; or
- c) to cancel a frequency assignment to a space or earth station in the fixed-satellite service appearing in the Plan;

the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix).

¹⁾ The expression "frequency assignment to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position.

CAN 4.1.1 Before an Administration proposes under the provisions of 4.1 b) to include in the Plan a new frequency assignment or allotment for reception at a space station or to include in the Plan a new frequency assignment or allotment for reception at a space station whose orbital position is not designated in the Plan to this Administration, all of the assignments/allotments of this Administration appearing in the Plan shall normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix.

USA 4.1.1 An administration may also propose to modify temporarily the characteristics of any of its frequency assignments appearing in the Plan. After the temporary period ²⁾, the modification shall lapse and the frequency assignment that had been modified may be brought into use subject to the conditions of paragraph 3.2 of Article 3.

² In the event that no expiration date is given the temporary period shall expire when the modified assignment is cancelled under paragraph 4.4.

CAN 4.1.2 An administration may also propose to modify under the provisions of 4.1a) for a specified period¹, the characteristics of its frequency assignment(s)/allotment(s) to a feeder link space or earth station in the fixed-satellite service which are shown in the Region 2 Plan. During that specified period, the frequency assignment/allotment that has been modified shall not be available for use by that administration. At the end of this specified period, the modification shall lapse and the frequency assignment/allotment in the Plan shall be available for use by that administration.

¹In applying the provisions of 4.1.2 and 4.3.1.1, for Region 2 administrations, account shall be taken of the relevant effective period associated with assignments/allotments in the Region 2 Plan which have been modified or are being modified in accordance with this Article.

USA 4.1.2 An administration in proposing a modification of the Plan may request that certain of its frequency assignments appearing in the Plan not be taken into account in determining when the limits shown in Annex 1 are exceeded. The assignments not taken into account shall not be brought into use until the conditions of paragraph 3.2 of Article 3 have been fulfilled.

CAN 4.2 The term "frequency assignment or frequency allotment in accordance with the Plan" used in this and the following articles is defined in Article 1.

USA 4.2 The terms "frequency assignment appearing in the Plan" and "frequency assignment in conformity with the Plan" used in this and the following Articles are defined in Article 1.

CAN/USA 4.3 Proposed modifications to a frequency assignment appearing in the Plan or the inclusion in the Plan of a new frequency assignment

CAN 4.3.1 An administration proposing a modification to the characteristics of a frequency assignment appearing in the Plan or the inclusion of a new frequency assignment in the Plan shall seek the agreement of those administrations:

USA 4.3.1 An administration proposing a modification to the characteristics of a frequency assignment/allotment in accordance with the Plan of the inclusion of a new frequency assignment/allotment in the Plan shall seek the agreement of those administrations:

CAN 4.3.1.1 having a feeder link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel and which is included in the Plan¹;

¹In applying the provisions of 4.1.2 and 4.3.1.1, for Region 2 administrations, account shall be taken of the relevant effective period associated with assignments/allotments in the Region 2 Plan which have been modified or are being modified in accordance with this Article.

USA 4.3.1.1 having a feeder link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which modifications to the Plan have been published by the Board in accordance with the provision of this Article; or

CAN 4.3.1.2 having a frequency assignment in the band 17.7-17.8 GHz to a space station or an earth station in the fixed-satellite service (space-to-Earth) which is recorded in the Master Register or which has been coordinated in or is being coordinated under the provisions of No. 1060 of the Radio Regulations;

CAN 4.3.1.3 having a frequency assignment to a terrestrial station in the band 17.7-17.8 GHz located within the coordination area of the feeder link fixed-satellite earth station whose frequency assignment is proposed to be modified or, intending to bring into use a frequency assignment to a terrestrial station within three years of the projected date of bringing the feeder link modification into effect;

USA 4.3.1.2 having a feeder link frequency assignment in the fixed-satellite service (Earth-to-space) in Regions 1 or 3 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which

- is recorded in the Master Register; or
- has been coordinated or is being coordinated or has been notified when no coordination has been required under the provisions of Article 7 of this Appendix or Articles 11 and 13 of the Radio Regulations; or
- appears in a Regions 1 and 3 plan to be adopted at a future administrative radio conference, taking account of modifications which may be introduced subsequently in accordance with the final acts of that conference; or

USA 4.3.1.3 having a frequency assignment in the band 17.7-17.8 GHz to an earth station in the fixed-satellite service (space-to-Earth) which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. 1060 of the Radio Regulations; or those of Article 7 of this Appendix; or

- USA 4.3.1.4 having a frequency assignment to a terrestrial station in the band 17.7-17.8 GHz located within the coordination area of the feeder link fixed-satellite earth station whose frequency assignment is proposed to be modified or intending to bring into use a frequency assignment to a terrestrial station within three years of the projected date of bringing the feeder link modification into effect;
- 4.3.1.5 which are considered to be affected.
- CAN 4.3.1.5 A frequency assignment/allotment is considered to be affected when the limits shown in Annex 1 of this Appendix are exceeded. When an administration of Region 2 proposes a modification under 4.1a), the total effect of replacing one or more assignments/allotments by one or more other assignments/allotments shall be considered in applying Annex 1.
- USA 4.3.1.6 A frequency assignment is considered to be affected when the limits shown in Annex 1 are exceeded.
- CAN 4.3.2 An administration intending to modify characteristics in the Plan shall send to the Board, not earlier than five years but not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2. If the assignment is not brought into use by that date, the modification shall lapse and the original assignment/allotment shall remain in the Plan.
- USA 4.3.2 An administration intending to modify characteristics in the Plan shall send to the Board, not earlier than five years but preferably not later than two years before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2.
- CAN/USA 4.3.2.1 Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Board the information required by 4.3.2. The Board shall then publish this information in a special section of its weekly circular.

CAN/USA

4.3.2.2 In all other cases the administration shall notify the Board of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in 4.3.1 as well as of those with which agreement has already been reached.

4.3.3 The Board shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of 4.3.1. The Board shall include the names of those administrations with the information received under 4.3.2.2 and shall publish the complete information in a special section of its weekly circular. The Board shall immediately send the results of its calculations to the administration proposing the modification to the Plan.

4.3.4. The Board shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall send them the results of its calculations.

4.3.5. An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Board to include its name. The Board shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Plan.

CAN

4.3.6 Any modification to a frequency assignment which appears in the Plan or any inclusion in the Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all affected administrations.

USA

4.3.6 Any modification to a frequency assignment/allotment which is in accordance with the Plan or any inclusion in the Plan of a new frequency assignment/allotment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all affected administrations.

CAN/USA

4.3.7 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Board of such requests.

4.3.8 Comments from administrations on the information published pursuant to 4.3.3 should be sent either directly to the administration proposing the modification or through the Board. In any event the Board shall be informed that comments have been made.

CAN

4.3.9 An administration which has not notified its comments either to the administration seeking agreement or to the Board within a period of one hundred and twenty days following the date of the weekly circular referred to in 4.3.2.2 or 4.3.3 shall be understood to have agreed to the proposed modification. This time limit may be extended by eighty days for an administration which has requested additional information under 4.3.7 or for an administration which has requested the assistance of the Board under 4.3.17. In the latter case the Board shall inform the administration concerned of this request.

USA

4.3.9 An administration that has not notified its comments either to the administration seeking agreement or to the Board within a period of four months following the date of the weekly circular referred to in 4.3.2.1 or 4.3.3 shall be understood to have agreed to the proposed assignment. This time limit may be extended by up to three months for an administration that has requested additional information under 4.3.7 or for an administration that has requested the assistance of the Board under 4.3.17. In the latter case the Board shall inform the administrations concerned of this request.

CAN/USA

4.3.10 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of 4.3.2 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.

4.3.11 If no comments have been received on the expiry of the periods specified in 4.3.9, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Board, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.

CAN 4.3.12 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.

USA 4.3.12 The agreement of the administrations affected may also be obtained in accordance with this Article, for a limited period.

CAN/USA 4.3.13 When the proposed modification to the Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.

CAN 4.3.14 The Board shall publish in a special section of its weekly circular the information received under 4.3.11 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment/allotment concerned shall enjoy the same status as those appearing in the Plan and will be considered as a frequency assignment/allotment in accordance with the Plan.

USA 4.3.14 The Board shall publish in a special section of its weekly circular the information received under 4.3.11 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the Plan and will be considered as a frequency assignment appearing in the Plan.

CAN/USA

4.3.15 When an administration proposing to modify the characteristics of a frequency assignment/allotment or to make a new frequency assignment/allotment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.

4.3.16 If no agreement is reached between the administrations concerned, the Board shall carry out any study that may be requested by these administrations; the Board shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.

4.3.17 An administration may at any stage in the procedure described or before applying it, request the assistance of the Board, particularly in seeking the agreement of another administration.

4.3.18 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments/allotment are notified to the Board.

CAN

4.3.19 Upon successful completion of the modification of the Plan as a result of the application of this Article, the Board shall make the appropriate changes to those assignments/allotment in the Master Register which are involved including a special remark with the dates referred to in 4.3.2 and the period referred to in 4.1.2 as applicable.

4.3.20 When a modification to the Plan has been in effect for a specified period in accordance with the provisions of 4.1.2, the Board shall, three month prior to the expiration of the period, draw the attention of the administration concerned of the forthcoming change to the status of the modified assignment/allotment.

4.4 Cancellation of frequency assignments/allotments

CAN

4.4.1 When a frequency assignment/allotment in accordance with the Plan is released, whether or not as a result of a modification, the administration concerned shall immediately so inform the Board. The Board shall publish this information in a special section of its weekly circular.

USA

4.4.1 When a frequency assignment appearing in the Plan is released, whether or not as a result of a modification, the administration concerned shall immediately so inform the Board. The Board shall publish this information in a special section of its weekly circular.

4.5 Master copy of the Plan

CAN

4.5.1 The Board shall maintain an up-to-date master copy of the Plan taking account of the application of the procedure specified in this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.

4.5 Master copy of the Plan

4.5.1 The Board shall maintain an up-to-date master copy of the Plan, including the total protection margins of each assignment, taking account of the application of the procedure specified in this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.

CAN/USA

4.5.2 The Secretary-General shall be informed by the Board of modifications made to the Plan and shall publish an up-to-date version of the Plan in an appropriate form when justified by the circumstances.

ARTICLE 5

(As the Canadian and USA proposals concerning Article 5 differ substantially, both proposals are reproduced below.)

ARTICLE 5

CAN

Notification, Examination and Recording in the Master Register of Frequency Assignments/Allotments to Earth Stations and Space Stations in the Fixed-Satellite Service (Earth-to-Space) 17.3-17.8 GHz for Use by Feeder Links to the Broadcasting-Satellite Service in Region 2

5.1 Whenever an administration intends to bring into use a feeder link frequency assignment/allotment to a receiving space station in the fixed-satellite service or to a transmitting earth station in the fixed-satellite service, it shall notify this frequency assignment/allotment to the Board. For this purpose, the notifying administration shall apply the provisions of Article 13 of the Radio Regulations with the following additional considerations:

5.2 For any notification under 5.1, an individual notice for each frequency assignment/allotment shall be drawn up as prescribed in Annex 2, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also apply any other data it may consider useful.

5.3 In the application of the provisions of 3.2 associated with the Region 2 Plan, the different characteristics shown in the notice are given for information only and the Board shall so identify all such assignments in the Master Register.

5.4 In the application of No. 1496, each notice shall be submitted in order to reach the Board not earlier than three years before the date on which the assignment is to be brought into use. In any case, the notice must reach the Board not later than ninety days before that date¹.

5.5 In the application of No. 1503, the Board shall also examine the notice as to its conformity with the Plan² in this Appendix;

5.6 For assignments that are in accordance with the Plan, the coordination of Nos. 1504 and 1505 of Article 13 of the Radio Regulations shall be considered as completed.

¹Where appropriate, the notifying administration shall initiate the procedure for modifying the Plan in sufficient time to ensure that this limit is observed.

²When examining a notice with respect to its conformity with the provisions of 3.2, the Board shall ensure that the orbital position is as shown in the Plan and that the effects of all other characteristics of the notified assignment/allotment shall not reduce the overall protection margin of other assignments in the Plan.

ARTICLE 5

Notification, Examination and Recording in the Master Register
of Frequency Assignments to Feeder Link
Transmitting Earth Stations and Receiving Space Stations
in the
Fixed-Satellite Service
in the
Band between 17.3 and 17.8 GHz
in Region 2

USA

5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a transmitting earth station or receiving space station in the fixed-satellite service in the band between 17.3 and 17.8 GHz, it shall notify this frequency assignment to the Board. For this purpose, the notifying administration shall apply the following provisions.

5.1.2 For any notification under 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.

5.1.2.1 An administration may request that certain of its assignments appearing in the Plan not be taken into account when the calculations are performed to determine the consequent total aggregate protection margins of the assignments appearing in the Plan. These assignments not taken into account shall not be brought into use until the conditions of paragraph 3.2 of Article 3 have been fulfilled.

5.1.3 Each notice must reach the Board not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Board not later than three months before that date. 1]

5.1.4 Any frequency assignment, the notice of which reaches the Board after the applicable period specified in 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with 5.1.3.

5.1.5 Any notice made under 5.1.1 which does not contain the characteristics specified in Annex 2 shall be returned by the Board immediately by airmail to the notifying administration with the relevant reasons.

1] When modification of the Plan is necessary, the procedure in accordance with Article 4 shall be initiated in sufficient time to ensure that this limit is observed.

5.1.6 On receipt of a complete notice, the Board shall include its particulars, with the date of receipt, in its weekly circular which shall contain the particulars of all such notices received since the previous circular.

5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

5.1.8 Complete notices shall be considered by the Board in order of receipt. The Board shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such earlier notice.

5.2 Examination and recording

5.2.1 The Board shall examine each notice:

a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations and Annex 1 of this Appendix (with the exception of those relating to conformity with the Plan);

b) with respect to its conformity with the Plan 1].

5.2.2 Where the Board reaches a favorable finding with respect to 5.2.1, the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.

5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a.

5.2.4 Where the Board reaches an unfavorable finding with respect to 5.2.1, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.

5.2.5 Where the notifying administration resubmits the notice and the finding becomes favorable with respect to 5.2.1, the notice shall be treated as in 5.2.2.

1] The Board shall not take into account the assignments so requested under paragraph 5.1.2.1 in determining the conformity of the notice with the Plan.

5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Board's finding with respect to 5.2.1 remains unfavorable, the notice is returned to the notifying administration in accordance with 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until a favorable finding under 5.2.1 is made. The agreement of the administrations affected can also be obtained in accordance with Article 4 for a limited period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the limited period. The notifying administration using the frequency assignment over a limited period shall not subsequently invoke this fact to justify the continued use of the frequency beyond the limited period unless it obtains the agreement of the administration(s) concerned.

5.2.7 If a frequency assignment notified in advance of bringing into use has received in conformity with 5.1.3 a favorable finding by the Board with respect to the provisions of paragraph 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

5.2.8 When the Board has received confirmation that the frequency assignment has been brought into use, the Board shall remove the symbol in the Master Register.

5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. It is given for information only.

5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under 5.2.8, the Board will make inquiries of the administration not earlier than six months after the expiry of the period specified in 5.1.3. On receipt of the relevant information, the Board will either modify the date of bringing into use or cancel the entry in the Master Register.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Board within three months, whereupon the entry shall be removed from the Master Register.

Article 6

(As the Canadian and USA proposals concerning Article 6 differ substantially, both proposals are reproduced below.)

ARTICLE 6

CAN

Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to stations in the Band 17.7 - 17.8 GHz of Services other than the Fixed-Satellite Service (Earth-to-Space) Feeder Links

6.1 All proposed frequency assignments to stations covered under the heading of this Article shall be coordinated, notified and recorded in the Master Register in accordance with Articles 11, 12, 13 and 15A of the Radio Regulations as applicable.

6.2 In the application of the procedures covered under this Article, the relevant provisions of this Appendix dealing with the compatibility between the assignments/allotments in the Plan to the fixed-satellite service (Earth-to-Space) feeder links 17.7-17.8 GHz and the other services sharing this band, shall be observed.

ARTICLE 6

Notification and Recording in the Master
International Frequency Register of Frequency
Assignments to Terrestrial Stations
in the Band 17.7-17.8 GHz ¹

Section I. Notification Procedure for Frequency Assignments

6.1.1 Any frequency assignment to a terrestrial station shall be notified to the International Frequency Registration Board if the use of the frequency concerned is capable of causing harmful interference to a frequency assignment of another administration which appears in the Plan.

6.1.2 For this notification, an individual notice for each frequency assignment shall be drawn up as prescribed in Section A of Appendix 1 to the Radio Regulations, which specifies the basic characteristics to be furnished as required. It is recommended that the notifying administration should also supply the additional data called for in the Appendix, together with such further data as it may consider appropriate.

6.1.3 Whenever practicable, each notice should reach the Board before the date on which the assignment is brought into use. The notice made in accordance with paragraph 6.1.2 must reach the Board not earlier than three years and not later than three months before the date on which the assignment is to be brought into use.

6.1.4 Any frequency assignment, the notice of which reaches the Board less than three months before it is brought into use, shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with paragraph 6.1.3.

Section II. Procedure for the Examination of Notices and the
Recording of Frequency Assignments in the Master Register

6.2.1 Whatever the means of communication, including telegraph, by which a notice is transmitted to the Board, it shall be considered complete if it contains at least the appropriate basic characteristics specified in Section A of Appendix 1 to the Radio Regulations.

¹ These provisions do not replace the procedures prescribed in Article 12 of the Radio Regulations when stations other than those of the fixed-satellite service having frequency assignments in conformity with the Plan are involved.

6.2.2 Complete notices shall be considered by the Board in the order of their receipt.

6.2.3 Any notice which is incomplete shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor, unless the information not provided is immediately forthcoming in response to an enquiry from the Board. The Board shall advise the administration by telegram when a notice is returned under this provision.

6.2.4 Upon receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in its weekly circular; this circular shall contain the particulars of all such notices received since publication of the previous circular and shall constitute the acknowledgement to each notifying administration of the receipt of the complete notice.

6.2.5 Complete notices shall be considered by the Board in the order of their receipt. The Board may not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such an earlier notice.

6.2.6 The Board shall examine each notice:

6.2.7 a) with respect to its conformity with the Convention, the Table of Frequency Allocations, and the other provisions of the Radio Regulations in particular those of Article 27;

6.2.8 b) where the conditions of paragraphs 6.2.10 and 6.2.11 apply, with respect to the probability of harmful interference to an assignment appearing in the Plan.

6.2.9 Depending upon the findings of the Board subsequent to the examination prescribed in paragraph 6.2.6, further action shall be as follows:

6.2.10 Finding unfavorable with respect to paragraph 6.2.7

6.2.11 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be examined immediately with respect to paragraph 6.2.8.

6.2.12 If the finding is favorable with respect to paragraph 6.2.8, the assignment shall be recorded in the Master Register. The

date of receipt by the Board of the notice shall be entered in Column 2d.

6.2.13 If the finding is unfavorable with respect to paragraph 6.2.8, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. In those circumstances the notifying administration shall undertake not to bring into use the frequency assignment until the condition specified in paragraph 6.10.6 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

6.2.14 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

6.2.15 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 6.2.14.

6.2.16 If the notifying administration resubmits the notice with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of paragraphs 6.2.11 and 6.2.12 or 6.2.13, as appropriate.

6.2.17 If the notifying administration resubmits the notice with modifications which, after re-examination, result in a favorable finding by the Board with respect to paragraph 6.2.7, the notice shall be treated under the provisions of paragraphs 6.2.18 and 6.2.19. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

6.2.18 Finding favorable with respect to paragraph 6.2.7

6.2.19 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

6.2.20 Change in the basic characteristics of assignments already recorded in the Master Register

6.2.21 A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 to the Radio Regulations (except those entered in Columns 2c, 3 and 4a of the Master Register), shall be examined by the Board in accordance with paragraphs 6.2.7 and, where appropriate, paragraph 6.2.8 and paragraphs 6.2.9 to 6.2.19 inclusive applied. Where the change should be recorded, the original assignment shall be amended according to the notice.

6.2.22 The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by three months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of this period such extension may be provided but it shall in no case exceed six months from the original projected date of bringing into use.

6.2.23 In applying the provisions of this Section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.

6.2.24 Recording of frequency assignments notified before being brought into use

6.2.25 If a frequency assignment notified in advance of bringing into use has received a favorable finding by the Board with respect to paragraph 6.2.7, and where appropriate, 6.2.8, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

6.2.26 Within thirty days after the date of bringing into use, either as originally notified or as modified in application of paragraph 6.2.22, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

6.2.27 If the Board does not receive this confirmation within the period referred to in paragraph 6.2.26, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

6.2.28 If use by a terrestrial station of an assignment which is not in conformity with the foregoing causes harmful interference to the reception of emissions from a feeder link earth station in the fixed-satellite service using an assignment in conformity with the Plan, the administration having jurisdiction over the terrestrial station shall, on being advised, take immediate measures to eliminate the interference.

ARTICLE 7

Preliminary Procedures, Notification and Recording in
the Master Register of Frequency Assignments to Stations
in the Fixed-Satellite Service (Earth-to-Space) in the
Band 17.3-17.8 GHz (in Regions 1 and 3) and in the Fixed-Satellite
Service (Space-to-Earth) in the Band 17.7-17.8 GHz (in all Regions)
When Frequency Assignments to Feeder Link Stations
Appearing in the Region 2 Plan are Involved 1]

Section I. Procedure for the Advance Publication of Information
on Planned Fixed-Satellite Systems

Publication of Information

7.1.1 An administration which intends to establish a
fixed-satellite system shall, prior to the procedure in accordance
with paragraph 7.2.1 where applicable, send to the International
Frequency Registration Board, not earlier than five years and
preferably not later than two years before the date of bringing into
service each satellite network of the planned system, the information
listed in Appendix 4 to the Radio Regulations.

7.1.2 Any amendments to the information concerning a planned
satellite system sent in accordance with paragraph 7.1.1 shall also be
sent to the Board as soon as they become available.

7.1.3 The Board shall publish the information sent under
paragraphs 7.1.1 and 7.1.2 in a special section of its weekly circular
and shall also, when the weekly circular contains such information, so
advise all administrations by circular telegram. The circular telegram
shall include the frequency bands to be used and, in the case of a
geostationary satellite, the orbital location of the space station.

7.1.4 If the information is found to be incomplete, the Board
shall publish it under paragraph 7.1.3 and immediately seek, from the
administration concerned, any clarification and information not
provided. In such cases, the period of four months specified in
paragraph 7.1.5 shall count from the date of publication, under
paragraph 7.1.3, of the complete information.

1] These provisions do not replace the procedures prescribed in
Articles 11 and 13 of the Radio Regulations when stations other than
those of the fixed-satellite service having frequency assignments in
conformity with the Region 2 Feeder Link Plan are involved.

Comments on Published Information

7.1.5 If, after studying the information published under paragraph 7.1.3, any administration is of the opinion that interference which may be unacceptable may be caused to its frequency assignments in conformity with the Plan, it shall, within four months after the date of the weekly circular publishing the information listed in Appendix 4 to the Radio Regulations, send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned fixed-satellite network(s) of that system on which details have been published.

Resolution of Difficulties

7.1.6 An administration receiving comments sent in accordance with paragraph 7.1.5 shall endeavor to resolve any difficulties that may arise without considering the possibility of adjustment to fixed-satellite stations of other administrations. If no such means can be found, the administration concerned is then free to apply to other administrations concerned in order to solve these difficulties, provided that any modifications which may result to the Plan are in accordance with Article 4.

7.1.7 In their attempts to resolve the difficulties mentioned above, administrations may seek the assistance of the Board.

Results of Advance Publication

7.1.8 An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 7.1.1 and 7.1.2 shall, after the period of four months specified in paragraph 7.1.5, inform the Board whether or not comments provided for in paragraph 7.1.5 have been received and of the progress made in resolving any remaining difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Board at intervals not exceeding six months prior to the commencement of coordination or the sending of notices to the Board. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

Commencement of Coordination or Notification Procedure

7.1.9 In complying with the provisions of paragraphs 7.1.6 and 7.1.7 an administration responsible for a planned satellite system shall, if necessary defer its commencement of the coordination procedure of paragraph 7.2.1 or, where this is not applicable, the sending of its notices to the Board, by six months after the date of

the weekly circular containing the information listed in Appendix 4 to the Radio Regulations on the relevant satellite network. However, in respect of those administrations with which difficulties have been resolved or which have responded favorably, the coordination procedure, where applicable, may be commenced prior to the expiry of the six months mentioned above.

Section II. Coordination Procedures to Be Applied in Appropriate Cases

Requirement for Coordination

7.2.1 Before an administration notifies to the Board or brings into use any frequency assignment to an earth station or to a space station in the fixed-satellite service, it shall seek the agreement of any other administration having a frequency assignment appearing in the Plan, if

- any portion of the necessary bandwidth proposed for the earth or space station in the fixed-satellite service falls within the necessary bandwidth associated with the frequency assignment to the fixed-satellite station in the Plan; and,
- the limits shown in Annex 3 and/or Annex 4 is exceeded.

For this purpose, the administration seeking agreement shall send to any other such administration the information listed in Appendix 3 to the Radio Regulations.

7.2.2 No additional agreement is necessary when an administration proposes to change the characteristics of an existing assignment in such a way as will in respect of the fixed-satellite service of another administration, meet the requirements of paragraph 7.2.1 above, or when this assignment has previously been the subject of an agreement and the change will not cause any increase in the interference potential specified in that agreement.

7.2.3 An administration seeking coordination under paragraph 7.2.1 shall at the same time send to the Board a copy of the request for coordination together with the information listed in Appendix 3 to the Radio Regulations and the name(s) of the administration(s) whose agreement is sought. The Board shall determine on the basis of Annex 3 and Annex 4 which frequency assignments appearing in the Plan are considered to be affected. The Board shall include the names of those administrations with the information received from the administration seeking coordination and shall publish this information in a special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.

7.2.4 An administration believing that it should have been included in the procedure under paragraph 7.2.1 shall have the right to request that it be brought into the procedure.

7.2.5 An administration whose agreement is sought under paragraph 7.2.1 shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within thirty days after the date of the weekly circular publishing the information under paragraph 7.2.3, the administration seeking coordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply with a further period of fifteen days. Upon receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which agreement was requested, promptly examine the matter with regard to interference ¹⁾ which would be caused to the service rendered by its stations in respect of which agreement is sought under paragraph 7.2.1, and shall, within four months from the date of the relevant weekly circular, notify its agreement to the requesting administration. If the administration with which coordination is sought does not agree, it shall, within the same period, send to the administration seeking coordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

7.2.6 An administration seeking coordination may request the Board to endeavor to effect coordination in those cases where:

- a) an administration whose agreement is sought under paragraph 7.2.1 fails to acknowledge receipt, under paragraph 7.2.5, within forty-five days after the date of the weekly circular publishing the information relating to the request for coordination;
- b) an administration has acknowledged receipt under paragraph 7.2.5, but fails to give a decision within four months from the date of the relevant weekly circular;
- c) there is disagreement between the administration seeking coordination and an administration whose agreement is sought as to the acceptable interference;

¹⁾ The calculation methods and the criteria to be employed in evaluating the interference should be based on relevant CCIR Recommendations agreed by the administrations concerned either as a result of Resolution 703 of the World Administrative Radio Conference, Geneva, 1979, or otherwise. In the event of disagreement on a CCIR Recommendation or in the absence of such Recommendations, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

- d) agreement between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavor to effect such coordination.

7.2.7 Either the administration seeking coordination or an administration whose agreement is sought, or the Board, may request additional information which they may require to assess the interference to the services concerned.

7.2.8 Where the Board receives a request under paragraph 7.2.6a), it shall forthwith send a telegram to the administration whose agreement is sought requesting immediate acknowledgement.

7.2.9 Where the Board receives an acknowledgement following its action under paragraph 7.2.8, or where the Board receives a request under paragraph 7.2.6b), it shall forthwith send a telegram to the administration whose agreement is sought requesting an early decision in the matter.

7.2.10 Where the Board receives a request under paragraph 7.2.6d), it shall endeavor to effect coordination in accordance with the provisions of paragraph 7.2.1. The Board shall also, where appropriate, act in accordance with paragraph 7.2.3. Where the Board receives no acknowledgement to its request for coordination within the periods specified in paragraph 7.2.5, it shall act in accordance with paragraph 7.2.8.

7.2.11 Where an administration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under paragraph 7.2.8, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under paragraph 7.2.9, it shall be deemed that the administration whose agreement was sought has undertaken:

- a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by it fixed-satellite stations by the use of the assignment for which coordination was requested;
- b) that its fixed-satellite stations will not cause harmful interference to the use of the assignment for which coordination was requested.

7.2.12 Where necessary, as part of the procedure under paragraph 7.2.6, the Board shall assess the interference. In any case, the Board shall inform the administrations concerned of the results obtained.

7.2.13 In the event of continuing disagreement between one administration seeking to effect coordination and one whose agreement has been sought, provided that the assistance of the Board has been requested, the administration seeking coordination may, after six months from the date of request for coordination, taking into consideration the provisions of paragraph 7.3.4, send its notice concerning the proposed assignment to the Board. In those circumstances the notifying administration shall undertake not to bring the frequency assignment into use until the condition in paragraph 7.4.11.2 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

Section III. Notification of Frequency Assignments

7.3.1 Any frequency assignment to an earth or space station in the fixed-satellite service shall be notified to the Board:

- a) if the use of the frequency concerned is capable of causing harmful interference to a frequency assignment of another administration which appears in the Plan 1]; or
- b) if it is desired to obtain international recognition of the use of the frequency.

7.3.2 For any notification under paragraph 7.3.1, an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix 3 to the Radio Regulations, the various Sections of which specify the basic characteristics to be furnished according to the case. The notifying administration shall furnish such further data as it considers appropriate.

7.3.3 Each notice must reach the Board not earlier than three years before the date on which the assignment is to be brought into use. The notice must reach the Board in any case not later than three months 2] before this date.

1] The attention of administrations is specifically drawn to the application of paragraph 7.2.1 above.

2] The notifying administration shall take this limit into account when deciding, where appropriate, to initiate the coordination procedure(s).

7.3.4 Any frequency assignment to an earth or space station, the notice of which reaches the Board after the applicable period specified in paragraph 7.3.3, shall, where it is to be recorded, bear a mark in the Master Register to indicate that it is not in conformity with paragraph 7.3.3.

Section IV. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register

7.4.1 Any notice which does not contain at least those basic characteristics specified in Appendix 3 to the Radio Regulations shall be returned by the Board, by airmail, to the notifying administration with the reasons therefor, unless the information not provided is immediately forthcoming in response to an enquiry from the Board. The Board shall advise the administration by telegram when a notice is returned under this provision.

7.4.2 On receipt of a complete notice, the Board shall include the particulars thereof, including diagrams, with the date of receipt, in its weekly circular to be published within a period of forty days after receipt of the notice. When the Board is not in a position to comply with this time-limit, it shall, as soon as possible, so inform the administrations concerned giving the reasons therefor.

7.4.3 The circular shall contain the full particulars of all such notices received by the Board since the publication of the previous circular and shall constitute the acknowledgement to each notifying administration of the receipt of the complete notice.

7.4.4 Complete notices shall be considered by the Board in the order of their receipt, taking into account the time-limit referred to in No. 1583 of the Radio Regulations. The Board shall not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

7.4.5 The Board shall examine each notice:

7.4.5.1 with respect to its conformity with the Convention, the relevant provisions of the Radio Regulations and the provisions of this Appendix, with the exception of those relating to the coordination procedures and the probability of harmful interference which are the subject of the following paragraphs;

7.4.5.2 with respect to its conformity with the provisions relating to the coordination of the use of the frequency assignment with the other administrations concerned having a frequency assignment appearing in the Plan in cases where paragraph 7.2.1 is applicable;

7.4.5.3 with respect to the probability of harmful interference to the service rendered or to be rendered by a fixed-satellite station appearing in the Plan when coordination under paragraph 7.2.1 has not been successfully effected.

7.4.6 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 7.4.5.1, 7.4.5.2 and 7.4.5.3, as appropriate, further action shall be as follows:

7.4.7 Finding favorable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are not applicable

7.4.7.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.8 Finding unfavorable with respect to paragraph 7.4.5.1

7.4.8.1 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is favorable with respect to paragraphs 7.4.5.2 and 7.4.5.3, as appropriate, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.8.2 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is unfavorable with respect to paragraph 7.4.5.2 or 7.4.5.3, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. In those circumstances the notifying administration shall undertake not to bring into use the frequency assignment until the condition in paragraph 7.4.8.1 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.

7.4.8.3 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.8.4 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 7.4.8.3. If it is resubmitted with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of paragraph 7.4.8.1 or 7.4.8.2, as appropriate. If it is resubmitted with modifications which, after re-examination, result in a favorable finding by the Board with respect to paragraph 7.4.5.1, it shall be treated as a new notice.

7.4.9 Finding favorable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are applicable

7.4.9.1 Where the Board finds that the coordination procedures mentioned in paragraph 7.4.5.2 have been successfully completed with all administrations whose frequency assignments appearing in the Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.9.2 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration requests the Board to effect the required coordination, the Board shall take appropriate action and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with paragraph 7.4.9.1. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3.

7.4.9.3 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.9.4 Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has been successfully completed with all administrations whose frequency assignments appearing in the Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

7.4.9.5 Where the notifying administration resubmits the notice with a request that the Board effect the required coordination under paragraph 7.2.1, it shall be treated in accordance with the provisions of paragraph 7.4.9.2. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

7.4.9.6 Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the coordination, the Board shall inform the administrations concerned thereof. The notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

7.4.10 Finding favorable with respect to paragraphs 7.4.5.1 and 7.4.5.3

7.4.10.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

7.4.11 Finding favorable with respect to paragraph 7.4.5.1, but unfavorable with respect to paragraph 7.4.5.3

7.4.11.1 The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.

7.4.11.2 Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favorable finding by the Board with respect to paragraph 7.4.5.3, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

7.4.11.3 Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of paragraph 7.4.11.2 to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the notification shall again be returned to the notifying administration in accordance with paragraph 7.4.11.1. In those circumstances, the notifying administration shall undertake not to bring into use the proposed frequency assignment until the condition in paragraph 7.4.11.2 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this

Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note in the Remarks Column indicating that the assignment is valid only for the specified period. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.

7.4.12 Change in the basic characteristics of assignments already recorded in the Master Register

7.4.12.1 A notice of a change in the basic characteristics of an assignment in the fixed-satellite service already recorded, as specified in Appendix 3 to the Radio Regulations (except the name of the station or the name of the locality in which it is situated or the

date of bringing into use), shall be examined by the Board according to paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and the provisions of paragraphs 7.4.7 to 7.4.11.3 inclusive shall apply. Where the change should be recorded, the original assignment shall be amended accordingly.

7.4.12.2 However, in the case of a change in the characteristics of an assignment which is in conformity with paragraph 7.4.5.1, should the Board reach a favorable finding with respect to paragraphs 7.4.5.2 and 7.4.5.3, where appropriate, or find that the changes do not increase the probability of harmful interference to frequency assignments appearing in the Plan, the amended assignment shall retain the original date in Column 2d. The date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

7.4.12.3 The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by four months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be provided but it shall in no case exceed eighteen months from the original projected date of bringing into use.

7.4.12.4 In applying the provisions of this section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.

7.4.13 Recording of frequency assignments in the fixed-satellite service notified before being brought into use

7.4.13.1 If a frequency assignment notified in advance of bringing into use has received a favorable finding by the Board with respect to paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

7.4.13.2 Within thirty days after the date of bringing into use either as originally notified or as modified in application of paragraph 7.4.12.3, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

7.4.13.3 If the Board does not receive this confirmation within the period referred to in paragraph 7.4.13.2, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

Section V. Recording of Findings in the Master Register

7.5 In the case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a. In addition, a remark indicating the reasons for any unfavorable finding shall be inserted in the Remarks Column.

Section VI. Categories of Frequency Assignments

7.6.1 The date in Column 2c shall be the date of putting into use notified by the administration concerned. It is given for information only.

7.6.2 If harmful interference is actually caused to the reception of any fixed-satellite station whose frequency assignment is in conformity with the Plan by the use of a frequency assignment to a space radiocommunication station subsequently recorded in the Master Register in accordance with the provisions of paragraph 7.4.11.3, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

7.6.3 If harmful interference to the reception of any fixed-satellite station whose frequency assignment is in conformity with the Plan is actually caused by the use of a frequency assignment which is not in conformity with paragraph 7.4.5.1, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

Section VII. Review of Findings

7.7.1 The review of a finding by the Board may be undertaken:

- at the request of the notifying administration;
- at the request of any other administration interested in the question, but only on the grounds of actual harmful interference;
- on the initiative of the Board itself when it considers this is justified.

7.7.2 The Board, in the light of all the data at its disposal, shall review the matter, taking into account paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and shall render an appropriate finding, informing the notifying administration prior either to the promulgation of its finding or to any recording action.

7.7.3 If the finding of the Board is then favorable it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favorable.

7.7.4 If the finding with regard to the probability of harmful interference remains unfavorable, no change shall be made in the original entry.

Section VIII. Modification, Cancellation and Review of Entries
in the Master Register

7.8.1 The Board shall at intervals not exceeding two years, request confirmation from the notifying administration that its assignment has been and will continue to be in regular use in accordance with its recorded characteristics.

7.8.2 Where the use of a recorded assignment to a station in the fixed-satellite service is suspended for a period of eighteen months, the notifying administration shall, within this eighteen-month period, inform the Board of the date on which such use was suspended and of the date on which the assignment is to be brought back into regular use.

7.8.3 Whenever it appears to the Board, whether or not as a result of action under paragraph 7.8.2, that a recorded assignment to a space station in the fixed-satellite has not been in regular use for more than eighteen months, the Board shall inquire of the notifying administration as to when the assignment is to be brought back into regular use.

7.8.4 If no reply is received within six months of action by the Board under paragraph 7.8.3, or if the reply does not confirm that the assignment to a space station in the fixed-satellite service is to be brought back into regular use within this six-month limit, a mark should be entered against the entry in the Master Register.

Article 8

Miscellaneous Provisions Relating to the Procedures

Section I. Studies and Recommendations

- CAN 8.1 If it is requested by any administration, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these provisions or of harmful interference.
- USA 8.1.1 If it is requested by any administration, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these provisions or of harmful interference.
- CAN/USA 8.1.2 The Board shall thereupon prepare and forward to the administrations concerned a report containing its findings and recommendations for the solution of the problem.
- USA 8.1.3 On receiving the Board's recommendations for the solution of the problem, an administration shall promptly acknowledge the receipt by telegram and shall subsequently indicate the action it intends to take. In cases when the Board's suggestions or recommendations are unacceptable to the administrations concerned, further efforts should be made by the Board to find an acceptable solution to the problem.
- CAN/USA 8.1.4 In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these administrations within a period of four months, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall close the study.

Section II. Miscellaneous Provisions

CAN 8.2.1 If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

- a) computation necessary in the application of Annexes 1, 3 and 4;
- b) any other assistance of a technical nature for completion of the procedures in this Appendix.

8.2.1 If it is requested by any administration, particularly by an administration of a country in need of special assistance, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

- a) computation necessary in the application of Annexes 1, 3 and 4;
- b) any other assistance of a technical nature for completion of the procedures in this Appendix.

8.2.2 In making a request to the Board under paragraph 8.2.1, the administration shall furnish the Board with the necessary information.

ARTICLE 9

CAN The Plan for the Feeder Links for the Broadcasting-Satellite Service Utilizing the Fixed-Satellite Service in the Frequency Band 17.3-17.8 GHz in Region 2

(to be developed by the RARC)

ARTICLE 10

Interference

CAN The Members of the Union in Region 2 shall endeavour to agree on the action required to reduce harmful interference which might be caused by the application of these provisions and the associated Plan.

ARTICLE 11

Period of Validity of the Provisions and Associated Plan

11.1 The provisions and associated Plan have been prepared in order to meet the requirements for feeder links for the broadcasting-satellite service in the bands concerned for a period of at least fifteen years from 1 January 1985.

11.2 In any event, the provisions and associated Plan shall remain in force until their revision by a competent administrative radio conference convened in accordance with the relevant provisions of the Convention in force.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/12-E

June 1983

Original : English

WORKING GROUP 4B

DRAFT

PROPOSED ADDITION TO RADIO REGULATIONS

(Parameters for feeder links)

REFERENCE PATTERNS OF TRANSMITTING ANTENNA

The co-polar and cross-polar reference patterns of transmitting antennas is given in Figure X.

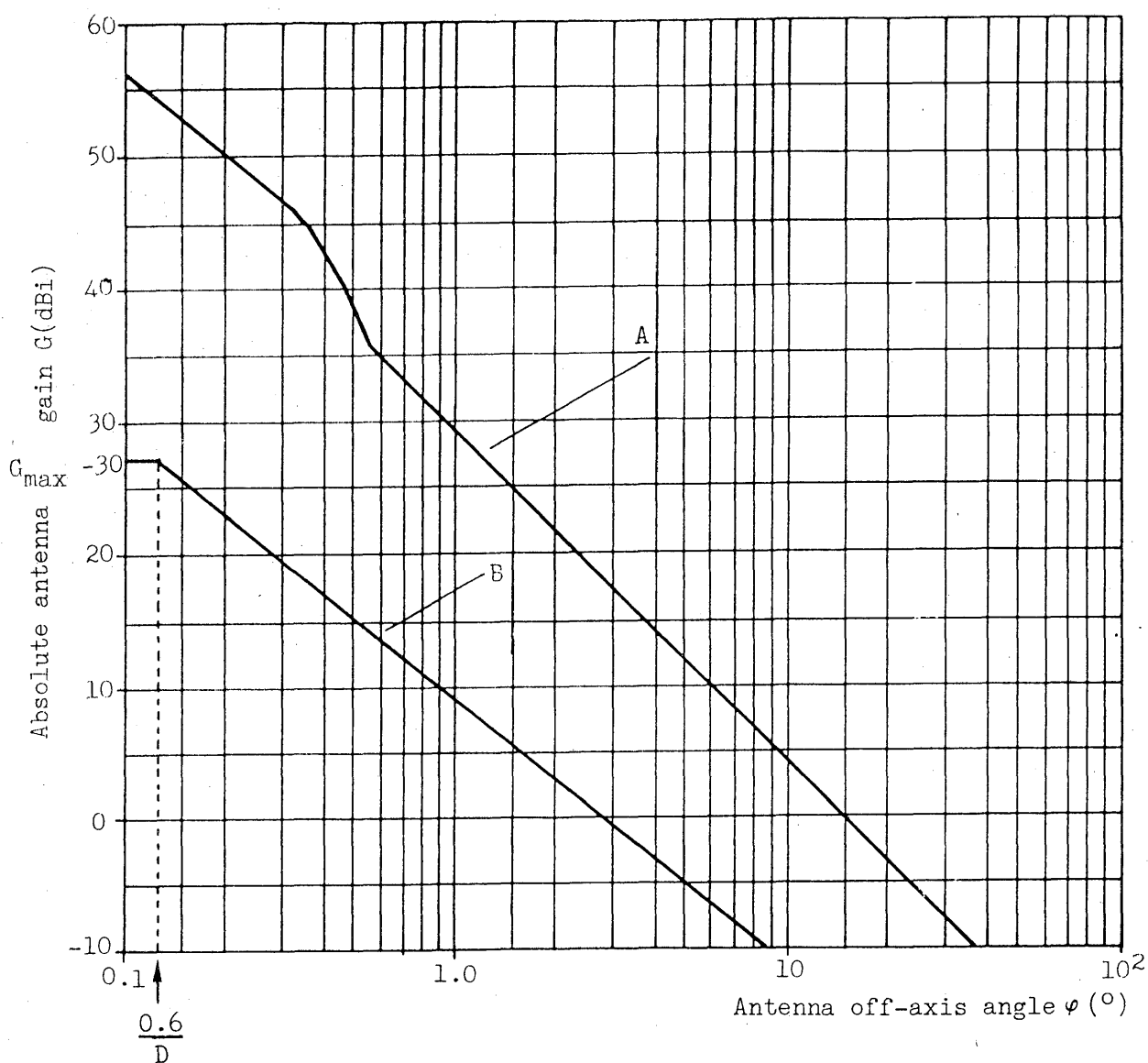


Figure X - Reference patterns for co-polar and cross-polar components for transmitting antennas for Region 2

Curve A : Co-polar component
(dBi relative to isotropic source)

$$\begin{aligned} 36 - 20 \log_{10} \varphi & \text{ for } 0.1^\circ \leq \varphi < 0.32^\circ \\ 51.3 - 53.2 \varphi^2 & \text{ for } 0.32^\circ \leq \varphi < 0.54^\circ \\ 29 - 25 \log_{10} \varphi & \text{ for } 0.54^\circ \leq \varphi < 36^\circ \\ -10 & \text{ for } \varphi \geq 36^\circ \end{aligned}$$

Curve B : Cross-polar component
(dBi relative to isotropic source)

$$\begin{aligned} G_{\max} - 30 & \text{ for } \varphi < \left(\frac{0.6}{D}\right)^\circ \\ 9 - 20 \log_{10} \varphi & \text{ for } \left(\frac{0.6}{D}\right)^\circ \leq \varphi < 8.7^\circ \\ -10 & \text{ for } \varphi \geq 8.7^\circ \end{aligned}$$

where,

φ = off-axis angle referred to the main-lobe axis;

G_{\max} = on axis co-polar gain of the antenna;

D = diameter of the antenna in m ($D \geq 2.5$ m).

Note 1 : In the angular range between 0.1° and 0.54° the co-polar gain must not exceed the reference pattern.

Note 2 : In the angular range between 0° and $(0.6/D)^\circ$, the cross polar gain must not exceed the reference pattern.

Note 3 : At larger off axis angles, the gain of 90% of all sidelobe peaks in each of the reference angular windows must not exceed the reference patterns. The reference angular windows are 0.54° to 1° , 1° to 2° , 2° to 4° , 4° to 7° , 7° to 10° , 10° to 20° , 20° to 40° , 40° to 70° , 70° to 100° , 100° to 180° . The first reference angular window for evaluating the cross-polar component should start at $(0.6/D)^\circ$.

E. MILLER
Chairman

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/13-E

20 June 1983

Original: English

WORKING GROUP 6B

COORDINATED TEXTS OF PROPOSAL

The Annex to this document contains coordinated texts of the proposals relating to Articles 8, 11, 12, 13, 15, new Article 15A as well as proposed new resolutions or covering agreement. When the text proposed by several administrations for the same provision is identical, it is shown only once with appropriate reference to the different proposal No.

L.C. STEPHENS
Chairman Working Group 6B

Annex

ARTICLE 8
TABLE OF FREQUENCY ALLOCATIONS

USA/11/2 MOD RR8-138

GHz
11.7 — 12.75

| Allocation to Services | | |
|--|--|--|
| Region 1 | Region 2 | Region 3 |
| 11.7 — 12.5 FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except aeronautical mobile | 11.7 — 12.1 12.2 FIXED 837 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile 836 839 840 | 11.7 — 12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 838 840 |
| | 12.1 — 12.3 FIXED 837 FIXED-SATELLITE (space-to-Earth) - MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 839 840 841 842 843 844 | 12.2 — 12.5 FIXED MOBILE except aeronautical mobile BROADCASTING |
| | 12.3 12.2 - 12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 839 840 843 844 846 | 838 840 845 |
| 12.5 — 12.75 FIXED-SATELLITE (space-to-Earth) (Earth-to-space) | 12.7 — 12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile 840 | 12.5 — 12.75 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE 847 840 |
| 840 848 849 850 | | |

CAN/13/53

MOD

| Region 1 | Region 2 | Region 3 |
|--|--|---|
| 11.7 - 12.5 FIXED BROADCASTING BROADCASTING- SATELLITE Mobile except aeronautical mobile | 11.7 - 12.1 FIXED 837 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile <u>836 839 840</u> | 11.7 - 12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING- SATELLITE <u>838 840</u> |
| | 12.1 - 12.3 - 12.2 FIXED 837 FIXED SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE <u>836 839 840 841</u> <u>842 843 844</u> | 12.2 - 12.5 FIXED MOBILE except aeronautical mobile BROADCASTING |
| <u>838 840</u> | 12.3 - 12.2 - 12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING- SATELLITE <u>839 840 842 843 844 846</u> | <u>838 840 845</u> |
| 12.5 - 12.75 FIXED-SATELLITE (space-to-Earth) (Earth-to-Space) | 12.7 - 12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile <u>840</u> | 12.5 - 12.75 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING- SATELLITE 847 <u>840</u> |
| <u>840 848 849 850</u> | | |

| Allocation to Services | | |
|-------------------------|--|-------------------------|
| Region 1 | Region 2 | Region 3 |
| 11.7 - 12.5 NOC | 11.7 - 12.1 FIXED MOD 837 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile MOD 836 MOD 839 MOD 840 | 11.7 - 12.2 NOC |
| | 12.1 - 12.3 - <u>12.2</u> FIXED 837 FIXED SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING BROADCASTING SATELLITE MOD 836 MOD 839 MOD 840 841 MOD 842 MOD 843 MOD 844 | 12.2 - 12.5 NOC |
| | <u>12.2</u> 12.3 - 12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE MOD 839 MOD 840 843 MOD 844 MOD 846 | 12.5 - 12.75 NOC |
| | 12.7 - 12.75 NOC | |
| 12.5 - 12.75 NOC | | |

B/20/1 MOD

B/20/2 MOD

USA/11/3 MOD 836

CAN/13/54

B/20/3

In Region 2, in the band 11.7 - ~~12.1~~ 12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service. The upper limit of this band shall be modified in accordance with the decisions of the 1983 regional administrative radio-conference for Region 2 (see No. 841).

CAN/13/55

MOD 837

B/20/4

Different category of service: in Canada, Mexico and the United States, the allocation of the band 11.7 ~~12.2~~ 12.1 GHz to the fixed service is on a secondary basis (see No. 424).

B/20/5 MOD 839. (A new text of this footnote will be proposed later.)

CAN/13/56

MOD 840

B/20/6

For the use of the band 11.7 - 12.75 GHz in Regions 1, 2 and 3, see Resolutions 31, 34, 504, 700 and 701.

USA/11/4 SUP 841

CAN/13/57

B/20/7

USA/11/5 SUP 842

B/20/8 MOD 842

Additional allocation: the band 12.1 - ~~12.3~~ 12.2 GHz in Brazil and Peru, and ~~12.2~~ - ~~12.3~~ GHz in the United States, are- is also allocated to the fixed service on a primary basis and in Canada, Mexico and United States on a secondary basis.

USA/11/6 SUP 843

CAN/13/58

B/20/9

USA/11/7 MOD 844 In Region 2, in the band ~~12.1~~ 12.2 — 12.7 GHz, existing and future terrestrial radio-communication services shall not cause harmful interference to the space services operating in accordance with the broadcasting-satellite plan to be prepared at the 1983 regional administrative radio conference for Region 2, and shall not impose restrictions on the elaboration of such a plan. The lower limit of this band shall be modified in accordance with the decisions of that conference for Region 2 (see No. 841).

USA/11/8 MOD 846 In Region 2, in the band ~~12.5~~ 12.2 — 12.7 GHz, assignments to stations of the broadcasting-satellite service made available in the plan to be established by the 1983 regional administrative radio conference for Region 2 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in accordance with that plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service. The lower limit of this band shall be modified in accordance with the decisions of that conference for Region 2 (see No. 841).

CAN/13/61 MOD 869 In Regions 1 and 3 the use of the band 17.3-18.1 GHz by the fixed-satellite (Earth-to-space) service is limited to feeder links for the broadcasting-satellite service. In Region 2 the use of the band 17.3-17.8 GHz by the fixed-satellite (Earth-to-space) service is reserved for satellite systems using the 12.2-12.7 GHz band in the Space-to-Earth direction.

ARTICLE 11

Coordination of Frequency Assignments to Stations in a Space Radiocommunication Service Except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations¹

CAN/13/62 MOD A.11.1 ¹For the coordination of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7-12.2 GHz (in Regions ~~2~~ and 3), and 11.7 - 12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2) as well as the coordination of frequency assignments to feeder link stations utilizing the fixed-satellite service (Earth-to-space) in the frequency band 17.3-17.8 GHz (in Region 2) and other services in this band, see also Article 15 and Article 15A respectively.

USA/19/91 MOD A.11.1 ¹For the coordination of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7-12.2 GHz (in Regions 2 and 3), and 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2) as well as the coordination of frequency assignments to feeder link stations utilizing the fixed-satellite service (Earth-to-space) in the frequency band 17.3-17.8 GHz (in Region 2) and other services in this frequency band, see also Article 15 and Article 15A respectively.

ARTICLE 12

CAN/13/63 MOD Title Notifications and Recording in the Master International
 USA/19/92 Frequency Register of Frequency Assignments¹ to Terrestrial
 Radiocommunication stations^{2,3,4}

CAN/13/64 MOD A. 12.3 ³For the notification and recording ~~in~~ of frequency
 USA/19/93 assignments to terrestrial stations in the frequency bands 11.7 -
 12.2 GHz (in Regions ~~2~~ and 3), 12.2-12.7 GHz (in Region 2) and 11.7 -
 12.5 GHz (in Region 1), so far as their relationship to the
 broadcasting-satellite service in these bands is concerned, see also
 Article 15.

CAN/13/65 ADD A.12.4 ⁴For the notification and recording of frequency
 assignments to terrestrial stations in the frequency band 17.7 -
 17.8 GHz (in Region 2), so far as their relationship to the
 fixed-satellite service (Earth-to-space) in this band is concerned,
 see also Article 15A.

USA/19/94 ADD A.12.4 ⁴For the notification and recording of frequency assignments
 to terrestrial stations in the frequency band 17.7-17.8 GHz (in
 Region 2), so far as their relationship to the feederlink
 stations utilizing the fixed-satellite service (Earth-to-space)
 in this band is concerned, see also Article 15A.

ARTICLE 13

Notification and Recording in the Master International
 Frequency Register of Frequency Assignments¹ to Radio Astronomy and
 Space Radiocommunication Stations Except Stations in the
 Broadcasting-Satellite Service²

CAN/13/66 MOD A.13.2 ²For notification and recording of frequency
 USA/19/95 assignments to stations in the broadcasting-satellite service and
 other services in the frequency bands 11.7-12.2 GHz (in Regions ~~2~~
 and 3) and 11.7 - 12.5 GHz (in Region 1) and 12.2 - 12.7 GHz (Region
 2), as well as the notification and recording of frequency
assignments to feeder link stations in the fixed-satellite service
(Earth-to-space) in the frequency band 17.3 - 17.8 GHz (in Region 2)
and other services in this band, see also Article 15 and Article 15A
respectively.

ARTICLE 15

CAN/13/67 MOD Title Coordination, Notification and Recording of Frequency Assignments to Stations of the Broadcasting-Satellite Service in the Frequency Bands 11.7 - 12.2 GHz (in Regions-2-and 3) 12.2 - 12.7 GHz (in Region 2) and 11.7 - 12.5 GHz (in Region 1) and to the Other Services to Which these Bands Are Allocated, so Far as their Relationship to the Broadcasting-Satellite Service in these Bands is Concerned

USA/19/96

CAN/13/68 MOD 1656 ~~The provisions and associated Plans for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 2 and 3) and 11.7-12.5 GHz (in Region 1) adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977 as contained in Appendix 30~~

USA/19/97

The provisions and associated Region 1 and 3 Plan for the broadcasting-satellite service in the frequency band 11.7- 12.5 GHz (in Region 1) and 11.7 - 12.2 GHz (in Region 3) adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977 and the provisions and associated Region 2 Plan for the broadcasting-satellite service in the frequency band 12.2 - 12.7 GHz adopted by the Regional Broadcasting-Satellite Administrative Radio Conference, Geneva, 1983 as contained in Appendix 30 shall apply to the assignment and use of frequencies by stations of the broadcasting-satellite service in these bands and to the stations of other services to which these bands are allocated so far as their relationship to the broadcasting-satellite service in these bands is concerned.

CAN/13/69

ADD

ARTICLE 15A

Title Coordination, Notification and Recording of Frequency Assignments/Allotments applicable to Stations in the Fixed-Satellite Service (Earth-to-space) in the band 17.3 - 17.8 GHz (Region 2) providing feeder links for the broadcasting-satellite service and applicable also to stations of other Services to which this band is allocated, so far as their relationship to the Fixed-Satellite Service (Earth-to-space) in this band is concerned.

USA/19/98

ADD Title

Coordination, Notification and Recording of Frequency Assignments to Stations of the Fixed-Satellite Service (Earth-to-space) in the band 17.3-17.8 GHz (Region 2) providing feeder links for the Broadcasting-Satellite Service and to the Other Services to which this Band is Allocated, so Far as their Relationship to the Fixed-Satellite Service (Earth-to-space) in this band Is Concerned.

CAN/13/69 ADD 1668 The provision and associated Plan adopted by the Region 2 Broadcasting-Satellite Administrative Radio Conference, (Geneva, 1983), for feeder links for the broadcasting-satellite service utilizing the Fixed-Satellite Service (Earth-to-space) in the band 17.3-17.8 GHz (Region 2) as contained in Appendix 30A, shall apply to the assignment/allotment and use of frequencies by feeder links in this band and to stations of other services to which this band is allocated so far as the relationship of these other services to the Fixed-Satellite Service (Earth-to-space) in this band is concerned.

USA/19/99 1668 The provision and associated Plan adopted by the Region 2 Broadcasting-Satellite Administrative Radio Conference (Geneva, 1983), for feeder links for the broadcasting-satellite service utilizing the Fixed-Satellite Service (Earth-to-space) in the band 17.3-17.8 GHz (Region 2) as contained in Appendix 30A, shall apply to the assignment and use of frequencies by feeder links in this band and to stations of other services to which this band is allocated so far as the relationship of these other services to the Fixed-Satellite Service (Earth-to-space) in this band is concerned.

CAN/13/125 ADD

RESOLUTION B

Relating to the updating of the Master International Frequency Register for Region 2 on the date of entry into force of the Final Acts

The Regional Broadcasting-Satellite Administrative Radio Conference in Region 2, Geneva, 1983,

considering

a) that, the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, in Resolution No. Sat-2, resolved that on the date of entry into force of the Final Acts of that Conference, the frequency assignments in the Plan for Regions 1 and 3 will be entered in the Master Register;

b) that, the date of signature of these Final Acts will also be entered;

c) that, Resolution No. Sat-2 was abrogated by the World Administrative Radio Conference, Geneva, 1979 on the understanding that the provisions of that Resolution were complied with;

resolves

that, on the date of entry into force of the Final Acts of the Regional Broadcasting-Satellite Conference for Region 2 Geneva, 1983 the frequency assignments in the Region 2 Plan and the date of signature of these Final Acts will be entered in the Master Register;

invites the IFRB

to take the necessary action to implement the provisions of this Resolution.

CAN/13/124

ADD

RESOLUTION A

Relating to the annexing to the Radio Regulations of the provisions and associated Plans contained in the Final Acts of the Conference for Region 2

The Regional Broadcasting-Satellite Administrative Radio Conference in Region 2, Geneva, 1983,

considering

- a) that its Final Acts will come into force on 1 January, 1985;
- b) that the Plenipotentiary Conference, Nairobi, 1982, in its Resolution No. PLA/5, decided that the formal adoption, for inclusion in the Radio Regulations, of the decisions of the 1983 Regional Administrative Conference for the planning of the Broadcasting-Satellite Service in Region 2, be under the purview of the First Session of the World Administrative Radio Conference on the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (June-August 1985);
- 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 for Region 2 are annexed to the Radio Regulations;
- d) that notwithstanding the provisions of No. 47 of the Convention (Malaga-Torremolinos, 1973), the World Administrative Radio Conference, Geneva, 1979, has recognized that its decisions including matters of interregional sharing contained in Resolution No. 31 and 700 need to be taken into account by the Regional Broadcasting-Satellite Administrative Radio Conference;

further considering

that upon adoption and inclusion in the Radio Regulations by the First session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Service Utilizing It, of the Final Acts of this Conference, these Final Acts will complete a World Agreement and associated Plans;

resolves

1. that during this interim period, these Final Acts shall be considered as a Regional Agreement;
2. that upon the formal adoption and inclusion in the Radio Regulations of these Final Acts, Article 13 of Appendix 30 shall include Region 2 within its text.
3. 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 Region 2 Plan shall retain their integrity as a legal instrument;
4. 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.

USA/11/10 ADD

COVERING AGREEMENT

ON

THE BROADCASTING-SATELLITE SERVICE IN REGION 2

ADD

Article 1.

Definitions

ADD 1.1 The following terms shall have the stated meanings for the purposes of this Agreement:

Region 2 Broadcasting-Satellite Service: The broadcasting-satellite service in Region 2 in the frequency band between 12.2 and 12.7 GHz, together with the associated feeder links in the frequency band between 17.3 and 17.8 GHz.

RARC -1983 Provisions: The Provisions and Plan adopted by RARC-1983 to govern the Region 2 Broadcasting-Satellite Service, and proposed by RARC-1983 for adoption by WARC-1985 as amendments to the Radio Regulations. Those proposed amendments contain changes to Appendix 30 of the Radio Regulations, a new Appendix 30A thereto, and the Annexes associated with those Appendices.

ADD

Article 2.

Interim Provisions and Plan

ADD 2.1 The signatories to the Final Acts of RARC-1983 hereby agree that the RARC-1983 Provisions shall be applied and shall govern the planning, notification, bringing into use, and conduct of the Region 2 Broadcasting-Satellite Service, and the duties and functions of the International Frequency Registration Board relating thereto, including recordation in the Master Register, during the interim until the Radio Regulations are amended to incorporate the RARC-1983 Provisions therein. Thereafter, the Radio Regulations, as amended, shall govern.

ADD

Article 3.

Duration of This Agreement

ADD 3.1 This Agreement shall enter into force on [] at 0001 hours GMT. It shall remain in force until the entry into force of amendments to the Radio Regulations incorporating therein the RARC-1983 Provisions.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/14-E

20 June 1983

Original : English

WORKING GROUP 5A

LIST OF DOWN-LINK PLANNING PARAMETERS ESSENTIAL TO
STARTING PLANNING EXERCISES

1. Earth station receive - antenna diameter
2. Earth station receive - antenna reference pattern
3. Adjacent channel protection ratio
4. Second adjacent channel protection ratio
5. Channel bandwidth (only when required to determine adjacent and second adjacent channel protection ratio)
6. Channel spacing (only when required to determine adjacent and second adjacent channel protection ratio)
7. Guard bands (only to determine total available bandwidth)
8. Minimum elevation angle
9. Minimum satellite antenna beamwidth
10. Satellite antenna pattern
11. Satellite antenna pointing accuracy
12. Delta-G
13. Rain model
14. Maximum rain attenuation
15. Percentage of worst month
16. Co-channel protection ratio
17. Satellite station-keeping error

LIST OF FEEDER LINK PLANNING
PARAMETERS ESSENTIAL TO STARTING PLANNING EXERCISES

1. Satellite receiving antenna reference pattern
2. Earth station antenna diameter
3. Earth station reference patterns
4. Transmitter power
5. Satellite receiving system noise temperature
6. Separation between "co-located" satellites with same feeder-link service areas operating on adjacent or alternate channels
7. Satellite antenna pointing accuracy.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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Original : English

WORKING GROUP 4B

Proposed Addendum to Document No. 51

SUMMARY TABLES OF TECHNICAL PARAMETERS
FOR PLANNING (RECOMMENDATIONS)

Provide Committee 4 Recommendations for two items in Table 1 as shown
below :

TABLE 1

| RR § | Parameter | Committee 4 Recommendations |
|------|---|---|
| 3.12 | Minimum elevation angle of receiving antenna | Guidelines : 20°, in general <20° for latitudes greater than 60° 30° for mountainous areas where necessary 40° for high precipitation areas |
| 3.15 | Variation of output power in satellite transmitter | ≤ 0.25 dB increase during satellite lifetime |

E. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Addendum No. 1 to
Document No. DT/16-E
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Original : English

WORKING GROUP 4B

PROPOSED CHANGES TO THE RADIO REGULATIONS

AP30-120

3. BASIC TECHNICAL CHARACTERISTICS

3.1 *Type of modulation*

In Regions 1 and 3, planning

~~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 Fig. 3 (from CCIR Recommendation 405).

In Region 2, planning is based on the use of a frequency-modulated composite-coded colour television signal with two sound sub-carriers. However, recognizing the need to provide for the use of new, enhanced television coding and modulation formats (e.g. time-compressed, multiplexed analogue video component signals and digitally-coded sound and data signals), values of the important technical characteristics have been chosen to take into consideration the implementation of these new formats within the provisions of the Plan.

Nevertheless, this

~~This~~ does not preclude the use of other modulating signals having different characteristics (e.g. modulation with sound channels frequency-multiplexed within the bandwidth of a television channel, digital modulation of sound and television signals, or other pre-emphasis characteristics), provided that the use of such characteristics does not cause greater interference than that caused by the system considered in the Plan. s

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/16-E

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Original : English

WORKING GROUP 4B

PROPOSED CHANGES TO THE RADIO REGULATIONS

Working Group 4B submits for approval the following proposed revisions of the Radio Regulations (Annex 8, Appendix 30, sections 3.1, 3.2, 3.10 and 3.11).

AP30-120

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 Fig. 3 (from CCIR Recommendation 405). For Region 2, two such carriers are assumed.

This does not preclude the use of other modulating signals having different characteristics (e.g. modulation with sound channels frequency-multiplexed within the bandwidth of a television channel, digital modulation of sound and television signals, or other pre-emphasis characteristics), provided that the use of such characteristics does not cause greater interference than that caused by the system considered in the Plan.

AP30-121

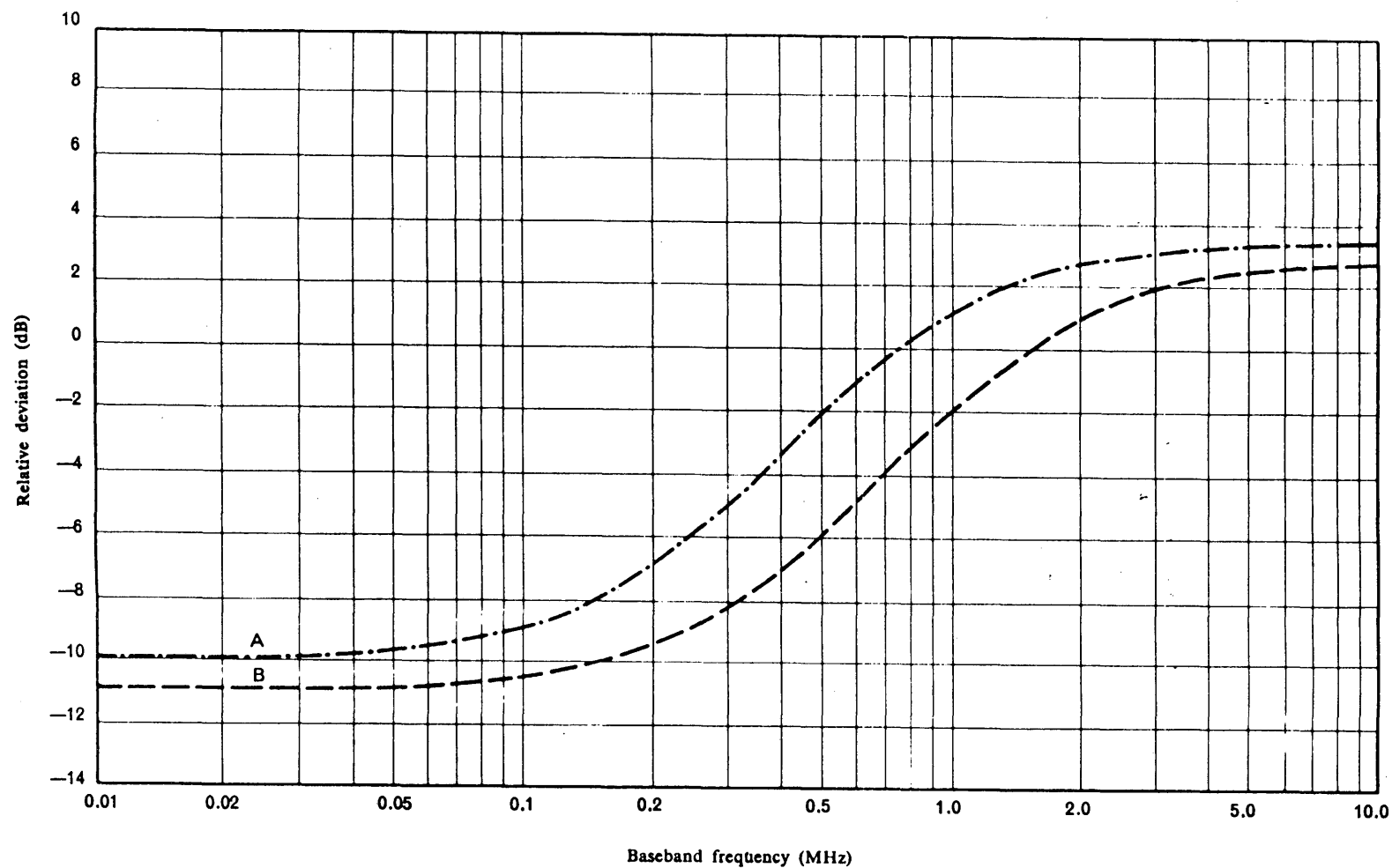


FIGURE 3

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

Curve A: 525-line system

Curve B: 625-line system

3.2 Polarization

3.2.1 For the planning of the broadcasting-satellite service, circular polarization shall be used in Regions 1, 2 and 3¹.

3.2.2 If possible, the polarization of different beams intended to serve the same area should be the same, in Regions 1 and 3, and unrestricted in Region 2.

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.

3.2.3 The terms "direct" and "indirect" used in the Plans 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:

Direct polarization (right-hand or clockwise 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 (left-hand or anti-clockwise 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.

3.10 *Orbital spacing*

The Plan for Regions 1 and 3 has been based generally on nominal orbital positions spaced uniformly at intervals of 6° . The Plan for Region 2 has been based on a non-uniform spacing.

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 directions. (These tolerances lead to a maximum excursion of $\pm 0.14^\circ$ from the nominal satellite position.) For such space stations in the Region 2 Plan, the maintenance of this tolerance in the N-S direction is recommended but is not a requirement.

E. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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RADIO REGULATION REVISIONS FOR DOWN-LINK PARAMETERS

Working Group 4B submits for approval the following proposed revisions of the Radio Regulations (Annex 8, Appendix 30, sections 3.13 and 3.14).

3.13 *Transmitting antennae*

3.13.1 *Cross-section of transmitted beam*

in Regions 1 and 3

Planning has been based on the use of transmitting antennae with beams of elliptical or circular cross-section. In Region 2, planning has generally been based on similar beams but, in certain limited cases, better results have been obtained by the use of beams with non-elliptical or "shaped" cross-sections.

If the cross-section of the transmitted beam is elliptical, the effective beamwidth ϕ_o 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.

3.14 *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° 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. on rotation

for Regions 1 and 3 and $\pm 1^\circ$ for Region 2; the

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.

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BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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PROPOSED MODIFICATIONS TO APPENDICES 30 AND 30A CONCERNING DEPOLARIZATION

Appendix 30, Annex 8

Add the following new section :

ADD 2.5 Depolarization in Region 2 :

Rain and ice can cause depolarization of radio frequency signals. The level of the co-polar component relative to the depolarized component is given by the cross-polarization discrimination (XPD) ratio. For circularly polarized emissions, the XPD ratio not exceeded for 1% of the worst month is obtained from :

$$\text{XPD} = 30 \log f - 40 \log (\cos \theta) - 20 \log A_p \text{ dB} \quad 5^\circ \leq \theta \leq 60^\circ$$

where A_p (dB) is the co-polar rain attenuation exceeded for 1% of the worst month (calculated in section 2.4), f is the frequency in GHz and θ is the elevation angle. For angle of θ greater than 60° , use $\theta = 60^\circ$ in equation ().

Appendix 30A (Feeder link)

Add the following sub-section :

- Depolarization

Rain and ice can cause depolarization of radio frequency signals. The level of the co-polar component relative to the depolarized component is given by the cross-polarization discrimination (XPD) ratio. For the feeder link, the XPD ratio, in dB, not exceeded for 1% of the worst month is given by :

$$\text{XPD} = 30 \log f - 40 \log (\cos \theta) - 23 \log A_p \text{ dB} \quad 5^\circ \leq \theta \leq 60^\circ$$

where A_p is the co-polar rain attenuation exceeded for 1% of the worst month, f is the frequency in GHz and θ is the elevation angle. For values of θ greater than 60° , use $\theta = 60^\circ$ in equation ().

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

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Original : EnglishWORKING GROUP 4A

PROPOSED MODIFICATIONS TO APPENDIX 30

Annex 3, sections 3.1, 3.2 :

- MOD 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:

$$A = 137.6 + 0.2324 d_t + 0.0814 d_m \quad (\text{Regions 1 and 3}) \quad (4)$$

$$A = 141.9 + 0.2867 d_t + 0.1522 d_m \quad (\text{Region 2})$$

where:

d_t and d_m are the overland and oversea path lengths respectively, in kilometres.

- 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:

$$A = 109.5 + 20 \log (d_t + d_m) \quad (\text{Regions 1 and 3}) \quad (5)$$

$$A = 114.4 + 20 \log (d_t + d_m) + 0.01 (d_t + d_m) \quad (\text{Region 2})$$

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

J.J. SCHLESACK
Chairman of Working Group 4A

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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PROPOSED MODIFICATIONS TO THE RADIO REGULATIONS

Committee 4C submits the following proposed modifications and/or additions to the Radio Regulations (reference Annexes 1, 3 and 4 of Appendix 30) for approval.

1. Reciprocal protection between the Region 1 Plan and the Region 2 Plan

a) Align the frequency band of paragraph 2 of Annex 1 to Appendix 30 to reflect the overlapping band (12.2 - 12.5 GHz).

b) Establish similar text in the Region 2 Appendix as follows :

[2.] Limits on the change in the power flux-density to protect the broadcasting-satellite service in the band 12.2 - 12.5 GHz in Region 1.

With respect to paragraph (4.3.1.2) an administration with an assignment in Region 1 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 :

$$\begin{array}{ll} -147 \text{ dB(W/m}^2\text{/27 MHz)} & 0^\circ \leq \theta < 0.48^\circ \\ -139 + 25 \log \theta \text{ dB(W/m}^2\text{/27 MHz)} & 0.48^\circ \leq \theta < 27.25^\circ \\ -103 \text{ dB(W/m}^2\text{/27 MHz)} & \theta \geq 27.25^\circ \end{array}$$

where θ is the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 2 and the broadcasting-satellite space station affected in Region 1.

2. Application of the protection ratio template of Annex 3 of Appendix 30 to Region 2

Figure 1 of Annex 3 of Appendix 30 (Annex 1 to this document) is recommended for usage by Region 2 for sharing with Region 2 terrestrial service.

3. Coordination of the FSS in Regions 1 and 3 or a BSS in Region 3 with the Region 2 Plan

Based upon reciprocity between Regions, the provisions of Annex 4 of Appendix 30 are recommended to be extended to cover the Region 2 Plan.

The associated text is shown in Annex 2 and a draft note from the Chairman of Committee 4 to the Chairman of Committee 6 is presented in the Appendix to that Annex.

Annexes : 2

A N N E X 1

[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 ± 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.

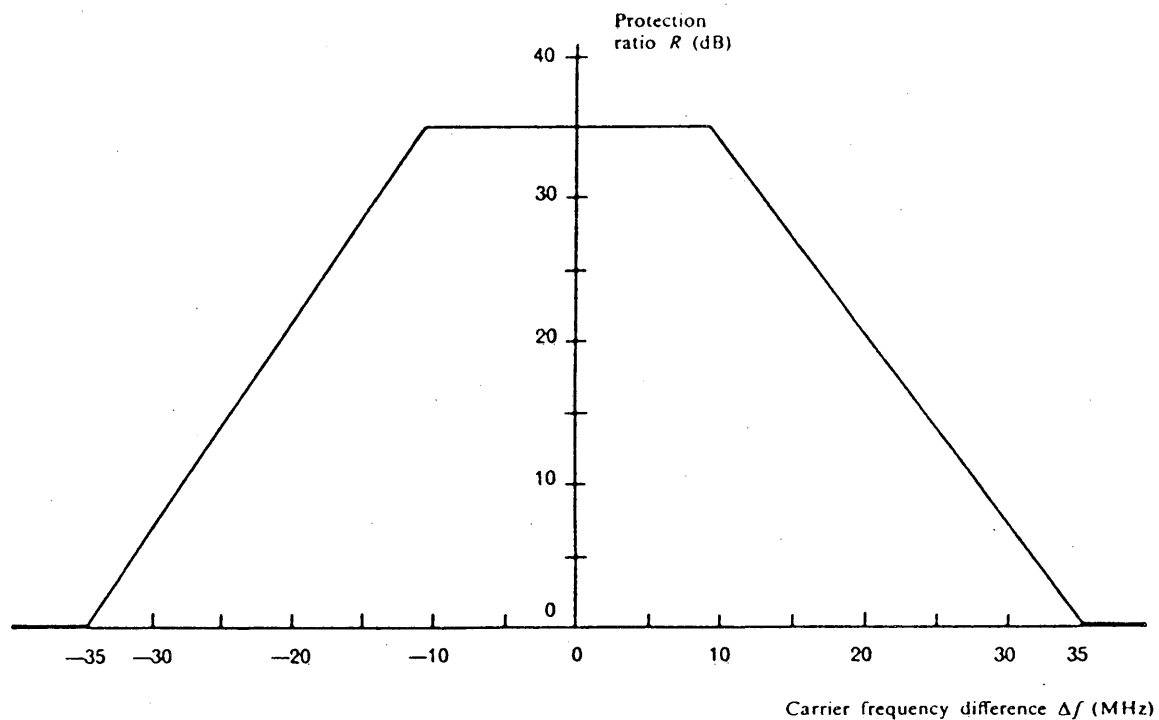


FIGURE 1

*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)*

A N N E X 2ANNEX 4BIS

NEED FOR COORDINATION OF A FIXED-SATELLITE SPACE STATION
IN REGION 1 OR 3 OR A BROADCASTING-SATELLITE SPACE STATION
IN REGION 3 WITH RESPECT TO THE REGION 2 PLAN (ARTICLE 7)

With respect to paragraph 7.2.1, coordination of a space station in the fixed-satellite service in Region 1 or 3 or the broadcasting-satellite service in Region 3 is required when, under assumed clear sky propagation conditions, the power flux-density on the territory of an Administration in Region 2 exceeds the value derived from the following expressions :

- 147 dBW/m²/27 MHz $0 \leq \theta < 0.44^\circ$
- $138 + 25 \log \theta$ dBW/m²/27 MHz $0.44^\circ \leq \theta < 19.1^\circ$
- 106 dBW/m²/27 MHz $\theta \geq 19.1^\circ$

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

Appendix : 1

Appendix

(to Annex 2)

Draft Note to the Chairman of Committee 6
from the Chairman of Committee 4

Committee 4 decided to adopt appropriate technical limits to take into account the need for coordination of a broadcasting-satellite service space station in Region 3 with respect to the Region 2 BSS Plan in the band 12.5-12.7 GHz.

Therefore, Committee 4 calls the attention of Committee 6 to consider adequate provisions in Article 7 of Appendix 30 in this regard.

J.M. ZAMUDIO
Chairman of Working Group 4C

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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WORKING GROUP 6B

DRAFT

First Report of Working Group 6B to Committee 6

During its first and second sessions the Working Group considered the proposals submitted to the Conference concerning Articles, 8, 11, 12, 13 and 15 of the Radio Regulations as well as proposals concerning a new Article 15A and it decided to recommend the adoption of the following provisions:

- Modified Table of frequency allocation between 11.7 and 12.7 GHz
- Modified texts of footnotes RR 836, RR 837, RR 839, RR 840, RR 842, RR 844, RR 846
- Deletion of RR 841, RR 843
- Modified text of note A.11.1 to the title of Article 11
- Modified text of the title of Article 12 and of note A.12.3 and text of a new note A.12.4
- Modified text of note A.13.2 to the title of Article 13
- Modified text of the title of Article 15 and of RR 1656
- Text of a new Article 15A (Title and ADD 1668).

2. Taking into account the fact that the decision taken by Committee 5 on the division of the band 12.1 - 12.3 GHz may still be subject to reconsideration, the band limit 12.2 GHz has been put between square brackets.

3. The delegations of Brazil and France reserved the right to reopen the question of the adoption of MOD RR 839 at a later stage.

4. During the discussion of the proposed modifications to Articles 11 to 15, the representative of the IFRB drew the attention of the Working Group to the fact that the First Session of the Conference on the Satellite Orbit in 1985 may wish not to include the Plan for feeder links in the Radio Regulations and, in this case, the modifications to Articles 11 to 15 referring to feeder links would not be appropriate.

5. The Working Group decided to defer consideration of the proposal concerning modification of RR 869.

6. The Working Group decided to recommend the abolition of Resolutions Nos. 31, 100, 503, 504, 700 and 701 of the WARC 1979.

7. The texts recommended by the Working Group for adoption appear in the Annex.

L.C. STEPHENS
Chairman Working Group 6B

Annex

A N N E X

ARTICLE 8
TABLE OF FREQUENCY ALLOCATIONS

MOD RR6-138

GHz
11.7 - 12.75

| Region 1 | Region 2 | Region 3 |
|--|---|---|
| 11.7 - 12.5 FIXED BROADCASTING BROADCASTING-SATELLITE Mobile except aeronautical mobile | 11.7 - 12.1 FIXED 837 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile <u>836 839 840</u> | 11.7 - 12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE <u>838 840</u> |
| | 12.1 - 12.3 - <u>12.2</u> FIXED 837 FIXED SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE <u>836 839 840 841</u> <u>842 843 844</u> | 12.2 - 12.5 FIXED MOBILE except aeronautical mobile BROADCASTING |
| <u>838 840</u> | 12.3 - <u>12.2</u> - 12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 839 840 842 843 844 846 | <u>838 840 845</u> |
| 12.5 - 12.75 FIXED-SATELLITE (space-to-Earth) (Earth-to-Space) | 12.7 - 12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile <u>840</u> | 12.5 - 12.75 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE 847 <u>840</u> |
| <u>840 848 849 850</u> | | |

MOD 836 In Region 2, in the band 11.7 - ~~12.1~~ **[12.2]** GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 33 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service. ~~The upper limit of this band shall be modified in accordance with the decisions of the 1983 regional administrative radio-conference for Region 2 (see No. 843).~~

MOD 837 Different category of service: in Canada, Mexico and the United States, the allocation of the band 11.7 ~~12.2~~ **12.1** GHz to the fixed service is on a secondary basis (see No. 424).

[12.1]

MOD 839 The use of the band 11.7 - ~~12.1~~ GHz in Region 2 by the fixed-satellite and broadcasting-satellite services is limited to national and sub-regional systems and is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles 11, 13 and 14 and Resolution 33).

MOD 840 For the use of the band 11.7 - 12.75 GHz in Regions 1, 2 and 3, see Resolutions ~~31, 34, 504, 700 and 701.~~

SUP 841

MOD 842 Additional allocation: the band 12.1 - ~~12.3~~ **[12.2]** GHz in Brazil and Peru, and ~~12.2 - 12.3~~ GHz in the United States, are - is also allocated to the fixed service on a primary basis. ~~and in Canada, Mexico and United States on a secondary basis.~~

SUP 843

MOD 844 In Region 2, in the band ~~12.1~~ 12.2 — 12.7 GHz, existing and future terrestrial radio-communication services shall not cause harmful interference to the space services operating in accordance with the broadcasting-satellite plan to be prepared at the 1983 regional administrative radio conference for Region 2, and shall not impose restrictions on the elaboration of such a plan. The lower limit of this band shall be modified in accordance with the decisions of that conference for Region 2 (see No. 843).

MOD 846 In Region 2, in the band ~~12.5~~ 12.2 — 12.7 GHz, assignments to stations of the broadcasting-satellite service made available in the plan to be established by the 1983 regional administrative radio conference for Region 2 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in accordance with that plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service. The lower limit of this band shall be modified in accordance with the decisions of that conference for Region 2 (see No. 843).

ARTICLE 11

Coordination of Frequency Assignments to Stations in a Space Radiocommunication Service Except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations¹

MOD A.11.1 ¹For the coordination of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7-~~12.2~~ GHz (in Regions ~~2 and 3~~), and 11.7 - 12.5 GHz (in Region 1) and ~~12.2~~ 12.7 GHz (in Region 2) as well as the coordination of frequency assignments to feeder link stations utilizing the fixed-satellite service (Earth-to-space) in the frequency band 17.3-17.8 GHz (in Region 2) and other services in this band, see also Article 15 and Article 15A respectively.

ARTICLE 12

MOD Title Notification~~X~~ and Recording in the Master International Frequency Register of Frequency Assignments¹ to Terrestrial Radiocommunication stations^{2,3,4}

MOD A.12.3 ³For the notification and recording ~~in~~ of frequency assignments to terrestrial stations in the frequency bands 11.7 - 12.2 GHz (in Regions ~~2 and 3~~), ~~12.2~~ 12.7 GHz (in Region 2) and 11.7 - 12.5 GHz (in Region 1), so far as their relationship to the broadcasting-satellite service in these bands is concerned, see also Article 15.

ADD A.12.4 ⁴For the notification and recording of frequency assignments to terrestrial stations in the frequency band ~~17.7 - 17.8~~ GHz (in Region 2), so far as their relationship to the fixed-satellite service (Earth-to-space) in this band is concerned, see also Article 15A.

ARTICLE 13

Notification and Recording in the Master International Frequency Register of Frequency Assignments¹ to Radio Astronomy and Space Radiocommunication Stations Except Stations in the Broadcasting-Satellite Service²

MOD A.13.2 ²For notification and recording of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7-12.2 GHz (in Region 2 and 3) and 11.7 - 12.5 GHz (in Region 1) and 12.2 - 12.7 GHz (Region 2), as well as the notification and recording of frequency assignments to feeder link stations in the fixed-satellite service (Earth-to-space) in the frequency band 17.3 - 17.8 GHz (in Region 2) and other services in this band, see also Article 15 and Article 15A respectively.

ARTICLE 15

MOD Title Coordination, Notification and Recording of Frequency Assignments to Stations of the Broadcasting-Satellite Service in the Frequency Bands 11.7 - 12.2 GHz (in Regions 2 and 3) 12.2 - 12.7 GHz (in Region 2) and 11.7 - 12.5 GHz (in Region 1) and to the Other Services to Which these Bands Are Allocated, so Far as their Relationship to the Broadcasting-Satellite Service in these Bands is Concerned

MOD 1656 ~~The provisions and associated Plans for the broadcasting-satellite service in the frequency bands 11.7 - 12.2 GHz (in Region 2 and 3) and 11.7 - 12.5 GHz (in Region 1) adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977 as contained in Appendix 30~~

The provisions and associated Region 1 and 3 Plan for the broadcasting-satellite service in the frequency band 11.7 - 12.5 GHz (in Region 1) and 11.7 - 12.2 GHz (in Region 3) adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977 and the provisions and associated Region 2 Plan for the broadcasting-satellite service in the frequency band 12.2 - 12.7 GHz adopted by the Regional Broadcasting-Satellite Administrative Radio Conference, Geneva, 1983 as contained in Appendix 30 shall apply to the assignment and use of frequencies by stations of the broadcasting-satellite service in these bands and to the stations of other services to which these bands are allocated so far as their relationship to the broadcasting-satellite service in these bands is concerned.

ADD

ARTICLE 15A

Title Coordination, Notification and Recording of Frequency
[Assignments/Allotments] applicable to Stations in the Fixed-Satellite
Service (Earth-to-space) in the band 17.3 - 17.8 GHz (Region 2)
providing feeder links for the broadcasting-satellite service and
applicable also to stations of other Services to which this band is
allocated, so far as their relationship to the Fixed-Satellite
Service (Earth-to-space) in this band is concerned.

ADD

1668 The provision and associated Plan adopted by the Region
2 Broadcasting-Satellite Administrative Radio Conference, (Geneva,
1983), for feeder links for the broadcasting-satellite service
utilizing the Fixed-Satellite Service (Earth-to-space) in the band
17.3-17.8 GHz (Region 2) as contained in Appendix 30A, shall apply to
the [assignment/allotment] and use of frequencies by feeder links in
this band and to stations of other services to which this band is
allocated so far as the relationship of these other services to the
Fixed-Satellite Service (Earth-to-space) in this band is concerned.

SUP

RESOLUTION No. 31

Relating to the Application of Certain Provisions of the Final Acts
of the World Broadcasting-Satellite Administrative
Radio Conference, Geneva, 1977, to Take into Account Changes Made
by the World Administrative Radio Conference, Geneva, 1979
to the Table of Frequency Allocations for
Region 2 in the Band 11.7 - 12.7 GHz

SUP

RESOLUTION No. 100

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 2¹

SUP

RESOLUTION No. 503

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 2¹

SUP

RESOLUTION No. 504

**Relating to the Final Acts of the
World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977, with Respect to Region 2**

SUP

RESOLUTION No. 700

**Relating to Sharing Between the Fixed-Satellite Service
in Regions 1 and 3 and the Broadcasting-Satellite Service
in Region 2 in the Band 12.2 - 12.7 GHz**

SUP

RESOLUTION No. 701

**Relating to the Convening of a Regional Administrative
Radio Conference for the Detailed Planning of the
Broadcasting-Satellite Service in the 12 GHz Band
and Associated Feeder Links in Region 2¹**

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

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COMMITTEE 6

WORKING GROUP 6A

Note by the Secretary-General

PROCEDURE FOR MODIFICATIONS TO THE PLAN

(Article 4 of Appendix 30 to the Radio Regulations)

I hereby transmit to the Conference the Report on the above-mentioned subject furnished by the IFRB.

R.E. BUTLER

Secretary-General

PROCEDURE FOR MODIFICATIONS TO THE PLAN
(Article 4 of Appendix 30 to the Radio Regulations)

1. Attached is a description of the above procedure extracted from the first draft of Chapter VI.4 of the IFRB Procedures Handbook being prepared in response to Resolution No. 6 of the WARC, 1979.
2. Although this draft text is subject to final approval by the IFRB, it is being distributed at the request of the Chairman of Working Group 6A as a working document for information only.

Y. KURIHARA
Chairman, IFRB

Annex : First draft of Chapter VI.4 of the IFRB Procedures Handbook

- 35 -

CHAPTER VI.4

THE PROCEDURE FOR MODIFICATION OF THE PLAN FOR THE BROADCASTING- SATELLITE SERVICE IN THE BANDS 11.7 - 12.2 GHZ (REGION 3) AND 11.7 - 12.5 GHZ (REGION 1) (ARTICLE 4 OF APPENDIX 30)

Note: All references in this Chapter are to Article 4 of Appendix 30 unless stated otherwise. The procedure is illustrated in flowchart No. [AC] at Annex VI.4.1.

VI.4.1 INTRODUCTION

a) As explained in Chapter VI.3, Article 11 of Appendix 30 contains the Plan adopted by WARC(BS)-77 for space stations in the broadcasting-satellite service in the bands 11.7 - 12.2 GHz (in Region 3), and 11.7 - 12.5 GHz (in Region 1). In the frequency bands concerned administrations in Regions 1 and 3 are required to adopt the characteristics specified in the Plan for their broadcasting-satellite space stations, and no administration is to change the characteristics specified in the Plan or establish new broadcasting-satellite space stations or stations in other services except as provided for in the Radio Regulations and the relevant Articles and Annexes of Appendix 30 (provisions 3.1 and 3.3 of Article 3 of Appendix 30). The present Chapter describes the procedure of Article 4 of Appendix 30. It is to be applied when an administration intends to make a modification 1) to the Plan, i.e. either:

- to modify the characteristics of any of its frequency assignments to a space station 2) in the broadcasting-satellite service which are shown in the Plan, or for which the procedure of Article 4 has been successfully applied, whether or not the station has been brought into use, or
- to include in the Plan a new frequency assignment to a space station in the broadcasting-satellite service, or
- to cancel a frequency assignment to a space station in the broadcasting-satellite service

before any notification of the frequency assignment concerned is made to the Board as prescribed in Article 5 of Appendix 30.

b) The term "frequency assignment in accordance with the Plan" used throughout Appendix 30 is defined in Article 1 of that Appendix as "any frequency assignment which appears in the Plan or for which the procedure of Article 4 has been successfully applied" (4.2).

1) The intention not to employ energy dispersal consistent with section 3.18 of Annex 8 to Appendix 30 is to be treated as a modification and is thus subject to the appropriate provisions of Article 4.

2) The expression "frequency assignment to a space station", wherever it appears in Article 4 is to be understood to refer to a frequency assignment associated with a given orbital position. See Annex 10 to Appendix 30 for the orbital position limitations.

VI.4.1 (cont.)

c) The IFRB is required to maintain an up-to-date master copy of the Plan, taking account of the application of the procedure specified in Article 4. An up-to-date version of the Plan is published when justified by the circumstances (4.5).

d) When a frequency assignment in accordance with the Plan is released, whether or not as a result of a modification, the administration concerned has to inform the Board immediately. The Board publishes this information in a Special Section AP30/E/— of the weekly circular (4.4).

VI.4.2 THE PROCEDURE OF ARTICLE 4 TO BE FOLLOWED WHEN PROPOSING MODIFICATIONS TO A FREQUENCY ASSIGNMENT IN ACCORDANCE WITH THE PLAN OR THE INCLUSION IN THE PLAN OF A NEW FREQUENCY ASSIGNMENT

a) An administration A proposing a modification to the characteristics of a frequency assignment in accordance with the Plan or the inclusion of a new frequency assignment in the Plan has to seek the agreement of those affected 1) administrations B:

aa) having a frequency assignment to a space station in the broadcasting-satellite service in the same channel or an adjacent channel which is in accordance with the Plan, or in respect of which modifications to the Plan have been published by the Board in accordance with the provision of Article 4 (4.3.1.1); or

ab) having a frequency assignment to a space station in the broadcasting-satellite service in Region 2 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and

aba) which is recorded in the Master Register (4.3.1.2); or

abb) which has been coordinated or is being coordinated under the provisions of Resolution 33 2); or

abc) which appears in a Region 2 plan 3) to be adopted at the RARC, R2-83, taking account of modifications which may be introduced subsequently in accordance with the final acts of that conference; or

ac) having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification (4.3.1.3); or

1) A frequency assignment is considered to be affected when the limits shown in Annex 1 of Appendix 30 are exceeded.

2) See Chapter VI.2

3) The Region 2 plan to be adopted at the RARC, R2-83 (see Resolution No. 701 of WARC-79) is required not to degrade the protection afforded to the frequency assignments in the Plan below the limits specified in Appendix 30.

VI.4.2 a) (cont.)

ad) having a frequency assignment in the band 11.7 - 12.2 GHz to a space station in the fixed-satellite service which:

ada) is recorded in the Master Register, or

adb) has been or is being coordinated under the provisions of RR 1060 or those of Article 7 of Appendix 30 (see Chapter V.10) (4.3.1.4).

b) Administration A has to send in the appropriate form the relevant information listed in Annex 2 to Appendix 30 to the IFRB not earlier than five years but not later than eighteen months before the date on which the assignment is to be brought into use. It may be noted that if the assignment is not brought into use by that date, the modification lapses (4.3.2).

ba) Where the limits defined in Annex 1 to Appendix 30 are not exceeded as a result of the intended modification, this fact is to be indicated when submitting the required information to the Board. The Board publishes this information in a Special Section AP30/E/— of the weekly circular (4.3.2.1).

bb) In all other cases administration A informs the Board of the names of the administrations B whose agreement it considers should be sought ¹⁾ as well as the names of any administration B with which agreement has already been reached (4.3.2.2).

c) The Board determines on the basis of Annex 1 to Appendix 30 the administrations B whose frequency assignments are considered to be affected ¹⁾. The Board publishes the complete information supplied by administration A with the names of those administrations in a Special Section AP30/E/— of the weekly circular and sends the results of its calculations to administration A (4.3.3). The Board also sends a telegram to the administrations B listed in the Special Section drawing their attention to the information it contains and sends them the results of its calculations (4.3.4).

d) Any administration which considers it should have been included in the list of administrations whose services are considered to be affected may request the Board to include its name, giving the technical reasons for so doing. The Board studies this request on the basis of Annex 1 to Appendix 30 and sends a copy of the request with an appropriate recommendation to administration A (4.3.5).

1) The Board has noted that p.f.d. limits with respect to the territory of administrations in Regions 1 and 3 are defined in sub-paragraphs 1 and 2 of paragraph 3 of Annex 1; sub-paragraph 2 makes cross-reference to the limits expressed in Annex 5.

Annex 5 is in effect designed to protect Regions 1 and 3 from Region 2 satellites and because of this it excludes from the limitation the territory in Region 1 which is east of 30°E; this limitation probably derives from consideration of the visibility from Region 1 territory of space stations in the broadcasting-satellite service serving Region 2 from the eastern part of the Region 2 service arc.

The Board has decided that since the examination of modifications to the beam assignments in the 12 GHz Plan is cross-referenced to Annex 5 from Annex 1, the exclusion of any territory from the p.f.d. limits of Annex 5 is not appropriate; all visible Region 1 territory is therefore to be taken into account when performing examinations under paragraph 4.3.3 of Article 4 of Appendix 30.

VI.4.2 (cont)

- e) Any modification to a frequency assignment which is in accordance with the Plan or any inclusion in the Plan of a new frequency assignment which would exceed the limits specified in Annex 1 to Appendix 30 is subject to the agreement of all affected administrations (4.3.6).
- f) Administration A or any administration B with which agreement is sought may request any additional technical information it considers necessary, informing the Board of such requests (4.3.7).
- g) Comments from administrations on the information published in Special Section AP30/E/— of the weekly circular should be sent directly to administration A or through the Board. In any event the Board is to be informed that comments have been made (4.3.8).
- h) Any administration which has not notified its comments either to administration A or to the Board within a period of 120 days following the date of the Special Section AP30/E/— is deemed to have agreed to the proposed modification. This time-limit may be extended by 80 days for an administration which has requested additional information under paragraph f) or for an administration which has requested the assistance of the Board (see paragraph p) below). In the latter case the Board informs the administrations concerned of this request (4.3.9).
- i) If administration A modifies its initial proposal, it has to apply again the provisions of paragraph b) and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal (4.3.10).
- j) On the expiry of the periods mentioned in paragraph h) if no comments have been received, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, administration A may notify its assignment in accordance with the procedure of Article 5 of Appendix 30, giving the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached (4.3.11) (see Chapter VI.5).
- k) The agreement of an affected administration B may be obtained in accordance with Article 4 for a specified period (4.3.12). When such an agreement for a specified period has been reached, this fact should be stated when notifying the assignment to the IFRB.
- l) When the proposed modification to the Plan involves developing countries, administrations are required to seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries (4.3.13).

VI.4.2 (cont.)

m) When the IFRB receives the information supplied by administration A in accordance with paragraph j) above it publishes it in a Special Section AP30/F/— of the weekly circular together with the names of the administrations with which the provisions of Article 4 have been successfully applied. The frequency assignment concerned thereafter enjoys the same status as those appearing in the Plan and will be considered as a frequency assignment in accordance with the Plan (4.3.14). It should be noted that in accordance with 4.3.2 if the assignment is not brought into use by the indicated date the modification lapses.

n) If administration A is advised of disagreement by an administration B, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration B should endeavour to overcome the difficulties as far as possible, and has to state the technical reasons for any disagreement if administration A requests it to do so (4.3.15).

o) If no agreement is reached between the administrations concerned, the IFRB carries out any study that may be requested by these administrations, informs them of the result of the study and makes such recommendations as it may be able to offer for the solution of the problem (4.3.16).

p) It may be noted that the effect of the proposed modification is assessed by the IFRB after the assignment has been notified, during its examination for conformity with Annex 1 of Appendix 30 as part of its examination with respect to paragraph 5.2.1 of Article 5 (see paragraph VI.5.2.a)).

q) Any administration may at any stage in the procedure described, or before applying it, request the assistance of the Board, particularly in seeking the agreement of another administration (4.3.17).

Annex: VI.4.1 (flowchart No. [AC])

THE PROCEDURE OF ARTICLE 4 OF APPENDIX 30 FOR MODIFICATION OF THE PLAN
FOR THE BROADCASTING-SATELLITE SERVICE IN THE BANDS 11.7 - 12.2 GHz (REGION 3)
AND 11.7 - 12.5 GHz (REGION 1) (All references are to provisions of Article 4 of Appendix 30)

FLOWCHART No. [AC]
Sheet 1 of 2
ANNEX VI.4.1
(See VI.4)

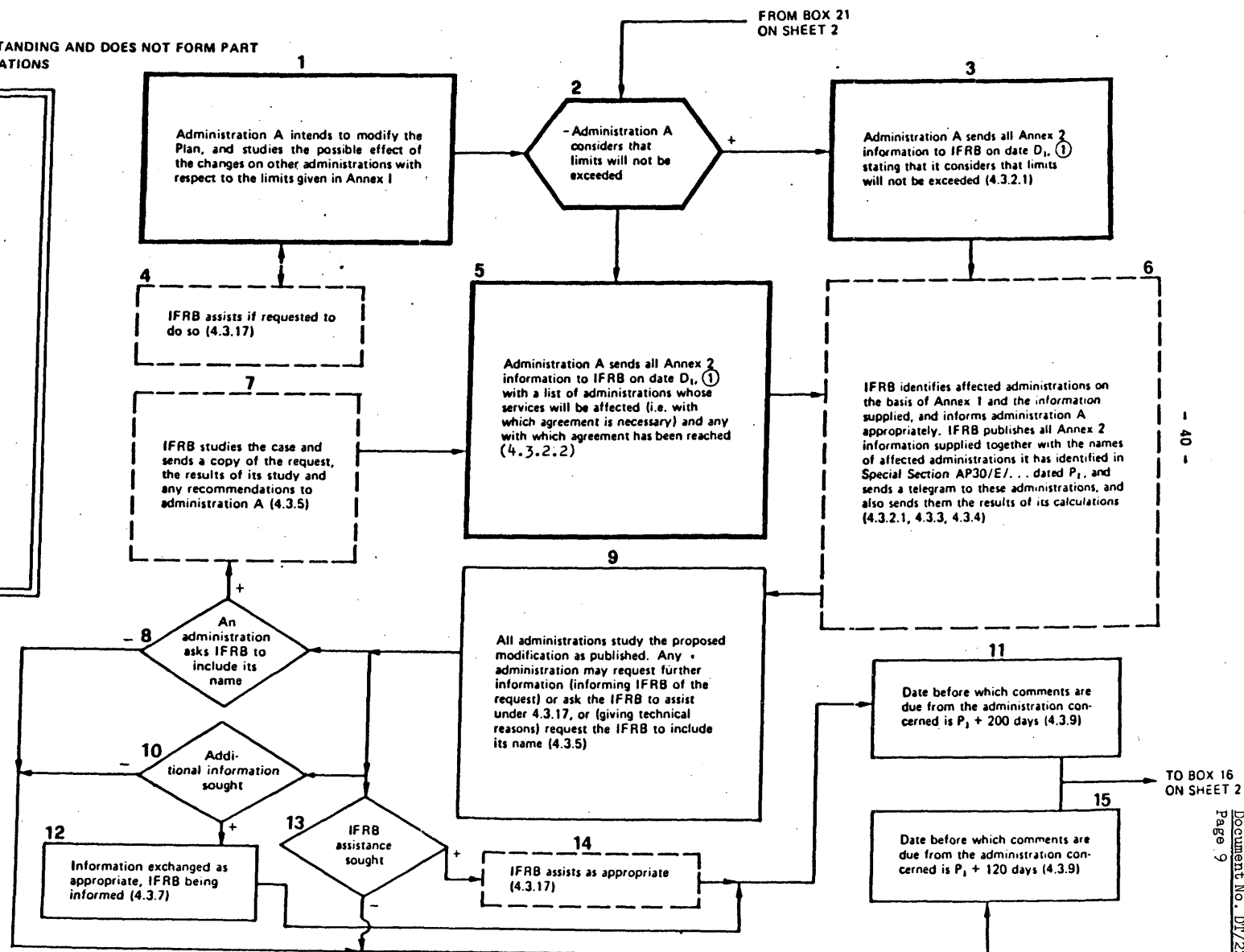
THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART
OF THE RADIO REGULATIONS

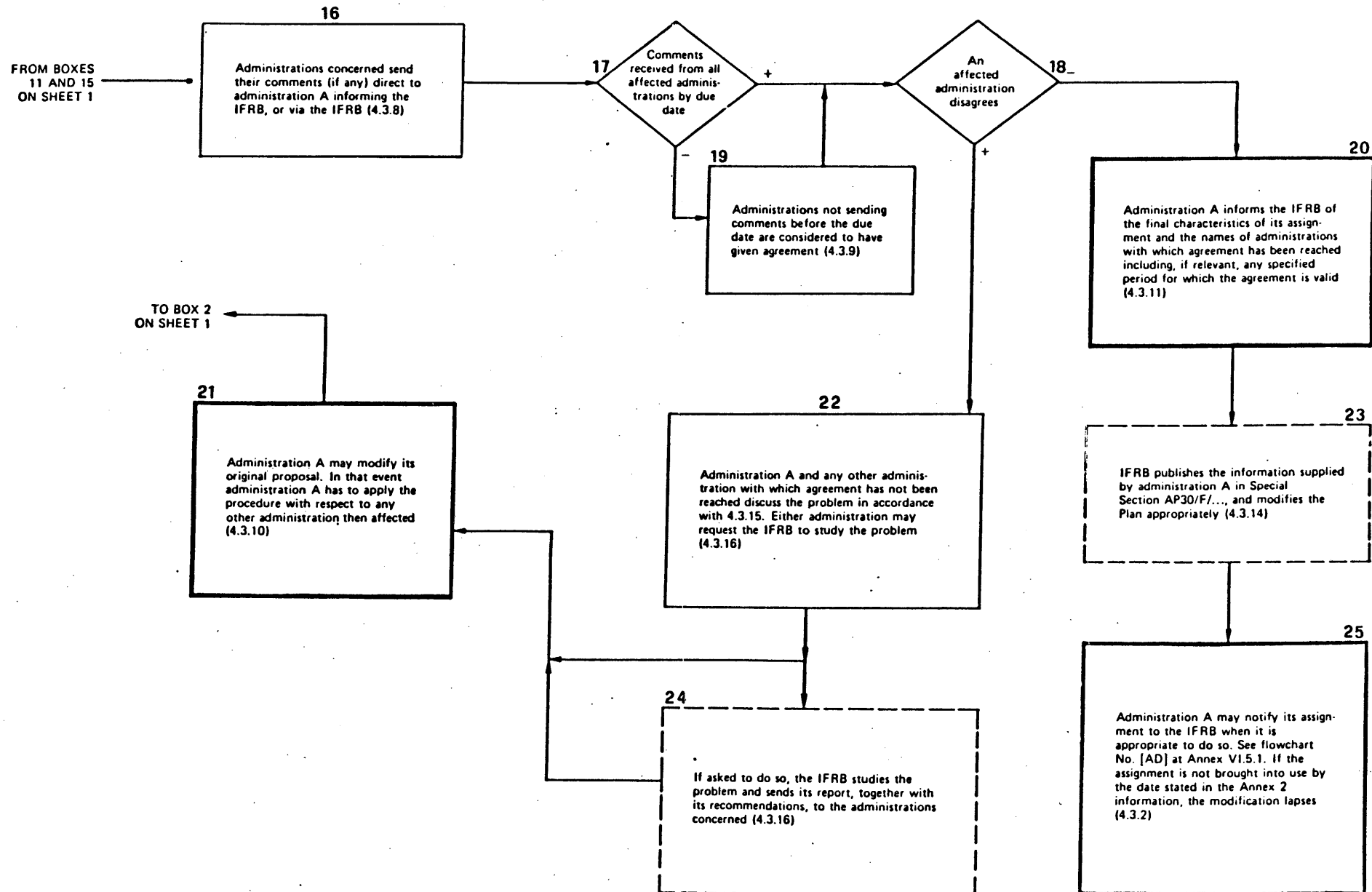
Action by: ☐ Administration A
☐ Another administration
☐ IFRB

+ = Yes, - = No

NOTE

① Date D_1 is not to be earlier than 5 years before, or later than $1\frac{1}{2}$ years before, the modification is to be put into effect.





BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

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WORKING GROUP 4B

Proposed modification to second paragraph
of section 3.3 of Annex 8 of Appendix 30

In Regions 1 and 3, 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. In Region 2, as a guidance for the development of the Plan, the reduction in quality in the down-link due to thermal noise in the feeder link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio of approximately 0.5 dB for 99% of the worst month but the plan is evaluated on the carrier-to-noise ratio of the combined down-link and feeder link contributions.

Proposed addition to section 3.4
of Annex 8 of Appendix 30

In Region 2, as a guidance for the development of the Plan, the reduction in the down-link co-channel interference due to co-channel interference in the feeder link is taken as equivalent to a degradation in the down-link co-channel carrier-to-interference ratio of approximately 0.5 dB for 99% of the worst month but the plan is evaluated on the [overall equivalent co-channel protection margin] of the combined down-link and feeder link contributions.

E. MILLER

Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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WORKING GROUP 5A

DRAFT REPORT OF WORKING GROUP 5A TO COMMITTEE 5

As a result of discussions at the meetings, Working Group 5A agreed on the following :

1. A software user Drafting Group (5A-1) was created with membership from Brazil, the United States, Canada, Argentina, France and the IFRB, with chairmanship from Argentina. This Group will, of necessity, be small. It will be composed of computer experts who will develop plans based on the planning principles adopted in Document No. 45(Rev.2) and further instructions from the Working Group. It will try to resolve obvious incompatibilities and consider refinements to the plan, but any changes will have to be approved by the Working Group.
2. The synthesis and analysis software described in Document No. 15 was adopted as the tool for planning.
3. Planning will start based on down-link elements only. When a plan appears to be acceptable to Working Group 5A, feeder link planning will be introduced so that plans forwarded to Committee 5 will include both feeder links and down-links.
4. A small group of computer experts was formed by Drafting Group 5A-1 to develop and work on changes or additions to the software when absolutely necessary.
5. A list of down-link and feeder link planning elements (see Annex) was prepared so that Working Group 4B could decide early on the more important values to be used for planning. In order to start the planning process, values for the down-link were chosen from Committee 4 recommendations when available, from the CPM report or from WARC-77 Final Acts (see Annex). These values together with the requirements, as submitted, were to be used to generate a sample plan as soon as possible with no polarization.
6. There will be no need to develop software for the atmospheric absorption model because of its minimal impact on the plan.
7. The delegates of France and the United Kingdom reserved their right to review the decision that planning should proceed on the basis of only one value for channel bandwidth (24 MHz).

R. ZEITOUN
Chairman of Working Group 5A

Annex : 1

A N N E X

LIST OF DOWN-LINK PLANNING PARAMETERS ESSENTIAL TO
STARTING PLANNING EXERCISES

(Values as chosen by Drafting Group 5A-1)

1. Earth station receive - antenna diameter 1 m at 12.2 GHz (1.8° BW)
2. Earth station receive - antenna reference pattern WARC-77
3. Adjacent channel protection ratio to be derived from item 16 using CPM template
4. Second adjacent channel protection ratio to be derived from item 16 using CPM template
5. Channel bandwidth (only when required to determine adjacent and second adjacent channel protection ratio) 24 MHz
6. Channel spacing (only when required to determine adjacent and second adjacent channel protection ratio) (36 channels) 13.3 MHz
7. Guard bands (only to determine total available bandwidth) 10 MHz on each end
8. Minimum elevation angle not decided
9. Minimum satellite antenna beamwidth 0.8°
10. Satellite antenna pattern CPM
11. Satellite antenna pointing accuracy $\pm 0.1^{\circ}$, $\pm 1^{\circ}$ rotation
12. Delta-G 3 dB
13. Rain model CPM
14. Maximum rain attenuation not considered
15. Percentage of worst month 1%
16. Co-channel protection ratio 33 dB single entry, 5 dB allowance for multiple entries
17. Satellite station-keeping error ± 0.1 E-W
18. C/N 14.5 dB down-link (not required N-S)
19. G/T 10 dB

LIST OF FEEDER LINK PLANNING
PARAMETERS ESSENTIAL TO STARTING PLANNING EXERCISES

1. Satellite receiving antenna reference pattern (co- and cross-polar reference patterns)
2. Earth station antenna diameter

3. Earth station reference patterns (co- and cross-polar reference patterns)
 4. Transmitter power
 5. Satellite receiving system noise temperature
 6. Separation between "co-located" satellites with same feeder link service areas operating on adjacent or alternate channels
 7. Satellite antenna pointing accuracy
-

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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PROPOSED MODIFICATION TO APPENDICES 30 AND 30A CONCERNING RAIN ATTENUATION

Appendix 30, Annex 8

Add after section 2.3

ADD Radio propagation factors (Region 2)

2.4 The propagation loss on an earth-space path is equal to the free space path loss plus the atmospheric absorption loss plus the rain attenuation exceeded for 1% of the worst month.

2.4.1 Atmospheric absorption

(Ref. Document No. 52.)

2.4.2 Rain attenuation

The rain attenuation A of circularly polarized signals exceeded for 1% of the worst month at 12.5 GHz is given by

$$A = \sqrt[0.24]{\gamma L r} \text{ dB} \quad (2.1)$$

where

L = the slant path length through rain

$$= \frac{2(h_R - h_0)}{\left[\sin^2 \theta + 2 \frac{(h_R - h_0)}{8500} \right]^{\frac{1}{2}} + \sin \theta} \text{ km}$$

r = the rain path length reduction factor

$$= \frac{90}{90 + 4L \cos \theta}$$

h_r = rain height (km)

$$= c \left\{ 5.1 - 2.15 \log \left[1 + 10^{\left(\frac{\phi - 27}{25} \right)} \right] \right\} \text{ km}$$

$$c = 0.6 \quad \phi \leq 20^\circ$$

$$c = 0.6 + 0.02(\phi - 20) \quad 20^\circ < \phi \leq 40^\circ$$

$$c = 1.0 \quad \phi > 40^\circ$$

h_o = height (km) above mean sea level of the earth station

ϕ = earth station latitude (degrees)

θ = satellite elevation angle (degrees)

γ = specific rain attenuation

$$= 0.0202 R^{1.198} \text{ dB/km}$$

R = rain intensity (mm/h) obtained from Table 2.1 for the rain climates identified in Figure 2.1.

(Note : method is based on R exceeded for 0.01% of an average year.)

TABLE 2.1

Rainfall intensity (R) for the rain climatic zones (Figure 2.1)

| Zone | A | B | C | D | E | F | G | K | M | N | P |
|--------|---|----|----|----|----|----|----|----|----|----|-----|
| (mm/h) | 8 | 12 | 15 | 19 | 22 | 28 | 30 | 42 | 63 | 95 | 145 |

Figure 2.2 presents plots of rain attenuation, as calculated using equation (2.1), of circularly polarized signals exceeded for 1% of the worst month at 12.5 GHz, as a function of earth station latitude and elevation angle for each of the rain climates shown in Figure 2.1.

2.4.3 Rain attenuation limit

In using equation (2.1) or Figure 2.2, the rain attenuation for 99% of the worst month should be limited to \sqrt{X} dB by appropriate choice of elevation angle.

2.5 Depolarization

(Ref. Document No. DT/18.)

(Figure 2.2. to be provided.)

Appendix 30A (Feeder link)

Add the following :

2. Radio propagation factors

2.1 The propagation loss on an earth-space path is equal to the free space path loss plus the atmospheric absorption loss plus the rain attenuation exceeded for 1% of the worst month.

2.1.1 Atmospheric absorption

(Ref. Document No. 52, part concerning Appendix 30A.)

2.1.2 Rain attenuation

The rain attenuation A of circularly polarized signals exceeded for 1% of the worst month at 17.5 GHz is calculated using the method outlined in section 2.4.2 of Annex 8, Appendix 30, by substituting the relation

$$\gamma = 0.0521 R^{1.114}$$

for the one given in that Appendix.

Figure ... presents plots of rain attenuation of circularly polarized signals exceeded for 1% of the worst month at 17.5 GHz, as a function of earth station latitude and elevation angle for each of the rain climates in Region 2.

2.1.3 Rain attenuation limit

In the analysis of the plan, a maximum rain attenuation on the feeder link of \sqrt{X} dB was considered assuming that other means would be used at the implementation stage to protect for larger rain attenuation on the feeder links.

2.2 Depolarization

(Ref. Document No. DT/18, part concerning Appendix 30A.)

(Rain attenuation figures to be provided.)

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WORKING GROUP 4B

FIGURE OF MERIT (G/T) AND PFD

Considerable discussions have taken place on the values of G/T and PFD used for planning the broadcasting-satellite service in Region 2 with the common understanding of the relationship that ties these parameters together.

There were three sets of values for these parameters that were proposed.

The three proposals were :

- G/T = 10 dB/K and

$$\text{PFD} = -107 \text{ dB(W/m}^2\text{)}$$

made by Brazil and supported by France, Peru, Colombia, Cuba, Ecuador and Canada;

- G/T = 8 dB/K and

$$\text{PFD} = -105 \text{ dB(W/m}^2\text{)}$$

made by the United States;

- G/T = 9 dB/K

$$\text{PFD} = -106 \text{ dB(W/m}^2\text{)}$$

made in the spirit of compromise by the United Kingdom and supported by the United States.

The set of values that received the support of the largest number of administrations is given below in the proposed modifications for paragraphs 3.6 and 3.16 of Annex 8 of Appendix 30 with the understanding that a single set of values is desirable for planning purposes.

The Sub-Working Group noted that there is a flow and iteration of planning parameters between Committees 4 and 5, in both directions, as draft plans are prepared.

The proposed change in § 3.16 below for Region 2 has been agreed under the following condition : the Administration of the United States of America reserves the right to reconsider the proposed modification of § 3.16 following the analysis of the first draft plan.

PROPOSED MODIFICATIONS TO PARAGRAPHS 3.6 AND 3.16
OF ANNEX 8 OF APPENDIX 30

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

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

for Regions 1 and 3 :

6 dB/K for individual reception;
14 dB/K for community reception, and

for Region 2 :

10 dB/K for individual reception.

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 dB(W/m²) for individual reception in Regions 1 and 3;
~~-107~~
- 105 dB(W/m²) for individual reception in Region 2; and
- 111 dB(W/m²) for community reception in ~~all~~-Regions/ 1 and 3.

E. MILLER
Chairman of Working Group 4B

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Source : Documents Nos. DT/27 and DT/23

WORKING GROUP 4B

PARAGRAPH 3.3

OF ANNEX 8 OF APPENDIX 30

Working Group 4B proposes the following :

MOD

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.

In Regions 1 and 3, the

~~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. In Region 2, as a guidance for the development of the Plan, the reduction in quality in the down-link due to thermal noise in the feeder link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio of approximately 0.5 dB for 99% of the worst month but the Plan is evaluated on the carrier-to-noise ratio of the combined down-link and feeder link contributions.

M. BOUCHARD

Chairman of Sub-Working Group 4B-3

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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SOURCE : Document No. DL/18

WORKING GROUP 4B

PARAGRAPH 3.3 OF ANNEX 8 OF APPENDIX 30

Working Group 4B proposes the following :

NOC

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.

E. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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WORKING GROUP 4B

POLARIZATION

Working Group 4B proposes the following text concerning polarization of the feeder links :

1. In Region 2, for the purpose of planning the feeder links, circular polarization is used. However, in the cases where an administration has been allotted all channels of both senses of polarization at a single orbital location, without any polarization constraints with other orbital positions, the type of polarization need not be specified.
2. In the cases where the above has not been possible, use of polarization other than circular is permitted only upon agreement of administrations that may be affected.

E. MILLER

Chairman of Working Group 4B

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

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25 June 1983

Original : French

COMMITTEE 5

Note by the Chairman of Committee 5

In response to the request made at the fourth meeting of Committee 5 on Friday, 24 June 1983, an approximate plan of the activities of Committee 5 is attached for information.

P.D. CROSS
Chairman of Committee 5

[illegible]

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

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Source : Document No. DL/16

WORKING GROUP 4B

PROPOSED CHANGES TO THE RADIO REGULATIONS

Following are proposed revisions of the Radio Regulations (Annex 8, Appendix 30, section 3.13.3).

MOD 3.13.3 Spacecraft transmitting antenna reference patterns

The reference patterns for the co-polar and cross-polar components of satellite transmitting antenna used in preparing the Plan for Regions 1 and 3 are given in Figure 6.

NOC Figure 6

NOC Curve A :

NOC Curve B :

NOC Curve C :

ADD Planning may be done either with reference patterns derived from a simple elliptical antenna implementation or with reference patterns derived from an implementation using a fast roll-off in the main beam. Reference patterns and corresponding equations for both cases are given below (Figures 7A and 7B). The co-polar reference pattern given in Figure 7B includes a number of examples for the main beam for values of $\varphi_0 \geq 0.8$ degrees.

For those service areas where the patterns given in Figures 7A and 7B are not appropriate because of interregional sharing requirements, the co-polar pattern given by Curve A of Figure 6 will be used for planning.

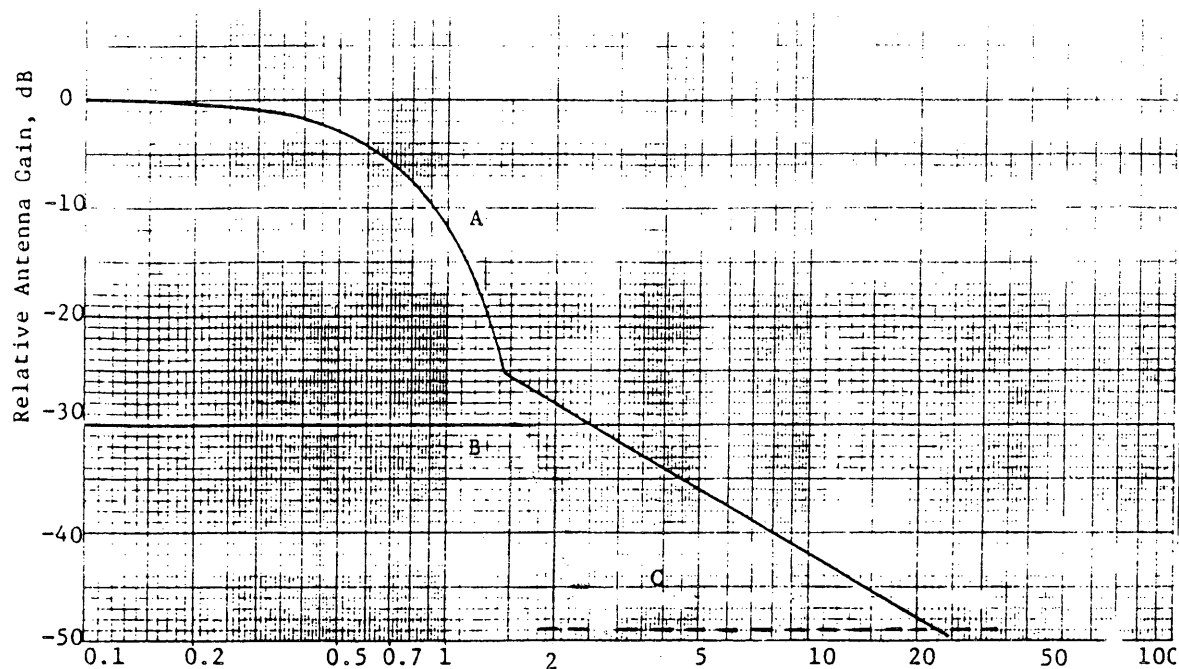


Figure 7A

Relative Angle (ϕ/ϕ_0)

Reference patterns for co-polar and cross-polar components
for satellite transmitting antenna in Region 2.

Curve A: Co-polar component (dB relative to main beam gain)

$$\begin{aligned} & - 12 (\phi/\phi_0)^2 && \text{for } 0 \leq (\phi/\phi_0) \leq 1.45 \\ & - (22 + 20 \log (\phi/\phi_0)) && \text{for } 1.45 < (\phi/\phi_0) \end{aligned}$$

after intersection with curve C : as curve C

Curve B: Cross-polar component (dB relative to main beam gain)

$$- 30 \quad \text{for } 0 \leq (\phi/\phi_0) \leq 2.51$$

after intersection with co-polar pattern : as co-polar pattern

Curve C: minus the on-axis gain

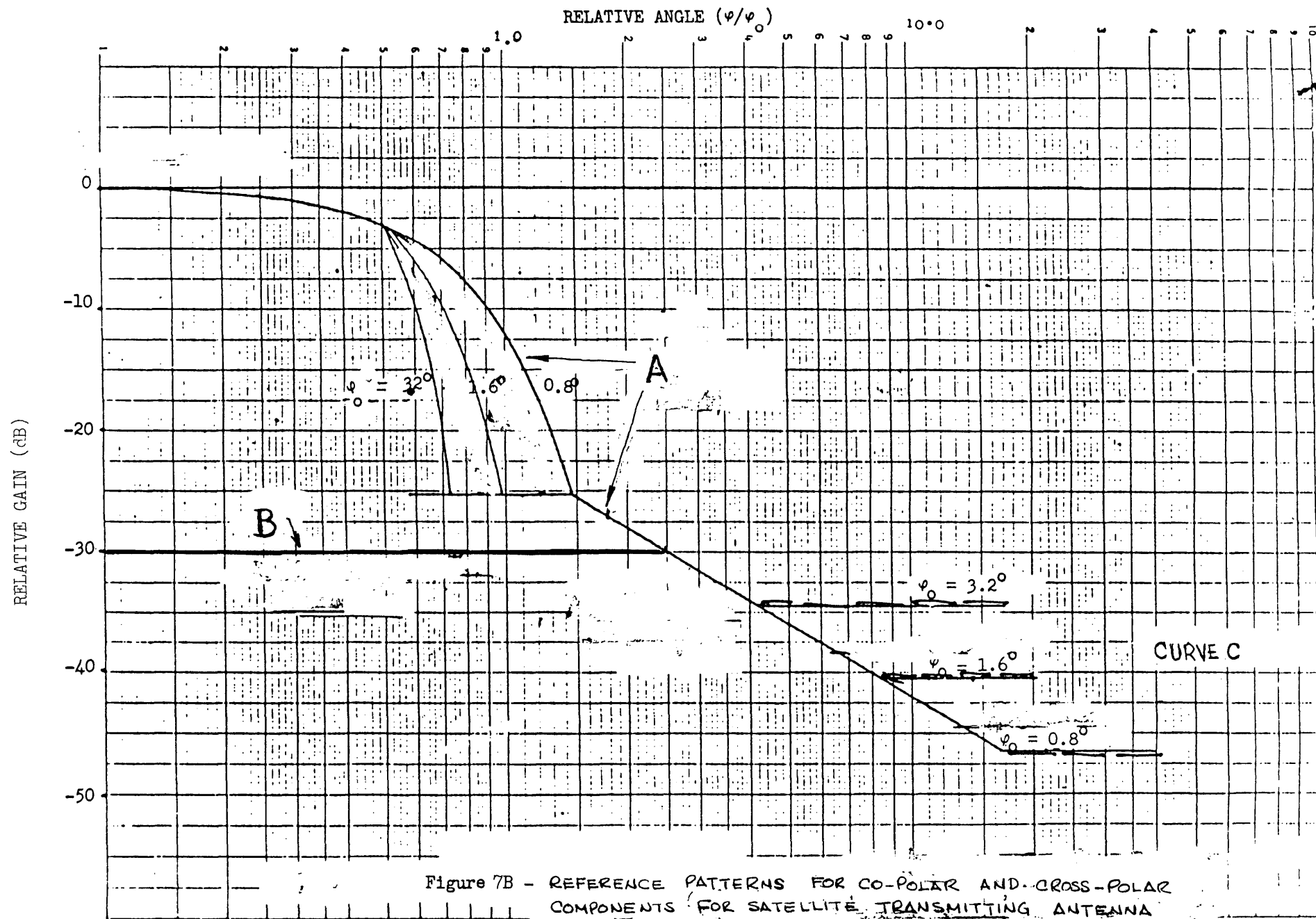


Figure 7B - REFERENCE PATTERNS FOR CO-POLAR AND CROSS-POLAR COMPONENTS FOR SATELLITE TRANSMITTING ANTENNA WITH FAST ROLLOFF IN THE MAIN BEAM FOR REGION 2

Figure 7B (continued)

Curve A - Co-Polar component

- $12(\varphi/\varphi_0)^2$ for $0 \leq \varphi/\varphi_0 \leq 0.5$
- $18.75 \varphi_0^2 \left[\varphi/\varphi_0 - x \right]^2$ for $0.5 < \varphi/\varphi_0 \leq \frac{1.16}{\varphi_0} + x$
- 25.23 for $\frac{1.16}{\varphi_0} + x < \varphi/\varphi_0 < 1.45$
- $\left[22 + 20 \log \varphi/\varphi_0 \right]$ for $1.45 < \varphi/\varphi_0$

after intersection with Curve C : as Curve C

Curve B - Cross-polar component

- 30 for $0 \leq \varphi/\varphi_0 < 2.51$

after intersection with co-polar pattern : as co-polar pattern

Curve C - Minus the on-axis gain

where :

- φ = off-axis angle (degrees)
- φ_0 = is the dimension of the minimum ellipse fitted around the down-link service area in the direction of interest
- x = by definition $x = 0.5 \left[1 - \frac{0.8}{\varphi_0} \right]$

C. PEREZ VEGA
Chairman of Sub-Working Group 4B-2

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WORKING GROUP 5A

DRAFT

Report from Drafting Group 5A-1 to Working Group 5A

RECOMMENDATIONS TO IMPROVE THE MARGINS FOR THE FIRST DRAFT PLAN

Introduction

During the first planning exercise, carried out from 23 to 26 June 1983, the software adopted by the Conference was tested, but the results of the exercise are unsatisfactory, owing to the sharp increase in the requirements (+80% from Document No. 16 to Document No. 16(Rev.1)). Drafting Group 5A-1 therefore proposes that the following principles be adopted to improve the position with regard to the preparation of the first draft Plan.

1. Permit cross-polarization for adjacent channels and between service areas.
2. Allow flexibility to move satellite around i.e. wherever possible allow an available orbital arc to be defined by, for example, a) onset of an eclipse no earlier than midnight and b) a minimum elevation angle of 30 degrees.
3. Clarification of common channelizations e.g. in andean beams and in caribbean beams.
4. Clarification of which service areas should be served from the same orbital location (note that, in general, a maximum of 32 channels is available from any one location and further that an orbital separation of approximately 10 to 20 degrees is required between satellites serving adjacent service areas co-channel, co-polarized and 4 to 5 degrees for co-channel, cross-polarized coverage).
5. Pairing of two countries, each with requirements for four channels, into the same eight channel family.
6. Clarification of the required coverages in the Caribbean. At present there are 24 separate service areas and a total channel requirement of 236 channels which would require at least 8 separate satellite locations spaced as in item 4 above. (Note : A 0.8 degree beam is equivalent to a coverage of at least 5.5 degrees latitude or longitude.)

7. Whenever a choice exists in the use of service area singly or in combination or in the sense of polarization, administrations are requested to specify which combination of service areas and polarizations is to be used for test purposes in order to enable the analysis of a plan to be obtained in a single run of the analysis program.

In addition to the above Recommendations, the new technical parameters recently approved in Committee 4 - in particular the reduced adjacent channel protection ratio template and the improved receive earth station antenna characteristics - will increase the margins.

To reduce the volume of output during the initial draft Plan the additional test points could be ignored.

The consolidation and grouping of requirements as indicated in items 3, 4, 5 and 6 above, with the corresponding software modifications now available should reduce the interference levels and, to some extent, the volume of output and the loading of the computer. (The planning exercise requires 262 service area/channel family combinations which is close to the maximum capacity of the computer.)

H. SAAVEDRA
Chairman of Drafting Group 5A-1

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS

CONFÉRENCE DE RADIODIFFUSION PAR SATELLITE (RÉGION 2)

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WORKING GROUP 5A

RESULT FROM THE FIRST PLANNING EXERCISE

RESULTATS DU PREMIER EXERCICE DE PLANIFICATION

RESULTADOS DEL PRIMER EJERCICIO DE PLANIFICACIÓN

H. SAAVEDRA

5A1

RAPPORT SUR LA MARGE TOTALE/TOTAL MARGIN REPORT/INFORME DEL MARGEN TOTAL

| <u>Col.</u> | <u>Description / Description / Descripción</u> |
|-----------------|---|
| 1 | <p>Numéro de référence de l'IFRB de la zone de service qui subit un brouillage.</p> <p>IFRB reference number of service area subject to interference.</p> <p>Número de referencia de la IFRB de la zona de servicio sometida a interferencia.</p> |
| 2 | Administration / Administration / Administración. |
| 3 | Position sur l'orbite / Orbital position / Posición orbital. |
| 4 | <p>Identification du faisceau de la liaison descendante (zone de service).</p> <p>Downlink beam identification (service area).</p> <p>Identificación del haz del enlace descendente (zona de servicio).</p> |
| 5 | <p>Puissance aux bornes d'entrée de l'antenne du satellite (W).</p> <p>Satellite Antenna Input Power (W).</p> <p>Potencia de entrada de la antena de satélite (W).</p> |
| 6 | <p>Angle de site minimal dans la zone de service de la liaison descendante.</p> <p>Minimal elevation angle in downlink service area.</p> <p>Ángulo de elevación mínimo en la zona de servicio del enlace descendente.</p> |
| 7 ¹⁾ | <p>Instant initial de l'éclipse solaire (en minutes à partir de minuit).</p> <p>Earliest onset of solar eclipse (in minutes from midnight).</p> <p>Primera aparición del eclipse solar (en minutos a partir de medianoche).</p> |
| 8 ²⁾ | <p>Famille de canaux de la liaison descendante/Groupe de blocs.</p> <p>Downlink channel family/Blocking Group.</p> <p>Familia de canales del enlace descendente/Grupo de bloques.</p> |
| 9 ³⁾ | <p>Marge composite totale pour chaque point de mesure de la liaison descendante (dB) (9.1 à 9.10)</p> <p>Total aggregate margin for each downlink test point (dB)(9.1 to 9.10).</p> <p>Margen agregado total para cada punto de prueba del enlace descendente (dB)(9.1 y a 9.10).</p> |
| 10 | <p>P = points sur polygone / Polygon Points / Puntos de polígono</p> <p>T = points de mesure / Punto de poligono / Puntos de prueba</p> |

- 1) > 0 après minuit / after midnight / después de medianoche.
 < 0 avant minuit / before midnight/ antes de medianoche.

| | | | | | | | | | | |
|----|---------|----|---|---|----|----|----|----|----|----|
| 2) | Famille | 01 | 1 | 5 | 9 | 13 | 17 | 21 | 25 | 29 |
| | Family | 02 | 2 | 6 | 10 | 14 | 18 | 22 | 26 | 30 |
| | Familia | 03 | 3 | 7 | 11 | 15 | 19 | 23 | 27 | 31 |
| | | 04 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 |

- 3) Marge composite totale - Différence entre C/I et le rapport de protection.
 Total aggregate margin - Difference between C/I and the protection ratio.
 Margen compuesto total - Diferencia entre C/I y sobre la relación de protección.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|-----------|-------|------|--------|----|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|------|-----|
| 73 USA | -145.0 | ALSO00002 | 169.5 | 10.0 | 57.0 | 01 | -30.1 | -26.6 | -26.8 | -27.3 | -26.6 | -26.2 | -26.3 | | | | | | P |
| 73 USA | -145.0 | ALSO00002 | 169.9 | 10.0 | 57.0 | 02 | -30.1 | -26.6 | -26.8 | -27.3 | -26.6 | -26.2 | -26.3 | | | | | | P |
| 73 USA | -145.0 | ALSO00002 | 170.3 | 10.0 | 57.0 | 03 | -30.1 | -26.6 | -26.8 | -27.3 | -26.6 | -26.2 | -26.3 | | | | | | P |
| 73 USA | -145.0 | ALSO00002 | 170.7 | 10.0 | 57.0 | 04 | -30.1 | -26.6 | -26.8 | -27.3 | -26.6 | -26.2 | -26.3 | | | | | | P |
| 74 USA | -170.0 | ALSO00003 | 164.2 | 9.0 | 157.0 | 01 | -29.5 | -26.4 | -26.6 | -26.8 | -26.5 | -26.4 | -26.5 | | | | | | P |
| 74 USA | -170.0 | ALSO00003 | 164.6 | 9.0 | 157.0 | 02 | -29.5 | -26.4 | -26.6 | -26.8 | -26.5 | -26.4 | -26.5 | | | | | | P |
| 74 USA | -170.0 | ALSO00003 | 165.0 | 9.0 | 157.0 | 03 | -29.5 | -26.4 | -26.6 | -26.8 | -26.5 | -26.4 | -26.5 | | | | | | P |
| 74 USA | -170.0 | ALSO00003 | 165.4 | 9.0 | 157.0 | 04 | -29.5 | -26.4 | -26.6 | -26.8 | -26.5 | -26.4 | -26.5 | | | | | | P |
| 261 ARG | -85.0 | ARGINSU2 | 22.3 | 9.8 | 57.0 | 01 | -30.1 | -30.4 | -30.7 | | | | | | | | | | P |
| 262 ARG | -85.0 | ARGNORT2 | 539.5 | 37.9 | 57.0 | 01 | -26.5 | -26.3 | -25.2 | -24.8 | -24.7 | -24.8 | -25.1 | -25.3 | | | | | P |
| 262 ARG | -85.0 | ARGNORT2 | 541.8 | 37.9 | 57.0 | 03 | -26.5 | -26.3 | -25.2 | -24.8 | -24.7 | -24.8 | -25.1 | -25.3 | | | | | P |
| 263 ARG | -85.0 | ARGSUR02 | 238.0 | 24.7 | 57.0 | 02 | -30.6 | -29.5 | -28.7 | -28.6 | -28.7 | -28.6 | | | | | | | P |
| 263 ARG | -85.0 | ARGSUR02 | 239.4 | 24.7 | 57.0 | 04 | -30.6 | -29.5 | -28.7 | -28.6 | -28.7 | -28.6 | | | | | | | P |
| 264 ATG | -92.0 | ATGSJN01 | 20.6 | 50.0 | 85.0 | 04 | -28.7 | -28.7 | -28.8 | -28.8 | -28.7 | | | | | | | | P |
| 28 HOL | -95.0 | ATNNORTH | 21.2 | 47.9 | 97.0 | 03 | -48.7 | -48.7 | -48.7 | -48.7 | -48.7 | -48.7 | | | | | | | P |
| 27 HOL | -95.0 | ATNSOUTH | 26.3 | 55.5 | 97.0 | 02 | -30.5 | -30.6 | -31.0 | -31.0 | -30.6 | -30.6 | | | | | | | P |
| 27 HOL | -95.0 | ATNSOUTH | 26.4 | 55.5 | 97.0 | 04 | -30.4 | -30.5 | -30.9 | -30.9 | -30.5 | -30.5 | | | | | | | P |
| 115 BAH | -121.0 | BAHIFRB1 | 87.8 | 30.1 | 141.0 | 01 | -20.4 | -18.5 | -16.9 | -17.4 | -17.3 | -18.6 | -19.4 | | | | | | P |
| 18 G | -94.8 | BERBERMU | 11.7 | 40.3 | 96.2 | 01 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | | | | | | P |
| 18 G | -94.8 | BERBERMU | 11.7 | 40.3 | 96.2 | 03 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | | | | | | P |
| 244 G | -31.0 | BERBERO2 | 11.9 | 37.7 | -159.0 | 01 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | | | | | | P |
| 97 BLZ | -118.2 | BLZ00001 | 20.2 | 49.5 | 69.8 | 04 | -15.4 | -14.4 | -16.4 | -16.8 | -16.4 | -15.1 | | | | | | | P |
| 219 BOL | -106.0 | BOLAND01 | 275.9 | 31.7 | 141.0 | 01 | -39.3 | -39.5 | -39.6 | -39.2 | -39.2 | -39.2 | | | | | | | P |
| 219 BOL | -106.0 | BOLAND01 | 277.0 | 31.7 | 141.0 | 03 | -39.3 | -39.5 | -39.6 | -39.2 | -39.2 | -39.2 | | | | | | | P |
| 252 BOL | -106.0 | BOLIFRB2 | 276.5 | 31.7 | 141.0 | 02 | -38.1 | -38.2 | -38.2 | -38.1 | -38.2 | -38.1 | | | | | | | P |
| 63 BRB | -89.0 | BRB00001 | 20.3 | 52.6 | 73.0 | 04 | -36.1 | -36.1 | -36.2 | -36.2 | -36.2 | -36.2 | -36.2 | | | | | | P |
| 228 B | -88.0 | B00CE311 | 273.0 | 26.6 | 129.0 | 01 | -42.6 | -42.6 | -42.6 | -42.8 | -42.9 | -42.7 | -42.6 | | | | | | P |
| 228 B | -88.0 | B00CE311 | 273.6 | 26.6 | 129.0 | 02 | -42.6 | -42.6 | -42.6 | -42.8 | -42.9 | -42.7 | -42.6 | | | | | | P |
| 228 B | -88.0 | B00CE311 | 274.2 | 26.6 | 129.0 | 03 | -42.7 | -42.6 | -42.6 | -42.8 | -43.0 | -42.7 | -42.6 | | | | | | P |
| 228 B | -88.0 | B00CE311 | 274.7 | 26.6 | 129.0 | 04 | -42.7 | -42.6 | -42.6 | -42.8 | -43.0 | -42.7 | -42.6 | | | | | | P |
| 235 B | -50.0 | B00CE312 | 373.5 | 68.9 | -23.0 | 01 | -39.0 | -38.5 | -38.5 | -38.5 | -38.9 | -38.6 | -38.5 | | | | | | P |
| 235 B | -50.0 | B00CE312 | 374.9 | 68.9 | -23.0 | 02 | -39.0 | -38.5 | -38.5 | -38.5 | -38.9 | -38.6 | -38.5 | | | | | | P |
| 235 B | -50.0 | B00CE312 | 376.2 | 68.9 | -23.0 | 03 | -39.0 | -38.6 | -38.5 | -38.6 | -38.9 | -38.6 | -38.5 | | | | | | P |
| 235 B | -50.0 | B00CE312 | 377.5 | 68.9 | -23.0 | 04 | -39.0 | -38.6 | -38.5 | -38.6 | -38.9 | -38.6 | -38.5 | | | | | | P |
| 229 B | -88.0 | B00CE411 | 240.4 | 38.1 | 129.0 | 01 | -41.3 | -41.3 | -41.3 | -41.7 | -41.7 | -41.4 | | | | | | | P |
| 229 B | -88.0 | B00CE411 | 240.9 | 38.1 | 129.0 | 02 | -41.3 | -41.3 | -41.3 | -41.7 | -41.7 | -41.4 | | | | | | | P |
| 229 B | -88.0 | B00CE411 | 241.4 | 38.1 | 129.0 | 03 | -41.3 | -41.3 | -41.3 | -41.7 | -41.7 | -41.4 | | | | | | | P |
| 229 B | -88.0 | B00CE411 | 241.9 | 38.1 | 129.0 | 04 | -41.3 | -41.3 | -41.3 | -41.8 | -41.7 | -41.4 | | | | | | | P |
| 236 B | -50.0 | B00CE412 | 331.6 | 62.0 | -23.0 | 01 | -40.9 | -40.5 | -40.5 | -40.7 | -41.1 | -40.9 | | | | | | | P |
| 236 B | -50.0 | B00CE412 | 332.3 | 62.0 | -23.0 | 02 | -40.9 | -40.5 | -40.5 | -40.7 | -41.1 | -40.9 | | | | | | | P |
| 236 B | -50.0 | B00CE412 | 333.0 | 62.0 | -23.0 | 03 | -40.9 | -40.5 | -40.5 | -40.7 | -41.1 | -40.9 | | | | | | | P |
| 236 B | -50.0 | B00CE412 | 333.7 | 62.0 | -23.0 | 04 | -40.9 | -40.5 | -40.5 | -40.7 | -41.1 | -40.9 | | | | | | | P |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|-------|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|------|-----|
| 230 B | -88.0 | B00CE511 | 255.1 | 43.7 | 129.0 | 01 | -42.9 | -42.8 | -42.6 | -42.7 | -42.8 | -43.0 | | | | | | P |
| 230 B | -88.0 | B00CE511 | 255.6 | 43.7 | 129.0 | 02 | -42.9 | -42.8 | -42.6 | -42.7 | -42.8 | -43.0 | | | | | | P |
| 230 B | -88.0 | B00CE511 | 256.2 | 43.7 | 129.0 | 03 | -42.9 | -42.8 | -42.7 | -42.7 | -42.8 | -43.0 | | | | | | P |
| 230 B | -88.0 | B00CE511 | 256.7 | 43.7 | 129.0 | 04 | -42.9 | -42.8 | -42.7 | -42.7 | -42.8 | -43.0 | | | | | | P |
| 237 B | -65.0 | B00CE512 | 314.5 | 70.0 | 37.0 | 01 | -40.5 | -41.0 | -40.9 | -40.4 | -40.4 | -40.8 | | | | | | P |
| 237 B | -65.0 | B00CE512 | 315.1 | 70.0 | 37.0 | 02 | -40.5 | -41.0 | -40.9 | -40.4 | -40.4 | -40.8 | | | | | | P |
| 237 B | -65.0 | B00CE512 | 315.8 | 70.0 | 37.0 | 03 | -40.5 | -41.0 | -40.9 | -40.4 | -40.4 | -40.8 | | | | | | P |
| 237 B | -65.0 | B00CE512 | 316.5 | 70.0 | 37.0 | 04 | -40.5 | -41.0 | -40.9 | -40.5 | -40.4 | -40.8 | | | | | | P |
| 231 B | -103.0 | B00N0611 | 209.0 | 30.6 | 189.0 | 01 | -46.5 | -46.4 | -46.5 | -46.5 | -46.4 | -46.5 | | | | | | P |
| 231 B | -103.0 | B00N0611 | 209.4 | 30.6 | 189.0 | 02 | -46.5 | -46.4 | -46.5 | -46.6 | -46.4 | -46.5 | | | | | | P |
| 231 B | -103.0 | B00N0611 | 209.8 | 30.6 | 189.0 | 03 | -46.5 | -46.4 | -46.5 | -46.6 | -46.4 | -46.5 | | | | | | P |
| 231 B | -103.0 | B00N0611 | 210.3 | 30.6 | 189.0 | 04 | -46.5 | -46.4 | -46.5 | -46.6 | -46.4 | -46.5 | | | | | | P |
| 240 B | -65.0 | B00N0612 | 305.7 | 69.5 | 37.0 | 01 | -44.3 | -44.1 | -44.2 | -44.3 | -44.1 | -44.2 | | | | | | P |
| 240 B | -65.0 | B00N0612 | 306.4 | 69.5 | 37.0 | 02 | -44.3 | -44.1 | -44.2 | -44.3 | -44.1 | -44.2 | | | | | | P |
| 240 B | -65.0 | B00N0612 | 307.0 | 69.5 | 37.0 | 03 | -44.3 | -44.1 | -44.3 | -44.3 | -44.1 | -44.2 | | | | | | P |
| 240 B | -65.0 | B00N0612 | 307.6 | 69.5 | 37.0 | 04 | -44.3 | -44.1 | -44.3 | -44.3 | -44.1 | -44.2 | | | | | | P |
| 232 B | -103.0 | B00N0711 | 273.6 | 33.1 | 189.0 | 01 | -44.5 | -44.5 | -44.5 | -44.4 | -44.3 | -44.5 | | | | | | P |
| 232 B | -103.0 | B00N0711 | 274.2 | 33.1 | 189.0 | 02 | -44.5 | -44.6 | -44.5 | -44.4 | -44.4 | -44.6 | | | | | | P |
| 232 B | -103.0 | B00N0711 | 274.8 | 33.1 | 189.0 | 03 | -44.5 | -44.6 | -44.5 | -44.4 | -44.4 | -44.6 | | | | | | P |
| 232 B | -103.0 | B00N0711 | 275.3 | 33.1 | 189.0 | 04 | -44.5 | -44.6 | -44.5 | -44.4 | -44.4 | -44.6 | | | | | | P |
| 241 B | -65.0 | B00N0712 | 394.3 | 73.3 | 37.0 | 01 | -43.5 | -43.4 | -43.3 | -43.2 | -43.2 | -43.5 | | | | | | P |
| 241 B | -65.0 | B00N0712 | 395.2 | 73.3 | 37.0 | 02 | -43.5 | -43.4 | -43.3 | -43.2 | -43.2 | -43.5 | | | | | | P |
| 241 B | -65.0 | B00N0712 | 396.0 | 73.3 | 37.0 | 03 | -43.5 | -43.5 | -43.3 | -43.2 | -43.2 | -43.5 | | | | | | P |
| 241 B | -65.0 | B00N0712 | 396.8 | 73.3 | 37.0 | 04 | -43.5 | -43.5 | -43.4 | -43.2 | -43.2 | -43.5 | | | | | | P |
| 233 B | -103.0 | B00N0811 | 188.9 | 45.2 | 129.0 | 01 | -45.6 | -45.7 | -45.6 | -45.6 | -45.5 | -45.6 | -45.5 | | | | | P |
| 233 B | -103.0 | B00N0811 | 189.3 | 45.2 | 129.0 | 02 | -45.6 | -45.7 | -45.6 | -45.6 | -45.5 | -45.6 | -45.5 | | | | | P |
| 233 B | -103.0 | B00N0811 | 189.7 | 45.2 | 129.0 | 03 | -45.6 | -45.7 | -45.6 | -45.6 | -45.5 | -45.6 | -45.6 | | | | | P |
| 233 B | -103.0 | B00N0811 | 190.1 | 45.2 | 129.0 | 04 | -45.6 | -45.7 | -45.6 | -45.6 | -45.5 | -45.6 | -45.6 | | | | | P |
| 242 B | -65.0 | B00N0812 | 233.8 | 75.9 | -23.0 | 01 | -44.5 | -44.6 | -44.5 | -44.5 | -44.4 | -44.5 | -44.5 | | | | | P |
| 242 B | -65.0 | B00N0812 | 234.3 | 75.9 | -23.0 | 02 | -44.6 | -44.6 | -44.5 | -44.5 | -44.4 | -44.6 | -44.5 | | | | | P |
| 242 B | -65.0 | B00N0812 | 234.8 | 75.9 | -23.0 | 03 | -44.6 | -44.7 | -44.5 | -44.5 | -44.5 | -44.6 | -44.5 | | | | | P |
| 242 B | -65.0 | B00N0812 | 235.3 | 75.9 | -23.0 | 04 | -44.6 | -44.7 | -44.6 | -44.5 | -44.5 | -44.6 | -44.5 | | | | | P |
| 239 B | -107.0 | B00SE911 | 124.0 | 13.1 | 205.0 | 01 | -38.9 | -38.9 | -38.9 | -38.9 | -38.9 | -39.0 | | | | | | P |
| 239 B | -107.0 | B00SE911 | 124.3 | 13.1 | 205.0 | 02 | -38.9 | -38.9 | -38.9 | -38.9 | -38.9 | -38.9 | | | | | | P |
| 239 B | -107.0 | B00SE911 | 124.5 | 13.1 | 205.0 | 03 | -38.9 | -38.9 | -38.9 | -38.9 | -38.9 | -39.0 | | | | | | P |
| 239 B | -107.0 | B00SE911 | 124.8 | 13.1 | 205.0 | 04 | -38.8 | -38.8 | -38.8 | -38.8 | -38.8 | -38.9 | | | | | | P |
| 226 B | -73.0 | B00SU111 | 206.1 | 46.4 | 69.0 | 01 | -38.1 | -38.1 | -38.6 | -38.7 | -38.3 | -38.3 | | | | | | P |
| 226 B | -73.0 | B00SU111 | 206.6 | 46.4 | 69.0 | 02 | -38.1 | -38.1 | -38.6 | -38.7 | -38.3 | -38.3 | | | | | | P |
| 226 B | -73.0 | B00SU111 | 207.0 | 46.4 | 69.0 | 03 | -38.1 | -38.1 | -38.6 | -38.7 | -38.3 | -38.3 | | | | | | P |
| 226 B | -73.0 | B00SU111 | 207.4 | 46.4 | 69.0 | 04 | -38.1 | -38.1 | -38.6 | -38.7 | -38.3 | -38.3 | | | | | | P |
| 234 B | -50.0 | B00SU112 | 229.2 | 52.0 | -23.0 | 01 | -40.8 | -40.9 | -41.4 | -41.2 | -40.9 | -41.2 | | | | | | P |
| 234 B | -50.0 | B00SU112 | 229.7 | 52.0 | -23.0 | 02 | -40.9 | -40.9 | -41.4 | -41.2 | -40.9 | -41.2 | | | | | | P |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|---|---|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 234 B | | | -50.0 | B00SU112 | 230.2 | 52.0 | -23.0 | 03 | -40.9 | -40.9 | -41.4 | -41.2 | -40.9 | -41.2 | | | | | P |
| 234 B | | | -50.0 | B00SU112 | 230.7 | 52.0 | -23.0 | 04 | -40.9 | -40.9 | -41.4 | -41.2 | -40.9 | -41.2 | | | | | P |
| 227 B | | | -73.0 | B00SU211 | 323.0 | 46.1 | 69.0 | 01 | -36.9 | -36.7 | -36.3 | -36.0 | -36.0 | -36.3 | -36.4 | | | | P |
| 227 B | | | -73.0 | B00SU211 | 323.7 | 46.1 | 69.0 | 02 | -36.9 | -36.7 | -36.3 | -36.0 | -36.0 | -36.3 | -36.4 | | | | P |
| 227 B | | | -73.0 | B00SU211 | 324.4 | 46.1 | 69.0 | 03 | -36.9 | -36.7 | -36.3 | -36.0 | -36.0 | -36.3 | -36.4 | | | | P |
| 227 B | | | -73.0 | B00SU211 | 325.0 | 46.1 | 69.0 | 04 | -36.9 | -36.7 | -36.3 | -36.0 | -36.0 | -36.3 | -36.4 | | | | P |
| 238 B | | | -50.0 | B00SU212 | 347.6 | 61.6 | -23.0 | 01 | -41.1 | -40.6 | -40.4 | -40.6 | -41.0 | -40.8 | -40.4 | | | | P |
| 238 B | | | -50.0 | B00SU212 | 348.8 | 61.6 | -23.0 | 02 | -41.1 | -40.6 | -40.4 | -40.6 | -41.0 | -40.8 | -40.4 | | | | P |
| 238 B | | | -50.0 | B00SU212 | 350.1 | 61.6 | -23.0 | 03 | -41.1 | -40.6 | -40.4 | -40.6 | -41.0 | -40.8 | -40.4 | | | | P |
| 238 B | | | -50.0 | B00SU212 | 351.4 | 61.6 | -23.0 | 04 | -41.1 | -40.6 | -40.4 | -40.6 | -41.0 | -40.8 | -40.4 | | | | P |
| 4 CAN | | | -165.0 | CAN00001 | 115.8 | 5.3 | 77.0 | 01 | -26.8 | -26.8 | -27.1 | -26.7 | -26.9 | -26.9 | -26.8 | -27.0 | -26.8 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.1 | 5.3 | 77.0 | 02 | -26.8 | -26.8 | -27.1 | -26.7 | -26.9 | -26.9 | -26.8 | -27.0 | -26.8 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.4 | 5.3 | 77.0 | 03 | -26.8 | -26.8 | -27.1 | -26.7 | -26.9 | -26.9 | -26.8 | -27.0 | -26.8 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.7 | 5.3 | 77.0 | 04 | -26.8 | -26.8 | -27.1 | -26.7 | -26.9 | -26.8 | -26.8 | -27.0 | -26.8 | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.1 | 8.3 | 125.0 | 01 | -27.6 | -27.5 | -27.8 | -27.4 | -27.5 | -28.2 | -28.3 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.4 | 8.3 | 125.0 | 02 | -27.6 | -27.5 | -27.8 | -27.4 | -27.5 | -28.2 | -28.3 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.6 | 8.3 | 125.0 | 03 | -27.6 | -27.5 | -27.8 | -27.4 | -27.5 | -28.2 | -28.3 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.9 | 8.3 | 125.0 | 04 | -27.6 | -27.5 | -27.8 | -27.4 | -27.5 | -28.2 | -28.3 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 132.4 | 7.9 | 53.0 | 01 | -27.8 | -27.9 | -27.9 | -27.8 | -27.9 | -28.0 | -27.7 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 132.8 | 7.9 | 53.0 | 02 | -27.8 | -27.9 | -27.9 | -27.8 | -27.9 | -28.0 | -27.7 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 133.2 | 7.9 | 53.0 | 03 | -27.8 | -27.9 | -27.9 | -27.8 | -27.9 | -28.0 | -27.7 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 133.6 | 7.9 | 53.0 | 04 | -27.8 | -27.9 | -27.9 | -27.8 | -27.9 | -28.0 | -27.7 | | | | P |
| 7 CAN | | | -111.0 | CAN00004 | 258.2 | 8.4 | 101.0 | 01 | -28.1 | -28.1 | -28.0 | -28.1 | -28.1 | -28.1 | -28.0 | -28.3 | -28.1 | -28.0 | P |
| 7 CAN | | | -111.0 | CAN00004 | 259.0 | 8.4 | 101.0 | 02 | -28.1 | -28.1 | -28.0 | -28.1 | -28.1 | -28.1 | -28.0 | -28.3 | -28.1 | -28.0 | P |
| 7 CAN | | | -111.0 | CAN00004 | 259.8 | 8.4 | 101.0 | 03 | -28.1 | -28.1 | -28.0 | -28.1 | -28.1 | -28.1 | -28.0 | -28.3 | -28.1 | -28.0 | P |
| 7 CAN | | | -111.0 | CAN00004 | 260.6 | 8.4 | 101.0 | 04 | -28.1 | -28.1 | -28.0 | -28.1 | -28.1 | -28.1 | -28.0 | -28.3 | -28.1 | -28.0 | P |
| 8 CAN | | | -93.0 | CAN00005 | 238.7 | 9.4 | 29.0 | 01 | -27.8 | -27.9 | -28.0 | -27.8 | -27.8 | -27.8 | -27.9 | -28.0 | -28.0 | -28.0 | P |
| 8 CAN | | | -93.0 | CAN00005 | 239.4 | 9.4 | 29.0 | 02 | -27.8 | -27.9 | -28.0 | -27.8 | -27.8 | -27.8 | -27.9 | -28.0 | -28.0 | -28.0 | P |
| 8 CAN | | | -93.0 | CAN00005 | 240.0 | 9.4 | 29.0 | 03 | -27.8 | -27.9 | -28.0 | -27.8 | -27.8 | -27.8 | -27.9 | -28.0 | -28.0 | -28.0 | P |
| 8 CAN | | | -93.0 | CAN00005 | 240.7 | 9.4 | 29.0 | 04 | -27.8 | -27.9 | -28.0 | -27.8 | -27.8 | -27.8 | -27.9 | -27.9 | -28.0 | -28.0 | P |
| 9 CAN | | | -75.0 | CAN00006 | 158.8 | 20.7 | 45.0 | 01 | -28.0 | -28.0 | -28.0 | -28.0 | -27.9 | -28.1 | -28.0 | -27.9 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 159.3 | 20.7 | 45.0 | 02 | -28.0 | -28.0 | -28.0 | -28.0 | -27.9 | -28.1 | -28.0 | -27.9 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 159.7 | 20.7 | 45.0 | 03 | -28.0 | -28.0 | -28.0 | -28.0 | -27.9 | -28.1 | -28.0 | -27.9 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 160.2 | 20.7 | 45.0 | 04 | -28.0 | -28.0 | -28.0 | -28.0 | -27.9 | -28.1 | -28.0 | -27.9 | | | P |
| 210 CHL | | | -98.0 | CHLCONT4 | 52.4 | 44.5 | 109.0 | 01 | -24.5 | -24.5 | -26.4 | -26.0 | -25.5 | -24.9 | | | | | P |
| 211 CHL | | | -98.0 | CHLCONT5 | 64.8 | 33.5 | 109.0 | 02 | -27.6 | -27.1 | -27.5 | -27.5 | -27.1 | -27.8 | | | | | P |
| 211 CHL | | | -98.0 | CHLCONT5 | 65.1 | 33.5 | 109.0 | 04 | -27.6 | -27.1 | -27.5 | -27.5 | -27.1 | -27.8 | | | | | P |
| 212 CHL | | | -98.0 | CHLCONT6 | 168.2 | 6.4 | 109.0 | 03 | -23.8 | -21.9 | -19.4 | -19.5 | -19.5 | -20.5 | -20.8 | -23.3 | -24.2 | | P |
| 200 CHL | | | -98.0 | CHLPAC02 | 33.1 | 45.9 | 109.0 | 01 | -14.8 | -17.5 | -17.3 | -13.4 | -13.8 | -13.9 | | | | | P |
| 220 CLM | | | -106.0 | CLMAND01 | 477.4 | 44.6 | 81.0 | 01 | -40.1 | -40.1 | -40.5 | -40.4 | -40.6 | -40.5 | -40.6 | -40.6 | -40.7 | -40.2 | P |
| 220 CLM | | | -106.0 | CLMAND01 | 479.4 | 44.6 | 81.0 | 03 | -40.1 | -40.1 | -40.5 | -40.4 | -40.6 | -40.5 | -40.6 | -40.6 | -40.7 | -40.2 | P |
| 11 CLM | | | -110.0 | CLM00001 | 455.6 | 40.2 | 97.0 | 01 | -34.7 | -34.7 | -34.8 | -34.7 | -34.8 | -34.7 | -34.7 | -34.7 | -34.8 | -34.7 | P |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|----------|-------|------|--------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| | | | | | | | | | | | | | | | | | | | |
| 11 CLM | -110.0 | CLM00001 | 456.5 | 40.2 | 97.0 | 02 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | P |
| 11 CLM | -110.0 | CLM00001 | 457.5 | 40.2 | 97.0 | 03 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | P |
| 11 CLM | -110.0 | CLM00001 | 458.4 | 40.2 | 97.0 | 04 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 01 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 02 | -33.0 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 03 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | -34.4 | P |
| 251 JMC | -95.0 | CRBBER01 | 11.8 | 40.1 | 37.0 | 04 | -33.0 | -33.0 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | P |
| 249 JMC | -95.0 | CRBNW001 | 388.4 | 53.1 | 37.0 | 01 | -30.7 | -30.7 | -31.2 | -31.3 | -31.2 | -30.7 | -30.8 | -30.7 | -30.8 | -30.7 | -30.8 | -30.7 | P |
| 249 JMC | -95.0 | CRBNW001 | 389.2 | 53.1 | 37.0 | 02 | -31.6 | -31.6 | -34.1 | -34.6 | -33.2 | -31.8 | -31.7 | -31.9 | -31.7 | -31.9 | -31.7 | -31.9 | P |
| 249 JMC | -95.0 | CRBNW001 | 390.0 | 53.1 | 37.0 | 03 | -30.7 | -30.7 | -31.2 | -31.3 | -31.2 | -30.7 | -30.8 | -30.7 | -30.8 | -30.7 | -30.8 | -30.7 | P |
| 249 JMC | -95.0 | CRBNW001 | 390.8 | 53.1 | 37.0 | 04 | -30.6 | -30.6 | -30.7 | -30.7 | -30.8 | -30.6 | -30.7 | -30.6 | -30.7 | -30.6 | -30.7 | -30.6 | P |
| 250 JMC | -95.0 | CRBSE001 | 213.0 | 43.1 | 37.0 | 01 | -39.2 | -39.4 | -39.4 | -39.0 | -39.0 | -39.0 | -39.0 | -39.0 | -39.0 | -39.0 | -39.0 | -39.5 | P |
| 250 JMC | -95.0 | CRBSE001 | 213.5 | 43.1 | 37.0 | 02 | -35.5 | -35.6 | -35.6 | -35.7 | -35.6 | -35.6 | -35.6 | -35.6 | -35.5 | -35.6 | -35.6 | -35.6 | P |
| 250 JMC | -95.0 | CRBSE001 | 213.9 | 43.1 | 37.0 | 03 | -35.0 | -35.0 | -35.0 | -35.9 | -35.8 | -35.8 | -35.8 | -35.8 | -35.0 | -35.0 | -35.0 | -35.0 | P |
| 250 JMC | -95.0 | CRBSE001 | 214.4 | 43.1 | 37.0 | 04 | -35.5 | -35.6 | -35.6 | -35.7 | -35.6 | -35.6 | -35.6 | -35.6 | -35.5 | -35.6 | -35.6 | -35.6 | P |
| 257 CTR | -115.0 | CTR00201 | 43.4 | 50.8 | 117.0 | 01 | -23.2 | -22.4 | -22.5 | -21.6 | -21.9 | -21.9 | -21.9 | -21.9 | -21.9 | -21.9 | -21.9 | -21.9 | P |
| 12 CUB | -107.0 | CUB00001 | 97.9 | 45.8 | 85.0 | 04 | -19.9 | -20.2 | -20.2 | -20.1 | -20.5 | -20.4 | -19.6 | -19.2 | -19.1 | -18.7 | -18.7 | -18.7 | P |
| 118 DMA | -111.0 | DMAIFRB1 | 23.1 | 30.9 | 161.0 | 01 | -20.7 | -20.5 | -20.9 | -20.6 | -20.6 | -20.6 | -20.6 | -20.6 | -20.6 | -20.6 | -20.6 | -20.6 | P |
| 259 DOM | -118.0 | DOMIFRB2 | 39.3 | 30.1 | 129.0 | 02 | -8.5 | -5.3 | -6.0 | -6.8 | -5.9 | -5.9 | -5.9 | -5.9 | -5.9 | -5.9 | -5.9 | -5.9 | P |
| 221 EQA | -106.0 | EQACAND1 | 92.6 | 54.1 | 81.0 | 01 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.2 | -48.3 | -48.3 | P |
| 221 EQA | -106.0 | EQACAND1 | 93.0 | 54.1 | 81.0 | 03 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.2 | 66.8 | 37.0 | 01 | -33.3 | -33.2 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.4 | 66.8 | 37.0 | 02 | -33.2 | -33.2 | -33.3 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.6 | 66.8 | 37.0 | 03 | -33.2 | -33.2 | -33.3 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.8 | 66.8 | 37.0 | 04 | -33.2 | -33.2 | -33.2 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 222 EQA | -106.0 | EQAGAND1 | 41.1 | 69.7 | 21.0 | 01 | -28.6 | -29.0 | -29.1 | -29.0 | -28.6 | -28.5 | -28.5 | -28.5 | -28.5 | -28.5 | -28.5 | -28.5 | P |
| 222 EQA | -106.0 | EQAGAND1 | 41.4 | 69.7 | 21.0 | 03 | -28.6 | -29.0 | -29.1 | -29.0 | -28.7 | -28.6 | -28.6 | -28.6 | -28.6 | -28.6 | -28.6 | -28.6 | P |
| 99 EQA | -95.0 | EQAG0001 | 41.9 | 82.5 | -23.0 | 01 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | P |
| 99 EQA | -95.0 | EQAG0001 | 42.1 | 82.5 | -23.0 | 02 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | P |
| 99 EQA | -95.0 | EQAG0001 | 42.2 | 82.5 | -23.0 | 03 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | P |
| 99 EQA | -95.0 | EQAG0001 | 42.4 | 82.5 | -23.0 | 04 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | P |
| 243 G | -57.0 | FLKANT01 | 91.6 | 13.6 | -55.0 | 03 | 12.2 | 11.7 | 6.1 | 7.4 | 11.1 | 6.3 | 11.6 | 6.3 | 11.6 | 6.3 | 11.6 | 6.3 | P |
| 19 G | -31.0 | FLKFALKS | 15.6 | 24.2 | -159.0 | 01 | 6.5 | 7.0 | 6.7 | 7.1 | 6.6 | 6.0 | 6.6 | 6.0 | 6.6 | 6.0 | 6.6 | 6.0 | P |
| 58 GRD | -42.0 | GRD00002 | 19.6 | 62.6 | -115.0 | 01 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | P |
| 58 GRD | -42.0 | GRD00002 | 19.6 | 62.6 | -115.0 | 02 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | P |
| 58 GRD | -42.0 | GRD00002 | 19.7 | 62.6 | -115.0 | 03 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | P |
| 58 GRD | -42.0 | GRD00002 | 19.8 | 62.6 | -115.0 | 04 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | -29.4 | P |
| 59 GRD | -89.0 | GRD00003 | 19.7 | 54.6 | 73.0 | 01 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | P |
| 59 GRD | -89.0 | GRD00003 | 19.8 | 54.6 | 73.0 | 02 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | -29.3 | P |
| 59 GRD | -89.0 | GRD00003 | 19.8 | 54.6 | 73.0 | 03 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | -30.8 | P |
| 59 GRD | -89.0 | GRD00003 | 19.9 | 54.6 | 73.0 | 04 | -35.8 | -35.9 | -35.8 | -35.7 | -35.8 | -35.7 | -35.8 | -35.7 | -35.8 | -35.7 | -35.8 | -35.7 | P |
| 13 DNK | -60.0 | GRLDNK01 | 80.1 | 3.3 | 17.0 | 03 | -0.6 | -0.9 | -0.9 | 0.4 | 0.3 | 0.0 | 0.3 | 0.0 | 0.3 | 0.6 | 1.5 | 1.8 | P |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 10.1 |
|-----|-----|--------|-----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 255 | GTM | -138.0 | GTM1FRB2 | 51.5 | 31.4 | 149.0 | 01 | -20.7 | -21.3 | -23.3 | -25.8 | -23.4 | | | | | | P |
| 16 | F | -60.0 | GUFMGG01 | 206.1 | 68.4 | 17.0 | 02 | -0.7 | -0.6 | -0.5 | -5.8 | -5.8 | -6.1 | -6.6 | -7.9 | -8.4 | | P |
| 267 | GUY | -80.0 | GUY00201 | 78.4 | 62.4 | 65.0 | 03 | -6.8 | -6.3 | -6.3 | -6.8 | -5.7 | -7.5 | | | | | P |
| 268 | GUY | -95.0 | GUY00202 | 72.8 | 45.7 | 125.0 | 01 | -47.5 | -47.4 | -47.4 | -47.4 | -47.4 | -47.4 | | | | | P |
| 253 | HND | -134.0 | HND1FRB2 | 44.9 | 30.1 | 133.0 | 03 | -26.8 | -24.8 | -25.1 | -25.9 | | | | | | | P |
| 258 | HTI | -94.8 | HTI00002 | 32.6 | 54.8 | 36.2 | 02 | -40.1 | -39.7 | -39.5 | -39.6 | -39.7 | -39.7 | -39.7 | | | | P |
| 75 | USA | -145.0 | HWA000002 | 87.9 | 41.2 | -63.0 | 01 | -26.1 | -26.1 | -26.2 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA000002 | 88.1 | 41.2 | -63.0 | 02 | -26.1 | -26.1 | -26.2 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA000002 | 88.3 | 41.2 | -63.0 | 03 | -26.1 | -26.1 | -26.2 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA000002 | 88.5 | 41.2 | -63.0 | 04 | -26.1 | -26.1 | -26.2 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 76 | USA | -170.0 | HWA000003 | 96.0 | 56.1 | 37.0 | 01 | -25.8 | -25.9 | -25.9 | -25.8 | -25.8 | -25.8 | -25.9 | | | | P |
| 76 | USA | -170.0 | HWA000003 | 96.2 | 56.1 | 37.0 | 02 | -25.8 | -25.8 | -25.9 | -25.8 | -25.8 | -25.8 | -25.9 | | | | P |
| 76 | USA | -170.0 | HWA000003 | 96.4 | 56.1 | 37.0 | 03 | -25.8 | -25.9 | -25.9 | -25.8 | -25.8 | -25.8 | -25.9 | | | | P |
| 76 | USA | -170.0 | HWA000003 | 96.7 | 56.1 | 37.0 | 04 | -25.8 | -25.8 | -25.9 | -25.8 | -25.8 | -25.8 | -25.9 | | | | P |
| 21 | G | -92.0 | IOBBVIRG | 19.8 | 51.6 | 85.0 | 01 | -27.3 | -27.4 | -27.4 | -27.4 | -27.3 | -27.4 | | | | | P |
| 22 | G | -111.3 | IOBCAYMA | 23.0 | 47.4 | 102.2 | 04 | -21.3 | -21.4 | -21.3 | -21.2 | -21.4 | -21.6 | | | | | P |
| 245 | G | -92.0 | IOBKN001 | 20.2 | 50.6 | 85.0 | 02 | -29.1 | -29.1 | -29.1 | -29.1 | | | | | | | P |
| 24 | G | -92.0 | IOBMONTE | 21.5 | 49.8 | 85.0 | 03 | -29.5 | -29.5 | -29.5 | -29.5 | -29.5 | -29.5 | | | | | P |
| 26 | G | -101.5 | IOBTURCA | 23.5 | 47.6 | 63.0 | 04 | -19.0 | -19.0 | -18.8 | -18.5 | -18.4 | -18.6 | -18.7 | -18.5 | | | P |
| 246 | JMC | -95.0 | JMC00002 | 25.9 | 59.7 | 37.0 | 02 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | | | P |
| 117 | LCA | -112.0 | LCA1FRB1 | 23.2 | 30.1 | 165.0 | 02 | -16.9 | -17.0 | -16.8 | -16.9 | | | | | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 324.0 | 49.8 | 17.0 | 01 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 325.0 | 49.8 | 17.0 | 02 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 326.1 | 49.8 | 17.0 | 03 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 327.1 | 49.8 | 17.0 | 04 | -28.5 | -28.5 | -28.6 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 460.0 | 56.6 | -43.0 | 01 | -30.2 | -30.3 | -30.5 | -30.5 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 461.7 | 56.6 | -43.0 | 02 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 463.4 | 56.6 | -43.0 | 03 | -30.2 | -30.3 | -30.5 | -30.5 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 465.1 | 56.6 | -43.0 | 04 | -30.2 | -30.2 | -30.3 | -30.5 | -30.2 | -30.1 | -30.2 | | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 318.9 | 24.9 | 137.0 | 01 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 319.5 | 24.9 | 137.0 | 02 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 320.2 | 24.9 | 137.0 | 03 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 320.9 | 24.9 | 137.0 | 04 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 346.9 | 30.2 | 77.0 | 01 | -32.3 | -32.4 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 347.6 | 30.2 | 77.0 | 02 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 348.3 | 30.2 | 77.0 | 03 | -32.3 | -32.8 | -32.7 | -32.4 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 349.0 | 30.2 | 77.0 | 04 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 256 | NCG | -114.0 | NCG000003 | 62.0 | 50.6 | 53.0 | 02 | -16.1 | -15.4 | -15.3 | -15.5 | -16.9 | -17.1 | -18.7 | -17.2 | | | P |
| 204 | CHL | -98.0 | PAQPAC01 | 10.3 | 55.1 | 109.0 | 03 | -10.7 | -10.6 | -10.6 | -10.7 | | | | | | | P |
| 254 | PNR | -129.0 | PNR1FRB2 | 45.7 | 30.5 | 173.0 | 04 | -8.8 | -8.8 | -8.6 | -8.7 | -8.4 | -8.5 | | | | | P |
| 265 | PRG | -90.0 | PRG000002 | 67.5 | 40.9 | 77.0 | 01 | -19.1 | -20.0 | -19.8 | -20.2 | -21.4 | -21.1 | -20.7 | -17.3 | -17.4 | -19.9 | P |
| 265 | PRG | -90.0 | PRG000002 | 67.9 | 40.9 | 77.0 | 03 | -19.1 | -19.9 | -19.7 | -20.2 | -21.3 | -21.0 | -20.7 | -17.3 | -17.3 | -19.9 | P |

| MARGEN TOTAL MARGE TOTALE | | | | | | | | | | | | | | | | | | |
|------------------------------|-----|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 1101 |
| | | | | | | | | | | | | | | | | | | |
| 223 | PRU | -106.0 | PRUAND01 | 449.2 | 44.3 | 81.0 | 03 | -40.1 | -40.0 | -39.9 | -39.8 | -40.3 | -40.4 | -40.1 | -40.0 | -39.9 | -39.7 | P |
| 223 | PRU | -106.0 | PRUAND01 | 447.3 | 44.3 | 81.0 | 01 | -40.1 | -40.0 | -39.9 | -39.8 | -40.2 | -40.4 | -40.1 | -40.0 | -39.9 | -39.7 | P |
| 225 | PRU | -100.0 | PRU00002 | 483.6 | 50.0 | 57.0 | 02 | -13.5 | -15.6 | -15.5 | -13.2 | -17.2 | -13.6 | -11.9 | -11.6 | -11.1 | -10.9 | P |
| 225 | PRU | -100.0 | PRU00002 | 485.7 | 50.0 | 57.0 | 04 | -13.0 | -15.4 | -15.3 | -13.1 | -17.2 | -13.6 | -11.9 | -11.6 | -11.1 | -10.7 | P |
| 77 | USA | -100.0 | PTRVIR01 | 29.7 | 44.6 | 57.0 | 01 | -32.8 | -32.6 | -32.7 | -32.9 | -32.7 | -32.7 | -32.8 | -32.7 | | | P |
| 77 | USA | -100.0 | PTRVIR01 | 29.8 | 44.6 | 57.0 | 02 | -33.0 | -32.8 | -32.8 | -33.0 | -32.8 | -32.9 | -32.9 | -32.9 | | | P |
| 77 | USA | -100.0 | PTRVIR01 | 29.8 | 44.6 | 57.0 | 03 | -32.8 | -32.6 | -32.7 | -32.9 | -32.7 | -32.7 | -32.8 | -32.7 | | | P |
| 77 | USA | -100.0 | PTRVIR01 | 29.9 | 44.6 | 57.0 | 04 | -33.0 | -32.8 | -32.8 | -33.1 | -32.8 | -32.9 | -32.9 | -32.9 | | | P |
| 260 | SLV | -139.0 | SLVIFRB2 | 27.1 | 30.0 | 153.0 | 01 | -27.7 | -26.1 | -26.2 | -26.8 | | | | | | | P |
| 206 | F | -60.0 | SPMERAN3 | 108.3 | 31.2 | -43.0 | 01 | -0.8 | -1.5 | -2.5 | -2.5 | -2.9 | -1.5 | | | | | P |
| 61 | SUR | -72.0 | SURINAME | 50.4 | 68.0 | 25.0 | 04 | -4.6 | -4.5 | -6.7 | -3.3 | -3.4 | -5.9 | -4.3 | -4.2 | | | P |
| 78 | TRD | -65.0 | TRD00001 | 21.8 | 75.7 | -23.0 | 01 | -33.1 | -32.9 | -32.8 | -32.7 | -32.8 | -32.6 | -32.6 | -32.6 | -32.9 | -32.6 | P |
| 32 | URG | -84.0 | URG00001 | 33.7 | 38.8 | 113.0 | 02 | -25.8 | -25.6 | -24.7 | -24.3 | -23.5 | -24.7 | -25.1 | -24.8 | -26.5 | -26.6 | P |
| 32 | URG | -84.0 | URG00001 | 33.9 | 38.8 | 113.0 | 04 | -25.7 | -25.6 | -24.7 | -24.2 | -23.5 | -24.7 | -25.1 | -24.8 | -26.5 | -26.6 | P |
| 67 | USA | -115.0 | USACSA02 | 734.5 | 29.6 | 57.0 | 01 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P |
| 67 | USA | -115.0 | USACSA02 | 736.1 | 29.6 | 57.0 | 02 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P |
| 67 | USA | -115.0 | USACSA02 | 737.6 | 29.6 | 57.0 | 03 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P |
| 67 | USA | -115.0 | USACSA02 | 739.2 | 29.6 | 57.0 | 04 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P |
| 68 | USA | -142.0 | USACSA03 | 498.3 | 15.2 | 165.0 | 01 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P |
| 68 | USA | -142.0 | USACSA03 | 499.3 | 15.2 | 165.0 | 02 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P |
| 68 | USA | -142.0 | USACSA03 | 500.4 | 15.2 | 165.0 | 03 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P |
| 68 | USA | -142.0 | USACSA03 | 501.4 | 15.2 | 165.0 | 04 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P |
| 65 | USA | -100.0 | USAESA02 | 738.7 | 27.6 | 57.0 | 01 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P |
| 65 | USA | -100.0 | USAESA02 | 741.4 | 27.6 | 57.0 | 02 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P |
| 65 | USA | -100.0 | USAESA02 | 744.2 | 27.6 | 57.0 | 03 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P |
| 65 | USA | -100.0 | USAESA02 | 746.9 | 27.6 | 57.0 | 04 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P |
| 66 | USA | -123.0 | USAESA03 | 560.3 | 14.7 | 149.0 | 01 | -33.2 | -33.2 | -33.2 | -33.3 | -33.1 | -33.2 | -33.1 | -33.1 | | | P |
| 66 | USA | -123.0 | USAESA03 | 561.4 | 14.7 | 149.0 | 02 | -33.2 | -33.1 | -33.2 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | | | P |
| 66 | USA | -123.0 | USAESA03 | 562.6 | 14.7 | 149.0 | 03 | -33.2 | -33.2 | -33.2 | -33.1 | -33.1 | -33.2 | -33.1 | -33.1 | | | P |
| 66 | USA | -123.0 | USAESA03 | 563.8 | 14.7 | 149.0 | 04 | -33.2 | -33.1 | -33.2 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | | | P |
| 69 | USA | -132.0 | USAMSA02 | 551.0 | 24.7 | 65.0 | 01 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P |
| 69 | USA | -132.0 | USAMSA02 | 552.8 | 24.7 | 65.0 | 02 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P |
| 69 | USA | -132.0 | USAMSA02 | 554.6 | 24.7 | 65.0 | 03 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P |
| 69 | USA | -132.0 | USAMSA02 | 556.5 | 24.7 | 65.0 | 04 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P |
| 70 | USA | -157.0 | USAMSA03 | 445.1 | 10.8 | 165.0 | 01 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P |
| 70 | USA | -157.0 | USAMSA03 | 446.0 | 10.8 | 165.0 | 02 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P |
| 70 | USA | -157.0 | USAMSA03 | 447.0 | 10.8 | 165.0 | 03 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P |
| 70 | USA | -157.0 | USAMSA03 | 447.9 | 10.8 | 165.0 | 04 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P |
| 71 | USA | -145.0 | USAPSA02 | 318.8 | 25.1 | 57.0 | 01 | -29.8 | -29.6 | -29.4 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P |
| 71 | USA | -145.0 | USAPSA02 | 319.9 | 25.1 | 57.0 | 02 | -29.8 | -29.6 | -29.4 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P |
| 71 | USA | -145.0 | USAPSA02 | 321.0 | 25.1 | 57.0 | 03 | -29.8 | -29.6 | -29.4 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P |
| 71 | USA | -145.0 | USAPSA02 | 322.1 | 25.1 | 57.0 | 04 | -29.8 | -29.6 | -29.4 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P |

ESCENARIO/ SCENARIO: PEXM1

SAT-R2 TOTAL MARGIN
MARGEN TOTAL
MARGE TOTALE

830628

0007

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-----|
| 72 USA | -170.0 | USAPSA03 | 229.4 | 11.2 | 157.0 | 01 | -32.9 | -32.9 | -32.8 | -33.1 | -33.0 | -32.9 | -32.8 | -32.8 | | | | P |
| 72 USA | -170.0 | USAPSA03 | 229.8 | 11.2 | 157.0 | 02 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.9 | -32.8 | -32.8 | | | | P |
| 72 USA | -170.0 | USAPSA03 | 230.3 | 11.2 | 157.0 | 03 | -32.9 | -32.9 | -32.8 | -33.1 | -33.0 | -32.9 | -32.8 | -32.8 | | | | P |
| 72 USA | -170.0 | USAPSA03 | 230.8 | 11.2 | 157.0 | 04 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.9 | -32.8 | -32.8 | | | | P |
| 271 VCI | -92.0 | VCI00001 | 20.3 | 51.2 | 85.0 | 01 | -23.4 | -23.3 | -23.2 | -23.3 | -23.4 | -23.4 | | | | | | P |
| 269 VEN | -106.0 | VENAND02 | 342.9 | 36.4 | 109.0 | 01 | -42.0 | -41.9 | -41.9 | -41.9 | -42.0 | -42.2 | -41.8 | -41.8 | -41.8 | -42.1 | | P |
| 269 VEN | -106.0 | VENAND02 | 344.3 | 36.4 | 109.0 | 03 | -42.0 | -41.9 | -41.9 | -41.9 | -42.0 | -42.2 | -41.9 | -41.9 | -41.9 | -42.1 | | P |
| 57 VEN | -85.0 | VEN02VEN | 20.1 | 58.7 | 25.0 | 02 | -29.2 | -29.2 | -29.3 | -29.4 | -29.3 | -29.3 | | | | | | P |
| 270 VEN | -85.0 | VEN11VEN | 358.2 | 59.2 | 25.0 | 01 | -11.1 | -11.2 | -14.1 | -12.4 | -12.5 | -11.8 | -11.9 | -10.8 | -11.0 | -11.1 | | P |
| 270 VEN | -85.0 | VEN11VEN | 359.7 | 59.2 | 25.0 | 03 | -11.1 | -11.2 | -14.1 | -13.0 | -13.3 | -12.2 | -11.9 | -10.8 | -11.0 | -11.1 | | P |

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
**CONFÉRENCE DE RADIODIFFUSION
PAR SATELLITE (RÉGION 2)**

GENÈVE, 1983

Document No. DT/32-F/E/S^V
27 June 1983
Original : English

WORKING GROUP 5A

RESULT FROM THE FIRST PLANNING EXERCISE

RESULTATS DU PREMIER EXERCICE DE PLANIFICATION

RESULTADOS DEL PRIMER EJERCICIO DE PLANIFICACIÓN

H. SAAVEDRA
5A1

| TOTAL DE SOMME POUR LA MARGE TOTALE | | TOTAL MARGIN REPORT | | INFORME DEL MARGEN TOTAL | |
|-------------------------------------|--|---------------------|---|--------------------------|---|
| TITRES DES COLONNES | | COLUMN HEADINGS | | TÍTULOS DE LAS COLUMNAS | |
| Colonne | Description | Column | Description | Columna | Descripción |
| 1 | Numéro de référence appliqué par l'IFRB à la zone de service qui subit un brouillage | 1 | IFRB reference number of service area subject to interference | 1 | Número de referencia de la IFRB de la zona de servicio sometida a interferencia |
| 2 | Administration | 2 | Administration. | 2 | Administración |
| 3 | Position sur l'orbite | 3 | Orbital position. | 3 | Posición orbital |
| 4 | Identification du faisceau de la liaison descendante (zone de service) | 4 | Downlink beam identification (service area) | 4 | Identificación del haz del enlace descendente (zona de servicio) |
| 5 | Puissance aux bornes d'entrée de l'antenne du satellite | 5 | Satellite Antenna Input Power | 5 | Potencia de entrada de la antena de satélite |
| 6 | Angle de site minimal dans la zone de service de la liaison descendante | 6 | Minimum elevation angle in downlink service area. | 6 | Angulo de elevación mínimo en la zona de servicio del enlace descendente |
| 7 | Instant initial de l'éclipse solaire (en minutes à partir de minuit) | 7 | Earliest onset of solar eclipse (in minutes from midnight). | 7 | Primera aparición del eclipse solar (en minutos a partir de medianoche) |
| 8 | Famille de canaux de la liaison descendante/Groupe de blocs | 8 | Downlink channel family/Blocking Group. | 8 | Familia de canales del enlace descendente/grupo de bloques |
| 9 | Marge composite totale pour chaque point de mesure de la liaison descendante | 9 | Total aggregate margin for each downlink test point. | 9 | Margen agregado total para cada punto de prueba del enlace descendente |
| 10 | P = points sur polygone T = points de mesure | 10 | P = Polygon Points T = Test Points | 10 | P = Puntos de polígono T = Puntos de prueba |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|-----------|-------|------|--------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-----|------|-----|
| 73 USA | -145.0 | ALSO00002 | 169.5 | 10.0 | 57.0 | 01 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | | | | P |
| 73 USA | -145.0 | ALSO00002 | 169.9 | 10.0 | 57.0 | 02 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | | | | P |
| 73 USA | -145.0 | ALSO00002 | 170.3 | 10.0 | 57.0 | 03 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | | | | P |
| 73 USA | -145.0 | ALSO00002 | 170.7 | 10.0 | 57.0 | 04 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | -62.6 | | | | P |
| 74 USA | -170.0 | ALSO00003 | 164.2 | 9.0 | 157.0 | 01 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | | | | P |
| 74 USA | -170.0 | ALSO00003 | 164.6 | 9.0 | 157.0 | 02 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | | | | P |
| 74 USA | -170.0 | ALSO00003 | 165.0 | 9.0 | 157.0 | 03 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | -60.9 | | | | P |
| 74 USA | -170.0 | ALSO00003 | 165.4 | 9.0 | 157.0 | 04 | -61.0 | -61.0 | -61.0 | -61.0 | -61.0 | -61.0 | -61.0 | -61.0 | -61.0 | | | | P |
| 261 ARG | -85.0 | ARGINSU2 | 22.3 | 9.8 | 57.0 | 01 | -55.8 | -55.8 | -55.8 | | | | | | | | | | P |
| 262 ARG | -85.0 | ARGNORT2 | 539.5 | 37.9 | 57.0 | 01 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | | | P |
| 262 ARG | -85.0 | ARGNORT2 | 541.8 | 37.9 | 57.0 | 03 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | -66.2 | | | P |
| 263 ARG | -85.0 | ARGSUR02 | 238.0 | 24.7 | 57.0 | 02 | -57.0 | -57.0 | -57.0 | -57.0 | -57.0 | -57.0 | -57.0 | -57.0 | -57.0 | | | | P |
| 263 ARG | -85.0 | ARGSUR02 | 239.4 | 24.7 | 57.0 | 04 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | | | | P |
| 116 ATG | -92.0 | ATGIFRB1 | 20.7 | 50.0 | 85.0 | 04 | -71.2 | -71.2 | -71.2 | -71.2 | -71.2 | -71.2 | -71.2 | -71.2 | -71.2 | | | | P |
| 28 HOL | -95.0 | ATNNORTH | 21.2 | 47.9 | 97.0 | 03 | -92.3 | -92.3 | -92.3 | -92.3 | -92.3 | -92.3 | -92.3 | -92.3 | -92.3 | | | | P |
| 27 HOL | -95.0 | ATNSOUTH | 26.3 | 55.5 | 97.0 | 02 | -76.0 | -76.0 | -76.0 | -76.0 | -76.0 | -76.0 | -76.0 | -76.0 | -76.0 | | | | P |
| 27 HOL | -95.0 | ATNSOUTH | 26.4 | 55.5 | 97.0 | 04 | -75.9 | -75.9 | -75.9 | -75.9 | -75.9 | -75.9 | -75.9 | -75.9 | -75.9 | | | | P |
| 115 BAH | -121.0 | BAHIFRB1 | 37.8 | 30.1 | 141.0 | 01 | -63.7 | -63.7 | -63.7 | -63.7 | -63.7 | -63.7 | -63.7 | -63.7 | -63.7 | | | | P |
| 18 G | -94.8 | BERBERMU | 11.7 | 40.3 | 96.2 | 01 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | | | | P |
| 18 G | -94.8 | BERBERMU | 11.7 | 40.3 | 96.2 | 03 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | -65.8 | | | | P |
| 244 G | -31.0 | BERBERU2 | 11.9 | 37.7 | -159.0 | 01 | -31.1 | -31.1 | -31.1 | -31.1 | -31.1 | -31.1 | -31.1 | -31.1 | -31.1 | | | | P |
| 97 BLZ | -118.2 | BLZ00001 | 20.2 | 49.5 | 69.8 | 04 | -39.7 | -39.7 | -39.7 | -39.7 | -39.7 | -39.7 | -39.7 | -39.7 | -39.7 | | | | P |
| 219 BOL | -106.0 | BOLAND01 | 275.9 | 31.7 | 141.0 | 01 | -102.1 | -102.1 | -102.1 | -102.1 | -102.1 | -102.1 | -102.1 | -102.1 | -102.1 | | | | P |
| 219 BOL | -106.0 | BOLAND01 | 277.0 | 31.7 | 141.0 | 03 | -102.2 | -102.2 | -102.2 | -102.2 | -102.2 | -102.2 | -102.2 | -102.2 | -102.2 | | | | P |
| 252 BOL | -106.0 | BOLIFRB2 | 276.5 | 31.7 | 141.0 | 02 | -95.6 | -95.6 | -95.6 | -95.6 | -95.6 | -95.6 | -95.6 | -95.6 | -95.6 | | | | P |
| 63 BRB | -89.0 | BRB00001 | 20.3 | 52.6 | 73.0 | 04 | -78.8 | -78.8 | -78.8 | -78.8 | -78.8 | -78.8 | -78.8 | -78.8 | -78.8 | | | | P |
| 228 B | -88.0 | B00CE311 | 273.0 | 26.6 | 129.0 | 01 | -45.2 | -45.2 | -45.2 | -45.3 | -45.4 | -45.2 | -45.2 | -45.2 | -45.2 | | | | P |
| 228 B | -88.0 | B00CE311 | 273.6 | 26.6 | 129.0 | 02 | -44.6 | -44.6 | -44.6 | -44.7 | -44.8 | -44.7 | -44.6 | -44.6 | -44.6 | | | | P |
| 228 B | -88.0 | B00CE311 | 274.2 | 26.6 | 129.0 | 03 | -45.2 | -45.2 | -45.2 | -45.3 | -45.4 | -45.2 | -45.2 | -45.2 | -45.2 | | | | P |
| 228 B | -88.0 | B00CE311 | 274.7 | 26.6 | 129.0 | 04 | -44.7 | -44.7 | -44.7 | -44.8 | -44.9 | -44.7 | -44.7 | -44.7 | -44.7 | | | | P |
| 235 B | -50.0 | B00CE312 | 373.5 | 68.9 | -23.0 | 01 | -40.6 | -40.3 | -40.3 | -40.3 | -40.6 | -40.3 | -40.3 | -40.3 | -40.3 | | | | P |
| 235 B | -50.0 | B00CE312 | 374.9 | 68.9 | -23.0 | 02 | -40.7 | -40.3 | -40.3 | -40.3 | -40.6 | -40.4 | -40.3 | -40.3 | -40.3 | | | | P |
| 235 B | -50.0 | B00CE312 | 376.2 | 68.9 | -23.0 | 03 | -40.7 | -40.3 | -40.3 | -40.3 | -40.6 | -40.4 | -40.3 | -40.3 | -40.3 | | | | P |
| 235 B | -50.0 | B00CE312 | 377.5 | 68.9 | -23.0 | 04 | -40.7 | -40.3 | -40.3 | -40.3 | -40.6 | -40.4 | -40.3 | -40.3 | -40.3 | | | | P |
| 229 B | -88.0 | B00CE411 | 240.4 | 38.1 | 129.0 | 01 | -59.8 | -59.8 | -59.8 | -59.8 | -59.8 | -59.8 | -59.8 | -59.8 | -59.8 | | | | P |
| 229 B | -88.0 | B00CE411 | 240.9 | 38.1 | 129.0 | 02 | -53.6 | -53.6 | -53.6 | -53.7 | -53.7 | -53.6 | -53.6 | -53.6 | -53.6 | | | | P |
| 229 B | -88.0 | B00CE411 | 241.4 | 38.1 | 129.0 | 03 | -59.9 | -59.9 | -59.9 | -59.9 | -59.9 | -59.9 | -59.9 | -59.9 | -59.9 | | | | P |
| 229 B | -88.0 | B00CE411 | 241.9 | 38.1 | 129.0 | 04 | -53.7 | -53.7 | -53.7 | -53.7 | -53.7 | -53.7 | -53.7 | -53.7 | -53.7 | | | | P |
| 236 B | -50.0 | B00CE412 | 331.6 | 62.0 | -23.0 | 01 | -44.4 | -44.2 | -44.2 | -44.3 | -44.4 | -44.3 | -44.3 | -44.3 | -44.3 | | | | P |
| 236 B | -50.0 | B00CE412 | 332.3 | 62.0 | -23.0 | 02 | -44.3 | -44.1 | -44.1 | -44.2 | -44.4 | -44.3 | -44.3 | -44.3 | -44.3 | | | | P |
| 236 B | -50.0 | B00CE412 | 333.0 | 62.0 | -23.0 | 03 | -44.4 | -44.2 | -44.2 | -44.3 | -44.5 | -44.4 | -44.4 | -44.4 | -44.4 | | | | P |
| 236 B | -50.0 | B00CE412 | 333.7 | 62.0 | -23.0 | 04 | -44.3 | -44.2 | -44.1 | -44.2 | -44.4 | -44.3 | -44.3 | -44.3 | -44.3 | | | | P |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|-------|---|---|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-----|-----|------|-----|
| 230 B | | | -88.0 | B00CE511 | 255.1 | 43.7 | 129.0 | 01 | -60.8 | -60.8 | -60.8 | -60.8 | -60.8 | -60.8 | | | | | P |
| 230 B | | | -88.0 | B00CE511 | 255.6 | 43.7 | 129.0 | 02 | -56.7 | -56.7 | -56.7 | -56.7 | -56.7 | -56.7 | | | | | P |
| 230 B | | | -88.0 | B00CE511 | 256.2 | 43.7 | 129.0 | 03 | -60.8 | -60.8 | -60.8 | -60.8 | -60.8 | -60.8 | | | | | P |
| 230 B | | | -88.0 | B00CE511 | 256.7 | 43.7 | 129.0 | 04 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | -56.8 | | | | | P |
| 237 B | | | -65.0 | B00CE512 | 314.5 | 70.0 | 37.0 | 01 | -58.6 | -58.6 | -58.6 | -58.6 | -58.6 | -58.6 | | | | | P |
| 237 B | | | -65.0 | B00CE512 | 315.1 | 70.0 | 37.0 | 02 | -52.7 | -52.7 | -52.7 | -52.7 | -52.7 | -52.7 | | | | | P |
| 237 B | | | -65.0 | B00CE512 | 315.8 | 70.0 | 37.0 | 03 | -45.8 | -46.0 | -45.9 | -45.8 | -45.8 | -45.9 | | | | | P |
| 237 B | | | -65.0 | B00CE512 | 316.5 | 70.0 | 37.0 | 04 | -50.3 | -50.3 | -50.3 | -50.3 | -50.3 | -50.3 | | | | | P |
| 231 B | | | -103.0 | B00N0611 | 209.0 | 30.6 | 189.0 | 01 | -58.1 | -58.1 | -58.1 | -58.1 | -58.1 | -58.1 | | | | | P |
| 231 B | | | -103.0 | B00N0611 | 209.4 | 30.6 | 189.0 | 02 | -58.6 | -58.5 | -58.6 | -58.6 | -58.5 | -58.6 | | | | | P |
| 231 B | | | -103.0 | B00N0611 | 209.8 | 30.6 | 189.0 | 03 | -58.3 | -58.3 | -58.3 | -58.3 | -58.3 | -58.3 | | | | | P |
| 231 B | | | -103.0 | B00N0611 | 210.3 | 30.6 | 189.0 | 04 | -58.6 | -58.6 | -58.6 | -58.6 | -58.6 | -58.6 | | | | | P |
| 240 B | | | -65.0 | B00N0612 | 305.7 | 69.5 | 37.0 | 01 | -52.4 | -52.4 | -52.4 | -52.4 | -52.4 | -52.4 | | | | | P |
| 240 B | | | -65.0 | B00N0612 | 306.4 | 69.5 | 37.0 | 02 | -46.6 | -46.5 | -46.6 | -46.6 | -46.5 | -46.6 | | | | | P |
| 240 B | | | -65.0 | B00N0612 | 307.0 | 69.5 | 37.0 | 03 | -44.7 | -44.5 | -44.7 | -44.7 | -44.5 | -44.7 | | | | | P |
| 240 B | | | -65.0 | B00N0612 | 307.6 | 69.5 | 37.0 | 04 | -46.6 | -46.5 | -46.6 | -46.6 | -46.5 | -46.6 | | | | | P |
| 232 B | | | -103.0 | B00N0711 | 273.6 | 33.1 | 189.0 | 01 | -65.7 | -65.7 | -65.7 | -65.7 | -65.7 | -65.7 | | | | | P |
| 232 B | | | -103.0 | B00N0711 | 274.2 | 33.1 | 189.0 | 02 | -62.5 | -62.5 | -62.5 | -62.5 | -62.5 | -62.5 | | | | | P |
| 232 B | | | -103.0 | B00N0711 | 274.8 | 33.1 | 189.0 | 03 | -68.1 | -68.1 | -68.1 | -68.1 | -68.1 | -68.1 | | | | | P |
| 232 B | | | -103.0 | B00N0711 | 275.3 | 33.1 | 189.0 | 04 | -62.6 | -62.6 | -62.6 | -62.6 | -62.5 | -62.6 | | | | | P |
| 241 B | | | -65.0 | B00N0712 | 394.3 | 73.3 | 37.0 | 01 | -63.0 | -63.0 | -63.0 | -63.0 | -63.0 | -63.0 | | | | | P |
| 241 B | | | -65.0 | B00N0712 | 395.2 | 73.3 | 37.0 | 02 | -54.4 | -54.4 | -54.4 | -54.4 | -54.4 | -54.4 | | | | | P |
| 241 B | | | -65.0 | B00N0712 | 396.0 | 73.3 | 37.0 | 03 | -47.5 | -47.5 | -47.5 | -47.4 | -47.4 | -47.5 | | | | | P |
| 241 B | | | -65.0 | B00N0712 | 396.8 | 73.3 | 37.0 | 04 | -54.3 | -54.3 | -54.3 | -54.3 | -54.3 | -54.3 | | | | | P |
| 233 B | | | -103.0 | B00N0811 | 188.9 | 45.2 | 129.0 | 01 | -62.9 | -62.9 | -62.9 | -62.9 | -62.9 | -62.9 | -62.9 | | | | P |
| 233 B | | | -103.0 | B00N0811 | 189.3 | 45.2 | 129.0 | 02 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | | | | P |
| 233 B | | | -103.0 | B00N0811 | 189.7 | 45.2 | 129.0 | 03 | -66.0 | -66.0 | -66.0 | -66.0 | -66.0 | -66.0 | -66.0 | | | | P |
| 233 B | | | -103.0 | B00N0811 | 190.1 | 45.2 | 129.0 | 04 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | -62.7 | | | | P |
| 242 B | | | -65.0 | B00N0812 | 233.8 | 75.9 | -23.0 | 01 | -57.3 | -57.3 | -57.3 | -57.3 | -57.3 | -57.3 | -57.3 | | | | P |
| 242 B | | | -65.0 | B00N0812 | 234.3 | 75.9 | -23.0 | 02 | -49.3 | -49.3 | -49.3 | -49.2 | -49.2 | -49.3 | -49.2 | | | | P |
| 242 B | | | -65.0 | B00N0812 | 234.8 | 75.9 | -23.0 | 03 | -45.1 | -45.1 | -45.0 | -45.0 | -45.0 | -45.1 | -45.0 | | | | P |
| 242 B | | | -65.0 | B00N0812 | 235.3 | 75.9 | -23.0 | 04 | -49.3 | -49.3 | -49.3 | -49.3 | -49.3 | -49.3 | -49.3 | | | | P |
| 239 B | | | -107.0 | B00SE911 | 124.0 | 13.1 | 205.0 | 01 | -57.3 | -57.3 | -57.3 | -57.3 | -57.3 | -57.3 | | | | | P |
| 239 B | | | -107.0 | B00SE911 | 124.3 | 13.1 | 205.0 | 02 | -48.5 | -48.5 | -48.5 | -48.5 | -48.5 | -48.5 | | | | | P |
| 239 B | | | -107.0 | B00SE911 | 124.5 | 13.1 | 205.0 | 03 | -58.0 | -58.0 | -58.0 | -58.0 | -58.0 | -58.0 | | | | | P |
| 239 B | | | -107.0 | B00SE911 | 124.8 | 13.1 | 205.0 | 04 | -65.0 | -65.0 | -65.0 | -65.0 | -65.0 | -65.0 | | | | | P |
| 226 B | | | -73.0 | B00SU111 | 206.1 | 46.4 | 69.0 | 01 | -41.8 | -41.8 | -42.0 | -42.1 | -41.9 | -41.9 | | | | | P |
| 226 B | | | -73.0 | B00SU111 | 206.6 | 46.4 | 69.0 | 02 | -40.5 | -40.5 | -40.8 | -40.8 | -40.6 | -40.6 | | | | | P |
| 226 B | | | -73.0 | B00SU111 | 207.0 | 46.4 | 69.0 | 03 | -41.9 | -41.8 | -42.1 | -42.1 | -41.9 | -41.9 | | | | | P |
| 226 B | | | -73.0 | B00SU111 | 207.4 | 46.4 | 69.0 | 04 | -40.7 | -40.7 | -41.0 | -41.0 | -40.8 | -40.8 | | | | | P |
| 234 B | | | -50.0 | B00SU112 | 229.2 | 52.0 | -23.0 | 01 | -41.9 | -42.0 | -42.4 | -42.2 | -42.0 | -42.2 | | | | | P |
| 234 B | | | -50.0 | B00SU112 | 229.7 | 52.0 | -23.0 | 02 | -41.7 | -41.8 | -42.2 | -42.0 | -41.8 | -42.0 | | | | | P |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|---|---|--------|----------|-------|------|-------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| 234 B | | | -50.0 | BOOSU112 | 230.2 | 52.0 | -23.0 | 03 | -42.0 | -42.0 | -42.4 | -42.2 | -42.0 | -42.2 | | | | | P |
| 234 B | | | -50.0 | BOOSU112 | 230.7 | 52.0 | -23.0 | 04 | -41.7 | -41.8 | -42.2 | -42.0 | -41.8 | -42.0 | | | | | P |
| 227 B | | | -73.0 | BOOSU211 | 323.0 | 46.1 | 69.0 | 01 | -39.5 | -39.4 | -39.2 | -39.0 | -39.0 | -39.2 | -39.2 | | | | P |
| 227 B | | | -73.0 | BOOSU211 | 323.7 | 46.1 | 69.0 | 02 | -39.5 | -39.4 | -39.2 | -39.0 | -39.0 | -39.1 | -39.2 | | | | P |
| 227 B | | | -73.0 | BOOSU211 | 324.4 | 46.1 | 69.0 | 03 | -39.5 | -39.4 | -39.2 | -39.1 | -39.1 | -39.2 | -39.3 | | | | P |
| 227 B | | | -73.0 | BOOSU211 | 325.0 | 46.1 | 69.0 | 04 | -39.8 | -39.7 | -39.5 | -39.4 | -39.4 | -39.5 | -39.6 | | | | P |
| 238 B | | | -50.0 | BOOSU212 | 347.6 | 61.6 | -23.0 | 01 | -42.6 | -42.2 | -42.1 | -42.3 | -42.5 | -42.4 | -42.1 | | | | P |
| 238 B | | | -50.0 | BOOSU212 | 348.8 | 61.6 | -23.0 | 02 | -42.6 | -42.2 | -42.1 | -42.3 | -42.5 | -42.4 | -42.1 | | | | P |
| 238 B | | | -50.0 | BOOSU212 | 350.1 | 61.6 | -23.0 | 03 | -42.6 | -42.2 | -42.1 | -42.3 | -42.5 | -42.4 | -42.1 | | | | P |
| 238 B | | | -50.0 | BOOSU212 | 351.4 | 61.6 | -23.0 | 04 | -42.6 | -42.2 | -42.1 | -42.3 | -42.5 | -42.4 | -42.1 | | | | P |
| 4 CAN | | | -165.0 | CAN00001 | 115.8 | 5.3 | 77.0 | 01 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.1 | 5.3 | 77.0 | 02 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.4 | 5.3 | 77.0 | 03 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | | P |
| 4 CAN | | | -165.0 | CAN00001 | 116.7 | 5.3 | 77.0 | 04 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | -40.0 | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.1 | 8.3 | 125.0 | 01 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.4 | 8.3 | 125.0 | 02 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.6 | 8.3 | 125.0 | 03 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | | | | P |
| 5 CAN | | | -147.0 | CAN00002 | 107.9 | 8.3 | 125.0 | 04 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | -51.7 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 132.4 | 7.9 | 53.0 | 01 | -53.8 | -53.8 | -53.8 | -53.8 | -53.8 | -53.8 | -53.8 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 132.8 | 7.9 | 53.0 | 02 | -52.9 | -52.9 | -52.9 | -52.9 | -52.9 | -52.9 | -52.9 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 133.2 | 7.9 | 53.0 | 03 | -53.9 | -53.9 | -53.9 | -53.9 | -53.9 | -53.9 | -53.9 | | | | P |
| 6 CAN | | | -129.0 | CAN00003 | 133.6 | 7.9 | 53.0 | 04 | -58.1 | -58.1 | -58.1 | -58.1 | -58.1 | -58.1 | -58.1 | | | | P |
| 7 CAN | | | -111.0 | CAN00004 | 258.2 | 8.4 | 101.0 | 01 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | -53.1 | P |
| 7 CAN | | | -111.0 | CAN00004 | 259.0 | 8.4 | 101.0 | 02 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | -52.0 | P |
| 7 CAN | | | -111.0 | CAN00004 | 259.8 | 8.4 | 101.0 | 03 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | -51.9 | P |
| 7 CAN | | | -111.0 | CAN00004 | 260.6 | 8.4 | 101.0 | 04 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | -52.1 | P |
| 8 CAN | | | -93.0 | CAN00005 | 238.7 | 9.4 | 29.0 | 01 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | P |
| 8 CAN | | | -93.0 | CAN00005 | 239.4 | 9.4 | 29.0 | 02 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | P |
| 8 CAN | | | -93.0 | CAN00005 | 240.0 | 9.4 | 29.0 | 03 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | P |
| 8 CAN | | | -93.0 | CAN00005 | 240.7 | 9.4 | 29.0 | 04 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | -44.2 | P |
| 9 CAN | | | -75.0 | CAN00006 | 158.8 | 20.7 | 45.0 | 01 | -34.2 | -34.2 | -34.2 | -34.2 | -34.2 | -34.3 | -34.2 | -34.2 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 159.3 | 20.7 | 45.0 | 02 | -33.6 | -33.6 | -33.6 | -33.6 | -33.6 | -33.6 | -33.6 | -33.6 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 159.7 | 20.7 | 45.0 | 03 | -33.8 | -33.8 | -33.8 | -33.8 | -33.8 | -33.9 | -33.9 | -33.8 | | | P |
| 9 CAN | | | -75.0 | CAN00006 | 160.2 | 20.7 | 45.0 | 04 | -33.7 | -33.6 | -33.7 | -33.7 | -33.6 | -33.7 | -33.7 | -33.6 | | | P |
| 210 CHL | | | -98.0 | CHLCONT4 | 52.4 | 44.5 | 109.0 | 01 | -42.8 | -42.8 | -42.9 | -42.9 | -42.8 | -42.8 | | | | | P |
| 211 CHL | | | -98.0 | CHLCONT5 | 64.8 | 33.5 | 109.0 | 02 | -31.7 | -31.6 | -31.7 | -31.7 | -31.6 | -31.8 | | | | | P |
| 211 CHL | | | -98.0 | CHLCONT5 | 65.1 | 33.5 | 109.0 | 04 | -31.7 | -31.6 | -31.7 | -31.7 | -31.6 | -31.8 | | | | | P |
| 212 CHL | | | -98.0 | CHLCONT6 | 168.2 | 6.4 | 109.0 | 03 | -37.2 | -37.2 | -37.1 | -37.1 | -37.1 | -37.1 | -37.1 | -37.2 | -37.3 | | P |
| 200 CHL | | | -98.0 | CHLPAC02 | 33.1 | 45.9 | 109.0 | 01 | -26.8 | -27.0 | -27.0 | -26.7 | -26.8 | -26.8 | | | | | P |
| 220 CLM | | | -106.0 | CLMAND01 | 477.4 | 44.6 | 81.0 | 01 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | -104.7 | P |
| 220 CLM | | | -106.0 | CLMAND01 | 479.4 | 44.6 | 81.0 | 03 | -40.8 | -40.8 | -41.1 | -41.0 | -41.2 | -41.1 | -41.2 | -41.2 | -41.3 | -40.8 | P |
| 11 CLM | | | -110.0 | CLM00001 | 455.6 | 40.2 | 97.0 | 01 | -34.7 | -34.7 | -34.8 | -34.7 | -34.8 | -34.7 | -34.7 | -34.7 | -34.8 | -34.7 | P |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|-----------|-------|------|--------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 11 CLM | -110.0 | CLM000001 | 456.5 | 40.2 | 97.0 | 02 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | P |
| 11 CLP | -110.0 | CLM000001 | 457.5 | 40.2 | 97.0 | 03 | -34.7 | -34.7 | -34.7 | -34.7 | -34.8 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.8 | -34.7 | P |
| 11 CLM | -110.0 | CLM000001 | 458.4 | 40.2 | 97.0 | 04 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | -34.7 | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 01 | -33.9 | -33.9 | -34.0 | -34.0 | -34.0 | -34.0 | -34.0 | -33.9 | | | | | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 02 | -32.9 | -32.9 | -32.9 | -33.0 | -33.0 | -33.0 | -32.9 | | | | | | P |
| 251 JMC | -95.0 | CRBBER01 | 11.7 | 40.1 | 37.0 | 03 | -33.9 | -33.9 | -33.9 | -33.9 | -33.9 | -34.0 | -33.9 | | | | | | P |
| 251 JMC | -95.0 | CRBBER01 | 11.8 | 40.1 | 37.0 | 04 | -32.9 | -32.9 | -32.9 | -32.9 | -32.9 | -33.0 | -32.9 | | | | | | P |
| 249 JMC | -95.0 | CRBNW001 | 388.4 | 53.1 | 37.0 | 01 | -30.7 | -30.7 | -31.2 | -31.3 | -31.2 | -30.7 | -30.8 | -30.7 | | | | | P |
| 249 JMC | -95.0 | CRBNW001 | 389.2 | 53.1 | 37.0 | 02 | -31.6 | -31.6 | -34.1 | -34.6 | -33.2 | -31.8 | -31.7 | -31.9 | | | | | P |
| 249 JMC | -95.0 | CRBNW001 | 390.0 | 53.1 | 37.0 | 03 | -30.7 | -30.7 | -31.2 | -31.3 | -31.2 | -30.7 | -30.8 | -30.7 | | | | | P |
| 249 JMC | -95.0 | CRBNW001 | 390.8 | 53.1 | 37.0 | 04 | -30.6 | -30.6 | -30.7 | -30.7 | -30.8 | -30.6 | -30.7 | -30.6 | | | | | P |
| 250 JMC | -95.0 | CRBSE001 | 213.0 | 43.1 | 37.0 | 01 | -39.4 | -39.6 | -39.7 | -39.3 | -39.2 | -39.2 | -39.3 | -39.7 | | | | | P |
| 250 JMC | -95.0 | CRBSE001 | 213.5 | 43.1 | 37.0 | 02 | -35.5 | -35.6 | -35.6 | -35.7 | -35.7 | -35.6 | -35.5 | -35.6 | | | | | P |
| 250 JMC | -95.0 | CRBSE001 | 213.9 | 43.1 | 37.0 | 03 | -34.6 | -34.6 | -34.7 | -35.6 | -35.6 | -35.5 | -34.7 | -34.7 | | | | | P |
| 250 JMC | -95.0 | CRBSE001 | 214.4 | 43.1 | 37.0 | 04 | -35.5 | -35.6 | -35.6 | -35.7 | -35.6 | -35.6 | -35.5 | -35.6 | | | | | P |
| 257 CTR | -115.0 | CTR00201 | 43.4 | 50.8 | 117.0 | 01 | -23.1 | -22.4 | -22.5 | -21.6 | -21.9 | | | | | | | | P |
| 12 CUB | -107.0 | CUB000001 | 97.9 | 45.8 | 85.0 | 04 | -19.7 | -20.1 | -20.1 | -19.7 | -19.8 | -19.6 | -18.7 | -18.2 | -18.2 | -17.9 | | | P |
| 118 DMA | -111.0 | DMAIFRB1 | 23.1 | 30.9 | 161.0 | 01 | -19.8 | -19.5 | -20.0 | -19.7 | | | | | | | | | P |
| 259 DOM | -118.0 | DOMIFRB2 | 39.3 | 30.1 | 129.0 | 02 | -8.4 | -5.2 | -5.9 | -6.7 | -5.8 | | | | | | | | P |
| 221 EQA | -106.0 | EQACAND1 | 92.6 | 54.1 | 81.0 | 01 | -46.7 | -46.7 | -46.8 | -46.8 | -46.7 | -46.7 | -46.7 | -46.7 | -46.7 | -46.7 | -46.7 | -46.7 | P |
| 221 EQA | -106.0 | EQACAND1 | 93.0 | 54.1 | 81.0 | 03 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | -48.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.2 | 66.8 | 37.0 | 01 | -33.3 | -33.2 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.4 | 66.8 | 37.0 | 02 | -33.2 | -33.2 | -33.2 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.6 | 66.8 | 37.0 | 03 | -33.2 | -33.2 | -33.2 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 98 EQA | -95.0 | EQAC0001 | 102.8 | 66.8 | 37.0 | 04 | -33.2 | -33.2 | -33.2 | -33.3 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.2 | -33.3 | P |
| 222 EQA | -106.0 | EQAGAND1 | 41.1 | 69.7 | 21.0 | 01 | -27.4 | -27.9 | -28.0 | -27.9 | -27.4 | -27.3 | | | | | | | P |
| 222 EQA | -106.0 | EQAGAND1 | 41.4 | 69.7 | 21.0 | 03 | -28.3 | -28.7 | -28.8 | -28.7 | -28.3 | -28.2 | | | | | | | P |
| 99 EQA | -95.0 | EQAG0001 | 41.9 | 82.5 | -23.0 | 01 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | | | | | | | P |
| 99 EQA | -95.0 | EQAG0001 | 42.1 | 82.5 | -23.0 | 02 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | | | | | | | P |
| 99 EQA | -95.0 | EQAG0001 | 42.2 | 82.5 | -23.0 | 03 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | -31.0 | | | | | | | P |
| 99 EQA | -95.0 | EQAG0001 | 42.4 | 82.5 | -23.0 | 04 | -31.0 | -31.0 | -30.9 | -31.0 | -31.0 | -31.0 | | | | | | | P |
| 243 G | -57.0 | FLKANT01 | 91.6 | 13.6 | -55.0 | 03 | 12.3 | 11.7 | 6.2 | 7.4 | 11.2 | 6.3 | 11.7 | | | | | | P |
| 19 G | -31.0 | FLKFALKS | 15.6 | 24.2 | -159.0 | 01 | 8.6 | 9.3 | 8.8 | 9.5 | 8.8 | 7.8 | | | | | | | P |
| 58 GRD | -42.0 | GRD000002 | 19.6 | 62.6 | -115.0 | 01 | -29.4 | -29.4 | -29.4 | -29.4 | | | | | | | | | P |
| 58 GRD | -42.0 | GRD000002 | 19.6 | 62.6 | -115.0 | 02 | -29.4 | -29.4 | -29.4 | -29.4 | | | | | | | | | P |
| 58 GRD | -42.0 | GRD000002 | 19.7 | 62.6 | -115.0 | 03 | -29.4 | -29.4 | -29.4 | -29.4 | | | | | | | | | P |
| 58 GRD | -42.0 | GRD000002 | 19.8 | 62.6 | -115.0 | 04 | -29.4 | -29.4 | -29.4 | -29.4 | | | | | | | | | P |
| 59 GRD | -89.0 | GRD000003 | 19.7 | 54.6 | 73.0 | 01 | -29.7 | -29.8 | -29.7 | -29.7 | | | | | | | | | P |
| 59 GRD | -89.0 | GRD000003 | 19.8 | 54.6 | 73.0 | 02 | -29.3 | -29.3 | -29.3 | -29.3 | | | | | | | | | P |
| 59 GRD | -89.0 | GRD000003 | 19.8 | 54.6 | 73.0 | 03 | -29.7 | -29.7 | -29.7 | -29.6 | | | | | | | | | P |
| 59 GRD | -89.0 | GRD000003 | 19.9 | 54.6 | 73.0 | 04 | -31.6 | -31.7 | -31.6 | -31.4 | | | | | | | | | P |
| 13 DNK | -60.0 | GRLDNK01 | 80.1 | 3.3 | 17.0 | 03 | -0.6 | -0.9 | -0.9 | 0.4 | 0.3 | 0.0 | 0.4 | 0.6 | 1.5 | 1.9 | | | P |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|-----|-----|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 255 | GTM | -138.0 | GTMIFRB2 | 51.5 | 31.4 | 149.0 | 01 | -20.7 | -21.3 | -23.3 | -25.8 | -23.4 | | | | | | P |
| 16 | F | -60.0 | GUFKGG01 | 206.1 | 68.4 | 17.0 | 02 | 0.5 | 0.7 | 0.8 | -5.5 | -5.5 | -5.8 | -6.3 | -7.7 | -8.2 | | P |
| 247 | GUY | -80.0 | GUY00101 | 84.7 | 62.4 | 65.0 | 03 | -7.0 | -6.8 | -6.0 | -7.5 | -6.4 | -7.8 | | | | | P |
| 248 | GUY | -95.0 | GUY00102 | 78.1 | 45.7 | 125.0 | 01 | -47.0 | -47.0 | -47.0 | -47.0 | -47.0 | -47.0 | | | | | P |
| 253 | HND | -134.0 | HNDIFRB2 | 44.9 | 30.1 | 133.0 | 03 | -26.8 | -24.8 | -25.1 | -25.9 | | | | | | | P |
| 258 | HTI | -94.8 | HTI00002 | 32.6 | 54.8 | 36.2 | 02 | -40.1 | -39.7 | -39.5 | -39.6 | -39.7 | -39.7 | -39.7 | | | | P |
| 75 | USA | -145.0 | HWA00002 | 87.9 | 41.2 | -63.0 | 01 | -26.1 | -26.1 | -26.1 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA00002 | 88.1 | 41.2 | -63.0 | 02 | -26.1 | -26.1 | -26.1 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA00002 | 88.3 | 41.2 | -63.0 | 03 | -26.1 | -26.1 | -26.1 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 75 | USA | -145.0 | HWA00002 | 88.5 | 41.2 | -63.0 | 04 | -26.1 | -26.1 | -26.1 | -26.1 | -26.1 | -26.0 | -26.1 | | | | P |
| 76 | USA | -170.0 | HWA00003 | 96.0 | 56.1 | 37.0 | 01 | -25.8 | -25.8 | -25.8 | -25.8 | -25.8 | -25.7 | -25.8 | | | | P |
| 76 | USA | -170.0 | HWA00003 | 96.2 | 56.1 | 37.0 | 02 | -25.8 | -25.8 | -25.8 | -25.8 | -25.8 | -25.7 | -25.8 | | | | P |
| 76 | USA | -170.0 | HWA00003 | 96.4 | 56.1 | 37.0 | 03 | -25.8 | -25.8 | -25.8 | -25.8 | -25.8 | -25.7 | -25.8 | | | | P |
| 76 | USA | -170.0 | HWA00003 | 96.7 | 56.1 | 37.0 | 04 | -25.8 | -25.8 | -25.8 | -25.8 | -25.8 | -25.7 | -25.8 | | | | P |
| 21 | G | -92.0 | IOBBVIRG | 19.8 | 51.6 | 85.0 | 01 | -26.2 | -26.3 | -26.3 | -26.3 | -26.1 | -26.2 | | | | | P |
| 22 | G | -111.3 | IOBCAYMA | 23.0 | 47.4 | 102.2 | 04 | -21.2 | -21.3 | -21.2 | -21.1 | -21.3 | -21.5 | | | | | P |
| 245 | G | -92.0 | IOBKN001 | 20.2 | 50.6 | 85.0 | 02 | -29.1 | -29.1 | -29.1 | -29.1 | | | | | | | P |
| 24 | G | -92.0 | IOBMONTE | 21.5 | 49.8 | 85.0 | 03 | -27.3 | -27.3 | -27.3 | -27.3 | -27.3 | -27.3 | | | | | P |
| 25 | G | -92.0 | IOBSTVIN | 20.3 | 51.2 | 85.0 | 01 | -22.2 | -22.1 | -22.0 | -22.1 | -22.2 | -22.3 | | | | | P |
| 26 | G | -101.5 | IOBTURCA | 23.5 | 47.6 | 63.0 | 04 | -19.0 | -19.0 | -18.8 | -18.5 | -18.4 | -18.6 | -18.7 | -18.5 | | | P |
| 246 | JMC | -95.0 | JMC00002 | 25.9 | 59.7 | 37.0 | 02 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | -50.1 | | | P |
| 117 | LCA | -112.0 | LCAIFRB1 | 23.2 | 30.1 | 165.0 | 02 | -16.9 | -17.0 | -16.8 | -16.9 | | | | | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 324.0 | 49.8 | 17.0 | 01 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 325.0 | 49.8 | 17.0 | 02 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 326.1 | 49.8 | 17.0 | 03 | -28.5 | -28.5 | -28.7 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 215 | MEX | -120.0 | MEX01NTE | 327.1 | 49.8 | 17.0 | 04 | -28.5 | -28.5 | -28.6 | -28.7 | -28.6 | -28.6 | -28.7 | -28.5 | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 460.0 | 56.6 | -43.0 | 01 | -30.2 | -30.3 | -30.5 | -30.5 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 461.7 | 56.6 | -43.0 | 02 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 463.4 | 56.6 | -43.0 | 03 | -30.2 | -30.3 | -30.5 | -30.5 | -30.2 | -30.2 | -30.2 | | | | P |
| 216 | MEX | -105.0 | MEX01SUR | 465.1 | 56.6 | -43.0 | 04 | -30.2 | -30.2 | -30.3 | -30.5 | -30.2 | -30.2 | -30.2 | | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 318.9 | 24.9 | 137.0 | 01 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 319.5 | 24.9 | 137.0 | 02 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 320.2 | 24.9 | 137.0 | 03 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 217 | MEX | -150.0 | MEX02NTE | 320.9 | 24.9 | 137.0 | 04 | -30.7 | -30.6 | -30.7 | -30.8 | -30.7 | -30.7 | -30.7 | -30.7 | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 346.9 | 30.2 | 77.0 | 01 | -32.3 | -32.4 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 347.6 | 30.2 | 77.0 | 02 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 348.3 | 30.2 | 77.0 | 03 | -32.3 | -32.8 | -32.7 | -32.4 | -32.3 | -32.3 | -32.3 | | | | P |
| 218 | MEX | -135.0 | MEX02SUR | 349.0 | 30.2 | 77.0 | 04 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | -32.3 | | | | P |
| 256 | NCG | -114.0 | NCG00003 | 62.0 | 50.6 | 53.0 | 02 | -16.1 | -15.4 | -15.3 | -15.5 | -16.9 | -17.1 | -18.7 | -17.2 | | | P |
| 204 | CHL | -98.0 | PAQPAC01 | 10.3 | 55.1 | 109.0 | 03 | -2.8 | -2.7 | -2.7 | -2.8 | | | | | | | P |
| 254 | PNR | -129.0 | PNRIFRB2 | 45.7 | 30.5 | 173.0 | 04 | -2.9 | -2.7 | -1.8 | -2.0 | -0.6 | -1.3 | | | | | P |
| 30 | PRG | -90.0 | PRG00001 | 107.8 | 40.9 | 77.0 | 01 | -17.1 | -17.8 | -17.6 | -18.6 | -17.0 | -19.3 | -18.6 | -15.0 | -15.4 | -17.8 | P |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 1101 |
|---------|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 30 PRG | -90.0 | PRG00001 | 108.2 | 40.9 | 77.0 | 03 | -17.1 | -17.8 | -17.5 | -18.6 | -16.9 | -19.3 | -18.6 | -14.9 | -15.4 | -17.8 | P | |
| 223 PRU | -106.0 | PRUAND01 | 449.2 | 44.3 | 81.0 | 03 | -38.4 | -38.4 | -38.1 | -38.0 | -38.6 | -38.9 | -38.5 | -38.3 | -38.1 | -37.9 | P | |
| 223 PRU | -106.0 | PRUAND01 | 447.3 | 44.3 | 81.0 | 01 | -34.3 | -34.0 | -33.4 | -32.8 | -34.7 | -35.3 | -34.3 | -33.9 | -33.3 | -32.5 | P | |
| 225 PRU | -100.0 | PRU00002 | 483.6 | 50.0 | 57.0 | 02 | -13.3 | -15.5 | -15.4 | -13.0 | -17.2 | -13.5 | -11.7 | -11.4 | -10.9 | -10.6 | P | |
| 225 PRU | -100.0 | PRU00002 | 485.7 | 50.0 | 57.0 | 04 | -12.8 | -15.3 | -15.2 | -13.0 | -17.1 | -13.5 | -11.7 | -11.4 | -10.9 | -10.4 | P | |
| 77 USA | -100.0 | PIRVIR01 | 29.7 | 44.6 | 57.0 | 01 | -32.8 | -32.6 | -32.7 | -32.9 | -32.7 | -32.7 | -32.8 | -32.7 | | | P | |
| 77 USA | -100.0 | PIRVIR01 | 29.8 | 44.6 | 57.0 | 02 | -33.0 | -32.8 | -32.8 | -33.0 | -32.8 | -32.9 | -32.9 | -32.9 | | | P | |
| 77 USA | -100.0 | PIRVIR01 | 29.8 | 44.6 | 57.0 | 03 | -32.8 | -32.6 | -32.7 | -32.9 | -32.7 | -32.7 | -32.8 | -32.7 | | | P | |
| 77 USA | -100.0 | PIRVIR01 | 29.9 | 44.6 | 57.0 | 04 | -33.0 | -32.8 | -32.8 | -33.1 | -32.8 | -32.9 | -32.9 | -32.9 | | | P | |
| 260 SLV | -139.0 | SLVIFR02 | 27.1 | 30.0 | 153.0 | 01 | -27.7 | -26.1 | -26.2 | -26.8 | | | | | | | P | |
| 206 F | -60.0 | SPMFRAN3 | 108.3 | 31.2 | -43.0 | 01 | -0.8 | -1.5 | -2.4 | -2.5 | -2.9 | -1.4 | | | | | P | |
| 61 SUR | -72.0 | SURINAME | 50.4 | 68.0 | 25.0 | 04 | -4.2 | -4.0 | -6.4 | -2.7 | -2.8 | -5.6 | -3.8 | -3.7 | | | P | |
| 78 TRD | -65.0 | TRD00001 | 21.8 | 75.7 | -23.0 | 01 | -26.8 | -26.1 | -25.6 | -24.8 | -25.3 | -24.3 | -24.2 | -24.4 | -25.7 | -24.2 | P | |
| 32 URG | -84.0 | URG00001 | 33.7 | 38.8 | 113.0 | 02 | -25.6 | -25.4 | -24.5 | -24.0 | -23.3 | -24.5 | -24.9 | -24.6 | -26.4 | -26.4 | P | |
| 32 URG | -84.0 | URG00001 | 33.9 | 38.8 | 113.0 | 04 | -25.6 | -25.4 | -24.5 | -24.0 | -23.2 | -24.4 | -24.9 | -24.6 | -26.3 | -26.4 | P | |
| 67 USA | -115.0 | USACSA02 | 734.5 | 29.6 | 57.0 | 01 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P | |
| 67 USA | -115.0 | USACSA02 | 736.1 | 29.6 | 57.0 | 02 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P | |
| 67 USA | -115.0 | USACSA02 | 737.6 | 29.6 | 57.0 | 03 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P | |
| 67 USA | -115.0 | USACSA02 | 739.2 | 29.6 | 57.0 | 04 | -31.5 | -31.5 | -31.4 | -31.4 | -31.4 | -31.5 | -31.5 | -31.5 | -31.4 | -31.5 | P | |
| 68 USA | -142.0 | USACSA03 | 498.3 | 15.2 | 165.0 | 01 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P | |
| 68 USA | -142.0 | USACSA03 | 499.3 | 15.2 | 165.0 | 02 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P | |
| 68 USA | -142.0 | USACSA03 | 500.4 | 15.2 | 165.0 | 03 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P | |
| 68 USA | -142.0 | USACSA03 | 501.4 | 15.2 | 165.0 | 04 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | -36.5 | P | |
| 65 USA | -100.0 | USAESA02 | 738.7 | 27.6 | 57.0 | 01 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P | |
| 65 USA | -100.0 | USAESA02 | 741.4 | 27.6 | 57.0 | 02 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P | |
| 65 USA | -100.0 | USAESA02 | 744.2 | 27.6 | 57.0 | 03 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P | |
| 65 USA | -100.0 | USAESA02 | 746.9 | 27.6 | 57.0 | 04 | -31.6 | -31.6 | -31.6 | -31.6 | -31.5 | -31.6 | -31.5 | -31.5 | | | P | |
| 66 USA | -123.0 | USAESA03 | 560.3 | 14.7 | 149.0 | 01 | -33.2 | -33.2 | -33.2 | -33.3 | -33.1 | -33.2 | -33.1 | -33.1 | | | P | |
| 66 USA | -123.0 | USAESA03 | 561.4 | 14.7 | 149.0 | 02 | -33.2 | -33.1 | -33.2 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | | | P | |
| 66 USA | -123.0 | USAESA03 | 562.6 | 14.7 | 149.0 | 03 | -33.2 | -33.2 | -33.2 | -33.1 | -33.1 | -33.2 | -33.1 | -33.1 | | | P | |
| 66 USA | -123.0 | USAESA03 | 563.8 | 14.7 | 149.0 | 04 | -33.2 | -33.1 | -33.2 | -33.1 | -33.1 | -33.1 | -33.1 | -33.1 | | | P | |
| 69 USA | -132.0 | USAMSA02 | 551.0 | 24.7 | 65.0 | 01 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P | |
| 69 USA | -132.0 | USAMSA02 | 552.8 | 24.7 | 65.0 | 02 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P | |
| 69 USA | -132.0 | USAMSA02 | 554.6 | 24.7 | 65.0 | 03 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P | |
| 69 USA | -132.0 | USAMSA02 | 556.5 | 24.7 | 65.0 | 04 | -28.7 | -28.5 | -28.5 | -28.5 | -28.6 | -28.5 | -28.6 | -28.5 | -28.5 | | P | |
| 70 USA | -157.0 | USAMSA03 | 445.1 | 10.8 | 165.0 | 01 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P | |
| 70 USA | -157.0 | USAMSA03 | 446.0 | 10.8 | 165.0 | 02 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P | |
| 70 USA | -157.0 | USAMSA03 | 447.0 | 10.8 | 165.0 | 03 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P | |
| 70 USA | -157.0 | USAMSA03 | 447.9 | 10.8 | 165.0 | 04 | -31.4 | -31.4 | -31.5 | -31.5 | -31.4 | -31.4 | -31.5 | -31.4 | -31.4 | | P | |
| 71 USA | -145.0 | USAPSA02 | 318.8 | 25.1 | 57.0 | 01 | -29.8 | -29.5 | -29.3 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P | |
| 71 USA | -145.0 | USAPSA02 | 319.9 | 25.1 | 57.0 | 02 | -29.8 | -29.5 | -29.3 | -29.9 | -29.8 | -29.3 | -29.3 | -29.2 | | | P | |
| 71 USA | -145.0 | USAPSA02 | 321.0 | 25.1 | 57.0 | 03 | -29.8 | -29.5 | -29.3 | -29.9 | -29.8 | -29.3 | -29.4 | -29.3 | | | P | |

ESCENARIO/ SCENARIO: PEXM

SAT-R2 TOTAL MARGIN
MARGEN TOTAL
MARGE TOTAL

830626

0007

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.9 | 9.10 | 101 |
|---------|--------|----------|-------|------|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|------|-----|
| 71 USA | -145.0 | USAPSA02 | 322.1 | 25.1 | 57.0 | 04 | -29.8 | -29.5 | -29.3 | -29.9 | -29.8 | -29.3 | -29.3 | -29.2 | | | | | P |
| 72 USA | -170.0 | USAPSA03 | 229.4 | 11.2 | 157.0 | 01 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.8 | -32.8 | -32.8 | | | | | P |
| 72 USA | -170.0 | USAPSA03 | 229.8 | 11.2 | 157.0 | 02 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.8 | -32.8 | -32.8 | | | | | P |
| 72 USA | -170.0 | USAPSA03 | 230.3 | 11.2 | 157.0 | 03 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.8 | -32.8 | -32.8 | | | | | P |
| 72 USA | -170.0 | USAPSA03 | 230.8 | 11.2 | 157.0 | 04 | -32.9 | -32.9 | -32.8 | -33.0 | -33.0 | -32.8 | -32.8 | -32.8 | | | | | P |
| 224 VEN | -106.0 | VENAND01 | 420.5 | 35.0 | 109.0 | 01 | -27.9 | -23.3 | -23.1 | -25.8 | -28.7 | -31.2 | -23.2 | -23.4 | -23.1 | -30.2 | | | P |
| 224 VEN | -106.0 | VENAND01 | 422.2 | 35.0 | 109.0 | 03 | -40.9 | -40.7 | -40.7 | -40.8 | -40.9 | -41.1 | -40.7 | -40.7 | -40.7 | -41.0 | | | P |
| 56 VEN | -85.0 | VEN01VEN | 395.6 | 58.1 | 25.0 | 01 | -8.9 | -9.1 | -13.2 | -11.3 | -14.5 | -9.8 | -10.2 | -8.5 | -8.9 | -8.9 | | | P |
| 56 VEN | -85.0 | VEN01VEN | 397.3 | 58.1 | 25.0 | 03 | -8.9 | -9.1 | -13.3 | -12.4 | -15.0 | -10.2 | -10.2 | -8.6 | -8.9 | -8.9 | | | P |
| 57 VEN | -85.0 | VEN02VEN | 20.1 | 58.7 | 25.0 | 02 | -29.5 | -29.5 | -29.5 | -29.6 | -29.6 | -29.5 | | | | | | | P |

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/33-E

27 June 1983

Original : English

COMMITTEE 5

Note by the Chairman of Committee 5 (Planning)

AGREEMENT ON A TEST POINT LOCATED IN ANOTHER COUNTRY

1. During the planning process, agreement may be reached between two delegations for a test point of one country to be situated in another country. There is a need to record such agreements for use during the Conference and ultimately to keep the final list of these agreements in the permanent records of the Conference.
2. To these ends, the Chairman of Committee 5 suggests the following procedure :
 - a) two delegations reaching agreement on the location(s) of a test point(s) for one of the countries within the boundaries of the other country would record the agreement on the attached "Test point agreement form" (Annex). The form duly signed by the Heads of both Delegations concerned would be placed in the custody of the Technical Secretary of the Conference (Box No. 530) (Office No. J120). In reaching such agreement the delegations concerned should take all practicable measures to ensure that the interests of no third-party administration are adversely affected;
 - b) the Technical Secretary would prepare for publication by the Chairman of Committee 5 as addenda to the present document, information on new, changed or cancelled agreements at suitable intervals;
 - c) any delegation which considers that an agreement published as an addendum to the present document would adversely affect their interests should immediately take up the matter with the delegation concerned and inform the Chairman of Committee 5 and the Technical Secretary;
 - d) when the draft Plan(s) is(are) being adopted in Committee 5 (early in the last week of the Conference), the Technical Secretary would prepare for publication by the Chairman of Committee 5 a white document containing the List of the agreements pertinent to the Plan(s). The List would specify each test point in question.
3. Two copies of the annex are attached to facilitate photocopying of additional copies as required.

P.D. CROSS
Chairman of Committee 5

Annex : Test point agreement form (2 copies)

A N N E X

Date: _____

TEST POINT AGREEMENT FORM

| |
|------------------------|
| Beam identification |
| |

| |
|--|
| Country symbol of notifying Administration |
| |

| No. | Test point: geographical coordinates | Country symbol of the location of the test point |
|-----|---|--|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

| | | |
|---|-----------|---------|
| Head of Delegation seeking agreement | Signature | Box No. |
|---|-----------|---------|

| | | |
|---|-----------|---------|
| Head of Delegation with which agreement has been reached | Signature | Box No. |
|---|-----------|---------|

| | | |
|-------------------------------------|----------------------|----------|
| <u>CANCELLATION</u> of an Agreement | | |
| Beam identification | Date of Agreement | Item No. |
| | | |

Kindly use the signature spaces above

A N N E X

Date: _____

TEST POINT AGREEMENT FORM

| |
|------------------------|
| Beam identification |
| |

| |
|--|
| Country symbol of notifying Administration |
| |

| No. | Test point: geographical coordinates | Country symbol of the location of the test point |
|-----|---|--|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

| | | |
|---|-----------|---------|
| Head of Delegation seeking agreement | Signature | Box No. |
|---|-----------|---------|

| | | |
|---|-----------|---------|
| Head of Delegation with which agreement has been reached | Signature | Box No. |
|---|-----------|---------|

| | | |
|-------------------------------------|----------------------|----------|
| <u>CANCELLATION</u> of an Agreement | | |
| Beam identification | Date of Agreement | Item No. |
| | | |

Kindly use the signature spaces above

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/34-E

27 June 1983

Original : English

WORKING GROUP 4B

PROPOSED AMENDMENT TO RADIO REGULATIONS

APPENDIX 30, ANNEX 8

3.7.1 *Minimum diameter of receiving antennae*

For planning the broadcasting-satellite service the minimum diameter of receiving antennae considered is such that the half-power beamwidth φ_0 is:

- a) for individual reception: 2° in Regions 1 and 3, 1.7° in Region 2;
- b) for community reception: 1° [~~in all~~ Regions 1 and 3.]

C. PEREZ VEGA
Chairman of Sub-Working Group 4B-2

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/35-E

27 June 1983

Original : French

Report by the Secretary-General

STATEMENT OF THE ACCOUNTS OF THE CONFERENCE

AT 22 JUNE 1983

Pursuant to No. 443 of the International Telecommunication Convention, Malaga-Torremolinos, 1973, a statement of the Conference accounts at 22 June 1983 is hereby submitted for consideration by the Budget Control Committee.

The statement shows that expenditure is within the budget limits approved by the Administrative Council.

R.E. BUTLER

Secretary-General

Annex : 1

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 22 June 1983 | | | |
|----------|--|-----------------------|-----------------|-----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| | I. <u>Staff expenses</u> | | | | | | |
| 14.101 | Salaries and related expenses of the Conference Secretariat staff | 766,000 | 844,000 | 600 | 520,900 | 262,500 | 784,000 |
| 14.102 | Salaries and related expenses of the translation, typing and reproduction services staff | 616,000 | 674,000 | 69,730 | 545,770 | 58,500 | 674,000 |
| 14.103 | Travel (recruitment) | 20,000 | 20,000 | 5,580 | 8,050 | 6,370 | 20,000 |
| 14.104 | Insurance | 36,000 | 36,000 | 730 | - | 33,270 | 34,000 |
| | | 1,438,000 | 1,574,000 | 76,640 | 1,074,720 | 360,640 | 1,512,000 |
| | II. <u>Travel expenses</u> (outside Geneva) | - | - | - | - | - | - |
| | III. <u>Premises and equipment</u> | | | | | | |
| 14.301 | Premises, furniture, machines | 40,000 | 40,000 | - | 24,300 | 15,700 | 40,000 |

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 22 June 1983 | | | |
|----------|--|-----------------------|-----------------|-----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| 14.302 | Document production | 72,000 | 72,000 | 40,900 | 10,000 | 20,100 | 71,000 |
| 14.303 | Office supplies and overheads | 30,000 | 30,000 | 8,100 | 6,400 | 15,500 | 30,000 |
| 14.304 | Postage, telephone calls, telegrams | 35,000 | 35,000 | 7,200 | - | 15,800 | 23,000 |
| 14.305 | Technical installations | 5,000 | 5,000 | - | - | - | - |
| 14.306 | Sundry and unforeseen | 10,000 | 10,000 | 5,140 | - | 4,860 | 10,000 |
| 14.307 | Use of outside computers | 85,000 | 85,000 | - | 13,170 | 6,830 | 20,000 |
| | | 277,000 | 277,000 | 61,340 | 53,870 | 78,790 | 194,000 |
| | IV. <u>Other expenses</u> | | | | | | |
| 14.401 | IFRB preparatory work | 730,000 | 730,000 | 482,290 | 200,960 | 46,750 | 730,000 |
| 14.402 | Meetings of the Panel of Experts | 356,000 | 356,000 | 285,460 | 3,400 | 1,140 | 290,000 |
| 14.403 | Interest credited to the ordinary budget | 54,000 | 54,000 | - | - | 70,000 | 70,000 |
| | | 1,140,000 | 1,140,000 | 767,750 | 204,360 | 117,890 | 1,090,000 |
| | | | | | | | |

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 22 June 1983 | | | |
|----------|------------------------------|-----------------------|-----------------|-----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| 14.501 | V. <u>Final Acts</u> | | | | | | |
| | Final Acts of the Conference | 45,000 | 45,000 | - | - | 45,000 | 45,000 |
| | TOTAL | 2,900,000 | 3,036,000 | 905,730 | 1,332,950 | 602,320 | 2,841,000 |

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/36-E

29 June 1983

Original : English/
French

COMMITTEE 5

DRAFT

THIRD REPORT OF COMMITTEE 5 TO THE PLENARY MEETING

Since the Plenary of Thursday, 23 June, Committee 5 has met twice, thus making a total of five meetings.

At its second meeting Committee 5 created a Working Group 5A which would be in charge of plan development. This Working Group, during its deliberations decided to create a software user Drafting Group (5A-1) which would be directly involved with the generation of the Plan. The constitution and terms of reference of this Group are shown in Document No. 78.

As a result of requirements received by the IFRB prior to 1200 hours UTC on Monday, 20 June, a planning exercise was done by Drafting Group 5A-1. The result of this planning exercise is shown in Document No. DT/32.

Committee 5 also considered Document No. DT/31 from Working Group 5A which showed Recommendations for modification to the principles adopted for planning (Document No. 42(Rev.2)). All the principles adopted, along with the parameters adopted by Committee 4 (Document No. 51(Rev.2)) are being used to create the first draft Plan.

Committee 5 has also adopted a tentative work schedule (Document No. DT/29). This shows the need for two draft Plans to be analyzed before the Final Plan is adopted. It is expected that the Final Plan will be considered by Friday, 8 July 1983.

P.D. CROSS
Chairman of Committee 5

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/37-E

29 June 1983

Original : English

Source : Document No. DL/26

WORKING GROUP 4B

DRAFT

INFORMATION DOCUMENT

FROM COMMITTEE 4 TO COMMITTEE 5

SATELLITE TRANSMIT ANTENNA PATTERNS

Working Group 4B has discussed and agreed that the following three antenna patterns can be used for planning :

1. The pattern shown in Figure 1, derived from an antenna producing an elliptical beam with a Gaussian main lobe, is generally preferred for reasons of simplicity of implementation.
2. The pattern shown in Figure 2, derived from an antenna producing an elliptical beam with fast roll-off in the main lobe, is suggested when necessary to improve or reduce intra-service interference.
3. The patterns shown in Figure 3 (co-polar) and Figure 1 (cross-polar) may be used to improve some special cases of interregional sharing.

Working Group 4B recommends that Committee 5 evaluate the relative merits of the patterns in Figures 1 and 2, bearing in mind that the pattern shown in Figure 1 is generally preferred for reasons of simplicity of implementation. The specific text for 3.13.3 of the Final Acts (Radio Regulations) will be prepared after Committee 5 has completed this evaluation.

C. PÉREZ VEGA

Chairman of Sub-Working Group 4B-2

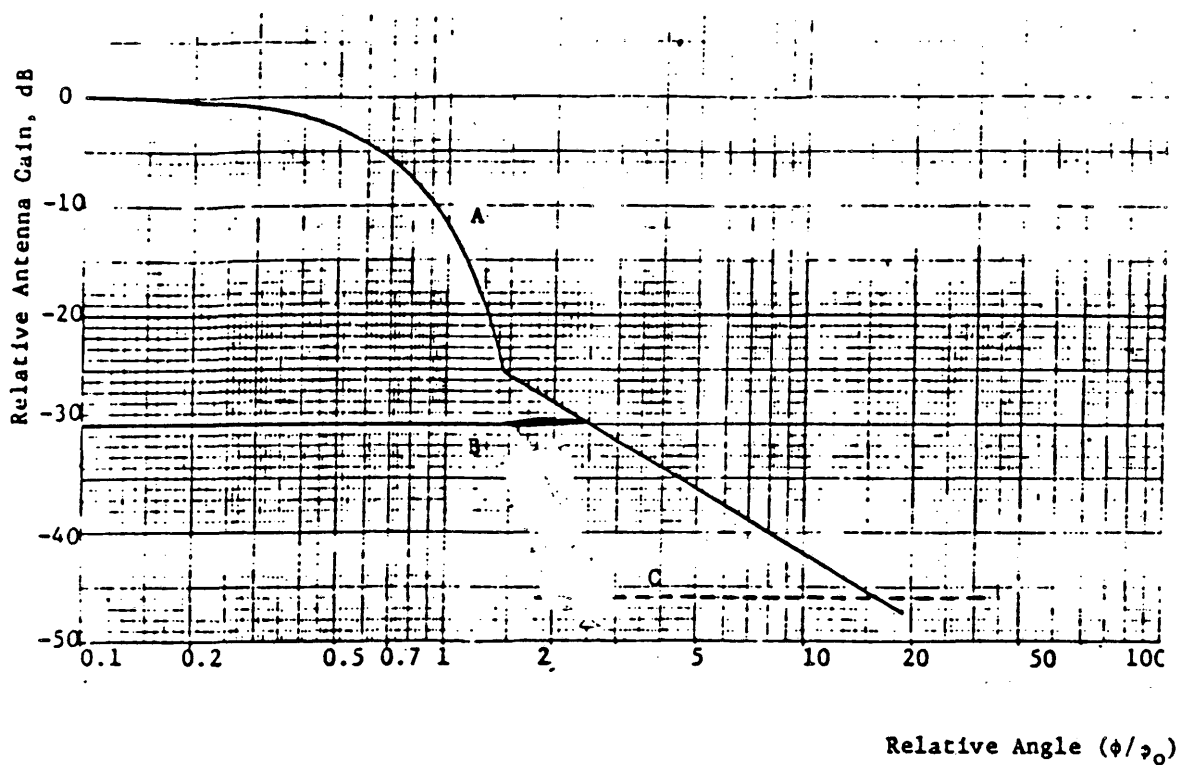


Figure 1 - Reference patterns for co-polar and cross-polar components for satellite transmitting antenna in Region 2

Figure 1 :

Curve A: Co-polar component (dB relative to main beam gain)

$$\begin{aligned}
 & - 12 (\phi/\phi_0)^2 && \text{for } 0 \leq (\phi/\phi_0) \leq 1.45 \\
 & - (22 + 20 \log (\phi/\phi_0)) && \text{for } 1.45 < (\phi/\phi_0)
 \end{aligned}$$

after intersection with curve C : as curve C

Curve B: Cross-polar component (dB relative to main beam gain)

$$- 30 \quad \text{for } 0 \leq (\phi/\phi_0) \leq 2.51$$

after intersection with co-polar pattern : as co-polar pattern

Curve C: minus the non-axis gain

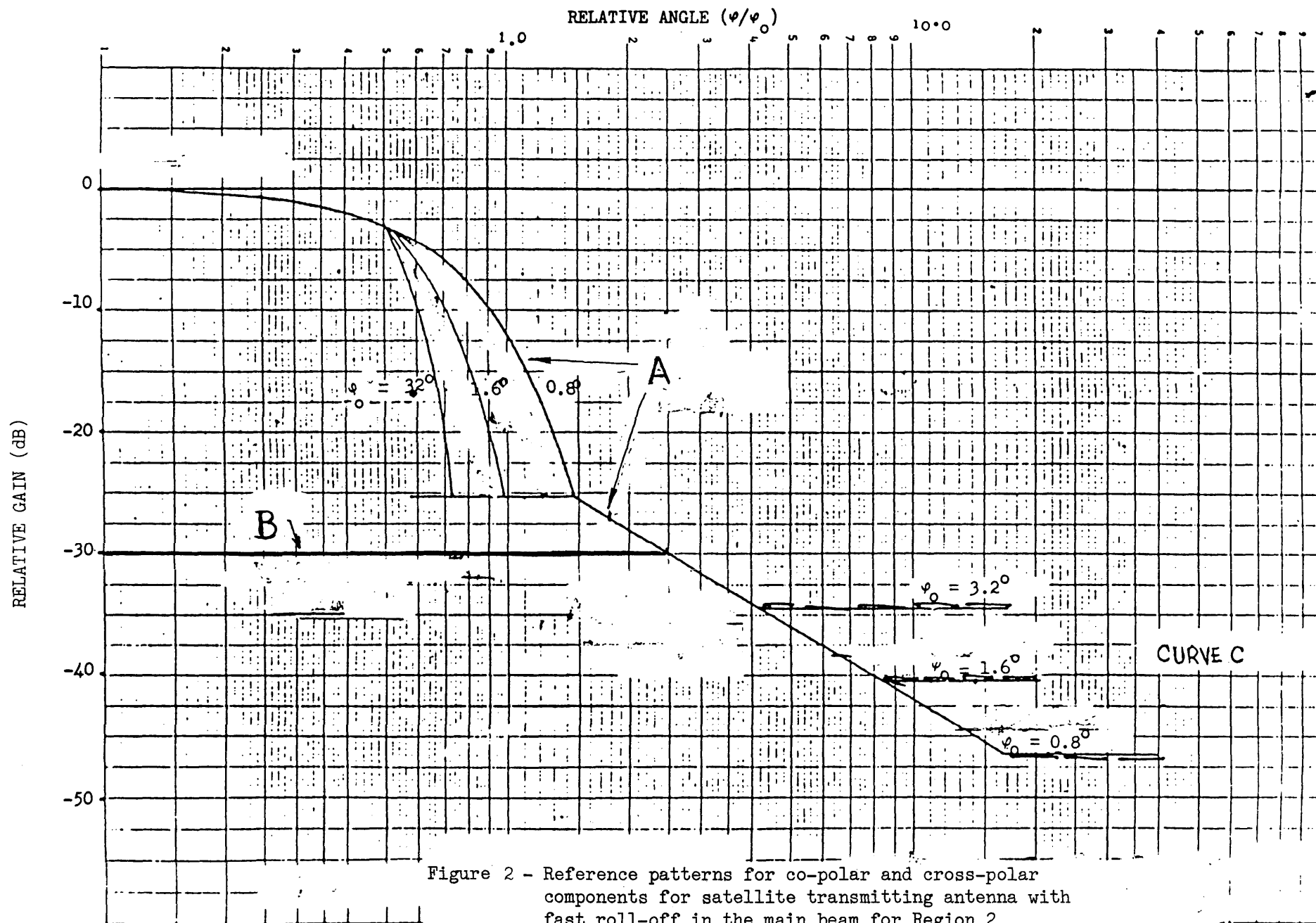


Figure 2 - Reference patterns for co-polar and cross-polar components for satellite transmitting antenna with fast roll-off in the main beam for Region 2

Figure 2. (continued)Curve A - Co-Polar component

$$\begin{aligned}
& - 12(\varphi/\varphi_0)^2 && \text{for } 0 \leq \varphi/\varphi_0 \leq 0.5 \\
& - 18.75 \varphi_0^2 [\varphi/\varphi_0 - x]^2 && \text{for } 0.5 < \varphi/\varphi_0 \leq \frac{1.16}{\varphi_0} + x \\
& - 25.23 && \text{for } \frac{1.16}{\varphi_0} + x < \varphi/\varphi_0 < 1.45 \\
& - [22 + 20 \log \varphi/\varphi_0] && \text{for } 1.45 < \varphi/\varphi_0
\end{aligned}$$

after intersection with Curve C : as Curve C

Curve B - Cross-polar component

$$- 30 \quad \text{for } 0 \leq \varphi/\varphi_0 < 2.51$$

after intersection with co-polar pattern : as co-polar pattern

Curve C - Minus the on-axis gain

where :

$$\begin{aligned}
\varphi &= \text{off-axis angle (degrees)} \\
\varphi_0 &= \text{dimension of the minimum ellipse fitted around the down-} \\
&\quad \text{link service area in the direction of interest} \\
x &= 0.5 \left[1 - \frac{0.8}{\varphi_0} \right]
\end{aligned}$$

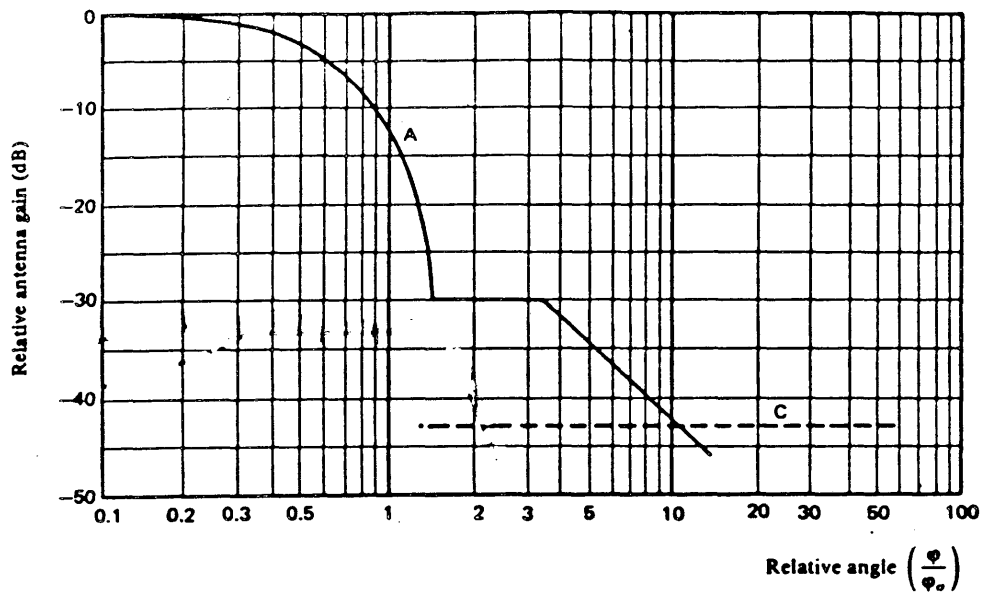


Figure 3 - Reference patterns for co-polar component
for satellite transmitting antennas

Curve A: Co-polar component

$$\begin{aligned}
 & -12 \left(\frac{\phi}{\phi_0} \right)^2 && \text{for } 0 \leq \phi < 1.58 \phi_0 \\
 & -30 && \text{for } 1.58 \phi_0 < \phi < 3.16 \phi_0 \\
 & - \left[17.5 + 25 \log_{10} \left(\frac{\phi}{\phi_0} \right) \right] && \text{for } 3.16 \phi_0 < \phi
 \end{aligned}$$

after intersection with Curve C: as Curve C

Curve C: Minus the on-axis gain.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/38-E

29 June 1983

Original : English

WORKING GROUP 4B

PROPOSED REVISION TO THE RADIO REGULATIONS

3.12 *Elevation angle of receiving antennae*

NOC The Plan has been based on the consideration of a minimum angle of elevation of 20° 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°, the angle of elevation is of necessity less than 20°. Attention is also directed to paragraph 2.2.

MOD For mountainous areas where an angle of 20° may not suffice, an angle of at least 30° has been provided where possible to provide an acceptable service. An angle of elevation of at least 40° has been considered for service areas subject to high precipitation (e.g., rain-climatic zone 1), but exceptions were taken in some cases in Region 2.

NOC Some dry, non-mountainous areas may be given an acceptable service at angles of elevation less than 20°.

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.

E. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/39-E

30 June 1983

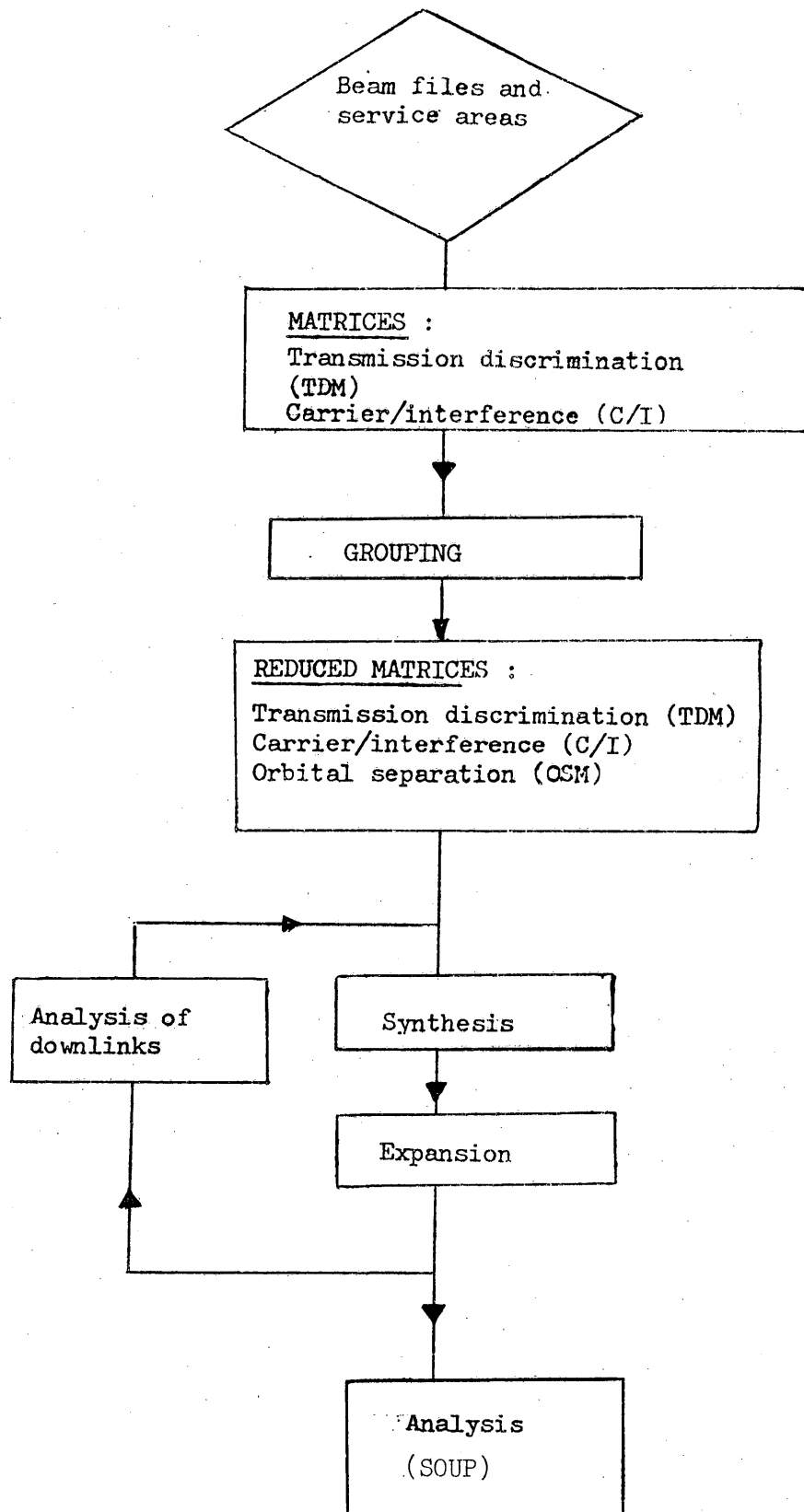
Original : Spanish

WORKING GROUP 5A

Report by Drafting Group 5A-1 to Working Group 5A

The following is a summary of the conclusions which emerged from the discussions within the Group on 29 June.

1. In order to simplify planning, it was decided to begin the planning trials with two families, each of 16 channels.
2. The rain attenuation model approved by Committee 4 has already been inserted in the software.
3. The following tasks were shared among members of the Board and of Working Group 5A-1 :
 - a) beam file
 - b) service areas
 - c) carrier/interference, orbital separation and transmission discrimination matrices.
4. Working Group 5A-1 was informed that the SOUP analysis programme has now been updated with the decisions on parameters taken by Committee 4.
5. After a discussion in which some misgivings were expressed, it was concluded that the software is workable.
6. An approximate mechanism for the work of Working Group 5A-1 was established. It is summarized in the following flowchart :



BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/40-E

30 June 1983

Original : English/
Spanish

WORKING GROUPS OF COMMITTEE 5

Note by the Chairman of Committee 5 (Planning)

CLARIFICATIONS AND INFORMATION ON REQUIREMENTS

1. The present document contains the clarifications and information on requirements published in Document No. 16(Rev.) and the Corrigendum to that document, which have been received by the Chairman of Committee 5 (see footnote 1) on the first page of the Corrigendum).
2. For ease of reference, the present document has been prepared in a layout similar to that of the List of Requirements.
3. Those requirements which have been added are reproduced in Annex 1 attached.
4. The texts of the clarifications and information received from delegations are reproduced as Remarks to the pertinent requirements and appear in Annex 2 attached.
5. The requirement(s) to which a Remark appearing in Annex 2 refers is(are) indicated against the Remark number in Annex 2 and the document in which the requirement(s) appear(s) is indicated in the following table by a cross in the appropriate column :

| Item No. | Delegation | Remark No. | Requirement Beam identification | | Requirement appears in: | | |
|----------|------------|------------|---------------------------------|--|-------------------------|------------------------|-----------------------------|
| | | | New | Previous | Doc.16 (Rev.) | Corr. to Doc.16 (Rev.) | Annex 1 to present document |
| 1 | CLM | A 101 | | BOLANDO1 CLMANDO1 EQAGAND1 EQAGAND1 VENANDO2 | X X X X | X | |
| 2 | HOL | A 102 | ATNBEAM1 | ATNSOUTH ATNNORTH | X X | | X |

| Item No. | Delegation | Remark No. | Requirement Beam identification | | Requirement appears in: | | |
|----------|------------|--------------|--|--|----------------------------|------------------------------|--|
| | | | New | Previous | Doc.16 (Rev.) | Corr. to Doc.16 (Rev.) | Annex 1 to present document |
| 3 | CAN | A103 | CAN00101 CAN00102 CAN00201 CAN00202 CAN00203 CAN00302 CAN00303 CAN00304 CAN00403 CAN00404 CAN00405 CAN00504 CAN00505 CAN00506 CAN00605 CAN00606 | | | | X X X X X X X X X X X X X X X X |
| 4 | JMC | A104 | CRBBLZ01 CRBJMC01 CRBBAH01 CRBBER01 CRBSEO01 | A104 CRBNW001 | | X X X | |
| 5 | CHL | A105 | | CHLPAC02 CHLCONT4 CHLCONT5 CHLCONT6 PAQPAC01 | X X X X X | | |
| 6 | DNK | A106 | | GRLDNK01 | X | | |
| 7 | GRD | A107 A110 | GRD00059 | GRD00002 GRD00003 | X X | | |
| 8 | GUY | A108 | GUY00302 | GUY00202 | | X | X |
| | JMC | A108 | JMC00005 | JMC00002 | | X | X |
| 9 | USA | A109 | USAEH001 USAEH002 USAEH003 USAEH004 | | | | X X X X |
| 10 | BOL | A111 | BOLIFRB2 | | X | | |

6. Any further clarifications or information received from delegations will be published as Addenda to the present document.

P.D. CROSS
Chairman of Committee 5

Annexes : 2

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 07/01/83 1 | |
|-------------------|----------|--------|--------|-------|--------|-------|--------|-----|--------|----------------------|--------|-------|----------|-----|--------|----------|-----|-----|--|----------------------|--|--|--|--|------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| ARG | ARGINSUZ | 000261 | 06 | 85.0W | .0W | .0W | .0 | .0 | X | N | | PAL-N | 000024 | Y | 060W . | A28 | | | | | | | | | | |
| | | 06B | | | 07 | | | | 13 | | | | 13(CONT) | | | 13(CONT) | | | | | | | | | | |
| | -A- | -L- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | -A- | -B- | -C- | | | | | | | | |
| 1 | 062W00 | 70S00 | 000000 | A | 045W30 | 60S40 | 000000 | A | 058W17 | 37S50 | 000111 | K | | | | | | | | | | | | | | |
| 2 | 069W00 | 67S00 | 000000 | A | 060W00 | 65S00 | 000000 | A | 063W54 | 30S56 | 001000 | K | | | | | | | | | | | | | | |
| 3 | 062W00 | 63S00 | 000000 | A | | | | | 067W29 | 45S52 | 000010 | E | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|----|--------|-------|--------|---|-----|-----|-----|--|-----|-----|-----|--|----------|-----|-----|--|
| | | 14A | | | 14B | | | | 16 | | | | 16(CONT) | | | |
| | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | |
| 1 | 053W50 | 27S10 | 000200 | P | | | | | | | | | | | | |
| 2 | 063W48 | 54S44 | 000005 | D | | | | | | | | | | | | |
| 3 | 068W19 | 54S48 | 000010 | D | | | | | | | | | | | | |
| 4 | 073W03 | 49S16 | 003375 | D | | | | | | | | | | | | |
| 5 | 070W33 | 31S27 | 003852 | E | | | | | | | | | | | | |
| 6 | 068W34 | 24S48 | 004800 | C | | | | | | | | | | | | |
| 7 | 066W11 | 21S48 | 004000 | E | | | | | | | | | | | | |
| 8 | 062W49 | 22S00 | 000500 | N | | | | | | | | | | | | |
| 9 | 053W51 | 25S35 | 000628 | P | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | |
|-------------------|----------|--------|--------|-------|--------|-------|--------|-----|--------|----------------------|--------|-------|----------|-----|--------|----------|-----|-----|--|----------------------|--|--|--|--|--|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| ARG | ARGNORT2 | 000262 | 10 | 85.0W | .0W | .0W | .0 | .0 | X | N | | PAL-N | 000024 | Y | 060W . | A28 | | | | | | | | | | |
| | | 06B | | | 07 | | | | 13 | | | | 13(CONT) | | | 13(CONT) | | | | | | | | | | |
| | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | -A- | -B- | -C- | | | | | | | | |
| 1 | 056W40 | 36S52 | 000002 | K | 058W28 | 34S38 | 000010 | K | 058W17 | 37S50 | 000111 | K | | | | | | | | | | | | | | |
| 2 | 071W25 | 39S00 | 000840 | E | 060W39 | 32S57 | 000024 | K | 063W54 | 30S56 | 001000 | K | | | | | | | | | | | | | | |
| 3 | 070W33 | 31S27 | 003852 | E | 064W17 | 36S37 | 000177 | K | 067W29 | 45S52 | 000010 | E | | | | | | | | | | | | | | |
| 4 | 068W34 | 24S48 | 004800 | C | 058W51 | 27S28 | 000055 | N | | | | | | | | | | | | | | | | | | |
| 5 | 066W11 | 21S48 | 004000 | E | 055W54 | 27S23 | 000030 | N | | | | | | | | | | | | | | | | | | |
| 6 | 062W49 | 22S00 | 000500 | N | 058W10 | 26S11 | 000058 | N | | | | | | | | | | | | | | | | | | |
| 7 | 053W51 | 25S35 | 000628 | P | 065W24 | 24S47 | 001187 | N | | | | | | | | | | | | | | | | | | |
| 8 | 053W50 | 27S10 | 000200 | P | 066W52 | 29S25 | 000498 | E | | | | | | | | | | | | | | | | | | |
| 9 | | | | | 068W49 | 32S53 | 000850 | E | | | | | | | | | | | | | | | | | | |
| 10 | | | | | 065W12 | 26S50 | 000447 | K | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|----|--------|-------|--------|---|-----|-----|-----|--|-----|-----|-----|--|----------|-----|-----|--|
| | | 14A | | | 14B | | | | 16 | | | | 16(CONT) | | | |
| | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | |
| 1 | 053W50 | 27S10 | 000200 | P | | | | | | | | | | | | |
| 2 | 063W48 | 54S44 | 000005 | D | | | | | | | | | | | | |
| 3 | 068W19 | 54S48 | 000010 | D | | | | | | | | | | | | |
| 4 | 073W03 | 49S16 | 003373 | D | | | | | | | | | | | | |
| 5 | 070W33 | 31S27 | 003852 | E | | | | | | | | | | | | |
| 6 | 068W34 | 24S48 | 004800 | C | | | | | | | | | | | | |
| 7 | 066W11 | 21S48 | 004000 | E | | | | | | | | | | | | |
| 8 | 062W49 | 22S00 | 000500 | N | | | | | | | | | | | | |
| 9 | 053W51 | 25S35 | 000628 | P | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |

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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 07/01/83 3 | |
|---|----------|--------|----|--------|-----|-----|-----|-----|-----|----------------------|-----|----|--------|----|------|-----|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| BOL | HOLAND01 | 000219 | 16 | 106.0W | .0W | .0W | .0 | .0 | | Y | | | 000000 | Y | 060W | A30 | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div> <p>06B</p> <p>-A- -B- -C-</p> <p>1 065W00 12S12 000000 N</p> <p>2 065W30 09S48 000000 N</p> <p>3 069W00 11S12 000000 N</p> <p>4 060W00 16S06 000000 P</p> <p>5 067W30 18S00 000000 P</p> <p>6 067W30 22S40 000000 C</p> </div> <div> <p>07</p> <p>-A- -B- -C-</p> </div> <div> <p>13</p> <p>-A- -B- -C-</p> </div> <div> <p>13 (CONT)</p> <p>-A- -B- -C-</p> </div> <div> <p>13 (CONT)</p> <p>-A- -B- -C-</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div> <p>14A</p> <p>-A- -B- -C-</p> <p>1 057W50 18S00 000000 P</p> <p>2 067W48 22S48 000000 C</p> <p>3 077W13 08N30 000001 N</p> <p>4 071W10 12N00 000001 N</p> <p>5 080W58 02S13 000010 P</p> <p>6 080W05 00N50 000010 P</p> <p>7 076W25 18S21 000015 N</p> <p>8 081W10 06S05 000015 P</p> <p>9 061W51 10N45 000000 P</p> </div> <div> <p>14L</p> <p>-A- -B- -C-</p> </div> <div> <p>16</p> <p>-A- -B- -C-</p> </div> <div> <p>16 (CONT)</p> <p>-A- -B- -C-</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 08 | |
|---|----------|--------|----|--------|--------|--------|-----|-----|-----|----------------------|-----|--------|--------|----|------|-----|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|----|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| CAN | CAN00101 | 000284 | 32 | 165.0W | 170.0W | 142.0W | .0 | .0 | X | N | | NTSC-M | 000022 | Y | 135W | A08 | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div> <p>06B</p> <p>-A- -B- -C-</p> <p>1 141W00 70N00 000450 A</p> <p>2 120W00 70N00 000750 A</p> <p>3 120W00 60N00 000750 C</p> <p>4 120W00 53N42 001000 E</p> <p>5 114W06 49N00 001500 E</p> <p>6 123W54 48N18 002250 D</p> <p>7 126W42 49N24 000200 D</p> <p>8 132W12 52N36 000750 D</p> <p>9 141W00 60N18 000050 D</p> </div> <div> <p>07</p> <p>-A- -B- -C-</p> <p>123W00 49N12 000050 D</p> <p>120W24 50N42 000750 B</p> <p>117W18 49N30 001200 B</p> <p>122W42 53N54 000750 E</p> <p>122W42 58N48 000350 C</p> <p>135W00 61N00 000350 D</p> </div> <div> <p>13</p> <p>-A- -B- -C-</p> <p>123W00 49N12 000050 D</p> <p>114W00 51N00 001250 E</p> <p>104W36 50N30 000100 E</p> <p>097W12 49N54 000350 K</p> <p>083W00 42N18 000150 K</p> <p>079W00 43N06 000050 K</p> <p>079W24 43N42 000150 K</p> <p>076W30 44N18 000050 K</p> <p>075W42 45N24 000050 K</p> <p>073W30 45N30 000050 K</p> </div> <div> <p>13 (CONT)</p> <p>-A- -B- -C-</p> <p>071W12 46N48 000350 K</p> <p>066W06 45N18 000050 K</p> <p>063W36 44N42 000050 K</p> <p>052W42 47N30 000050 F</p> <p>135W00 61N00 000350 D</p> <p>063W06 46N12 000050 F</p> <p>115W00 62N00 000100 C</p> <p>068W30 63N42 000300 A</p> </div> <div> <p>13 (CONT)</p> <p>-A- -B- -C-</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div> <p>14A</p> <p>-A- -B- -C-</p> <p>1 141W00 70N00 000450 A</p> <p>2 064W48 70N00 000200 A</p> <p>3 052W30 47N00 000350 F</p> <p>4 060W00 43N00 000050 K</p> <p>5 082W36 41N42 000150 E</p> <p>6 081W12 44N36 000050 F</p> <p>7 106W00 49N00 000750 E</p> <p>8 123W54 48N18 002250 D</p> <p>9 132W12 52N36 000750 D</p> <p>10 141W00 60N18 000050 D</p> </div> <div> <p>14L</p> <p>-A- -B- -C-</p> </div> <div> <p>16</p> <p>-A- -B- -C-</p> <p>135W00 64N00 000350 C</p> <p>125W00 61N00 000350 D</p> <p>118W00 49N00 000350 D</p> <p>117W00 59N00 000350 E</p> <p>115W00 62N00 000100 C</p> <p>100W00 50N00 000350 E</p> <p>097W00 50N00 000350 K</p> <p>089W00 48N00 000350 K</p> <p>079W00 43N00 000050 K</p> <p>074W00 45N00 000050 K</p> </div> <div> <p>16 (CONT)</p> <p>-A- -B- -C-</p> <p>071W00 47N00 000050 K</p> <p>071W00 48N00 000150 E</p> <p>066W00 44N00 000050 K</p> <p>069W00 50N00 000100 C</p> <p>060W00 53N00 000100 B</p> <p>113W30 53N30 000000 E</p> <p>106W42 52N12 000000 E</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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13 (CONT)

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13 (CONT)

-A- -B- -C-

13 (CONT)

-A- -B- -C-

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| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 |
|-----|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|--------|--------|--------|-----------|
| CAN | CAN00202 | 000287 | 32 | 147.0W | 151.0W | 127.0W | .0 | .0 | X | N | | NTSC-M | 000022 | Y | 105W | A08 |
| | 06L | | | 07 | | | | 13 | | | | 13 (CONT) | | | | 13 (CONT) |
| | -A- | -E- | -C- | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -E- | -C- | | -A- |
| 1 | 120W00 | 70N00 | 000750 | A | 114W00 | 51N00 | 001250 | E | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K |
| 2 | 115W00 | 70N00 | 000100 | A | 110W42 | 50N00 | 000750 | B | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K |
| 3 | 101W48 | 60N00 | 000750 | C | 112W48 | 49N42 | 000750 | E | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K |
| 4 | 101W18 | 49N00 | 000750 | E | 113W30 | 53N30 | 000750 | E | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F |
| 5 | 106W00 | 49N00 | 000750 | E | 106W42 | 52N12 | 000150 | E | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D |
| 6 | 114W36 | 49N00 | 001750 | E | 114W00 | 62N00 | 000050 | C | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F |
| 7 | 120W00 | 53N42 | 002300 | D | 104W00 | 50N30 | 000600 | E | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C |
| 8 | | | | | 102W30 | 51N12 | 000750 | E | 076W30 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A |
| 9 | | | | | | | | | 075W42 | 45N24 | 000050 | K | | | | |
| 10 | | | | | | | | | 073W30 | 45N30 | 000050 | K | | | | |
| | 14A | | | 14B | | | | 16 | | | | 16 (CONT) | | | | |
| | -A- | -E- | -C- | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -E- | -C- | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | |
| 4 | 060W00 | 43N00 | 000050 | K | | | | 117W00 | 59N00 | 000350 | B | 069W00 | 58N00 | 000100 | C | |
| 5 | 082W36 | 41N42 | 000150 | K | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B | |
| 6 | 081W12 | 44N36 | 000350 | K | | | | 109W00 | 50N30 | 000350 | E | 113W30 | 53N30 | 000000 | E | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | |
| 8 | 123W54 | 48N18 | 002250 | D | | | | 089W00 | 48N00 | 000350 | K | | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | | 079W00 | 43N00 | 000050 | K | | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | | 074W00 | 45N00 | 000050 | K | | | | | |

| 01 | 06A | 00 | 02 | 03 | 04A | 0R | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 |
|-----|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|----------|
| CAN | CAN00203 | 0000288 | 32 | 129.0W | 140.0W | 112.0W | .0 | .0 | X | N | | NTSC-M | 000022 | Y | 105W | A08 |
| | 06U | | | | 07 | | | 13 | | | | | 13(CONT) | | | 13(CONT) |
| | -A- | -L- | -C- | | -A- | -L- | -C- | -A- | -B- | -C- | | | -A- | -B- | -C- | |
| 1 | 120W00 | 70N00 | 000750 | A | 114W30 | 51N00 | 001250 | E | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K |
| 2 | 115W00 | 70N00 | 000100 | A | 110W42 | 50N00 | 000750 | B | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K |
| 3 | 101W48 | 60N00 | 000750 | C | 112W48 | 49N42 | 000750 | E | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K |
| 4 | 101W18 | 49N00 | 000750 | E | 113W30 | 53N30 | 000750 | E | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F |
| 5 | 106W00 | 49N00 | 000750 | E | 106W42 | 52N12 | 000150 | E | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D |
| 6 | 114W06 | 49N00 | 001750 | E | 114W00 | 62N00 | 000050 | C | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F |
| 7 | 120W00 | 53N42 | 002300 | E | 104W00 | 50N30 | 000600 | L | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C |
| 8 | | | | | 102W30 | 51N12 | 000750 | E | 076W30 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A |
| 9 | | | | | | | | | 075W42 | 45N24 | 000050 | K | | | | |
| 10 | | | | | | | | | 073W30 | 45N30 | 000050 | K | | | | |
| | 14A | | | | 14B | | | 16 | | | | | 16(CONT) | | | |
| | -A- | -L- | -C- | | -A- | -L- | -C- | -A- | -B- | -C- | | | -A- | -B- | -C- | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | |
| 4 | 060W00 | 43N00 | 000050 | K | | | | 117W00 | 59N00 | 000350 | D | 069W00 | 58N00 | 000100 | C | |
| 5 | 062W36 | 41N42 | 000150 | K | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B | |
| 6 | 081W12 | 44N36 | 000350 | E | | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | E | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | |
| 8 | 123W54 | 48N18 | 002250 | D | | | | 089W00 | 48N00 | 000350 | K | | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | | 079W00 | 43N00 | 000050 | F | | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | | 074W00 | 43N00 | 000050 | K | | | | | |

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13 (CONT)

-A- -B- -C-

13 (CONT)

-A- -B- -C-

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-A- -B- -C-

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| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 |
|-----|----------|--------|--------|--------|--------|-------|--------|-----|--------|-------|--------|--------|----------|-------|--------|----------|
| CAN | CAN00404 | 000293 | 32 | 111.0W | 139.0W | 97.0W | .0 | .0 | | N | | NTSC-M | 000022 | Y | 075W | A08 |
| | | 06E | | | 07 | | | | 13 | | | | 13(CONT) | | | 13(CONT) |
| | -A- | -E- | -C- | | -A- | -B- | -C- | | -A- | -E- | -C- | | -A- | -B- | -C- | |
| 1 | 095W00 | 70N00 | 000350 | A | 089W18 | 48N24 | 000350 | K | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K |
| 2 | 084W00 | 70N00 | 00015C | A | 084W24 | 46N30 | 000200 | K | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K |
| 3 | 079W30 | 47N18 | 000350 | E | 081W00 | 46N30 | 000350 | K | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K |
| 4 | 074W24 | 45N36 | 000050 | K | 079W24 | 46N18 | 000350 | K | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F |
| 5 | 078W54 | 42N54 | 000350 | K | 075W42 | 45N24 | 000150 | K | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D |
| 6 | 082W36 | 41N42 | 000200 | K | 079W24 | 43N42 | 000150 | K | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F |
| 7 | 081W12 | 44N36 | 000350 | K | 081W24 | 48N24 | 000350 | E | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C |
| 8 | 095W12 | 49N00 | 000300 | E | 086W54 | 49N42 | 000350 | E | 076W00 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A |
| 9 | 095W12 | 52N48 | 000350 | E | | | | | 075W42 | 45N24 | 000050 | K | | | | |
| 10 | 089W00 | 56N54 | 000200 | C | | | | | 073W30 | 45N30 | 000050 | K | | | | |
| | | 14A | | | 14L | | | | 16 | | | | 16(CONT) | | | |
| | -A- | -E- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K |
| 2 | 064W48 | 70N00 | 000200 | A | | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E |
| 3 | 052W30 | 47N00 | 000050 | F | | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K |
| 4 | 060W00 | 43N00 | 000050 | K | | | | | 117W00 | 59N00 | 000350 | B | 069W00 | 58N00 | 000100 | C |
| 5 | 082W36 | 41N42 | 000150 | K | | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B |
| 6 | 081W12 | 44N36 | 000350 | K | | | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | F |
| 7 | 106W00 | 49N00 | 000750 | E | | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E |
| 8 | 123W54 | 48N18 | 002250 | D | | | | | 089W00 | 48N00 | 000350 | K | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | | | 079W00 | 43N00 | 000050 | K | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | | | 074W00 | 45N00 | 000050 | K | | | | |

| 01 | 06A | 00 | 02 | 03 | 04A | 0R | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | |
|-----|----------|--------|--------|-------|--------|-------|--------|-----|--------|-------|--------|--------|-----------|-------|--------|-----|-----------|-----|-----|
| CAN | CAN00405 | 000294 | 32 | 03.0W | 109.0W | 93.0W | .0 | .0 | | N | | NTSC-M | 000022 | Y | 075W | A08 | | | |
| | 06B | | | | 07 | | | | 13 | | | | 13 (CONT) | | | | 13 (CONT) | | |
| | -A- | -E- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- |
| 1 | 095W00 | 70N00 | 000350 | A | 089W18 | 40N24 | 000350 | K | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K | | | |
| 2 | 080W00 | 70N00 | 000150 | A | 084W24 | 46N30 | 000200 | K | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K | | | |
| 3 | 079W30 | 47N18 | 000350 | E | 081W30 | 46N30 | 000350 | K | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K | | | |
| 4 | 074W24 | 45N36 | 000050 | K | 079W24 | 46N18 | 000350 | K | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F | | | |
| 5 | 072W54 | 42N54 | 000350 | K | 075W42 | 45N24 | 000150 | K | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D | | | |
| 6 | 082W36 | 41N42 | 000200 | K | 079W24 | 43N42 | 000150 | K | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F | | | |
| 7 | 081W12 | 44N36 | 000350 | K | 081W24 | 48N24 | 000350 | E | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C | | | |
| 8 | 095W12 | 49N00 | 000350 | K | 086W54 | 49N42 | 000350 | E | 076W30 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A | | | |
| 9 | 095W12 | 52N48 | 000350 | L | | | | | 075W42 | 45N24 | 000050 | K | | | | | | | |
| 10 | 089W00 | 56N54 | 000200 | C | | | | | 073W30 | 45N30 | 000050 | K | | | | | | | |
| | 14A | | | | 14B | | | | 16 | | | | 16 (CONT) | | | | | | |
| | -A- | -E- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | | | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | | | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | | | |
| 4 | 060W00 | 43N00 | 000050 | K | | | | | 117W00 | 59N00 | 000350 | E | 069W00 | 58N00 | 000100 | C | | | |
| 5 | 082W36 | 41N42 | 000150 | K | | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | F | | | |
| 6 | 081W12 | 44N36 | 000350 | K | | | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | E | | | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | | | |
| 8 | 102W54 | 48N18 | 000250 | D | | | | | 089W00 | 48N00 | 000350 | K | | | | | | | |
| 9 | 102W12 | 52N36 | 000750 | L | | | | | 079W00 | 43N00 | 000050 | F | | | | | | | |
| 10 | 141W00 | 60N18 | 000050 | C | | | | | | | | | | | | | | | |

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| 14A | | | | 14B | | | 16 | | | 16 (CONT) | | | | | |
|-----|--------|-------|--------|-----|-----|-----|--------|-------|--------|-----------|--------|-------|--------|---|--|
| | -A- | -B- | -C- | -A- | -B- | -C- | -A- | -B- | -C- | -A- | -B- | -C- | | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | |
| 2 | 064W48 | 70N00 | 000200 | A | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | |
| 3 | 052W30 | 47N00 | 000050 | F | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | |
| 4 | 060W00 | 43N00 | 000050 | K | | | 117W00 | 59N00 | 000350 | B | 069W00 | 58N00 | 000100 | C | |
| 5 | 082W36 | 41N42 | 000150 | K | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B | |
| 6 | 081W12 | 44N36 | 000350 | K | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | E | |
| 7 | 106W00 | 49N00 | 000750 | L | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | |
| 8 | 123W54 | 48N18 | 002250 | D | | | 089W00 | 48N00 | 000350 | K | | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | 079W00 | 43N00 | 000050 | K | | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | 074W00 | 45N00 | 000050 | K | | | | | |

Annex 1 to Document No. DT/40-F/E/S
Page 9

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 07/01/83 10 | | | | | | | | | | | | | | | | | | | |
|-------------------|----------|--------|--------|-------|--------|--------|-------|--------|-----|----------------------|-----|--------|--------|--------|------|-----|--|--------|-------|----------------------|---|--|--|--------|-------|--------|---|--|--|-------------|-----|-----|--|--|--|--|--|--|--|----------|--|--|--|--|--|--|--|--|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAN | CAN00506 | 000297 | 32 | 75.0W | 107.0W | 75.0W | .0 | .0 | X | | | NTSC-M | 000022 | Y | 075W | A08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06B | | | | | | | | | | 07 | | | | | | | | | | 13 | | | | | | | | | | 13(CONT) | | | | | | | | | | 13(CONT) | | | | | | | | | |
| -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | | | | | | | | | | | | | | |
| 1 | 060W00 | 70N00 | 000150 | A | | 075W48 | 45N24 | 000150 | E | | | 123W00 | 49N12 | 000050 | D | | | 071W12 | 46N48 | 000350 | K | | | 066W06 | 45N18 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 067W24 | 70N00 | 000200 | A | | 073W30 | 45N30 | 000050 | K | | | 114W00 | 51N00 | 001250 | E | | | 066W06 | 45N18 | 000050 | K | | | 066W06 | 45N18 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 063W54 | 66N36 | 000100 | A | | 071W12 | 46N48 | 000050 | K | | | 104W36 | 50N30 | 000100 | E | | | 063W36 | 44N42 | 000050 | K | | | 063W36 | 44N42 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 057W00 | 52N00 | 000350 | L | | 071W00 | 48N24 | 000150 | K | | | 097W12 | 49N54 | 000350 | K | | | 052W42 | 47N30 | 000050 | F | | | 052W42 | 47N30 | 000050 | F | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 057W00 | 51N24 | 000050 | L | | 072W30 | 45N48 | 000350 | K | | | 083W00 | 42N18 | 000150 | K | | | 135W00 | 61N00 | 000350 | D | | | 135W00 | 61N00 | 000350 | D | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 061W42 | 47N18 | 000150 | F | | 068W30 | 48N24 | 000350 | K | | | 079W00 | 43N06 | 000050 | K | | | 063W06 | 46N12 | 000050 | F | | | 063W06 | 46N12 | 000050 | F | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 071W30 | 45N00 | 000750 | K | | 068W24 | 58N06 | 000100 | C | | | 079W24 | 43N42 | 000150 | K | | | 115W00 | 62N00 | 000100 | C | | | 115W00 | 62N00 | 000100 | C | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 075W00 | 45N00 | 000050 | K | | 071W54 | 45N24 | 000350 | K | | | 076W30 | 44N18 | 000050 | K | | | 068W30 | 63N42 | 000300 | A | | | 068W30 | 63N42 | 000300 | A | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 078W48 | 46N18 | 000350 | K | | | | | | | | 075W42 | 45N24 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 079W30 | 47N18 | 000350 | E | | | | | | | | 073W30 | 45N30 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14A | | | | | | | | | | 14B | | | | | | | | | | 16 | | | | | | | | | | 16(CONT) | | | | | | | | | | | | | | | | | | | |
| -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | -A- | -B- | -C- | | | | | | | | | | | | | | | | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | | | | | 135W00 | 64N00 | 000350 | C | | | 071W00 | 47N00 | 000050 | K | | | 071W00 | 47N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | | | | | 135W00 | 61N00 | 000350 | D | | | 071W00 | 48N00 | 000150 | E | | | 071W00 | 48N00 | 000150 | E | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | | | | | 118W00 | 49N00 | 000350 | D | | | 066W00 | 44N00 | 000050 | K | | | 066W00 | 44N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 060W00 | 43N00 | 000050 | F | | | | | | | | 117W00 | 59N00 | 000350 | B | | | 069W00 | 58N00 | 000100 | C | | | 069W00 | 58N00 | 000100 | C | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 082W36 | 41N42 | 000150 | K | | | | | | | | 115W00 | 62N00 | 000100 | C | | | 060W00 | 53N00 | 000100 | B | | | 060W00 | 53N00 | 000100 | B | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 081W12 | 44N36 | 000350 | K | | | | | | | | 100W00 | 50N00 | 000350 | E | | | 113W30 | 53N30 | 000000 | E | | | 113W30 | 53N30 | 000000 | E | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | | | | | 097W00 | 50N00 | 000350 | K | | | 106W42 | 52N12 | 000000 | E | | | 106W42 | 52N12 | 000000 | E | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 123W54 | 48N18 | 002250 | D | | | | | | | | 089W00 | 48N00 | 000350 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | | | | | | 079W00 | 43N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | | | | | | 074W00 | 45N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------|--------|--------|-------|--------|-------|--------|-----|--------|----------------------|--------|--------|--------|-------|--------|-----|--|-----|--------|----------------------|--------|-----|--|-----|--------|-------|--------|-----|--|----------|--|-----|--|-----|--|--|--|--|--|----------|--|--|--|--|--|--|--|--|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAN | CAN00605 | 000298 | 32 | 93.0W | 109.0W | 93.0W | .0 | .0 | | N | | NTSC-M | 000022 | Y | 053W | A08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06B | | | | | | | | | | 07 | | | | | | | | | | 13 | | | | | | | | | | 13(CONT) | | | | | | | | | | 13(CONT) | | | | | | | | | |
| -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | | | | | | | | | | | | | | |
| 1 | 064W30 | 60N36 | 000200 | C | 066W06 | 45N18 | 000050 | K | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K | | | 071W12 | 46N48 | 000350 | K | | | 066W06 | 45N18 | 000050 | K | | | | | | | | | | | | | | | | | | | | | |
| 2 | 055W42 | 53N30 | 000050 | L | 066W36 | 46N00 | 000050 | K | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K | | | 066W06 | 45N18 | 000050 | K | | | 066W06 | 45N18 | 000050 | K | | | | | | | | | | | | | | | | | | | | | |
| 3 | 052W30 | 47N30 | 000050 | F | 064W48 | 46N06 | 000050 | F | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K | | | 063W36 | 44N42 | 000050 | K | | | 063W36 | 44N42 | 000050 | K | | | | | | | | | | | | | | | | | | | | | |
| 4 | 052W48 | 46N36 | 000050 | F | 063W36 | 44N42 | 000050 | K | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F | | | 052W42 | 47N30 | 000050 | F | | | 052W42 | 47N30 | 000050 | F | | | | | | | | | | | | | | | | | | | | | |
| 5 | 059W48 | 43N54 | 000050 | F | 060W12 | 46N12 | 000050 | K | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D | | | 135W00 | 61N00 | 000350 | D | | | 135W00 | 61N00 | 000350 | D | | | | | | | | | | | | | | | | | | | | | |
| 6 | 065W42 | 43N24 | 000050 | K | 063W06 | 46N12 | 000050 | F | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F | | | 063W06 | 46N12 | 000050 | F | | | 063W06 | 46N12 | 000050 | F | | | | | | | | | | | | | | | | | | | | | |
| 7 | 069W00 | 47N12 | 000350 | L | 060W24 | 53N24 | 000350 | E | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C | | | 115W00 | 62N00 | 000100 | C | | | 115W00 | 62N00 | 000100 | C | | | | | | | | | | | | | | | | | | | | | |
| 8 | 067W48 | 54N24 | 000750 | C | | | | | 076W30 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A | | | 068W30 | 63N42 | 000300 | A | | | 068W30 | 63N42 | 000300 | A | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | 075W42 | 45N24 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | 073W30 | 45N30 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14A | | | | | | | | | | 14B | | | | | | | | | | 16 | | | | | | | | | | 16(CONT) | | | | | | | | | | | | | | | | | | | |
| -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | -A- | | -B- | | -C- | | | | | | | | | | | | | | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | | | 071W00 | 47N00 | 000050 | K | | | 071W00 | 47N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | | | 071W00 | 48N00 | 000150 | E | | | 071W00 | 48N00 | 000150 | E | | | | | | | | | | | | | | | | | | | | | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | | | 066W00 | 44N00 | 000050 | K | | | 066W00 | 44N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | |
| 4 | 060W00 | 43N00 | 000050 | F | | | | | 117W00 | 59N00 | 000350 | B | 069W00 | 58N00 | 000100 | C | | | 069W00 | 58N00 | 000100 | C | | | 069W00 | 58N00 | 000100 | C | | | | | | | | | | | | | | | | | | | | | |
| 5 | 082W36 | 41N42 | 000150 | K | | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B | | | 060W00 | 53N00 | 000100 | B | | | 060W00 | 53N00 | 000100 | B | | | | | | | | | | | | | | | | | | | | | |
| 6 | 081W12 | 44N36 | 000350 | K | | | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | E | | | 113W30 | 53N30 | 000000 | E | | | 113W30 | 53N30 | 000000 | E | | | | | | | | | | | | | | | | | | | | | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | | | 106W42 | 52N12 | 000000 | E | | | 106W42 | 52N12 | 000000 | E | | | | | | | | | | | | | | | | | | | | | |
| 8 | 102W54 | 48N18 | 000250 | D | | | | | 099W00 | 48N00 | 000350 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 102W12 | 52N36 | 000750 | D | | | | | 079W00 | 43N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 141W00 | 60N18 | 000050 | B | | | | | 074W00 | 45N00 | 000050 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 07/01/83 11 | |
|---|----------|--------|--------|-------|--------|-------|--------|-----|--------|----------------------|--------|--------|--------|-------|--------|-----|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| CAN | CAN00606 | 000299 | 32 | 75.0W | 107.0W | 75.0W | .0 | .0 | | N | | NTSC-M | 000022 | Y | 053W | A08 | | | | | | | | | | | | | | | |
| <div>06D</div> <div>07</div> <div>13</div> <div>13(CONT)</div> <div>13(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 064W30 | 60N36 | 000200 | C | 066W06 | 45N18 | 000050 | K | 123W00 | 49N12 | 000050 | D | 071W12 | 46N48 | 000350 | K | | | | | | | | | | | | | | | |
| 2 | 055W42 | 53N30 | 000050 | D | 066W36 | 46N00 | 000050 | K | 114W00 | 51N00 | 001250 | E | 066W06 | 45N18 | 000050 | K | | | | | | | | | | | | | | | |
| 3 | 052W30 | 47N30 | 000050 | F | 064W48 | 46N06 | 000050 | F | 104W36 | 50N30 | 000100 | E | 063W36 | 44N42 | 000050 | K | | | | | | | | | | | | | | | |
| 4 | 052W48 | 46N36 | 000050 | F | 063W36 | 44N42 | 000050 | K | 097W12 | 49N54 | 000350 | K | 052W42 | 47N30 | 000050 | F | | | | | | | | | | | | | | | |
| 5 | 059W48 | 43N54 | 000050 | F | 060W12 | 46N12 | 000050 | K | 083W00 | 42N18 | 000150 | K | 135W00 | 61N00 | 000350 | D | | | | | | | | | | | | | | | |
| 6 | 065W42 | 43N24 | 000050 | K | 063W06 | 46N12 | 000050 | F | 079W00 | 43N06 | 000050 | K | 063W06 | 46N12 | 000050 | F | | | | | | | | | | | | | | | |
| 7 | 069W00 | 47N12 | 000350 | K | 060W24 | 53N24 | 000350 | B | 079W24 | 43N42 | 000150 | K | 115W00 | 62N00 | 000100 | C | | | | | | | | | | | | | | | |
| 8 | 067W48 | 54N24 | 000750 | C | | | | | 076W30 | 44N18 | 000050 | K | 068W30 | 63N42 | 000300 | A | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | 075W42 | 45N24 | 000050 | K | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | 073W30 | 45N30 | 000050 | K | | | | | | | | | | | | | | | | | | | |
| <div>14A</div> <div>14E</div> <div>16</div> <div>16(CONT)</div> <div>16(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 141W00 | 70N00 | 000450 | A | | | | | 135W00 | 64N00 | 000350 | C | 071W00 | 47N00 | 000050 | K | | | | | | | | | | | | | | | |
| 2 | 064W48 | 70N00 | 000200 | A | | | | | 135W00 | 61N00 | 000350 | D | 071W00 | 48N00 | 000150 | E | | | | | | | | | | | | | | | |
| 3 | 052W30 | 47N00 | 000050 | F | | | | | 118W00 | 49N00 | 000350 | D | 066W00 | 44N00 | 000050 | K | | | | | | | | | | | | | | | |
| 4 | 060W00 | 43N00 | 000050 | K | | | | | 117W00 | 59N00 | 000350 | B | 069W00 | 58N00 | 000100 | C | | | | | | | | | | | | | | | |
| 5 | 082W36 | 41N42 | 000150 | F | | | | | 115W00 | 62N00 | 000100 | C | 060W00 | 53N00 | 000100 | B | | | | | | | | | | | | | | | |
| 6 | 081W12 | 44N36 | 000350 | K | | | | | 100W00 | 50N00 | 000350 | E | 113W30 | 53N30 | 000000 | E | | | | | | | | | | | | | | | |
| 7 | 106W00 | 49N00 | 000750 | E | | | | | 097W00 | 50N00 | 000350 | K | 106W42 | 52N12 | 000000 | E | | | | | | | | | | | | | | | |
| 8 | 123W54 | 48N18 | 002250 | D | | | | | 089W00 | 48N00 | 000350 | K | | | | | | | | | | | | | | | | | | | |
| 9 | 132W12 | 52N36 | 000750 | D | | | | | 079W00 | 43N00 | 000050 | K | | | | | | | | | | | | | | | | | | | |
| 10 | 141W00 | 60N18 | 000050 | D | | | | | 074W00 | 45N00 | 000050 | K | | | | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 08 A30 | |
|---|------------|--------|--------|--------|-----|----|-----|-----|-----|----------------------|-----|--------|--------|----|------|-----|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|--------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| CLM | CLM AND 01 | 000220 | 16 | 106.0W | .0W | .0 | .0 | | | Y | | NTSC-M | 000000 | Y | 075W | A30 | | | | | | | | | | | | | | | |
| <div>06D</div> <div>07</div> <div>13</div> <div>13(CONT)</div> <div>13(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 081W43 | 12N33 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 081W21 | 13N19 | 000100 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 071W10 | 12N00 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 070W40 | 07N00 | 000100 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 067W30 | 06N12 | 000100 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 066W50 | 01N20 | 000100 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 070W00 | 04S00 | 000100 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 073W00 | 02S10 | 000100 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 078W30 | 01N35 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 077W13 | 08N30 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>14A</div> <div>14E</div> <div>16</div> <div>16(CONT)</div> <div>16(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 057W50 | 18S00 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 067W48 | 22S48 | 000000 | C | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 077W13 | 08N30 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 071W10 | 12N00 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 080W58 | 02S13 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 080W05 | 00N50 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 070W25 | 18S21 | 000010 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 081W10 | 06S05 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 061W51 | 10N45 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 07/01/83 13 | |
|-------------------|----------|--------|--------|-------|--------|-------|--------|-----|--------|----------------------|-----------|----|--------|-----|------|-----------|-----|-----|--|----------------------|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| GRD | GRD00002 | 000058 | 16 | 42.0W | 37.5W | 46.0W | 30.0 | 2.0 | X | N | | M | 000022 | Y | 060W | | | | | | | | | | | |
| | | | | | | | | | | | 13 (CONT) | | | | | 13 (CONT) | | | | | | | | | | |
| | -A- | -L- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | -A- | -B- | -C- | | | | | | | | |
| 1 | 061W45 | 12N45 | 000000 | N | 061W46 | 12N01 | 000000 | N | 061W46 | 12N01 | 000000 | N | | | | | | | | | | | | | | |
| 2 | 061W10 | 12N35 | 000000 | N | 061W37 | 12N29 | 000000 | N | | | | | | | | | | | | | | | | | | |
| 3 | 061W45 | 12N35 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 062W00 | 12N00 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 08 | |
|-------------------|----------|--------|--------|-----|--------|-------|--------|-----|--------|----------------------|-----------|----|--------|-----|------|-----------|-----|-----|--|----------------------|--|--|--|--|----|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| GRD | GRD00003 | 000059 | 04 | .0W | 77.0W | 97.0W | 30.0 | .0 | X | Y | | M | 000022 | Y | 060W | A17 | | | | | | | | | | |
| | | | | | | | | | | | 13 (CONT) | | | | | 13 (CONT) | | | | | | | | | | |
| | -A- | -L- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | | -A- | -B- | -C- | -A- | -B- | -C- | | | | | | | | |
| 1 | 061W45 | 12N45 | 000000 | N | 061W46 | 12N01 | 000000 | N | 061W46 | 12N01 | 000000 | N | | | | | | | | | | | | | | |
| 2 | 061W10 | 12N35 | 000000 | N | 061W37 | 12N29 | 000000 | N | | | | | | | | | | | | | | | | | | |
| 3 | 061W45 | 12N35 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 062W00 | 12N00 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 07/01/83 15 | |
|--|----------|--------|--------|-------|-------|-------|-----|--------|-------|----------------------|-----|-------|--------|----|------|----|--|--|--|----------------------|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| JMC | JMC00005 | 000273 | 04 | 38.0W | 37.0W | 42.0W | .0 | .0 | X | 0 | Y | C-MAC | 000024 | Y | 075W | | | | | | | | | | | |
| <div> <div>06B</div> <div>07</div> <div>13</div> <div>13(CONT)</div> <div>13(CONT)</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 078W25 | 18N30 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 078W25 | 18N00 | 000000 | N | | | | 076W50 | 18N00 | 000174 | N | | | | | | | | | | | | | | | |
| 3 | 077W15 | 17N30 | 000000 | N | | | | 077W30 | 18N05 | 000348 | N | | | | | | | | | | | | | | | |
| 4 | 077W15 | 18N40 | 000000 | N | | | | 077W52 | 18N30 | 000174 | N | | | | | | | | | | | | | | | |
| 5 | 076W30 | 17N35 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 076W30 | 18N30 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 078W35 | 18N15 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 076W00 | 18N00 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div> <div>14A</div> <div>14B</div> <div>16</div> <div>16(CONT)</div> <div>16(CONT)</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 07/01/83 15 | |
|--|----------|--------|--------|--------|-----|-----|-----|-----|-----|----------------------|-----|--------|--------|----|------|-----|--|--|--|----------------------|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| PRU | PRUAND01 | 000223 | 16 | 106.0W | .0W | .0W | .0 | .0 | | | Y | NTSC-M | 000000 | Y | 075W | A30 | | | | | | | | | | |
| <div> <div>06B</div> <div>07</div> <div>13</div> <div>13(CONT)</div> <div>13(CONT)</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 070W23 | 18S21 | 000200 | E | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 069W00 | 12S18 | 000365 | N | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 070W29 | 09S26 | 000365 | N | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 073W59 | 07S35 | 000365 | N | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 070W03 | 02S45 | 000365 | N | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 075W13 | 00S02 | 000365 | N | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 080W19 | 03S22 | 000015 | P | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 081W20 | 04S26 | 000015 | P | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 081W10 | 06S05 | 000015 | P | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 076W07 | 13S27 | 000015 | N | | | | | | | | | | | | | | | | | | | | | | |
| <div> <div>14A</div> <div>14B</div> <div>16</div> <div>16(CONT)</div> <div>16(CONT)</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 057W50 | 18S00 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 067W48 | 22S48 | 000000 | C | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 077W13 | 08N30 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 071W10 | 12N00 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 080W58 | 02S13 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 080W05 | 00S50 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 076W25 | 18S21 | 000015 | N | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 081W10 | 06S05 | 000015 | P | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 061W51 | 10N45 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 07/01/83 17 | |
|-------------------|----------|--------|--------|-----|--------|--------|--------|-----|--------|----------------------|--------|----|--------|----|------|-------|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| USA | USAEH003 | 000281 | 32 | .0W | 115.0W | 142.0W | .0 | .0 | X | N | | | 000000 | Y | 090W | A 109 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06B | | | | | | | | | | 07 | | | | | | | | | | 13 | | | | | | | | | | | |
| -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | 13(CONT) | |
| 1 | 069W12 | 47N24 | 000000 | K | 089W30 | 48N00 | 000000 | K | 066W54 | 44N48 | 000000 | K | | | | | | | | | | | | | | | | | | | |
| 2 | 066W54 | 44N48 | 000000 | K | 090W30 | 46N54 | 000000 | K | 064W30 | 17N45 | 000000 | N | | | | | | | | | | | | | | | | | | | |
| 3 | 069W54 | 41N30 | 000000 | K | 087W06 | 45N48 | 000000 | K | 155W40 | 18N55 | 000000 | D | | | | | | | | | | | | | | | | | | | |
| 4 | 081W48 | 24N24 | 000000 | N | 087W36 | 38N42 | 000000 | N | 178W00 | 28N00 | 000000 | D | | | | | | | | | | | | | | | | | | | |
| 5 | 085W48 | 30N12 | 000000 | N | 084W06 | 36N36 | 000000 | M | 168W00 | 65N00 | 000000 | A | | | | | | | | | | | | | | | | | | | |
| 6 | 097W12 | 26N00 | 000000 | I | 084W54 | 30N42 | 000000 | N | 156W30 | 71N00 | 000000 | A | | | | | | | | | | | | | | | | | | | |
| 7 | 103W00 | 29N00 | 000000 | I | 076W09 | 43N03 | 000000 | K | 068W24 | 47N18 | 000000 | K | | | | | | | | | | | | | | | | | | | |
| 8 | 104W42 | 29N42 | 000000 | I | 084W32 | 42N44 | 000000 | K | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 104W00 | 49N00 | 000000 | K | 080W11 | 25N47 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 095W06 | 49N24 | 000000 | I | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14A | | | | | | | | | | 14B | | | | | | | | | | 16 | | | | | | | | | | | |
| -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | 16(CONT) | |
| 1 | 066W54 | 44N48 | 000000 | K | | | | | 073W47 | 48N38 | 000009 | K | | | | | | | | | | | | | | | | | | | |
| 2 | 064W30 | 17N45 | 000000 | K | | | | | 077W02 | 38N51 | 000008 | K | | | | | | | | | | | | | | | | | | | |
| 3 | 155W40 | 18N55 | 000000 | D | | | | | 084W25 | 33N38 | 000322 | M | | | | | | | | | | | | | | | | | | | |
| 4 | 178W00 | 28N00 | 000000 | D | | | | | 087W54 | 41N58 | 000182 | K | | | | | | | | | | | | | | | | | | | |
| 5 | 168W00 | 65N30 | 000000 | A | | | | | 097W02 | 32N54 | 000156 | M | | | | | | | | | | | | | | | | | | | |
| 6 | 156W30 | 71N00 | 000000 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 068W24 | 47N18 | 000000 | I | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | | | | | | 07/01/83 17 | |
|-------------------|----------|--------|--------|-----|--------|--------|--------|-----|--------|----------------------|--------|----|--------|----|------|-------|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | | | | | | |
| USA | USAEH004 | 000282 | 32 | .0W | 115.0W | 142.0W | .0 | .0 | X | N | | | 000000 | Y | 090W | A 109 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06B | | | | | | | | | | 07 | | | | | | | | | | 13 | | | | | | | | | | | |
| -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | 13(CONT) | |
| 1 | 069W12 | 47N24 | 000000 | K | 089W30 | 48N00 | 000000 | K | 066W54 | 44N48 | 000000 | K | | | | | | | | | | | | | | | | | | | |
| 2 | 066W54 | 44N48 | 000000 | K | 090W30 | 46N54 | 000000 | K | 064W30 | 17N45 | 000000 | N | | | | | | | | | | | | | | | | | | | |
| 3 | 069W54 | 41N30 | 000000 | K | 087W06 | 45N48 | 000000 | K | 155W40 | 18N55 | 000000 | D | | | | | | | | | | | | | | | | | | | |
| 4 | 081W48 | 24N24 | 000000 | N | 087W36 | 38N42 | 000000 | N | 178W00 | 28N00 | 000000 | D | | | | | | | | | | | | | | | | | | | |
| 5 | 085W48 | 30N12 | 000000 | N | 084W06 | 36N36 | 000000 | M | 168W00 | 65N00 | 000000 | A | | | | | | | | | | | | | | | | | | | |
| 6 | 097W12 | 26N00 | 000000 | I | 084W54 | 30N42 | 000000 | N | 156W30 | 71N00 | 000000 | A | | | | | | | | | | | | | | | | | | | |
| 7 | 103W00 | 29N00 | 000000 | M | 076W09 | 43N03 | 000000 | K | 068W24 | 47N18 | 000000 | K | | | | | | | | | | | | | | | | | | | |
| 8 | 104W42 | 29N42 | 000000 | I | 084W32 | 42N44 | 000000 | I | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 104W00 | 49N00 | 000000 | K | 080W11 | 25N47 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 095W06 | 49N24 | 000000 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14A | | | | | | | | | | 14B | | | | | | | | | | 16 | | | | | | | | | | | |
| -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | -A- -B- -C- | | | | | | | | | | 16(CONT) | |
| 1 | 066W54 | 44N48 | 000000 | K | | | | | 073W47 | 48N38 | 000009 | K | | | | | | | | | | | | | | | | | | | |
| 2 | 064W30 | 17N45 | 000000 | K | | | | | 077W02 | 38N51 | 000008 | K | | | | | | | | | | | | | | | | | | | |
| 3 | 155W40 | 18N55 | 000000 | D | | | | | 084W25 | 33N38 | 000322 | M | | | | | | | | | | | | | | | | | | | |
| 4 | 178W00 | 28N00 | 000000 | D | | | | | 087W54 | 41N58 | 000182 | K | | | | | | | | | | | | | | | | | | | |
| 5 | 168W00 | 65N30 | 000000 | A | | | | | 097W02 | 32N54 | 000156 | M | | | | | | | | | | | | | | | | | | | |
| 6 | 156W30 | 71N00 | 000000 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 068W24 | 47N18 | 000000 | I | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

10

10

| LISTE DES BESOINS | | | | | | | | | | LIST OF REQUIREMENTS | | | | | | | | | | LISTA DE SOLICITUDES | | | | | 07/01/83 20 | |
|---|----------|--------|--------|--------|-----|-----|-----|-----|-----|----------------------|-----|--------|--------|----|------|-----|--|--|--|----------------------|--|--|--|--|-------------|--|
| 01 | 06A | 00 | 02 | 03 | 04A | OR | 04B | 05A | 05B | 09A | 09B | 10 | 11 | 12 | 15 | 08 | | | | | | | | | | |
| VEN | VENAND02 | 000269 | 16 | 106.0W | .0W | .0W | .0 | .0 | | Y | | NTSC-M | 000000 | Y | 068W | A30 | | | | | | | | | | |
| <div>06L</div> <div>07</div> <div>13</div> <div>13(CONT)</div> <div>13(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 07CW50 | 12N26 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 061W48 | 10N40 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 060W00 | 08N33 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 060W38 | 04N56 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 067W50 | 05N19 | 000040 | P | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 073W22 | 09N12 | 001000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 063W30 | 16N00 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 063W55 | 15N13 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 063W04 | 15N40 | 000000 | N | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 065W17 | 00N42 | 002000 | P | | | | | | | | | | | | | | | | | | | | | | |
| <div>14A</div> <div>14B</div> <div>16</div> <div>16(CONT)</div> <div>16(CONT)</div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> <div>-A-</div> <div>-B-</div> <div>-C-</div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 057W50 | 18S00 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 067W48 | 22S48 | 000000 | C | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 077W13 | 08N30 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 071W10 | 12N00 | 000001 | N | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 080W58 | 02S13 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 080W05 | 00N50 | 000010 | P | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 070W25 | 18S21 | 000015 | N | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 081W10 | 06S05 | 000015 | P | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 061W51 | 10N45 | 000000 | P | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |

A N N E X 2

TEXTS OF CLARIFICATIONS AND INFORMATION ON REQUIREMENTS

RECEIVED FROM DELEGATIONS AND REPRODUCED AS

REMARKS IN THE SERIES A BEGINNING A101

- A101 BOLAND01 1. Box 02 for each of the beams should read "16".
CLMAND01
EQACAND1 2. Box 08 should be deleted for all the beams.
EQACAND1
PRUAND01 3. Observation A30 should be replaced by the attached text :
VENAND02
- "A30 The service channels requested for each of the six service areas BOLIFRB1, CLMO0001, EQAC0001, EQAG0001, PRU00001 and VEN01VEN, corresponding to the orbital position 106°W, must be such that the six service areas together be considered as one greater service area to which 16 different channels should be assigned. For planning purposes, this is equivalent to having shaped beams for one greater service area."

- A102 ATNBEAM1 1. Delete IFRB serial number 000028 Beam ATNNORTH completely.
ATNSOUTH
ATNNORTH 2. IFRB serial number 000027 Beam ATNSOUTH will have "one" beam to cover both Antilles South and Antilles North and be renumbered ATNBEAM1.

The orbit position will change from 95° to 60°.

We will share with France and Denmark.

We will review the number of channels to 8 instead of 16.

- A103 CAN00101 As indicated in the Statement of Requirements submitted by Canada to the IFRB
CAN00102 in June 1982, Canada has the need to provide service to more than one service
CAN00201 area per orbital position.
CAN00202

CAN00203 Specifically, Canada wishes to serve adjacent service areas from given orbital
CAN00302 positions, as indicated in the following table :
CAN00303

| | Service Area | Adjacent Service Areas to be served |
|----------|--------------|--|
| CAN00304 | | |
| CAN00403 | | |
| CAN00404 | | |
| CAN00405 | CAN1 | CAN2 |
| CAN00504 | CAN2 | CAN1, CAN3 |
| CAN00505 | CAN3 | CAN2, CAN4 |
| CAN00506 | CAN4 | CAN3, CAN5 |
| CAN00605 | CAN5 | CAN4, CAN6 |
| CAN00606 | CAN6 | CAN5 |

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A103 CAN00101 As specified, Canada requests a total of 32 channels, each 24 MHz wide, from each
 (cont.) CAN00102 of the six orbital positions, as indicated in its Statement of Requirements.
 CAN00201
 CAN00202 This requirement might be modelled for plan synthesis and analysis purposes by
 CAN00203 assuming, for example, that each channel assigned to the CAN3 service area could
 CAN00302 be radiated from the CAN3 orbital position into a beam serving CAN3, and a beam
 CAN00303 serving CAN2, and a beam serving CAN4. The interferences between transmission
 CAN00304 into these three beams from a single orbital position should of course be ignored,
 CAN00403 and the interferences into other service areas should be indicative of that from
 CAN00404 a single transmission into the three beams.
 CAN00405
 CAN00504
 CAN00505
 CAN00506
 CAN00605
 CAN00606

A104 CRBBLZ01 These clarifications on the Caribbean Beam were included in the first draft Plan.
 CRBJMC01 These clarifications will be taken into account in the second draft Plan and are
 CRBBAH01 summarized below :
 CRBNW001
 CRBBER01
 CRBSE001

Beam identification

| Previous | New | Same beam characteristics as : |
|----------|----------------------------------|--------------------------------|
| CRBNW01 | CRBBLZ01 CRBJMC01 CRBBAH01 | BLZ00001 (NEW)* BAHIFRB1 |
| CRBBER01 | CRBBER01 | CRBBER01 |
| CRBSE001 | CRBEC001 | CRBSE001 |

The beam CRBNW001 has been replaced by beams CRBBLZ01, CRBJMC01 and CRBBAH01.

* Column 06B : 1 - 081W17 19N16

2 - 081W23 19N16

3 - 077W17 17N05

A105 CHLPAC02 I request consideration of all the channels in any service area relating to
 CHLCONT4 continental Chile and its Antarctic and island territory, including Easter Island
 CHLCONT5 (CHLPAC02, CHLCONT4, CHLCONT5, CHLCONT6, PAQPAC01). This means that for all
 CHLCONT6 planning purposes it should be considered as a single service area, to which the
 PAQPAC01 32 channels should be assigned.

A106 GRLDNK01 With reference to Document No. DT/31, paragraph 5, Denmark requests that if possible the four channels for Greenland (GRLDNK01) be placed in the frequency band 12.2 - 12.5 MHz in order to avoid interference between the BSS for Greenland and FSS in Region 1.

.....

A107 GRD00002 Remarks : These four channels can share an orbital position with British Virgin
GRD00003 Islands, Antigua and Barbuda, Montserrat, Dominica, St. Christopher-Nevis,
Saint Vincent and the Grenadines, Saint Lucia.

.....

A108 GUY00302 Guyana/Jamaica

GUY00202

JMC00005

JMC00002

a) Guyana moves orbital position from 95°W to 38°W.

b) JMC with respect to note All shares four channels at 38°W with GUY and note All is suppressed.

c) All other conditions remain unchanged.

.....

A109 USAEH001 As a result of the decisions taken by Committee 5 at its Plenary Session on
USAEH002 27 June 1983, the United States delegation hereby submits information responsive
USAEH003 to item No. 7 of Document No. DT/31, which was approved by Committee 5.
USAEH004 Item No. 7 calls for administrations to make a selection as to which service
areas and which polarizations are to be assigned for purposes of the analysis
of a plan when more than one option has been specified by an administration in the
submission of its requirements, so that the analysis can be completed in a
single run of the program. As part of the original United States requirements
submission, it was stated that the orbit location serving a given service area
must be able to also simultaneously serve the adjacent service area. Also,
as was clarified in the Plenary Session of Committee 5 on 24 June 1983,
coverage of the adjacent service area was to be through the use of a single
beam that would cover both service areas. Therefore, in order to be
responsive to item No. 7 of DT/31, the United States requirements should be
modified as follows :

1. The two United States orbit locations that originally showed coverage of the pacific service area, Alaska, and Hawaii, with the option to cover the mountain service area, should now show coverage of the pacific and mountain service areas combined, as well as service to Alaska and Hawaii through the current Alaska and Hawaii beams.
2. The two orbit locations that originally showed coverage of the mountain service area, with the option to cover the pacific service area should now show coverage of the mountain and pacific service areas combined.
3. The two orbit locations that originally showed coverage of the central service area, with the option to cover the eastern service area should show coverage of the central and eastern service areas combined.
4. The two orbit locations that originally showed coverage of the eastern service area, Puerto Rico, and the United States Virgin Islands, with the option to cover the central service area should now show coverage of the eastern and central service areas combined, as well as coverage to Puerto Rico and the United States Virgin Islands in a single beam.

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A109 USAEH001 The combined pacific and mountain service areas and the combined eastern and
 (cont.) USAEH002 central service areas can be defined by the following set of polygon and
 USAEH003 test points. It should be noted that all of the polygon points specified
 USAEH004 for the combined service areas are contained within the set of originally
 submitted polygon points.

Combined eastern and central service areas : (polygon points)

| | Geographical Coordinates | Rain Climatic Zone |
|-----|--------------------------|--------------------|
| 1. | 69W12 47N24 | K |
| 2. | 66W54 44N48 | K |
| 3. | 69W54 41N30 | K |
| 4. | 81W48 24N24 | N |
| 5. | 85W48 30N12 | N |
| 6. | 97W12 26N00 | M |
| 7. | 103W00 29N00 | M |
| 8. | 104W42 29N42 | M |
| 9. | 104W00 49N00 | K |
| 10. | 95W06 49N24 | K |

Combined mountain and pacific service areas : (polygon points)

| | Geographical Coordinates | Rain Climatic Zone |
|----|--------------------------|--------------------|
| 1. | 124W42 48N24 | D |
| 2. | 97W15 49N00 | K |
| 3. | 94W30 39N10 | K |
| 4. | 97W12 26N00 | M |
| 5. | 109W00 31N20 | M |
| 6. | 117W06 32N20 | E |
| 7. | 124W12 40N24 | D |
| 8. | 122W48 49N00 | D |

The following points should be considered as additional test points for the combined eastern/central and mountain/pacific service areas :

Combined eastern and central service areas : (additional test points)

| | Geographical Coordinates | Rain Climatic Zone |
|----|--------------------------|--------------------|
| 1. | 89W30 48N00 | K |
| 2. | 90W30 46N54 | K |
| 3. | 87W06 45N48 | K |
| 4. | 87W36 38N42 | N |
| 5. | 84W06 36N36 | M |
| 6. | 84W54 30N42 | N |
| 7. | 76W09 43N03 | K |
| 8. | 84W32 42N44 | K |
| 9. | 80W11 25N47 | N |

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A109 USAEH001 Combined mountain and central service areas : (additional test points)
(cont.) USAEH002
USAEH003 Geographical Coordinates Rain Climatic Zone
USAEH004

| | | | |
|----|--------|-------|---|
| 1. | 116W00 | 49N00 | E |
| 2. | 111W00 | 49N00 | E |
| 3. | 101W12 | 45N54 | K |
| 4. | 100W12 | 43N00 | K |
| 5. | 103W00 | 29N00 | M |
| 6. | 114W48 | 32N30 | E |
| 7. | 120W42 | 34N36 | D |
| 8. | 118W12 | 44N18 | B |
| 9. | 111W00 | 45N00 | E |

I hope that the above listed information will ease the work of the Planning Committee. This is not the configuration that the United States believes will ultimately be implemented within the United States, but it does reflect those minimum changes necessary to comply with the directives of Committee 5 and still be responsive to the earlier and timely-filed requirements of our Administration.

Other information

Box 08

The two orbit locations specified in the preferred arc of 100° - 123° W.L. will also serve Puerto Rico and the United States Virgin Islands, with the full complement of channels available to the eastern half of the United States from those locations.

Boxes 13 and 14

Transportable and fixed earth stations serving these service areas may be located at any point within the territory of the United States from which the satellite is visible.

.....

A110 GRD00059 Remarks :

- a) of the original requirement for 32 channels, 4 channels have been transferred to orbital position -92° on the basis of sharing with British Virgin Islands, Montserrat, Antigua and Barbuda, St. Christopher-Nevis, Dominica, Saint Lucia, Saint Vincent and the Grenadines;
 - b) 20 channels have been deleted;
 - c) remaining channels still required at -89° = 8.
-

All1 BOLIFRB2 I am writing to inform you that my Administration hereby requests that Bolivia be granted four additional channels over and above those which the International Frequency Registration Board has allotted to my country, since the minimum number of 4 is considered insufficient to cover Bolivia's future requirements. This is due to the fact that Bolivia is an extremely large country where three languages are spoken, namely, Aymará, Kechua and Spanish.

We understand that the 8 channels requested by my Administration would not complicate planning.

With respect to the designation of the orbital arc, my Administration asks that two criteria be taken into account :

- an elevation angle of 40° and the eclipse at 1 a.m.

I trust that this request can be granted, and thank you in advance.

.....

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/41-E

1 July 1983

Original : French

COMMITTEE 5

DRAFT

Note from the Chairman of Committee 5

FORMAT OF THE PLAN

1. The suggested table of contents of the Final Acts set out in Document No. 74 contains two Articles which come within the competence of Committee 5.
2. Article 11 in Section I will contain "The Plan for the broadcasting-satellite service in the frequency band /12.2 - 12.7/ GHz in Region 2" and Article 9 in Section II "The Plan for feeder links in the fixed-satellite service in the frequency band /17.3 - 17.8/ GHz in Region 2".
3. The present Document sets out a proposed format for the above Articles 11 and 9 on the basis of Document No. 15.
4. Two tables giving the channel numbers and the corresponding assigned frequencies for the two Articles are also provided.
5. It is proposed that the Plan should be arranged in ascending order of channel numbers and, within each channel, in the alphanumerical order of the beam identification.
6. It is important to note that it will be possible to publish the Plan in the proposed format using the software developed by the IFRB. Any major change in this format will require a change in the software, which means that the Plan in a different format will not be available for publication at the end of the Conference.

P.D. CROSS
Chairman of Committee 5

ARTICLE I.11

**The Plan for the Broadcasting-Satellite Service in
the Frequency Band 12.2 - 12.7 GHz in Region 2**

11.1

COLUMN HEADINGS OF THE PLAN

- Col. 1. Beam identification (Column 1 contains the symbol designating the country or the geographical area taken from Table No. i of the Preface to the International Frequency List followed by the symbol designating the service area).
- Col. 2. *Nominal orbital position, in degrees.*
- Col. 3. *Channel number* (see Table showing channel numbers and corresponding assigned frequencies).
- Col. 4. *Boresight* geographical coordinates, in degrees and hundredths of a degree.
- Col. 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 hundredths of a degree.
- Col. 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.
- Col. 7. *Polarization* (1 = direct, 2 = indirect) .
- Col. 8. *E.i.r.p.* in the direction of maximum radiation in dBW. 1)
- Col. 9. *Remarks.*

11.2

NOTES RELATING TO THE PLAN

1) For the Plan published at the end of the Conference this value will correspond to the power flux density. After the Conference, the software will be modified so that this value will be replaced by the e.i.r.p in dBW.

Table relating to Article I.11

TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS
AND ASSIGNED FREQUENCIES

($\Delta F = 14,58$ MHz, 2 guard bands of 12 MHz)

| Channel No. | Assigned frequency (MHz) | Channel No. | Assigned frequency (MHz) |
|----------------|-----------------------------|----------------|-----------------------------|
| 1 | 12224.00 | 17 | 12457.29 |
| 2 | 12238.58 | 18 | 12471.87 |
| 3 | 12253.16 | 19 | 12486.45 |
| 4 | 12267.74 | 20 | 12501.03 |
| 5 | 12282.32 | 21 | 12515.61 |
| 6 | 12296.90 | 22 | 12530.19 |
| 7 | 12311.48 | 23 | 12544.77 |
| 8 | 12326.06 | 24 | 12559.35 |
| 9 | 12340.65 | 25 | 12573.94 |
| 10 | 12355.23 | 26 | 12588.52 |
| 11 | 12369.81 | 27 | 12603.10 |
| 12 | 12384.39 | 28 | 12617.68 |
| 13 | 12398.97 | 29 | 12632.26 |
| 14 | 12413.55 | 30 | 12646.84 |
| 15 | 12428.13 | 31 | 12661.42 |
| 16 | 12442.71 | 32 | 12676.00 |

ARTICLE 11.9

The Plan for the Feeder Link of the Fixed-Satellite Service in
the Frequency Band $[17.3 - 17.8]$ GHz in Region 2

11.1 COLUMN HEADINGS OF THE PLAN

- Col. 1. Beam identification (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 followed by the symbol designating the service area).
- Col. 2. *Nominal orbital position, in degrees.*
- Col. 3. *Channel number* (see Table showing channel numbers and corresponding assigned frequencies).
- Col. 4. *Boresight* geographical coordinates, in degrees and hundredths of a degree.
- Col. 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 hundredths of a degree.
- Col. 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.
- Col. 7. *Polarization* (1 = direct, 2 = indirect) .
- [Col. 8. *E.i.r.p.* in the direction of maximum radiation in dBW. ¹⁾]
- Col. 9. *Remarks.*

11.2 NOTES RELATING TO THE PLAN

-
- 1) For the Plan published at the end of the Conference this value will correspond to the carrier-to-noise ratio in dB. After the Conference, the software will be modified so that this value will be replaced by the earth station e.i.r.p. in dBW.

Table relating to Article II.9

TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS
AND ASSIGNED FREQUENCIES

| Channel No. | Assigned frequency (MHz) | Channel No. | Assigned frequency (MHz) |
|----------------|-----------------------------|----------------|-----------------------------|
| 1 | 17324.00 | 17 | 17557.29 |
| 2 | 17338.58 | 18 | 17571.87 |
| 3 | 17353.16 | 19 | 17586.45 |
| 4 | 17367.74 | 20 | 17601.03 |
| 5 | 17382.32 | 21 | 17615.61 |
| 6 | 17396.90 | 22 | 17630.19 |
| 7 | 17411.48 | 23 | 17644.77 |
| 8 | 17426.06 | 24 | 17659.35 |
| 9 | 17440.65 | 25 | 17673.94 |
| 10 | 17455.23 | 26 | 17688.52 |
| 11 | 17469.81 | 27 | 17703.10 |
| 12 | 17484.39 | 28 | 17717.68 |
| 13 | 17498.97 | 29 | 17732.26 |
| 14 | 17513.55 | 30 | 17746.84 |
| 15 | 17528.13 | 31 | 17761.42 |
| 16 | 17542.71 | 32 | 17776.00 |

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Corrigendum No. 1 to
Document No. DT/42-E
4 July 1983
Original : English

WORKING GROUP 6A

Please replace paragraphs 4A.5A to 4A.11 (pages 6 and 7 of Document No. DT/42) by the text annexed hereto.

E.D. DuCHARME
Chairman of Working Group 6A

Annex : As stated

4A.5A An administration /referred to in paragraph 4A.3b/ which has not notified its comments either to the administration seeking agreement or to the Board within a period of /6 months/ following the date of the weekly circular referred to in paragraph 4A.4 shall be understood to have agreed to the proposed modification.

4A.6 At the expiry of /6/ months, following the date of publication of the weekly circular referred to in paragraph 4A.4, the Board shall review the matter and, according to the results obtained, inform the administration proposing the interim assignment that :

- a) it may notify its proposed use in accordance with Article 5 if no agreement is required or the required agreement was obtained from the administrations affected. In this case the Board shall update the Interim List;
- b) it may not bring into use its interim system before having obtained the agreement of the administrations affected, either directly or by applying the procedure of Article 4 as a means of obtaining agreement without modifying the Plan.

4A.7 The Board shall include all the interim assignments in an Interim List and shall update it in accordance with this article. The Interim List shall be published together with the Plan. It does not constitute part of the Plan /except in cases referred to in paragraph 4A.14/.

4A.8 One year prior to the expiry of the interim period, the Board shall draw the attention of the administration concerned to this fact and request it to notify in due time the cancellation of the assignment from the Master Register and the Interim List.

4A.9 If, notwithstanding the reminders by the Board, an administration does not reply to its request sent in application of paragraph 4A.8, the Board shall, at the termination of the interim period :

- enter a symbol in the Remarks Column of the Master Register to indicate that entry is for information only;
- not take into account that assignment in the /Interim List/ /the Plan/;
- inform the administrations concerned and affected of its action.

4A.10 Where an administration confirms the termination of the use of the interim assignment, the Board shall delete the assignment concerned from the Interim List. The corresponding assignment(s) in the Plan, suspended earlier, may then be brought into use.

[4A.11 If an administration wishes to extend the maximum specified period, it shall apply again the provisions of this Article.]

[4A.11 An administration which considers that its interim system may continue to be used after the expiry of the interim period, may apply the procedure of this article for the same interim system for a period not exceeding /2 years/.]

4A.12 Where an administration applies the procedure in accordance with 4A.11, but could not obtain the agreement of one or more affected administrations, the Board shall indicate this situation by inserting appropriate symbols in the Master Register and shall inform the administration concerned that :

- its assignment may remain in operation until a complaint of harmful interference actually occurs; and
- upon receipt of a complaint of harmful interference, it shall immediately cease operation of the interim assignment.

4A.13 Where an administration, having been informed of a complaint of actual harmful interference does not stop transmission within the period of 30 days after the receipt of complaint, the Board shall apply the provisions of paragraph 4A.9.

[4A.14 For the purposes of the application of the provisions of RR 844, the assignments in the Interim List shall be treated as if they were part of the Plan.]

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/42-E

2 July 1983

Original: English

French

Spanish

WORKING GROUP 6A

DRAFT

First Report of Working Group 6A to Committee 6

The texts appearing in Annex have been adopted by Working Group 6A
and are submitted for consideration by Committee 6.

E.D. DUCHARME
Chairman of Working Group 6A

A N N E X

FINAL ACTS

of the Regional Administrative Radio Conference for the
planning, in Region 2, of the broadcasting-satellite service
in the frequency band [12.2]- 12.7 GHz and associated
feeder links in the fixed-satellite service
(Earth-to-space) in the frequency band [17.3 - 17.8] GHz

General Definitions

For the purposes of these Final Acts the following terms shall have the meanings defined below:

- Union:* The International Telecommunication Union;
- Secretary-General:* The Secretary-General of the Union;
- IFRB (Board):* The International Frequency Registration Board;
- CCIR:* The International Radio Consultative Committee;
- Convention:* The International Telecommunication Convention ~~(Malaga Torremolinos, 1973)~~ ⁽⁻¹⁹⁸³⁾ in force;
- Radio Regulations:* The Radio Regulations ~~(1974 edition)~~ ^{393 399} annexed to the Convention.
- Regions 1, 2 and 3:* The geographical areas defined in Nos. ~~126 to 132~~ ¹²³⁵ of the Radio Regulations
- Master Register:* The Master International Frequency Register;
- IFRB weekly circular:* The publication referred to in No. ~~497~~ ¹²³⁵ of the Radio Regulations;
- Administration:* Any governmental department or service responsible for discharging the obligations undertaken in the Convention and the Radio Regulations.
- WARC : World Administrative Radio Conference;
- Geneva 1983 Conference : Regional Administrative Radio Conference (RARC) ⁽⁻¹⁹⁸³⁾ for the planning in Region 2 of the broadcasting-satellite service in the frequency band [12.2]- 12.7 GHz and associated feeder links in the frequency band [17.3 - 17.8] GHz;
- Regions 1 & 3 Plan : The Plan for the broadcasting-satellite service in the frequency bands 11.7 - 12.2 GHz in Region 3 and 11.7 - 12.5 GHz in Region 1 contained in Appendix 30 to the Radio Regulations, together with any modifications resulting from the successful application of the procedures contained in the said Appendix.
-

SECTION I

Provisions and Associated Plan for the
broadcasting-satellite service in the
frequency band [12.2] - 12.7 GHz
in Region 2

ARTICLE 1

General Definitions

[Region 2 Plan: The Plan for the broadcasting-satellite service in the frequency band [12.2] - 12.7 GHz in Region 2 contained in this section of the Final Acts, together with any modifications resulting from the successful application of the procedures contained in this section.]

Frequency
assignment in
conformity

Any frequency assignment which appears in the Region 2 Plan or for which the procedure of Article 4 of this section has been successfully applied.

ARTICLE 2

Frequency Band

2.1 The provisions of this section apply to the broadcasting-satellite service in the frequency band [12.2] - 12.7 GHz in Region 2 and to the other services to which this band is allocated in any of the three Regions, insofar as their relationship to the broadcasting-satellite service in this band in Region 2 is concerned.

ARTICLE 3

Execution of the Provisions and Associated Plan

3.1 The Members of the Union ¹ Region 2 shall adopt, for their broadcasting-satellite space stations operating in the frequency bands referred to in this Section the characteristics specified in the Plan for that Region.

3.2 Administrations shall not bring into use assignments to broadcasting-satellite stations which are not in conformity with the Region 2 Plan or for which the procedure of Article 4 has not been applied with success, [except in those cases referred to in Article 4A as interim systems and those cases covered by paragraph 5.2. — 7.]

1

Such stations may also be used for transmissions in the fixed-satellite service (space-to-Earth) in accordance with RR 846.

ARTICLE 4A
Interim Systems

4.A.1 An administration¹⁾ or a group of administrations bearing in mind the duration of validity of the Plan, may, after successful application of the procedure contained in this Article, use an interim system during a specified maximum period not exceeding 12 years in order:

- a) to use an increased e.i.r.p. in any direction relative to that appearing in the Plan;
- b) to use different modulation characteristics, relative to those in the Plan resulting in an increase of the probability of harmful interference or in wider assigned bandwidth;
- c) to change the coverage area by displacing boresight, or by increasing the major or minor axis or by rotating them;
- d) to use a coverage area appearing in the Plan from an orbital position or a coverage area englobing two or more coverage areas appearing in the Plan which may shall be one of the corresponding orbital position appearing in the Plan or any other;

4.A.2 An interim system shall in all cases correspond to assignments in the Region 2 Plan; the number of assignments to be used in an interim system shall in all cases correspond to at least the same number of assignments appearing in the Plan which are to be suspended.

During the use of an interim system, the use of the corresponding assignments in the Plan is suspended, they shall not be brought into the use before the cessation of use of the interim system. However, the suspended assignments, but not the interim systems assignments, of an administration shall be taken into account when other administrations apply the procedure of Article 4 in order to modify the Plan or the procedure of Article 4A in order to bring into use an interim system

¹⁾The use of the word "administration" in this Section does not preclude the application of these provisions to the case where more than one administration agrees to undertake a project jointly.

4.A.2^A When an administration proposes to use an assignment in accordance with paragraph 4A.1, it shall communicate to the Board the information listed in Annex 2 not earlier than five years but, preferably, twelve months before the date of putting into use. The administration shall also indicate :

- a) the maximum specified period during which the interim assignment is intended to remain in use;
- b) the assignment(s) in the Plan the use of which will remain suspended for the duration of the use of the interim assignment; corresponding any comment on
- c) the names of the administrations with which an agreement for the use of the interim assignment has been reached together with the period of use so agreed and the names of administrations with which an agreement may be required but has not yet been reached;

4.A.3 An administration is considered to be affected if :

- a) any overall equivalent protection margins of one of its assignments in the Region 2 Plan , calculated in accordance with Annex 6 including the cumulative effect of all interim uses during the maximum specified period of use of the interim system, but excluding the corresponding suspended assignment(s) (paragraph 4A.2b)), equivalent protection margins of one [it is reduced]; [aa] if any overall of its [becomes negative or a former negative value is made more negative] [becomes negative or a former negative value is made more negative] [it is reduced]
- b) it has an assignment in the fixed-satellite service which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of RR 1060, or those of paragraph 7.2.1 of this Section and the appropriate limits of Annex 1 are exceeded;
- c) having no frequency assignment in the broadcasting-satellite service in the channel concerned, it nevertheless would receive on its territory the power flux-density value which exceeds the prescribed limits as given in Annex 1 as a result of the proposed interim assignment;
- d) in countries of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in accordance with the Plan contained in Appendix 30 or in respect of which modifications have been published by the Board in accordance with the provisions of that Appendix and the appropriate limits of Annex 1 are exceeded;

- e) having a frequency assignment to a space station in the broadcasting-satellite service in the band 12.5 to 12.7 GHz in Region 3 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which

- is recorded in the Master Register; or

- has been coordinated or is being coordinated under the provisions of Resolution No. 33; or

[- appears in a Region 3 Plan to be adopted at a future administrative radio conference, taking account of modifications which may be introduced subsequently in accordance with the Final Acts of that Conference]

[and the appropriate limits of [Annex 1] are exceeded.]

4A.4 The Board shall publish in a special section of its weekly circular the information received under paragraph 4A.2, together with the names of the administrations it has identified in application of paragraph 4A.3.

4A.4A When the Board finds that the suspended assignment of an administration having an interim system is not affected, it shall examine the projected interim system with respect to the interim system of that administration and in case there exists an incompatibility, it shall request the two administrations concerned to adopt any measure that may permit the new interim system to be operated.

4A.4B The Board shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall send them the results of its calculations.

4.A.5 [any administration of Region 1 or 3, on the territory of which the PFD limit specified in [Annex 1], paragraph ____ (protection of the FSS) is exceeded and which considers that its FSS systems in the band 12.5 - 12.7 GHz in Region 1 or 12.2 - 12.7 GHz in Region 3 which are planned to be brought into use during the maximum specified period of use of the interim system may be affected, shall so inform the Board within a period of _____. The Board shall calculate the interference to the planned FSS system and if required shall include the name of this administration in the special section;

4A.5A Any administration not listed in the special section which considers that its [planned] assignment may be affected shall so inform the administration responsible for the interim system and the two administrations shall endeavour to resolve the difficulty before the [proposed date of bringing the interim assignment into use.

(and the IFRB)

4A.5B An administration referred to in paragraph 4A.3 which has not notified its comments either to the administration seeking agreement or to the Board within a period of /-----/ following the date of the weekly circular referred to in paragraph 4A.4 shall be understood to have agreed to the proposed modification.

4A.6 At the expiry of / / months, / following the date of publication of / referred to in paragraph 4A.5A/, the Board shall review the matter and, according to the results obtained, inform the administration proposing the interim assignment that :

- a) it may notify its proposed use in accordance with Article 5 if no agreement is required or the required agreement was obtained from the administrations concerned. In this case the Board shall update the Interim List;
- b) it may not bring into use its interim system before having obtained the agreement of the administrations concerned, either directly or by applying the procedure of Article 4 without modifying the Plan.

4A.7 Six months prior to the expiry of the interim period, the Board shall draw the attention of the administration concerned to this fact.

4A.8 If an administration wishes to extend the maximum specified period, it shall apply again the provisions of this Article.

4A.9 Except in cases where the interim use is extended as a successful result of the application of paragraph 4A.8 the Board shall, at the termination of the use of the interim assignment, delete it from the Interim List. The corresponding assignment in the Plan, suspended earlier, may then be brought into use.

4A.10 For the purposes of the application of the provisions of RR 844, the assignments in the Interim List shall be treated as if they were part of the Plan.

4A.11 The Board shall include all the interim assignments in an Interim List and shall update it in accordance with this article. The Interim List shall be published together with the Plan. It does not constitute part of the Plan except in cases referred to in paragraph 4A.10.

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/43-E

5 July 1983

Original : English

COMMITTEE 6

DRAFT

NOTE FROM CHAIRMAN COMMITTEE 6 TO CHAIRMAN COMMITTEE 4

Subject : Protection of broadcasting-satellite service in the band
12.5 - 12.7 GHz in Region 3 from stations in broadcasting-
satellite service in the band 12.2 - 12.7 GHz in Region 2

The Working Group 6A of Committee 6 is, presently, drafting texts for Articles 4 and 4A of Part I of the Final Acts. The Group has decided, inter-alia, to include the procedures for the protection of broadcasting-satellite service in Region 3 as mentioned above. The Committee 6 is expected to adopt the decision arrived at in the Working Group 6A.

Committee 4 is requested to examine the matter and provide the relevant criteria.

J.A. ZAVATTIERO
Chairman of Committee 6

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/44-E

5 July 1983

Original : English

WORKING GROUP 4B

ANNEX [2] OF SECTION [II] OF THE FINAL ACTS

DRAFT

Basic characteristics to be furnished in notices relating to feeder link stations in the fixed-satellite service operating in the band 17.3 - 17.8 GHz in Region 2¹

1. The following information is required in notices relating to transmitting earth stations :
 - 1.1 Country and IFRB number
 - 1.2 [Assigned/allotted] frequency or channel number
 - 1.3 [Assigned/allotted] frequency band
 - 1.4 Date of bringing into use
 - 1.5 Identity of the transmitting feeder link station
 - 1.6 Geographical coordinates of a feeder link earth station transmitting in the band 17.7 - 17.8 GHz. Only the geographical coordinates which define the feeder link service area need be specified for a feeder link earth station transmitting exclusively in the band 17.3 - 17.7 GHz
 - 1.7 Identity of the space station with which communication is to be established
 - 1.8 Rain climatic zone²
 - 1.9 Class of emission, necessary bandwidth and description of transmission
 - 1.10 Power characteristics of the transmission

a) The following information is required for each [assigned/allotted] frequency :

- transmitted power (dBW) supplied to the input of the antenna;
- maximum power density per Hz (dB (W/Hz)), averaged over the worst 1 MHz band, supplied to the antenna.

¹ Notices relating to space stations and earth stations used for telecommand and tracking purposes associated with the Plan shall be furnished in accordance with Appendix 3 of the Radio Regulations.

² This information is required for frequency [assignments/allotments] in the band 17.7 - 17.8 GHz.

- b) Additional information required if power control is used :
 - mode of control;
 - range, expressed in dB above the peak envelope power used in a) above.
- c) Additional information required if site diversity is used :
 - identity of other earth station with which diversity operation is to be employed
- d) Additional information required if depolarization compensation is used :
 - characteristics

1.11 Transmitting antenna characteristics :

- absolute isotropic gain of the antenna in the direction of maximum radiation;
- beamwidth in degrees between the half-power points (describe in detail if not symmetrical);
- the measured radiation diagram of the antenna (taking as a reference the direction of maximum radiation), or the reference radiation diagram to be used for coordination;
- type of polarization;
- sense of polarization;
- the horizon elevation angle¹ in degrees for each azimuth around the earth station;
- altitude¹ of the antenna above mean sea level.

1.12 Modulation characteristics :

- type of modulation;
- pre-emphasis characteristics;
- TV system;
- sound broadcasting characteristics;
- frequency deviation;
- composition of the baseband;

¹ This information is required for frequency [assignments/allotments] in the band 17.7 - 17.8 GHz.

- type of multiplexing of the video and sound signals;
- spectral dispersion characteristics (if used).

1.13 Hours of operation (UTC)

1.14 Coordination

1.15 Agreements

1.16 Other information

1.17 Operating administration or company

2. The following information is required in notices relating to receiving space stations :

2.1 Country and IFRB number

2.2 Orbital position (in degrees from the Greenwich Meridian)

2.3 /Assigned/allotted/ frequency or channel number

2.4 /Assigned/allotted/ frequency band

2.5 Date of bringing into use

2.6 Identity of the space station

2.7 Feeder link service area (geographical coordinates defining the service area)

2.8 Class of station

2.9 Class of emission and necessary bandwidth of the transmission to be received

2.10 Antenna characteristics :

- absolute isotropic gain of the antenna in the direction of maximum radiation;
- shape of the beam (circular, elliptical or other);
- pointing accuracy;
- type of polarization;
- sense of polarization;
- for circular shaped beams indicate the following :
 - half-power beamwidth in degrees;
 - co-polar and cross-polar radiation patterns;
 - nominal intersection of the antenna beam axis with the Earth;

- For elliptical beams indicate the following :
 - co-polar and cross-polar radiation patterns;
 - rotation accuracy;
 - orientation;
 - major axis (degrees) at the half-power beamwidth;
 - minor axis (degrees) at the half-power beamwidth;
 - nominal intersection of the antenna beam axis with the Earth.
- For beams of other than circular or elliptical shape, indicate the following :
 - co-polar and cross-polar gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite. The isotropic or absolute gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter, as necessary, below the maximum gain shall be indicated;
 - wherever possible, a numerical equation or table providing the necessary information to allow the gain contours to be plotted;
 - for an [assignment/allotment] in the band 17.7 - 17.8 GHz gain toward those portions of the geostationary satellite orbit which are visible from the satellite.

2.11 Receiver system noise temperature referenced to the output of the antenna

2.12 Station-keeping accuracy

2.13 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
- spectral dispersion characteristics (if used)

2.14 Hours of operation (UTC)

2.15 Coordination

- 2.16 Agreements
- 2.17 Other information
- 2.18 Operating administration or company
- [2.19 Range of automatic gain control (if used)]

PROPOSED CHANGE TO APPENDIX 30 OF THE RADIO REGULATIONS

ANNEX 2

Basic characteristics to be Furnished in Notices Relating to
Space Stations in the Broadcasting-Satellite Service

- NOC Item 1
- MOD 2. Orbital position (in degrees from the Greenwich meridian)
- NOC Items 3-7
- MOD 8. Rain-climatic zone(s).
- NOC Items 9-11
- MOD 12. Antenna characteristics :
 - absolute isotropic gain of the antenna in the direction of maximum radiation;
 - shape of the beam (elliptical or circular);
 - pointing accuracy;
 - type of polarization;
 - sense of polarization;
 - radiation pattern and cross-polar characteristics.
- ADD
 - for circular beams indicate the following :
 - half-power beamwidth in degrees;
 - co-polar and cross-polar radiation patterns;
 - for elliptical beams indicate the following :
 - co-polar and cross-polar radiation patterns.

ADD ¹ In Region 2, notices relating to space stations used for telemetry and tracking purposes associated with the Plan shall be furnished in accordance with Appendix 3 of the Radio Regulations.

- rotation accuracy;
- orientation;
- major axis (degrees) at the half-power beamwidth;
- minor axis (degrees) at the half-power beamwidth;
- for beams of other than circular or elliptical shape, indicate the following :
 - co-polar and cross-polar gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite on to a plane perpendicular to the axis from the centre of the Earth to the satellite. This isotropic or absolute gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter, as necessary, below the maximum gain, shall be indicated;
 - [wherever possible a numerical equation or table providing the necessary information to allow the gain contours to be plotted;
 - gain toward those portions of the geostationary satellite orbit which are visible for the satellite.

NOC Item 13

MOD 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;
- spectral dispersion characteristics (if used).

SUP Items 15, 16

NOC Items 17-21

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/45-E

5 July 1983

Original : English

WORKING GROUP 6B

DRAFT

SECOND REPORT FROM WORKING GROUP 6B TO COMMITTEE 6

DRAFT RESOLUTION

Relating to the period between /the signature of the Final Acts/
 /1 January 1984/ and the entry into force of the
 Final Acts of /WARC-ORB 85/

The Regional Administrative Radio Conference for the planning of the broadcasting-satellite service in Region 2, Geneva, 1983,

considering

- a) that the provisions and the associated plans prepared by the present Conference are subject to formal adoption by /WARC-ORB 85/;
- b) that as a result of this adoption the provisions and the associated Plans prepared by this Conference will be incorporated into the Radio Regulations by /WARC-ORB 85/;
- c) that during the period between /the signature of the Final Acts of the present Conference/ /1 January 1984/ and the date of entry into force of the Final Acts of the /WARC-ORB 85/ administrations of countries in Region 2 may wish to bring into use assignments appearing in the Plan or to modify them or to bring them into use as interim systems;
- d) that in accordance with the provisions of Resolutions Nos. 31 and 504 and of the WARC-1979 and the provision RR 839 of the Radio Regulations, pending the entry into force of the Final Acts of WARC-ORB 1985, the provisions of Resolution No. 33 of the WARC 1979 and of Articles 11, 13 and 14 of the Radio Regulations shall apply to stations of the broadcasting-satellite and fixed-satellite service;

further considering

that there is a need for procedures to be applied by administrations of Region 2 and the IFRB during the above period;

resolves

- 1. that /during the period preceding/ /during the period between 1 January 1984 and/ the date to be adopted by /WARC-ORB 85/ on which the provisions and the associated plans established by the present Conference will apply to all countries of Region 2 the following procedures shall be applied :
 - 1.1 the Board shall consider any notification of an assignment to a station of the broadcasting-satellite service in the band 12.2 - 12.7 GHz which is in conformity with the Broadcasting-Satellite Plan :
 - as having successfully applied the provisions of Article 14 with respect to countries participating in the Conference and those having accepted to apply the provisions of this Resolution;

- as having been coordinated among the same countries with respect to sections A and B of Resolution No. 33;

1.2 the Board shall consider any notification of an assignment to a station of the fixed-satellite service in the band 17.3 - 17.8 GHz which is in conformity with the feeder link plan as having been coordinated among the same countries in accordance with Article 11 of the Radio Regulations;

1.3 that the IFRB, and administrations wishing to modify their assignments in the above Plan or to bring into use interim systems, and the IFRB shall apply the provisions of Articles except for those provisions of paragraphs / 7;

2. on the date of entry into force of the Final Acts of WARC 1985, the IFRB shall publish modifications to the Plans and interim uses resulting from resolves 1 above, in a special section of its weekly Circular in order to enter them in the Plan or in the Interim List referred to in / 7;

urges the administrations not present at this Conference

to accept that provisions of the present Resolution be applied to them within the framework of the procedures contained in Articles 11 and 14 of the Radio Regulations and of Resolution No. 33 of WARC 1979 and to so inform the IFRB as soon as practicable to this effect;

recommends to the / WARC-ORB 85 /

to consider and adopt the draft Resolution contained in the Annex to this Resolution in order to permit the application to all countries of Region 2 of the provisions and associated plans for the BBS service and for the feeder links;

requests the IFRB

to communicate to the administrations not participating in the Conference the provisions governing the use of the BSS and the FSS for the feeder links and the associated plans indicating the assignments entered in the Plan on their behalf and outlining the benefit of them of accepting the application of these provisions during the period preceding the / WARC-ORB 85 / as indicated in the present Resolution.

A N N E X

DRAFT RESOLUTION

Relating to the provisional uses of Appendices

The World Administrative Radio Conference, Geneva, 1985

considering

- a) that the present Conference has decided to submit the provisions incorporate within the Radio Regulations the provisions and associated Plans for the BSS and FSS for feeder links in Region 2;
- b) that during the period preceding the date of entry into force of the Final Acts of the [WARC-ORB 85] administrations of countries in Region 2 may wish to bring into use assignments appearing in the Plan or to modify them or to bring them into use as interim systems;

further considering

that there is a need for procedures to be applied by administrations of Region 2 and the IFRB during the interim period referred to above;

resolves

1. that during the period preceding the date of entry into force of the Final Acts of this Conference administrations and the IFRB shall apply the provisions of Appendices ... and on a provisional basis;
2. on the date of entry into force of the Final Acts of WARC 1985, the IFRB shall publish modifications to the Plans and interim uses introduced in application of resolves 1 above, in a special section of its weekly Circular in order to enter them in the Plan or in the Interim List referred to in [].

DRAFT RESOLUTION

Relating to the compatibility of the Plan for
the Broadcasting-Satellite Service in Region 2
in the band 12.2 - 12.7 GHz with Appendix 30
of the Radio Regulations

The Regional Broadcasting-Satellite Conference (Region 2), Geneva, 1983,

considering

- a) that it has adopted a Plan for the broadcasting-satellite service in Region 2 in the band 12.2 - 12.7 GHz;
- b) that Appendix 30 stipulates that the Region 2 plan to be adopted at a future regional administrative radio conference shall not degrade the protection afforded to the frequency assignments in the Plan below the limits specified in this Appendix (see footnote to paragraph 4.3.1.2);
- c) that Resolution No. 700 of WARC-79 stipulates that in the drawing-up of a plan (and any associated modification procedure) for the broadcasting-satellite service in Region 2 the requirements for satisfactory future operation of the fixed-satellite service in Regions 1 and 3 shall be observed and that, if constraints on the fixed-satellite service are considered necessary to ensure that no harmful interference is caused either to the fixed-satellite or the broadcasting-satellite services involved, they should not in any case be greater than those imposed on the fixed-satellite service in Region 2 by Appendix 30 (see resolves 2 of Resolution No. 700);
- d) that Resolution No. 701 of WARC-79 stipulates that planning shall take into account the pertinent provisions of Appendix 30, in particular those contained in Annexes 4 and 5, as well as other decisions of this Conference. In considering Annexes 6, 7 and 8 account should also be taken of the latest CCIR Recommendations and technological advances (see resolves 2 of Resolution No. 701);
- e) that due to the limited time available to it, the Conference did not identify the incompatibilities, if any, with broadcasting-satellite stations in Regions 1 and 3 or with other services in these Regions;

decides to request the IFRB

- 1. / to be developed by Committee 5 in accordance with proposal No. ; 7
 - 2. to identify the countries of Regions 1 and 3 which may be affected by the assignments in the Region 2 Plan; in accordance with the limits specified in Appendix 30;
 - 3. to communicate to administrations of Region 2 concerned and to the administrations of Regions 1 and 3 so identified in accordance with the limits specified in Appendix 30 the results of its calculations and to invite them to resolve the problem and to communicate to the IFRB the results of their negotiations;
 - 4. to send at regular intervals reminders to those administrations which have not yet communicated the results of their negotiations;
 - 5. to prepare for communication to the World Administrative Radio Conference, Geneva, 1985, a report containing the list of cases which have been identified, together with the indication of those which have been resolved.
-

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/46-E

6 July 1983

Original : English

WORKING GROUP 6B

DRAFT THIRD REPORT OF WORKING GROUP 6B TO COMMITTEE 6

Annexes : 2

A N N E X 1

DRAFT RESOLUTION

Relating to the Incorporation into the Radio Regulations of the Provisions and Associated Plans for the Broadcasting-Satellite Service in the Band 12.2 - 12.7 GHz and for Feeder Links in the Band 17.3 - 17.8 GHz in Region 2 and their Recording in the Master International Frequency Register

The Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Region 2, Geneva, 1983,

considering

- a) that the provisions and associated Plans prepared by the present Conference are applicable in Region 2 subject to their adoption by the /WARC-ORB-85/;
- b) that as a result of this adoption the provisions and the associated Plans prepared by this Conference will be incorporated into the Radio Regulations by /WARC-ORB-85/;

resolves to recommend to the /WARC-ORB-85/

- 1. to incorporate into the Radio Regulations the provisions and associated Plans prepared for the broadcasting-satellite service in the band 12.2 - 12.7 GHz and for feeder links in the band 17.3 - 17.8 GHz in Region 2 without modifying them;
- 2. to consider the possibility of combining the provisions relating to the broadcasting service in the three Regions in the same Appendix to the Radio Regulations, the content of which is contained in the Annex to this Resolution;
- 3. to give instruction to the IFRB in order to record in the Master International Frequency Register the assignments appearing in the two Plans.

Annex /to be prepared/

A N N E X 2

DRAFT RESOLUTION

Relating to the Review of the Use of the Band 12.2 - 12.7 GHz
by the Terrestrial Services in Region 2

The Regional Administrative Radio Conference for the Planning of the
Broadcasting-Satellite Service in Region 2, Geneva, 1983,

considering

a) that Provision 844 of the Radio Regulations stipulates that

" In Region 2, in the band 12.1 — 12.7 GHz, existing and future terrestrial radio-communication services shall not cause harmful interference to the space services operating in accordance with the broadcasting-satellite plan to be prepared at the 1983 regional administrative radio conference for Region 2, and shall not impose restrictions on the elaboration of such a plan " ;

b) that the Conference had no information relating to terrestrial services which would permit to determine the compatibility between existing and planned terrestrial services and the broadcasting-satellite service;

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 accordance 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 accordance 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;

invites the IFRB

to assist administrations in implementing the provisions of this Resolution;

urges the Administrations of Region 2

when planning uses of terrestrial services to take into account in addition to Article 6 of Part I, of interim uses published in accordance with

[7.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/47-E

6 July 1983

Original : English

Source : Document No. 116(Rev.1)

WORKING GROUP 4B

DRAFT NOTE FROM COMMITTEE 4 TO COMMITTEE 5 ON THE MINIMUM SEPARATION BETWEEN SATELLITES WITH INTENTIONALLY DIFFERENT ORBITAL POSITIONS

Committee 4 wishes to bring to the attention of Committee 5 that when satellites are placed at different nominal orbital positions in a plan, the spacing between such satellites should be at least 0.8° . This applies only to satellites at different nominal orbital positions which use the same channel or an adjacent channel. The spacing of 0.8° is a composite of a 0.4° spacing between satellites at the same nominal orbital position using adjacent channels, a $\pm 0.1^\circ$ station-keeping tolerance of all satellites considered, a feeder-link earth station mispointing tolerance of 0.1° and a spacing of at least 0.1° between satellites at different nominal positions under all circumstances.

E.F. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/48-E

7 July 1983

Original : English

WORKING GROUP 4B

DRAFT NOTE FROM COMMITTEE 4 TO COMMITTEE 5

Document No. 86(Rev.1) and its Corr.1 include a footnote (in brackets) that indicates that channels in the Plan, for France, Denmark, and some United Kingdom requirements have a necessary bandwidth of 27 MHz. The following points have been identified :

- 1) WARC-77 Final Acts have provided the technical parameters used for planning with 27 MHz signals in Regions 1 and 3.
- 2) The sections of the Final Acts of the Conference, presently being developed by Committee 4, provide technical parameters for planning with 24 MHz bandwidth signals.
- 3) Document No. 48 provides limited information on protection ratios for wanted and interfering signals of different standards.
- 4) In the absence of sufficient complementary information on the protection ratios between different television standards having different necessary bandwidths, Committee 4 does not expect to be able to provide additional technical information that may be needed for the planning of the broadcasting-satellite service on the basis of two different necessary bandwidths.

E.F. MILLER
Chairman of Working Group 4B

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/49-E

7 July 1983

Original : English

WORKING GROUPS OF
COMMITTEE 5

Note by the Chairman of Committee 5 (Planning)

RELAXATION OF REQUIREMENTS

1. The present document contains a summary of relaxations of requirements received by the Chairman of Committee 5 by 1500 hours, Wednesday, 6 July 1983.
2. Certain factors for planning, such as reduction of the number of channels, increase of the preferred orbital arc, decrease of the minimum elevation angle and a shift of the eclipse time towards an earlier hour, are shown in separate columns in the attached Annex 1 so as to provide a summary of the information received.
3. The full texts of information expanding on that given in Annex 1, received from the following Delegations, are reproduced in Annex 2 : Argentina; Canada; France, Denmark and the Netherlands; Belize and the United Kingdom; and the United States.

P.D. CROSS
Chairman of Committee 5

Annexes : 2

A N N E X 1

| ITEM NO. | DELE-GATION | REMARK NO. | BEAM IDENTIFICATION | CHANNEL | PREFERRED ARC W | ELEV. ANGLE | ECLIPSE TIME | OTHER RELAXATION |
|----------|-------------|------------|---------------------|---------|-----------------|-------------|--------------|----------------------|
| | ARG | A501 | ARGNORT2 | | 82-90 | 30 | | Correction of points |
| | ATG B | | ARGSU02 | | 82-90 | 30 | | |
| | | | ARGINSU2 | | 82-90 | 30 | | |
| | | | ATGSJN01 | | 70-102 | 30 | | |
| | | | BOOSU111 | | 71-90 | 30 | | |
| | | | BOOSU211 | | 71-90 | 30 | | |
| | | | BOOCE311 | | 71-90 | 30 | | |
| | | | BOOCE411 | | 71-90 | 30 | X | |
| | | | BOOCE511 | | 71-90 | 30 | X | |
| | | | BOON0611 | | 86-105 | 30 | | |
| | | | BOON0711 | | 86-105 | 30 | | |
| | | | BOON0811 | | 86-105 | 30 | X | |
| | | | BOOSE911 | | 71-108 | 30 | | |
| | | | BOOSU112 | | 45-88 | 30 | | |
| | | | BOOSU212 | | 45-88 | 30 | | |
| | | | BOOCE312 | | 45-88 | 30 | | |
| | | | BOOCE412 | | 45-88 | 30 | | |
| | | | BOOCE512 | | 60-100 | 30 | | |
| | | | BOON0612 | | 60-100 | 30 | | |
| | | | BOON0712 | | 60-100 | 30 | | |
| | | | BOON0812 | | 60-100 | 30 | | |
| | BAH | | BAHIFRB1 | | 85-110 | 20 | | |
| | BOL | | BOLAND01 | | 70-98 | | | |
| | | | BOLIFRB2 | | 70-98 | | | |
| | BRB | | BRB00001 | | 70-101 | | | |
| | CAN | A502 | | | | X | X | |
| | CHL | | CHLCONT4 | X | | | | |
| | | | CHLCONT6 | X | | | | |
| | | | CHLCONT5 | X | | | | |
| | | | CHLPAC02 | X | | | | |
| | | | PAQPAC01 | X | | | | |
| | CLM | | CLM00001 | | | | | No change |
| | CTR | | CTRO0201 | | 85-125 | | | |
| | CUB | | CUB00001 | | 100-113 | | | |
| | DMA | | DMAIFRB1 | | 70-102 | | | |
| | DNK | A503 | | | 56-60 | | | Co-location |
| | F | | | | | | | |
| | HOL | | DOMIFRB2 | | 85-108 | | | |
| | DOM | | | | | | | |
| | EQA | | GUFMGG01 | | | | | No change |
| | F | | | | | | | Deletion of 1 point |
| | G | A504 | BERBERO2 | | | | | |
| | | | BERBERMU | | 105-115 | 40 | | |
| | | | FLKFALKS | | | | | |
| | | | IOBCAYMA | | 105-115 | 40 | | |
| | | | IOBBVIRG | | 77-113 | 40 | | |
| | | | IOBKNO01 | | 77-113 | 40 | | |
| | | | IOBMONTE | | 77-113 | 40 | | |
| | | | IOBTURCA | | 105-115 | 40 | | |
| | | | LCAIFRB1 | | 77-113 | 40 | | |

| ITEM NO. | DELE-GATION | REMARK NO. | BEAM IDENTIFICATION | CHANNEL | PREFERRED ARC W | ELEV. ANGLE | ECLIPSE TIME | OTHER RELAXATION |
|----------|-------------|------------|---------------------|---------|-----------------|-------------|--------------|--|
| | GUY | | GUY00302 | | | | | No use of channels 20-32, co-location. |
| | JMC | | JMC00005 | | | | | No use of channels 20-32. |
| | GRD | | GRD00002 | | | | | Co-location, polarization. |
| | | | GRD00003 | | 77-105 | | | Co-location |
| | | | GRD00059 | | 55-110 | | | |
| | GTM | | GTMIFRB2 | | 100-129 | | | |
| | HND | | HNDIFRB2 | | 100-124 | | | |
| | HTI | | HTI00002 | | 85-111 | | | |
| | JMC | | JMC00002 | | 90-100 | | | Co-located |
| | | | CRBJMC01 | | 90-100 | | | |
| | | | CRBBAH01 | X | 85-110 | 20 | | |
| | | | CRBBER01 | X | | | | |
| | | | CRBBLZ01 | X | | | | |
| | | | CRBEC001 | X | | | | |
| | LCA | | LCAIFRB1 | | 70-102 | | | |
| | MEX | | MEX01SUR | X | | | | |
| | NCG | | NCG00003 | | 100-124 | | | |
| | PNR | | PNRIFRB2 | | 85-120 | | | |
| | PRG | | PRG00002 | | 100-148 | | | |
| | PRU | | PRU00002 | X | 98-104* | | | *Restriction |
| | SLV | | SLVIFRB2 | | 100-129 | | | Correction of points |
| | SUR | | SURINAME | | | | | |
| | TRD | | TRD00001 | | 70-102 | | | |
| | URG | | URG00001 | | 73-88 | | | |
| | USA | A505 | USAWH001 | | X | X | X | |
| | | | USAWH002 | | | | | |
| | | | USAWH003 | | | | | |
| | | | USAWH004 | | | | | |
| | | | USAEH001 | | | | | |
| | | | USAEH002 | | | | | |
| | | | USAEH003 | | | | | |
| | | | USAEH004 | | | | | |
| | | | PTRVIR02 | | | | | |
| | VCT | | VCT00001 | | 70-102 | | | |

A N N E X 2

A501 ARGNORT 2

In accordance with the corrections appearing in the form which was submitted on 1 July 1983, it is requested that Document No. DT/40, Annex 1, page 1, column 07 for service area ARGNORTE be corrected as follows :

| | 07 | | |
|-----|--------------|--------|----------|
| | - A - | - B - | - C - |
| 4. | 058W51 27S28 | 000055 | <u>P</u> |
| 5. | 055W54 27S23 | 000080 | <u>P</u> |
| 6. | 058W10 26S11 | 000058 | <u>P</u> |
| 7. | 065W24 24S47 | 001187 | <u>E</u> |
| 10. | 065W12 26S50 | 000447 | <u>E</u> |

A502 CAN

I am pleased to be able to respond in a positive way to your request to have each administration review its channel requirements and orbital constraints to make a regional plan possible.

Canada sent its statement of requirements to the IFRB in June 1982. In that statement Canada expressed a need for 32 channels to serve each of its six service areas, and a need to implement lower capacity interim systems serving the country from fewer orbital locations. This requirement remains unchanged, and is clarified in document DT/40.

In an effort to state its requirements in such a way that would allow a successful formulation of a Region-wide plan, Canada requested an elevation angle of at least 11° at the mid-latitude of its service areas at 60°N, and 4° at the northern limit of its service areas at 70°. It would be difficult to agree to elevation angles less than 4°.

In its initial statement of requirements Canada stated preferred orbital arcs that would provide eclipse times not earlier than 1 AM. In the interests of developing a Regional Plan, Canada would be prepared to accept orbital positions with eclipse times in the midnight to 1 AM interval, and to consider more easternly positions for one or two of its orbital positions, in concert with a similar move by other administrations whose satellite positions have a significant bearing on the positions of Canadian satellites.

A503 DNK
F
HOL

The Delegations of France, Denmark and the Netherlands reimphasize their desire to share one common orbit position between 56° and 60°. All other requirements remain unchanged.

In connection with the above, France has given an explanation in Note A16 of Document No. 16(Rev.).

A504 G

1. IFRB Reference No's 249, 250 and 251 - Caribbean Beam

For the second draft plan the modifications as detailed in Annex 2 to Document DT/40 require inclusion (Remark A 104).

Document 16 (Rev) gives a required orbital position of $-95 \pm 5^\circ$ which resulted from considerable compromises by some of the Administrations participating in the Caribbean beam. Those Administrations with easterly service areas, for example require adequate elevation angles to counter the effects of high precipitation on unfavourable terrain features, whilst those with service areas to the west require acceptable eclipse times.

The nominal position of -115° is therefore unacceptable since elevation angles of only 21° would be realised for the Eastern Caribbean service area. (CRBEC001, formerly CRBSE001).

Document 51(Rev 2) paragraph 3.12 indicates a minimum elevation angle of 40° for high precipitation areas, which the United Kingdom interprets as applying to both N and P regions. The United Kingdom therefore requires the reintroduction of the Caribbean beam at $-95 \pm 5^\circ$.

2. IFRB Reference No's 19 and 244

The United Kingdom requests the assignment of channels 1, 5, 9, 13 and 17 to the two service areas served from a satellite located at -31° . The requested polarization for Ref 19 is Direct (1) and for Ref 244 Indirect (2). In addition the United Kingdom wishes to insert into the plan for Region 2 values of satellite input power (column 5) which will not cause a pfd exceeding $-147\text{dB (W/m}^2/27\text{ MHz)}$ in the affected areas of Region 1 ie Sierra Leone, Upper Volta, Spain, Canary Islands, Ivory Coast and Iceland). With regard to the feeder link plan, Article II.9, the United Kingdom would wish to add the following footnote in Column 9 Remarks, against feeder link channels 1, 5, 9, 13 and 17:

"This assignment will only be implemented if it does not constrain the development and subsequent introduction of a feeder link plan for Region 1."

3. IFRB Reference No's 21, 24, 59, 117, 118, 245, 264 and 271

These refer to a common orbital position for eight geographical areas and is to be located to the east of the Caribbean Beam, currently at -92° but is required to be no further east than -77° .

The Administrations of the Organisation of Eastern Caribbean States, Dominica, Grenada, St Lucia and St Vincent have expressed a wish to be grouped together in the same polarization sense. Antigua, the British Virgin Islands, Montserrat and St Christopher-Nevis would therefore be grouped in the opposite polarization sense.

The United Kingdom is in agreement with this proposal and is content for the IFRB to assign the channel frequencies and polarization sense to the two groups.

4. IFRB Ref 26.

The proposed orbital position of - 131 is unacceptable in that it is outside the preferred orbital arc requested by the United Kingdom. A possible solution is outlined in 5 below.

5. IFRB Reference No's 18, 22, 26, 97 and 115.

In order to reduce the number of orbital positions in the plan Belize/United Kingdom would wish to propose the following co-location of requirements at an orbital position of - 113° or within an orbital arc of - 105° to - 115°:

In the same polarization sense with 4 channels per geographical area.

| | | |
|--------|-----|----------|
| Ref 22 | G | IOBCAYMA |
| 26 | G | IOBTURCA |
| 97 | BLZ | BLZOOOOL |
| 115 | BAH | BAHIFRBI |

In the opposite polarization sense with sixteen channels

| | | |
|--------|---|----------|
| Ref 18 | G | BERBERMU |
|--------|---|----------|

It is noted that Ref 97 and 115 are already sharing an orbital position of - 113°.

.....

- A505 USAWH001 1. The U.S. is willing to relax its eclipse protection requirement from
 USAWH002 its implied value of 1 a.m. in its original submission to midnight. The midnight
 USAWH003 criteria can be applied to all U.S. positions, but is also the earliest accepta-
 USAWH004 ble time for all of these positions. For the western half of the U.S., the
 USAEH001 eclipse time applies to the pacific time zone.
 USAEH002
 USAEH003 2. Of the eight U.S. requested positions, the westernmost may be located
 USAEH004 as far west as 175 degrees west longitude, and the second westernmost may be
 PTRVIRO2 located as far west as 165 degrees west longitude.
3. Of the four positions serving the eastern half of the U.S., the westernmost of these may be located as far west as 142 degrees west longitude.
4. All other U.S. satellites must be positioned so as to provide a minimum 20 degree elevation angle to their respective service areas.

I hope that the above listed relayation of U.S. requirements will assist in the development of a plan that will meet the requirements of all countries in Region 2.

.....

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/50-E

8 July 1983

Original : Spanish

COMMITTEE 2

DRAFT

REPORT OF COMMITTEE 2 TO THE PLENARY MEETING

CREDENTIALS

1. Terms of reference of the Committee

The terms of reference of the Committee are set out in Document No. 34.

2. Meetings

The Committee met twice, on 14 June and 11 July 1983.

At its first meeting it set up a Working Group to verify delegations' credentials in accordance with Article 67 of the International Telecommunication Convention, Malaga-Torremolinos (1973).

3. Conclusions

The conclusions reached by the Committee are reproduced in the Annex attached hereto and submitted to the Plenary Meeting for approval.

4. Final remark

The Committee recommends that the Plenary Meeting authorize the Chairman and Vice-Chairman of Committee 2 to verify the credentials received after the date indicated in the present report and to report to the Plenary Meeting on the matter.

M. LASSO

Chairman a.i. of Committee 2

Annex : 1

FINDINGS OF THE CREDENTIALS COMMITTEE

| Members of Region 2 | Present at the Conference | Credentials deposited with the Sec.Gen. | Credentials found in order by WG 2-A | Findings on right to | |
|--|---------------------------------|---|---|-------------------------|------|
| | | | | vote | sign |
| ARGENTINE REPUBLIC | yes | yes | yes | yes | yes |
| BAHAMAS (Comm. of the) | - | | | | |
| BARBADOS | - | | | | |
| BELIZE | 1) | yes | yes | yes | yes |
| BOLIVIA (Rep. of) | yes | no | | no | no |
| BRAZIL (Fed. Rep. of) | yes | yes | yes | yes | yes |
| CANADA | yes | yes | yes | yes | yes |
| CHILE | yes | yes | yes | yes | yes |
| COLOMBIA (Rep. of) | yes | yes | yes | yes | yes |
| COSTA RICA | - | | | | |
| CUBA | yes | yes | yes | yes | yes |
| DENMARK | yes | yes | yes | yes | yes |
| DOMINICAN REPUBLIC | - | | | | |
| EL SALVADOR (Rep. of) | - 2) | | | | |
| ECUADOR | yes | yes | yes | yes | yes |
| UNITED STATES OF AMERICA | yes | yes | yes | yes | yes |
| FRANCE | yes | yes | yes | yes | yes |
| GRENADA | yes | yes | yes | yes | yes |
| GUATEMALA (Rep. of) | - 2) | | | | |
| GUYANA | yes | yes | yes | yes | yes |
| HAITI (Rep. of) | - | | | | |
| HONDURAS (Rep. of) | yes | no | | no | no |
| JAMAICA | yes | yes | yes | yes | yes |
| MEXICO | yes | yes | yes | yes | yes |
| NICARAGUA | yes | no | | no | no |
| PANAMA (Rep. of) | yes | no | | no | no |
| PARAGUAY (Rep. of) | - | | | | |
| NETHERLANDS (Kin. of the) | yes | yes | yes | yes | yes |
| PERU | yes | yes | yes | yes | yes |
| UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND | yes | yes | yes | yes | yes |
| SAINT VIENTCENT AND THE GRENADINES | - | | | | |
| SURINAME (Rep. of) | yes | yes | yes | yes | yes |
| TRINIDAD AND TOBAGO | - | | | | |
| URUGUAY (East. Rep. of) | yes | yes | yes | yes | yes |
| VENEZUELA (Rep. of) | yes | yes | yes | yes | yes |

1) Represented by the United Kingdom of Great Britain and Northern Ireland

2) Expressly stated that it would not attend the Conference

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/51-E

8 July 1983

Original : English

COMMITTEE 6

Note by the Chairman

As requested by Committee 6 at its sixth meeting, the text of paragraph 4A.1 is reproduced overleaf for consideration at the Seventh Meeting of the Committee.

J.A. ZAVATTIERO
Chairman of Committee 6

4A.1 An administration or a group of administrations may, after successful application of the procedure contained in this Article, use an interim system during a specified maximum period not exceeding 12 years in order :

- [a) to use an increased e.i.r.p. in any direction relative to that appearing in the Plan [provided that the PFD does not exceed limit given in Annex 1];
- [b) to use different modulation characteristics¹ relative to those appearing in the annexes to the Plan resulting in an increase of the probability of harmful interference or in wider assigned bandwidth;
- c) to change the coverage area by displacing boresight, or by increasing the major or minor axis or by rotating them;
- d) to use a coverage area appearing in the Plan or a coverage area encompassing two or more coverage areas appearing in the Plan from an orbital position which shall be one of the corresponding orbital positions appearing in the Plan;
- [e) to use a polarization different from that in the Plan [in those cases where 4A.1 d) is applicable].

¹The use of other modulating signals having different characteristics (e.g. modulation with sound channels frequency-multiplexed within the bandwidth of a television channel, digital modulation of sound and television signals, or other pre-emphasis characteristics).

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/52-E

9 July 1983

Original : English

WORKING GROUP 6A

DRAFT RESOLUTION

The Regional Administrative Conference for the Planning of the
Broadcasting-Satellite Service in Region 2

considering

- a) that it has prepared a plan for the broadcasting-satellite service in Region 2 in the band 12.2 - 12.7 GHz and a plan for the associated feeder links in the band 17.3 - 17.8 GHz on the basis of the requirements submitted by the administrations and on the technological information available to it;
- b) that in the implementation of their assignments in the Plan, the administrations may find it more appropriate to adopt a phased approach and initially use characteristics different from those appearing in the Plan;
- c) that some administrations may cooperate in the joint development of a space system with a view to cover two or more service areas from the same orbital position or to use a beam which would encompass two or more service areas;
- d) that there may be some advantage in the use of interim systems as the phased approach to implement the assignments in the Plan on the condition that the use of such systems does not lead to a degradation of the service rendered by the assignments in the Plan unless coordinated between the administrations concerned and affected;
- e) that interim systems shall not affect the Plan nor hamper the implementation and evolution of the Plan;

resolves

that the administrations and the IFRB shall apply the procedure contained in the Annex;

invites

the Administrative Council to monitor the implementation of this procedure.

E.D. DuCHARME
Chairman of Working Group 6A

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/53-E

9 July 1983

Original : English

WORKING GROUP 6A

DRAFT

RESOLUTION No. []7

Relating to the Limitation of Power and the Direction
of Maximum Radiation for Stations of the Fixed and
Mobile Services in the Band []17.3 - 17.8 [] GHz

The Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Region 2, Geneva, 1983,

considering

- a) that the band 17.3 - 17.8 GHz has been used for the planning of feeder links for the broadcasting-satellite service by the present Conference;
- b) that unlike the maximum values of equivalent isotropically radiated power (e.i.r.p.) specified for frequency bands between 1 and 10 GHz (RR 2502) and those between 10 and 15 GHz (RR 2503) there are no restrictions as to the direction of maximum radiation in the frequency bands above 15 GHz;
- c) that RR 2504.1 nevertheless specifies that when the CCIR makes a recommendation as to the need for restrictions in frequency bands specified in RR 2511 administrations should as far as practicable observe them;
- d) that Resolution No. 101 of the World Administrative Radio Conference, Geneva, 1979, recognizes the need for study and determination, as a matter of urgency by the CCIR, of suitable criteria applicable to sharing between the fixed and mobile services and the feeder links to broadcasting satellites;

noting

- a) that the present Conference did not have sufficient data to adopt a definite limit of the e.i.r.p. for stations of the fixed and mobile services directed towards the geostationary satellite orbit;
- b) that the present Conference can adopt regulations of this nature only applicable to countries in Region 2 but has no authority to adopt similar values applicable to countries in Regions 1 and 3;
- c) that nevertheless there is a distinct possibility of stations in the fixed and mobile services in Regions 1 and 3 directing their transmissions towards that part of the geostationary-satellite orbit for which plans have been adopted by the present Conference;
- d) that only a competent world administrative radio conference can resolve this question on a world-wide basis;

resolves

that terrestrial transmissions shall not have an equivalent isotropically radiated power equal to or greater than 52 dBW in 24 MHz directed towards the geostationary satellite orbit;

invites

the CCIR to continue its study on an urgent basis with a view to recommending a definite value for consideration by the World Administrative Radio Conference for Orbit Planning to be held in 1985;

recommends to the World Administrative Radio Conference (ORB 85)

to consider and adopt a resolution containing the resolves part of this Resolution in order to permit its observation by all countries of Region 2 as well as by countries in Regions 1 and 3;

requests the Secretary-General

to circulate this Resolution to Administrations of countries in Regions 1 and 3 Members of the ITU.

E.D. DuCHARME
Chairman of Working Group 6A

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Addendum No. 1 to
Document No. DT/54-E
11 July 1983
Original : English

COMMITTEE 6

MODIFICATIONS TO THE ANNEXES OF APPENDIX 30

The modifications required to be made to the Annexes 1 to 11 of Appendix 30 to the Radio Regulations referred to in item 7 of Section III of Document No. 74 are enclosed.

J.A. ZAVATTIERO
Chairman of Committee 6

ANNEX 1

**Limits for Determining Whether a Service
of an Administration is Considered to Be Affected
by a Proposed Modification to the Plan¹
(Article 4, paragraph 4.3.1)¹**

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 Acts², 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 the change in the power flux-density to protect the broadcasting-satellite service in the band ~~11.7-12.2~~ GHz in Region 2*
12.2-12.7

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

¹ The limits specified in this Annex relate to the power flux-densities which would be obtained assuming free-space propagation conditions.

² Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, which entered into force on 1 January 1979.

Plan would result in exceeding the following power flux-densities at any point in the service area affected:

| | |
|--|--|
| – 147 dB(W/m ² /27 MHz) | $0^\circ \leq \theta < 0.48^\circ$ |
| – 139 + 25 log θ dB(W/m ² /27 MHz) | $0.48^\circ \leq \theta < 27.25^\circ$ |
| – 103 dB(W/m ² /27 MHz) | $\theta \geq 27.25^\circ$ |

where θ is the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 1 or 3 and the broadcasting-satellite space station affected in Region 2.

3. *Limits on the change in the 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 Acts¹.

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 any angle of arrival, at any point on its territories, of

¹ Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, which entered into force on 1 January 1979.

– 125 dB(W/m²/4 kHz) when the broadcasting-satellite station uses circular polarization and – 128 dB(W/m²/4 kHz) when the broadcasting-satellite station uses linear polarization.

4. *Limits on the change in the power flux-density to protect the 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 Acts¹.

However, where an assignment in the Plan or its subsequent modification gives a power flux-density of less than – 138 dB(W/m²/27 MHz) anywhere in the territory of an administration of Region 2, that administration shall be considered as not affected.

ANNEX 2

Basic Characteristics to Be Furnished in Notices Relating to Space Stations in the Broadcasting-Satellite Service

1. Country and IFRB number.
2. Nominal orbital position (in degrees from the Greenwich meridian).
3. Assigned frequency or channel number.

¹ Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, which entered into force on 1 January 1979.

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 (dBW).
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;
 - ΔG (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 (UTC).
18. Coordination.
19. Agreements.
20. Other information.
21. Operating administration or company.

ANNEX 3

**Method for Determining the Limiting Interfering Power
Flux-Density at the Edge of a Broadcasting-Satellite Service
Area in the Bands 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 (11.7 - 12.5 GHz in Region 1).

1.2 The method is in two parts:

- a) the calculation of the maximum permissible interfering power flux-density at the edge of the broadcasting-satellite service area concerned;
- b) 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:

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

where:

- F = the maximum permissible interfering power flux-density (dB(W/m²)) in the broadcasting-satellite necessary bandwidth;
- F_o = the wanted power flux-density (dB(W/m²)) 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_o)

The value of F_o is equal to:

- a) -103 dB(W/m²) for service areas in Regions 1 and 3;
- b) -105 dB(W/m²) 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 ± 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 Fig. 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 ϕ selected for the proposed or operational broadcasting-satellite system for the broadcasting-satellite service area concerned is equal to or greater than 19° , the value of D to be assumed in expression (1) is 33 dB. When ϕ is less than 19° , D should be derived from the expression (2.a) below.

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

$$\begin{aligned} D &= 0 && \text{for } 0^\circ \leq \phi < 0.5^\circ \\ D &= 3\phi^2 && \text{for } 0.5^\circ < \phi < 1.41^\circ \\ D &= 3 + 20 \log_{10} \phi && \text{for } 1.41^\circ < \phi < 2.52^\circ \\ D &= 1 + 25 \log_{10} \phi && \text{for } 2.52^\circ < \phi < 19^\circ \end{aligned} \quad (2.a)$$

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

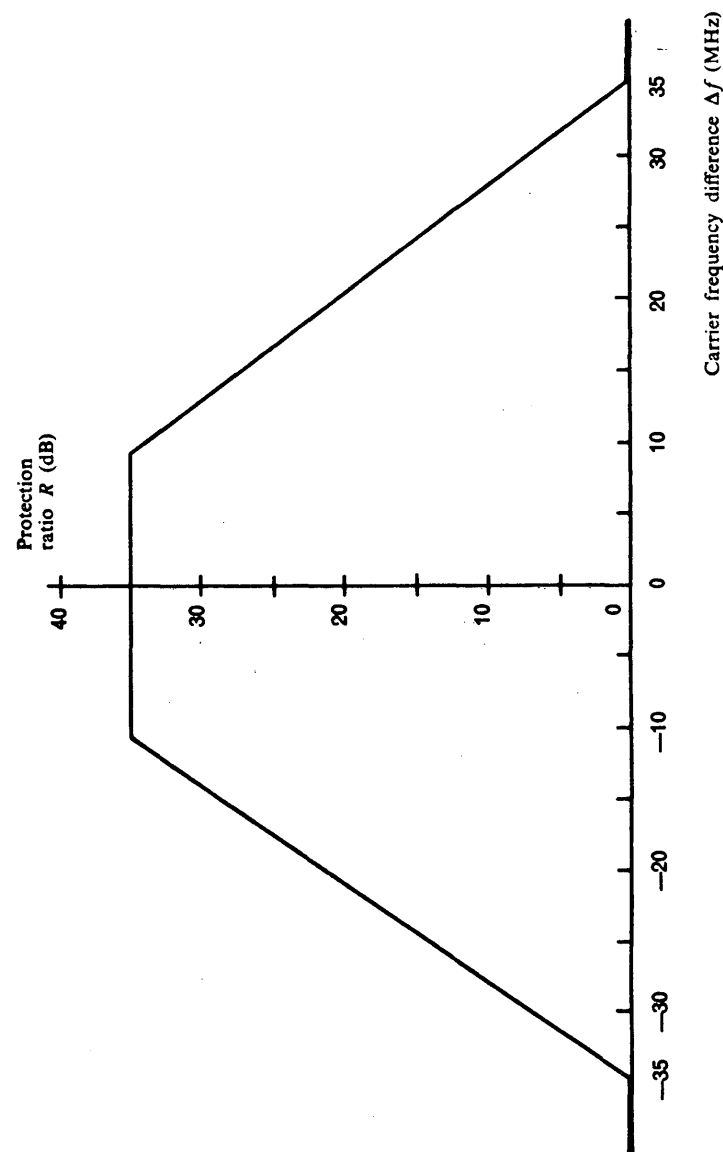


FIGURE 1

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)

2.4.2 Broadcasting-satellite service areas in Region 2

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

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

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

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

2.5 Polarization discrimination (P)

The value of P is equal to:

- 3 dB when the interfering terrestrial service uses linear polarization and the broadcasting-satellite service uses circular polarization or vice versa;
- 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 $\text{dB(W/m}^2\text{)})$ produced at any point on the edge of the service area by the terrestrial station is determined from the following formula:

$$F_p = E - A + 43 \quad (3)$$

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;
- A = the total path loss in dB.

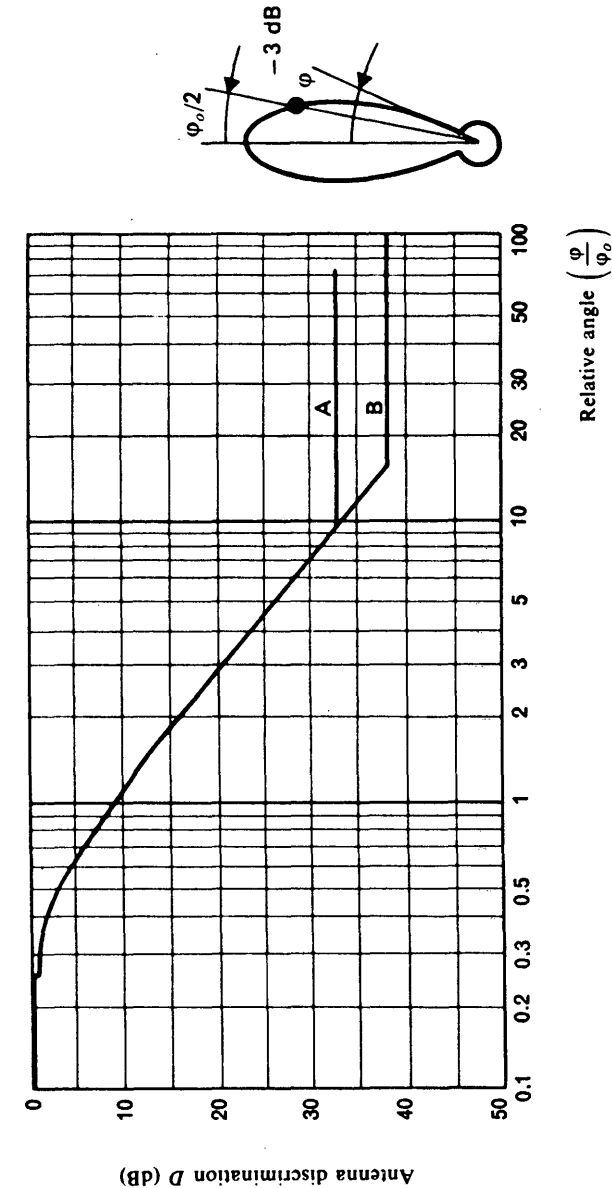


FIGURE 2
Discrimination D (dB) of broadcasting-satellite receiver antenna
as a function of satellite elevation angle

For service areas in Regions 1 and 3, $\varphi_0 = 2^\circ$ and Curve A applies.
For service areas in Region 2, $\varphi_0 = 1.8^\circ$ and Curve B applies.

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:

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

where:

d_i and d_m are the overland and oversea path lengths respectively, in kilometres.

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:

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

The variation in A for different path lengths and percentage of oversea path is shown in Fig. 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) 1 200 km in the case of all oversea or mixed paths.

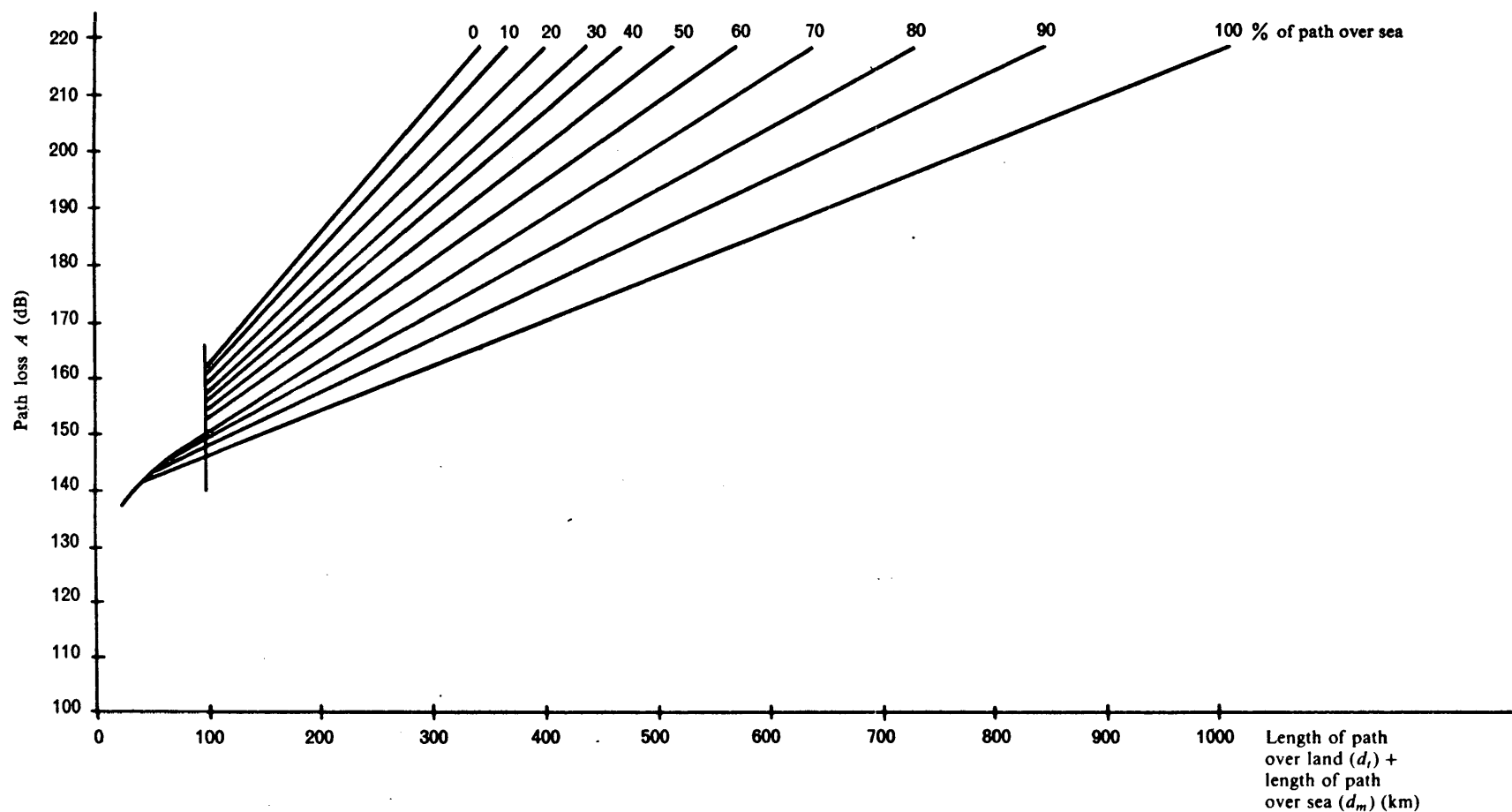


FIGURE 3
 Total path loss A (dB) versus total path length $(d_l + d_m)$ (km) and
 percentage of oversea path

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)**

With respect to paragraph 7.2.1, 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 dB(W/m ² /27 MHz) | for $0^\circ \leq \theta < 0.44^\circ$ |
| – $138 + 25 \log \theta$ dB(W/m ² /27 MHz) | for $0.44^\circ \leq \theta < 19.1^\circ$ |
| – 106 dB(W/m ² /27 MHz) | for $19.1^\circ \leq \theta$ |

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

ANNEX 5

**Power Flux-Density Limits Between 11.7 GHz 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 dB(W/m ² /4 kHz) | for broadcasting-satellite space stations using circular polarization; |
| - 128 dB(W/m ² /4 kHz) | for broadcasting-satellite space stations using linear polarization; |

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

(See Document No 191.)

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 8 of the Radio Regulations, the 11.7 - 12.2 GHz band is allocated to the 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. 346 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*¹

The plan adopted for Region 2 must be sufficiently flexible to allow for future technical developments, the identification of future

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

requirements, changes in existing or stated requirements, requirements by administrations not represented at the Conference¹, further information on propagation data and various system design approaches. The plan may be modified only by a competent administrative radio conference.

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.

¹ The World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

ANNEX 7

Use 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 side-lobes 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 side-lobe 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 absolutely necessary.

ANNEX 8

Technical Data Used in Establishing the Provisions and Associated Plan and Which Should Be Used for their Application

1. DEFINITIONS

1.1 *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.

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. 2674 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 $-103 \text{ dB(W/m}^2\text{)}$ 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 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° (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 Fig. 1 for the five rain-climatic zones shown in Fig. 2.

2.2 In using the curves of Fig. 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:

- 27 dB for rain-climatic zones 1 and 2;
- 30 dB for rain-climatic zones 3, 4 and 5.

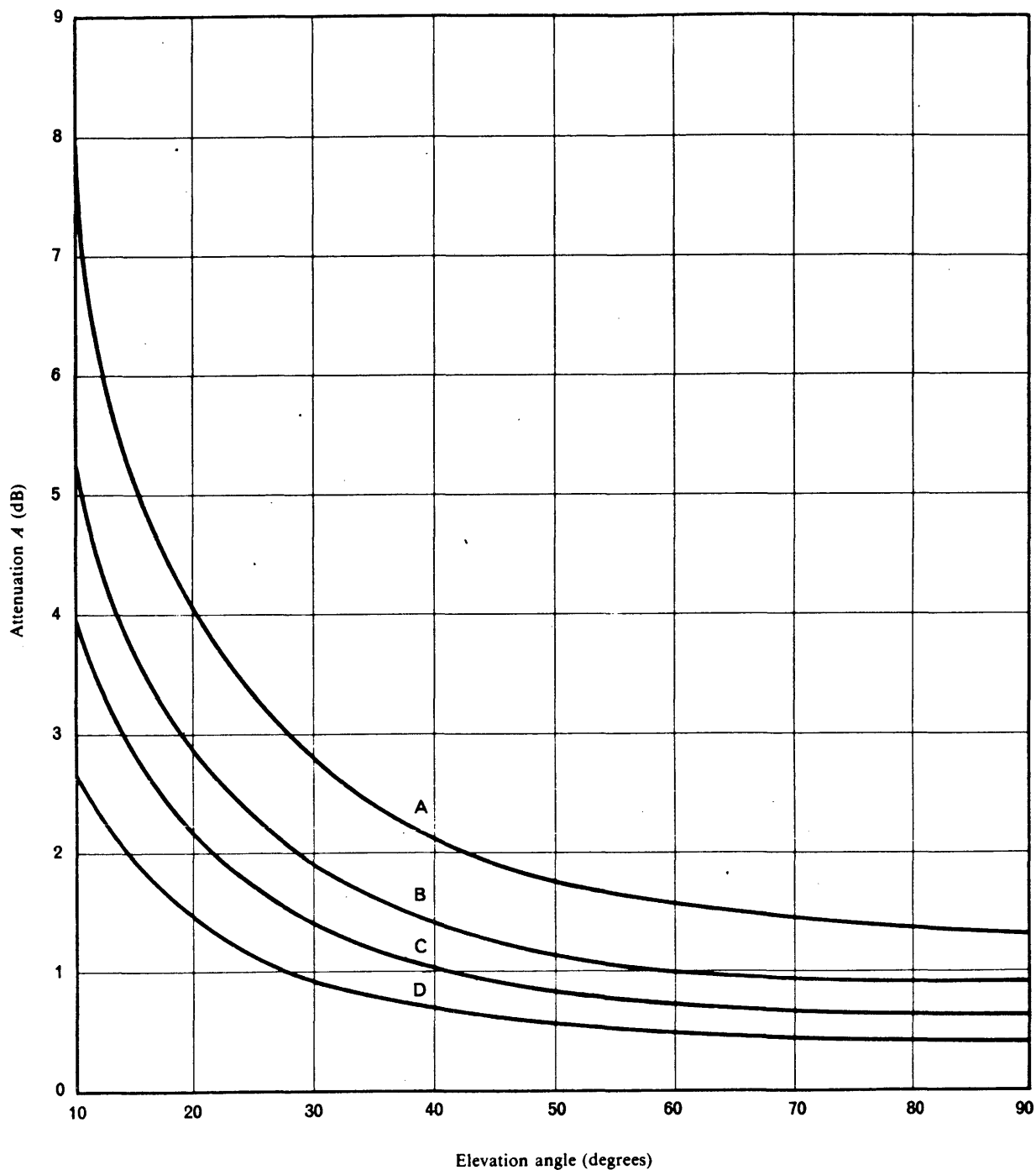


FIGURE 1

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 |

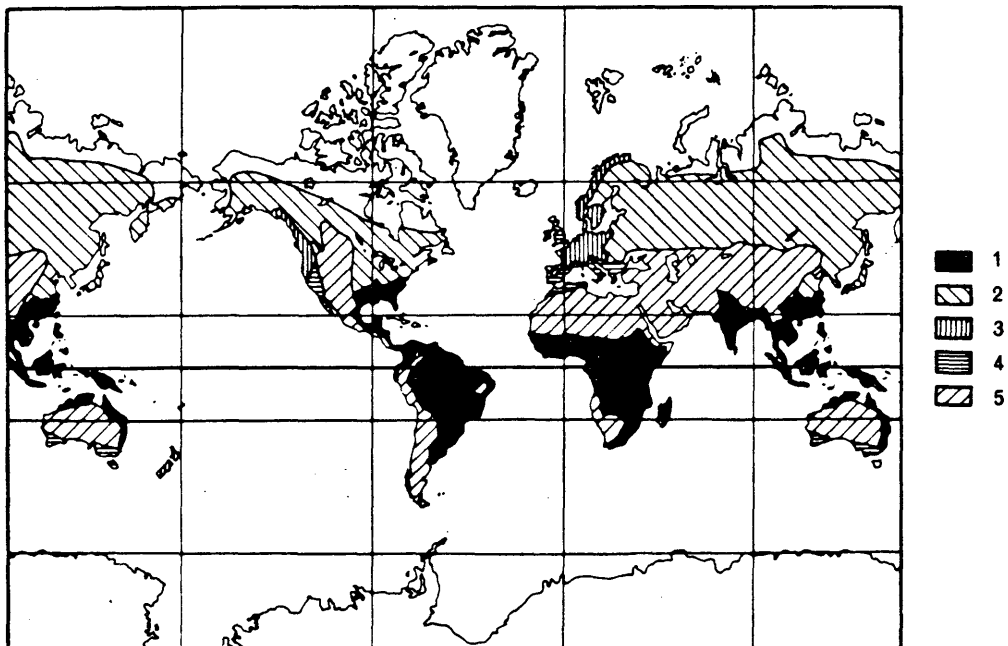


FIGURE 2

Rain-climatic zones

It should be noted that extensive measurements of attenuation due to rainfall have not been carried out in the tropical countries, especially in the African region.

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 Fig. 3 (from CCIR Recommendation 405).

This does not preclude the use of other modulating signals having different characteristics (e.g. modulation with sound channels frequency-multiplexed within the bandwidth of a television channel, digital modulation of sound and television signals, or other pre-emphasis characteristics), provided that the use of such characteristics does not cause greater interference than that caused by the system considered in the Plan.

3.2 *Polarization*

3.2.1 For the planning of the broadcasting-satellite service, circular polarization shall be used in Regions 1, 2 and 3¹.

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

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.

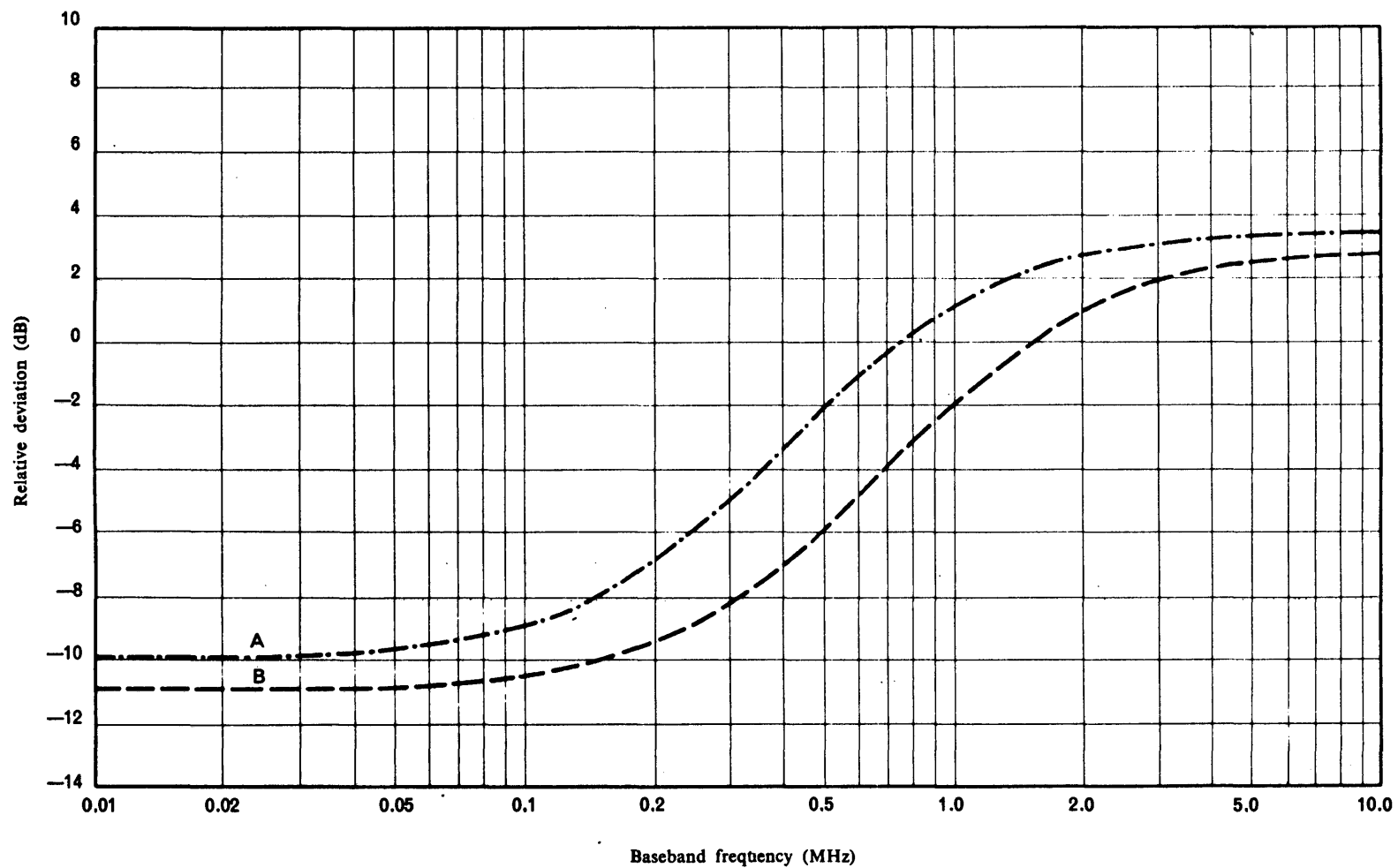


FIGURE 3

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

Curve A: 525-line system

Curve B: 625-line system

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:

Direct polarization (right-hand or clockwise 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 (left-hand or anti-clockwise 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.

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 margins¹:

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

3.5 Channel spacing

3.5.1 Channel spacing in the Plan

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

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

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

where M_1 is the value in dB of the protection margin for the same channel. This is defined in the following expression where the powers are evaluated at the receiver input:

$$\frac{\text{wanted power}}{\text{sum of the co-channel interfering powers}} \text{ (dB)} - \text{co-channel protection ratio (dB)}$$

M_2 and M_3 are the values in dB of the upper and lower adjacent-channel protection margins.

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.

3.5.2 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 feeding a common antenna

Owing to technical difficulties in the output circuit of a satellite transmitter, spacing between the assigned frequencies of 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:

- α = the total coupling losses, expressed as a power ratio;
- β = 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 1).

3.7 Receiving antennae

3.7.1 Minimum diameter of receiving antennae

For planning the broadcasting-satellite service the minimum diameter of receiving antennae considered is such that the half-power beamwidth φ_0 is:

- a) for individual reception: 2° in Regions 1 and 3, 1.8° in Region 2;
- b) for community reception: 1° in [all] Regions.

3.7.2 Receiving antenna reference patterns

The co-polar and cross-polar reference patterns of receiving antennae are given in Figs. 4 and 5.

- a) The relative antenna gain (dB) is given by the curves in Fig. 4 for:
 - individual reception in Regions 1 and 3:
 - Curve A for the co-polar component;
 - 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.

- b) For Region 2, the relative antenna gain (dB) is given by the curves in Fig. 5 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 Fig. 4).

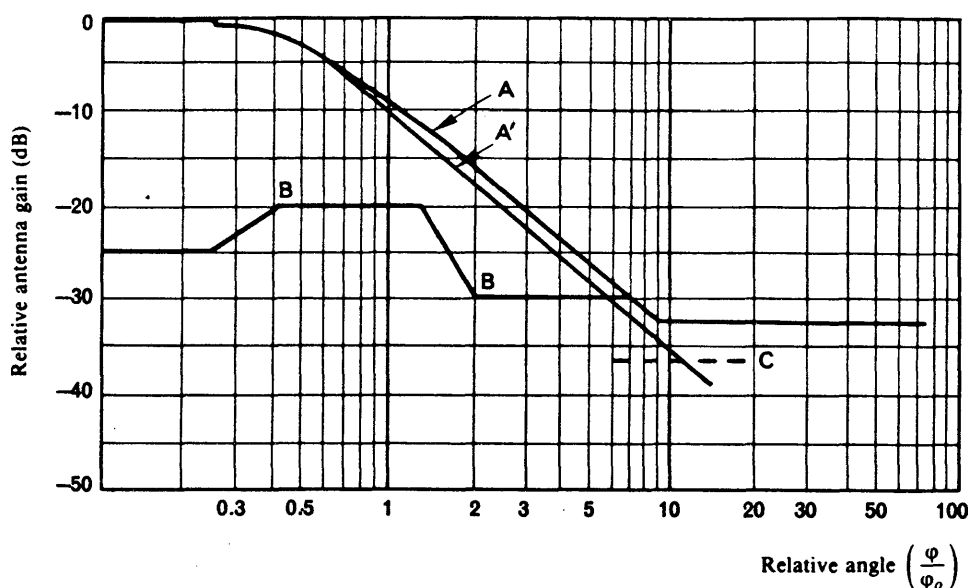


FIGURE 4

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

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

$$\begin{aligned}
 &0 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-12 \left(\frac{\varphi}{\varphi_0} \right)^2 && \text{for } 0.25 \varphi_0 < \varphi \leq 0.707 \varphi_0 \\
 &-\left[9.0 + 20 \log_{10} \left(\frac{\varphi}{\varphi_0} \right) \right] && \text{for } 0.707 \varphi_0 < \varphi \leq 1.26 \varphi_0 \\
 &-\left[8.5 + 25 \log_{10} \left(\frac{\varphi}{\varphi_0} \right) \right] && \text{for } 1.26 \varphi_0 < \varphi \leq 9.55 \varphi_0 \\
 &-33 && \text{for } 9.55 \varphi_0 < \varphi
 \end{aligned}$$

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

$$\begin{aligned}
 &0 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-12 \left(\frac{\varphi}{\varphi_0} \right)^2 && \text{for } 0.25 \varphi_0 < \varphi \leq 0.86 \varphi_0 \\
 &-\left[10.5 + 25 \log_{10} \left(\frac{\varphi}{\varphi_0} \right) \right] && \text{for } 0.86 \varphi_0 < \varphi \text{ up to intersection with Curve C (then Curve C)}
 \end{aligned}$$

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

$$\begin{aligned}
 &-25 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-\left(30 + 40 \log_{10} \left| \frac{\varphi}{\varphi_0} - 1 \right| \right) && \text{for } 0.25 \varphi_0 < \varphi \leq 0.44 \varphi_0 \\
 &-20 && \text{for } 0.44 \varphi_0 < \varphi \leq 1.4 \varphi_0 \\
 &-\left(30 + 25 \log_{10} \left| \frac{\varphi}{\varphi_0} - 1 \right| \right) && \text{for } 1.4 \varphi_0 < \varphi \leq 2 \varphi_0 \\
 &-30 \text{ until intersection with co-polar component curve; then as for co-polar component}
 \end{aligned}$$

Curve C: Minus the on-axis gain

Note: For values of φ_0 see 3.7.1.

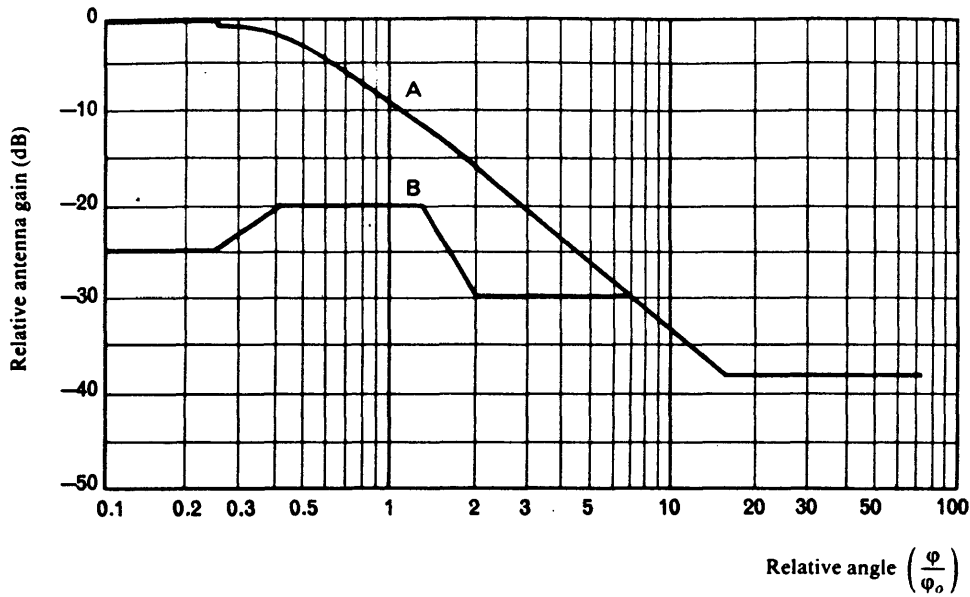


FIGURE 5

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

Curve A: Co-polar component without side-lobe suppression

| | |
|--|---|
| 0 | for $0 \leq \varphi \leq 0.25 \varphi_0$ |
| $-12 \left(\frac{\varphi}{\varphi_0} \right)^2$ | for $0.25 \varphi_0 < \varphi \leq 0.707 \varphi_0$ |
| $- \left[9.0 + 20 \log_{10} \left(\frac{\varphi}{\varphi_0} \right) \right]$ | for $0.707 \varphi_0 < \varphi \leq 1.26 \varphi_0$ |
| $- \left[8.5 + 25 \log_{10} \left(\frac{\varphi}{\varphi_0} \right) \right]$ | for $1.26 \varphi_0 < \varphi \leq 15.14 \varphi_0$ |
| -38 dB | for $\varphi > 15.14 \varphi_0$ |

Curve B: Cross-polar component

| | |
|--|--|
| -25 | for $0 \leq \varphi \leq 0.25 \varphi_0$ |
| $- \left(30 + 40 \log_{10} \left \frac{\varphi}{\varphi_0} - 1 \right \right)$ | for $0.25 \varphi_0 < \varphi \leq 0.44 \varphi_0$ |
| -20 | for $0.44 \varphi_0 < \varphi \leq 1.4 \varphi_0$ |
| $- \left(30 + 25 \log_{10} \left \frac{\varphi}{\varphi_0} - 1 \right \right)$ | for $1.4 \varphi_0 < \varphi \leq 2 \varphi_0$ |
| -30 until intersection with co-polar component curve; then as for co-polar component | |

Note: For values of φ_0 see 3.7.1.

3.8 Necessary bandwidth

The necessary bandwidths considered are as follows for:

- 625-line systems: 27 MHz;
- 525-line systems in Region 3: 27 MHz;
- 525-line system M [of Region 2] 18 MHz and 23 MHz.]

3.9 Guardbands

3.9.1 A guardband 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 guardbands necessary to protect the services in adjacent frequency bands are shown in the table below.

| Regions | Guardband at the lower edge of the band (11.7 GHz) | Guardband 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 guardbands 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 guardbands 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 guardbands, it is recommended that, for purposes other than *a priori* planning at this Conference¹, 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 generally on nominal orbital positions spaced uniformly at intervals of 6°.

3.11 *Satellite station keeping*

Space stations in the broadcasting-satellite service¹ must be maintained in position with an accuracy of better than $\pm 0.1^\circ$ in both the N-S and E-W directions. (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° 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°, the angle of elevation is of necessity less than 20°. Attention is also directed to paragraph 2.2.

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

¹ The World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

Some dry, non-mountainous areas may be given an acceptable service at angles of elevation less than 20°.

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 antennae*

3.13.1 *Cross-section of transmitted beam*

Planning¹ 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 ϕ_e 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° for the half-power beamwidth of a transmitting antenna has been agreed on for planning.

3.13.3 *Transmitting antenna reference patterns*

The reference patterns for the co-polar and cross-polar components of satellite transmitting antennae used in preparing the Plan are given in Fig. 6.

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° 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.

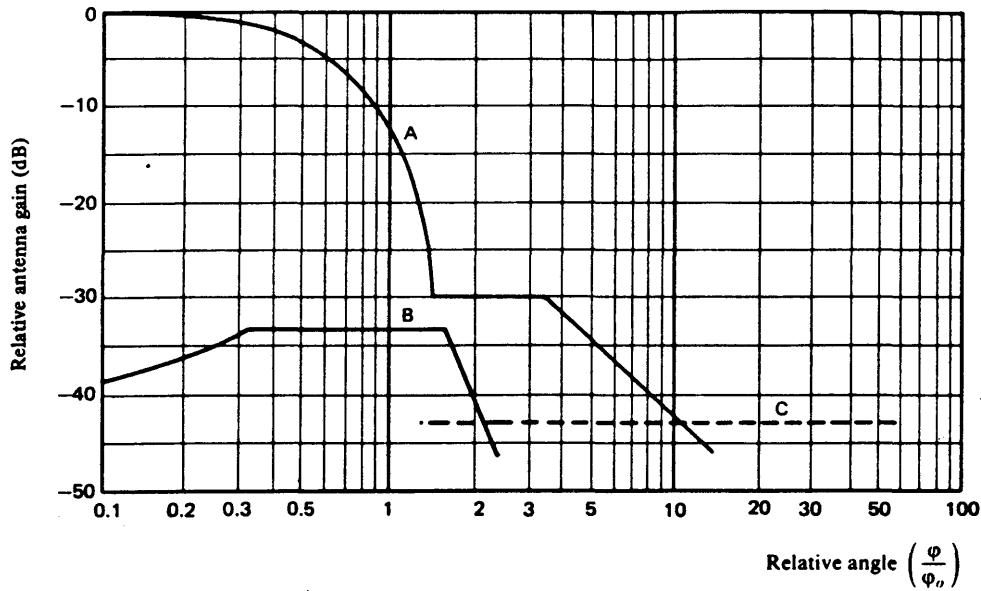


FIGURE 6

*Reference patterns for co-polar and cross-polar components
for satellite transmitting antennae*

Curve A: Co-polar component

$$\begin{aligned}
 & -12 \left(\frac{\varphi}{\varphi_o} \right)^2 && \text{for } 0 \leq \varphi \leq 1.58 \varphi_o \\
 & -30 && \text{for } 1.58 \varphi_o < \varphi \leq 3.16 \varphi_o \\
 & - \left[17.5 + 25 \log_{10} \left(\frac{\varphi}{\varphi_o} \right) \right] && \text{for } 3.16 \varphi_o < \varphi
 \end{aligned}$$

after intersection with Curve C: as Curve C

Curve B: Cross-polar component

$$\begin{aligned}
 & - \left(40 + 40 \log_{10} \left| \frac{\varphi}{\varphi_o} - 1 \right| \right) && \text{for } 0 \leq \varphi \leq 0.33 \varphi_o \\
 & -33 && \text{for } 0.33 \varphi_o < \varphi \leq 1.67 \varphi_o \\
 & - \left(40 + 40 \log_{10} \left| \frac{\varphi}{\varphi_o} - 1 \right| \right) && \text{for } 1.67 \varphi_o < \varphi
 \end{aligned}$$

after intersection with Curve C: as Curve C

Curve C: Minus the on-axis gain.

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 dB(W/m²) for individual reception in Regions 1 and 3;
- 105 dB(W/m²) for individual reception in Region 2;
- 111 dB(W/m²) 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.

ANNEX 9

Criteria for Sharing Between Services

1. *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.

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 the wanted-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.

| Wanted service ¹ | Wanted signal ¹ | Interfering service ¹ | Interfering signal ¹ | Protection requirements ² | |
|-----------------------------|----------------------------|----------------------------------|---------------------------------|--------------------------------------|---|
| | | | | Total acceptable ³ | Single entry |
| BSS | TV/FM | BSS, FSS, FS, BS | TV/FM | $C/I = 30 \text{ dB}^{4,7}$ | $C/I = 35 \text{ dB}^4$ |
| FSS | FDM/FM | BSS | TV/FM | $N = 500 \text{ pW0p}^8$ | $N = 300 \text{ pW0p}$ |
| FSS | TV/FM | BSS, FSS | TV/FM | $C/I = 32 \text{ dB}^5$ | $C/I = 37 \text{ dB}^5$ |
| FSS | 4 ϕ -PSK | BSS, FSS | TV/FM | $C/I = 30 \text{ dB}$ | $C/I = 35 \text{ dB}$ |
| FSS | FDM/FM | FSS | FDM/FM | $N = 1000 \text{ pW0p}$ | $N = 400 \text{ pW0p}$ |
| FS | FDM/FM | BSS | TV/FM | $N = 1000 \text{ pW0p}$ | $-125 \text{ dB (W/m}^2/4 \text{ kHz)}^6$ |
| BS | TV/VSB | BSS | TV/FM | $C/I = 50 \text{ dB}$ | 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 ϕ -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 pW0p for noise;
– in dB(W/m²/4 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 pW0p 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.

1.6 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)¹;
- 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:

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

where:

D_v = 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 Fig. 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.

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

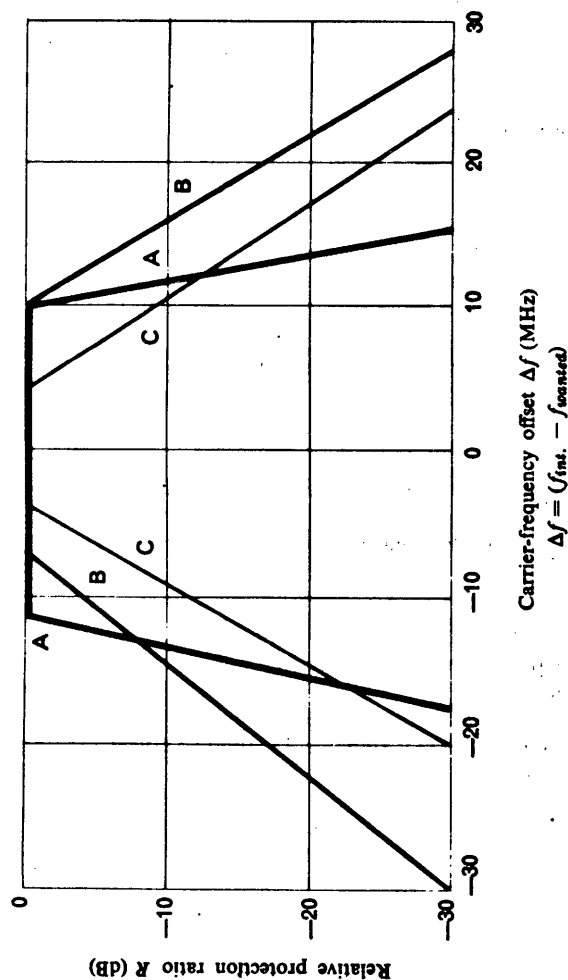


FIGURE 1

Reference case protection ratios relative to co-channel values

Curve A: TV/VSB-wanted, TV/FM interfering

Curve B: TV/FM-wanted, TV/FM interfering

Curve 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 100λ (2.5 m) in the fixed-satellite service, the gain of the side-lobes is given by the equation $32 - 25 \log \theta$, where θ is the angle from the boresight (CCIR Recommendation 465). The side-lobe 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 100λ , 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:

ΔF_{pp} = peak-to-peak deviation due to the energy dispersal signal (kHz);

δf_{rms} = rms deviation due to "natural" energy dispersal (kHz).

In compiling the table below, a value of 40 kHz has been assumed for δf_{rms} , on the basis of the value of 10 dB for "natural" dispersion given in Table 4 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 10

Orbital 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 band 11.7 - 12.2 GHz shall occupy a nominal orbital position further west than 37° W or further east than 146° E.
- 2) Any new orbital position in the Plan in the range of the orbital arc between 37° W and 10° E associated with a new assignment, or resulting from a modification of an assignment in the Plan, shall be coincident with, or within 1° to the east of, a nominal orbital position in the Plan at the date of entry into force of the Final Acts¹.

¹ Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, which entered into force on 1 January 1979.

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 Acts¹ 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.

ANNEX 11

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

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 orbital position;
- 1.2 e.i.r.p., in dBW;
- 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.

¹ Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, which entered into force on 1 January 1979.

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. For the calculations which follow, the coordinates of point P have been taken as 35° W and 8° S.

3. To obtain the power flux-density [dB(W/m²)] produced at P, calculate:

- the distance, d (m), between the satellite and the point P;
- the spreading attenuation, A for the distance d :

$$A = 10 \log \frac{1}{4 \pi d^2}$$

- the angle ϕ , as seen from the satellite, between points B and P;
- ϕ_0 , the half-power beamwidth, in the direction of P (in the case of a circular beam ϕ_0 will be independent of direction);
- the relative antenna gain, δG in dB, for the calculated values of ϕ and ϕ_0 using the reference pattern for the co-polar component of the satellite transmitting antenna.

Then apply the expression:

$$psd \text{ [dB(W/m}^2\text{)]} = \text{e.i.r.p.} + \delta G + A$$

to obtain the power flux-density produced at P.

Note: In this expression, e.i.r.p. refers to boresight. The relative antenna gain δG is with respect to boresight antenna gain, therefore δG is negative.

Results

The power flux-densities produced at the coordinates 35° W, 8° S from broadcasting space stations 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:

Densité surfacique de puissance (DSP) produite dans la Région 2, au point: longitude = 35° Ouest, latitude = 8° Sud

Power flux-density (PFD) produced in Region 2 at a point having: longitude = 35° W, latitude = 8° S

Densidad de flujo de potencia (DFP) producida en la Región 2 en el punto correspondiente a las siguientes coordenadas: longitud = 35° Oeste, latitud = 8° Sur

| Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -37,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -31,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -25,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -19,0 | | |
|---|--|-------------------------------|---|--|-------------------------------|---|--|-------------------------------|---|--|-------------------------------|
| N° IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | N° IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | N° IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | N° IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) |
| AND 341 | 4 8 12 16 20 | -146,35 | AZR 134 | 3 7 11 15 19 | -140,72 | ALG 251 | 2 6 10 14 18 | -135,17 | AUT 016 | 4 8 12 16 20 | -143,67 |
| CVA 085 | 23 | -141,92 | CNR 130 | 23 | -140,93 | ALG 252 | 4 8 12 16 20 | -130,26 | BEL 018 | 21 25 | -144,97 |
| GMB 302 | 3 7 11 15 19 | -137,17 | CPV 301 | 4 8 12 16 20 | -137,14 | GHA 108 | 23 | -134,45 | BEN 233 | 3 7 11 15 19 | -140,20 |
| GUI 192 | 1 5 9 13 17 | -132,98 | CTI 237 | 22 | -132,20 | LBY 280 | 1 5 9 13 17 | -138,64 | D 087 | 2 6 10 14 18 | -140,17 |
| LIE 253 | 3 7 11 15 19 | -146,00 | E 129 | 23 | -137,48 | LBY 321 | 3 7 11 15 19 | -139,00 | F 093 | 1 5 9 13 17 | -138,67 |
| MCO 116 | 21 25 | -145,75 | G 027 | 4 8 12 16 20 | -140,02 | MRC 209 | 21 25 | -128,74 | GNE 303 | 23 | -141,30 |
| MLI 327 | 2 6 10 14 18 | -132,79 | GNP 304 | 2 6 10 14 18 | -137,07 | NGR 115 | 24 | -127,77 | HOL 213 | 23 | -144,77 |
| MLI 328 | 4 8 12 16 20 | -131,06 | HVO 107 | 21 25 | -131,90 | TGO 226 | 2 6 10 14 18 | -141,45 | I 082 | 24 | -138,57 |
| MTN 223 | 22 | -129,20 | IRL 211 | 2 6 10 14 18 | -144,38 | TUN 150 | 22 | -141,14 | LUX 114 | 3 7 11 15 19 | -145,56 |
| MTN 288 | 24 | -135,68 | ISL 049 | 21 25 | -142,72 | | | | NIG 119 | 22 | -129,39 |
| SEN 222 | 21 25 | -133,19 | LBR 244 | 3 7 11 15 | -137,10 | | | | NMB 025 | 25 | -130,13 |
| SMR 311 | 1 5 9 13 17 | -145,92 | POR 133 | 3 7 11 15 19 | -142,35 | | | | SUI 140 | 22 | -143,10 |
| | | | SRL 259 | 23 | -136,72 | | | | ZAI 322 | 4 8 12 16 20 | -130,94 |
| | | | | | | | | | ZAI 323 | 2 6 10 14 18 | -130,05 |

| Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -13,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -7,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal -1,0 | | | Position nominale sur l'orbite Nominal orbital position Posición orbital nominal +5,0 | | |
|---|--|-------------------------------|--|--|-------------------------------|--|--|-------------------------------|--|--|-------------------------------|
| Nº IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | Nº IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | Nº IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) | Nº IFRB IFRB No. N.º de la IFRB | Canaux N° Channel Nos. N.º de los canales | DSP PFD DFP dB(W/m²) |
| AGL 295 | 23 | -129,57 | ALB 296 | 22 | -146,49 | BOT 297 | 2 6 10 14 18 | -134,49 | CYP 086 | 21 25 | -147,47 |
| CAF 258 | 24 | -130,81 | EGY 026 | 4 8 12 16 20 | -136,59 | BUL 020 | 4 8 12 16 20 | -144,97 | DNK 089 | 12 16 20 | -143,42 |
| CME 300 | 1 5 9 13 17 | -132,87 | SDN 231 | 22 | -133,37 | DDR 216 | 21 25 | -145,17 | DNK 090 | 24 | -135,20 |
| COG 235 | 22 | -134,83 | SDN 230 | 23 | -136,84 | HNG 106 | 22 | -145,07 | FNL 103 | 2 6 10 | -138,17 |
| GAB 260 | 3 7 11 15 19 | -136,65 | SDN 232 | 24 | -134,23 | IFB 135 | 22 | -136,51 | FNL 104 | 22 | -135,20 |
| ISR 110 | 25 | -145,02 | YUG 148 | 21 25 | -140,79 | MOZ 307 | 4 8 12 16 20 | -135,37 | GRC 105 | 3 7 11 15 20 | -140,87 |
| MLT 147 | 4 8 12 16 | -148,55 | YUG 149 | 23 | -140,79 | MWI 308 | 24 | -142,67 | IFB 021 | 21 25 | -132,06 |
| STP 241 | 4 8 12 16 20 | -144,70 | | | | POL 132 | 1 5 9 13 17 | -142,67 | ISL 050 | 23 | -137,87 |
| TCD 143 | 2 6 10 14 18 | -133,89 | | | | ROU 136 | 2 6 10 14 18 | -143,17 | LSO 305 | 24 | -145,06 |
| | | | | | | SWZ 313 | 1 5 9 13 17 | -147,30 | NOR 120 | 14 18 | -139,42 |
| | | | | | | TCH 144 | 3 7 11 15 19 | -143,27 | S 138 | 4 8 | -138,94 |
| | | | | | | ZMB 314 | 3 7 11 15 19 | -134,29 | TUR 145 | 1 5 9 13 17 | -138,47 |

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/54-E

9 July 1983

Original : English

COMMITTEE 6

MODIFICATIONS TO PROVISIONS OF APPENDIX 30

The modifications required to be made to the provisions of Appendix 30 to the Radio Regulations referred to in item 7 of Section III of Document No. 74 are enclosed.

J.A. ZAVATTIERO
Chairman of Committee 6

Annex : 1

APPENDIX 30

**Provisions for All Services and Associated Plan
for 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)¹**

(See Article 15)

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¹ The provisions and associated Plan contained in this Appendix entered into force on 1 January 1979 in accordance with Article 15 of the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

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* This Article is not reproduced in this Appendix; see the footnote to the title of this Appendix.

ARTICLE 1

General Definitions

1.1 For the purposes of this Appendix the following terms shall have the meanings defined below:

Conference: 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), called in short World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977;

Plan: The Plan for Regions 1 and 3 and its annexes;

Frequency assignment in accordance with the Plan: Any frequency assignment which appears in the Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.

ARTICLE 2

Frequency Bands

2.1 The provisions of this Appendix apply to the broadcasting-satellite service in the frequency bands between 11.7 GHz and 12.5 GHz in Region 1 and between 11.7 GHz and 12.2 GHz in Regions 2 and 3 and to the other services to which these bands are allocated, so far as their relationship to the broadcasting-satellite service in these bands is concerned.

ARTICLE 3

Execution of the Provisions and Associated Plan

3.1 The Members of the Union in Regions 1 and 3 shall adopt, for their broadcasting-satellite space stations operating in the frequency bands

referred to in this Appendix, the characteristics specified in the Plan for those Regions.

3.2 The Members of the Union in Region 2 shall apply the interim provisions contained in Article 12 of this Appendix. These provisions will govern the broadcasting-satellite service in Region 2 until detailed plans for Region 2, drawn up by a future regional administrative radio conference, have entered into force.

3.3 The Members of the Union shall not change the characteristics specified in the Plan, or establish new broadcasting-satellite space stations or stations in the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

ARTICLE 4

Procedure for Modifications to the Plan

4.1 When an administration intends to make a modification¹ to the Plan, i.e. either:

- to modify the characteristics of any of its frequency assignments to a space station² in the broadcasting-satellite service which are shown in the Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; or

¹ The intention not to employ energy dispersal consistent with paragraph 3.18 of Annex 8 shall be treated as a modification and thus subject to the appropriate provisions of this Article.

² The expression "frequency assignment to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See Annex 10 for the orbital position limitations.

- to include in the Plan a new frequency assignment to a space station in the broadcasting-satellite service; *or*
- to cancel a frequency assignment to a space station in the broadcasting-satellite service;

the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix).

4.2 The term "frequency assignment in accordance with the Plan" used in this and the following Articles is defined in Article 1.

4.3 *Proposed modifications to a frequency assignment in accordance with the Plan or the inclusion in the Plan of a new frequency assignment*

4.3.1 An administration proposing a modification to the characteristics of a frequency assignment in accordance with the Plan or the inclusion of a new frequency assignment in the Plan shall seek the agreement of those administrations:

4.3.1.1 having a frequency assignment to a space station in the broadcasting-satellite service in the same channel or an adjacent channel, which is in accordance with the Plan or in respect of which modifications to the Plan have been published by the Board in accordance with the provision of this Article; *or*

4.3.1.2 having a frequency assignment to a space station in the broadcasting-satellite service in Region 2 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which is recorded in the Master Register; *or*

- which has been coordinated or is being coordinated under the provisions of Resolution 33; *or*

- which appears in a Region 2 plan ~~[to be]~~ adopted at a ~~future~~ regional administrative radio conference, taking account of modifications which may be introduced subsequently in accordance with the final acts of that conference; *or*

4.3.1.3 having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification; *or*

4.3.1.4 having a frequency assignment in the band 11.7 - 12.2 GHz to a space station in the fixed-satellite service which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. 1060 of the Radio Regulations; or those of paragraph 7.2.1 of this Appendix which are considered to be affected.

A frequency assignment is considered to be affected when the limits shown in Annex 1 are exceeded.

4.3.2 An administration intending to modify characteristics in the Plan shall send to the Board, not earlier than five years but not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2. If the assignment is not brought into use by that date, the modification shall lapse.

4.3.2.1 Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Board the information required by 4.3.2. The Board shall then publish this information in a special section of its weekly circular.

¹ The Region 2 plan to be adopted at a future regional administrative radio conference shall not degrade the protection afforded to the frequency assignments in the Plan below the limits specified in this Appendix.

5.3 *Cancellation of entries in the Master Register*

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under 5.2.8, the Board will make inquiries of the administration not earlier than six months after the expiry of the period specified in 5.1.3. On receipt of the relevant information, the Board will either modify the date of coming into use or cancel the entry.

5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Board within ninety days, whereupon the entry shall be removed from the Master Register.

ARTICLE 6

Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Stations Affecting Broadcasting-Satellite Frequency Assignments in the Bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1)^{1,2}

Section I. Coordination Procedure to Be Applied

6.1.1 Before an administration notifies to the Board a frequency assignment to a terrestrial transmitting station, it shall initiate coordination with

¹ These procedures do not involve any dispensation from the procedures prescribed for terrestrial stations in Article 12 of the Radio Regulations where stations other than those of the broadcasting-satellite service are involved.

² The procedures for coordination, notification and recording of assignments to terrestrial stations affecting broadcasting-satellite stations in Region 2 are contained in Article 12 of the Radio Regulations, except that the need for the coordination referred to in Nos. 1148 to 1154 of the Radio Regulations shall be determined on the basis of Annex 3.

any other administration having a frequency assignment to a broadcasting-satellite station in conformity with the Plan if

- the necessary bandwidths of the two transmissions overlap; *and*
- the power flux-density which would be produced by the proposed terrestrial transmitting station exceeds the value derived in accordance with Annex 3 at one or more points on the edge of the service area which is within the coverage area of the broadcasting-satellite station of that administration.

6.1.2 For the purpose of effecting coordination, the administration responsible for the terrestrial station shall send to the administrations concerned, by the fastest possible means, a copy of a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other data of the proposed frequency assignment and the approximate date on which it is planned to bring the station into use.

6.1.3 An administration with which coordination is sought shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within fifteen days of dispatch, the administration seeking coordination may dispatch a telegram requesting acknowledgement of receipt of the coordination data, to which the receiving administration shall reply. Upon receipt of the coordination data an administration with which coordination is sought shall promptly examine the matter with regard to interference¹ which would be caused to its frequency assignments in conformity with the Plan and shall, within an overall period of sixty days from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

¹ The criteria to be employed in evaluating interference levels shall be based on the relevant CCIR Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned.

ARTICLE 9

**Power Flux-Density Limits Between ^{12.2}11.7 GHz and ^{12.7}12.2 GHz
to Protect Terrestrial Services in Regions 1 and 3 from
Interference from Region 2 Broadcasting-Satellite Space Stations**

9.1 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 10

**Power Flux-Density Limits Between 11.7 GHz and 12.2 GHz
to Protect Space Services in Region 2 from Interference from
Broadcasting-Satellite Space Stations of Regions 1 and 3**

10.1 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 6 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.

10.2 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 11.

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ARTICLE 12

**Provisions Governing the Broadcasting-Satellite Service
in Region 2 Pending the Establishment of a Detailed Plan**

12.1 In accordance with the principles set forth in Annex 6, 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 12.9 to 12.12 below.

12.2 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.

12.2.1 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 Nos. 420 to 423 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.

12.3 Space stations in the fixed-satellite service shall be located in portions of the orbit other than those referred to in paragraph 12.2 above. Such space stations may also be located in the portions of the orbit referred to in paragraph 12.2 above; they shall then be operated in accordance with the provisions of Nos. 420 to 423 of the Radio Regulations.

12.3.1 Space stations in the broadcasting-satellite service located in the portions of the orbit referred to in paragraph 12.2 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 this Appendix 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 12.2, provided that such stations are operated in accordance with the relevant technical characteristics for Region 2 outlined in Annex 8.

12.4 Prior to the regional administrative radio conference, referred to in paragraph 12.9 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.

12.5 Administrations may implement systems which utilize values for the technical characteristics different from the values in Annex 8 of this Appendix 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.

12.6 Systems in the fixed-satellite service shall be introduced in accordance with the relevant provisions of the Radio Regulations, particularly with those of Articles 11 and 13 and, where appropriate, with the provisions of Article 7 of this Appendix.

12.7 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.

12.8 The provisions of Resolution 33 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.

12.9 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.

12.9.1 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.

12.9.2 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.

12.9.3 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.

12.9.4 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.

12.10 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.

12.11 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.

12.12 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.

ARTICLE 13

Relationship to Resolution 507

13.1 The provisions and associated Plan of this Appendix shall be regarded as including a world agreement and associated Plan for Regions 1 and 3 in accordance with *resolves* 1 of Resolution 507, which requires the stations in the broadcasting-satellite service to be established and operated in accordance with such agreements and associated plans.

ARTICLE 14

Interference

14.1 The Members of the Union shall endeavour to agree on the action required to reduce harmful interference which might be caused by the application of these provisions and the associated Plan.

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/55-E

9 July 1983

Original : English

COMMITTEE 6

DRAFT

RESOLUTION No. COM6/

Relating to the Compatibility of the Plan for
the Broadcasting-Satellite Service in Region 2
in the Band 12.2 - 12.7 GHz with Appendix 30
of the Radio Regulations

The Regional Broadcasting-Satellite Conference (Region 2), Geneva, 1983,

considering

- a) that it has adopted a Plan for the broadcasting-satellite service in Region 2 in the band 12.2 - 12.7 GHz;
- b) that Appendix 30 stipulates that the Region 2 Plan to be adopted at a future regional administrative radio conference shall not degrade the protection afforded to the frequency assignments in the Plan below the limits specified in this Appendix (see footnote to paragraph 4.3.1.2);
- c) that Resolution No. 700 of WARC-79 stipulates that in the drawing-up of a plan (and any associated modification procedure) for the broadcasting-satellite service in Region 2, the requirements for satisfactory future operation of the fixed-satellite service in Regions 1 and 3 shall be observed and that, if constraints on the fixed-satellite service are considered necessary to ensure that no harmful interference is caused either to the fixed-satellite or the broadcasting-satellite services involved, they should not in any case be greater than those imposed on the fixed-satellite service in Region 2 by Appendix 30 (see resolves 2 of Resolution No. 700);
- d) that Resolution No. 701 of WARC-79 stipulates that planning shall take into account the pertinent provisions of Appendix 30, in particular those contained in Annexes 4 and 5, as well as other decisions of this Conference (see resolves 2 of Resolution No. 701);
- e) that due to the limited time available to it, the Conference could not identify the incompatibilities, if any, with broadcasting-satellite stations in Regions 1 and 3 or with other services in these Regions;
- f) that during the elaboration of the Region 2 Broadcasting-Satellite Service Plan, consideration was duly given to the need for protecting the systems of Regions 1 and 3;
- g) that in the cases where it was not possible to exactly meet the limits specified in Appendix 30 of the Radio Regulations, the Region 2 administrations concerned stated their intention to seek the agreement of the countries of Regions 1 and 3 that may be affected;

taking note

a) that during the WARC-77, the power flux-densities produced at territories of Region 2 countries from space stations of Regions 1 and 3 were calculated only with respect to one test point in Region 2 (35° W, 8° S);

b) that the results of such calculations show that there are 40 beams where the value of power flux-densities in that test point exceed the limit of -138 dB(W/m²), the worst case being one where the calculated power flux-density was -127.77 dB(W/m²);

decides to request the IFRB

1. / to be developed by Committee 5 in accordance with proposal No. CAN/13/146; 7
2. to identify the countries of Regions 1 and 3 which may be affected by the assignments in the Region 2 Plan in accordance with the limits specified in Appendix 30;
3. to calculate, on request, and for information purposes, the PFD from the broadcasting-satellite space stations of Regions 1 and 3 produce at given test points in the territory of an administration concerned of Region 2;
4. to communicate to administrations of Region 2 concerned and to the administrations of Regions 1 and 3 so identified the results of its calculations and to invite them to resolve the problem and to communicate to the IFRB the results of their negotiations;
5. to send at regular intervals reminders to those administrations which have not yet communicated the results of their negotiations;
6. to prepare for communication to the World Administrative Radio Conference, Geneva, 1985, a report containing the list of cases which have been identified, together with the indication of those which have been resolved.

recommends to WARC-ORB-85

to consider the results obtained by the IFRB in application of this Resolution, and where an agreement could not be reached, until that time, with the countries affected in Regions 1 and 3 :

- to enter a remark against the Region 2 assignment concerned to indicate that this assignment should be brought into use only when such agreement is reached or an adequate measure is adopted to reduce the PFD over Regions 1 and 3 to conform to limits specified in the Radio Regulations; and
- to instruct the IFRB to delete this remark upon being informed that the agreement has been reached.

J.A. ZAVATTIERO
Chairman of Committee 6

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/56-E

11 July 1983

Original : English

COMMITTEE 6

DRAFT RECOMMENDATION No. COM6/3

The Regional Administrative Radio Conference for the Planning of the
Broadcasting-Satellite Service in Region 2, Geneva, 1983,

considering

- a) that it has adopted, in Article 7 of Part II, provisions on the application of Articles 11 and 13 of the Radio Regulations to the fixed-satellite service in Region 2 in the band 17.7 - 17.8 GHz with limits different from those appearing in Appendix 29 to the Radio Regulations;
- b) that it would simplify the coordination procedures among countries of the three Regions if the same criteria be applied in the three Regions;

recommends to WARC-ORB-85

to adopt the draft Resolution annexed to this Recommendation.

J.A. ZAVATTIERO
Chairman of Committee 6

Annex : as mentioned

A N N E X

(to draft Recommendation No. COM6/3)

DRAFT RESOLUTION

The World Administrative Radio Conference, Geneva, 1985,

considering

- a) that it has adopted in Article 7 of Part II, provisions on the application of Articles 11 and 13 of the Radio Regulations to the fixed-satellite service in Region 2 in the band 17.7 - 17.8 GHz with limits different from those appearing in Appendix 29 to the Radio Regulations;
- b) that it would simplify the coordination procedures among countries of the three Regions if the same criteria be applied in the three Regions;

resolves

that administrations and the IFRB shall apply to stations in the fixed-satellite service in the band 17.7 - 17.8 GHz the procedures contained in Articles 11 and 13 of the Radio Regulations and in Appendix 30 to the Radio Regulations together with those in Annex 4 / to Part II of the Final Acts of the Regional Broadcasting Satellite Conference (Region 2) Geneva, 1983_7.

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/57-E

11 July 1983

Original : French

Report by the Secretary-General

STATEMENT OF THE ACCOUNTS OF THE CONFERENCE

AT 6 JULY 1983

Pursuant to No. 443 of the International Telecommunication Convention, Malaga-Torremolinos, 1973, a statement of the Conference accounts at 6 July 1983 is hereby submitted for consideration by the Budget Control Committee.

The statement shows that expenditure is within the budget limits approved by the Administrative Council.

R.E. BUTLER

Secretary-General

Annex : 1

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 6 July 1983 | | | |
|----------|--|-----------------------|-----------------|----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| | I. <u>Staff expenses</u> | | | | | | |
| 14.101 | Salaries and related expenses of the Conference Secretariat staff | 766,000 | 844,000 | 603 | 541,744 | 165,653 | 708,000 |
| 14.102 | Salaries and related expenses of the translation, typing and reproduction services staff | 616,000 | 674,000 | 296,823 | 367,127 | 35,050 | 699,000 |
| 14.103 | Travel (recruitment) | 20,000 | 20,000 | 10,744 | 5,264 | 992 | 17,000 |
| 14.104 | Insurance | 36,000 | 36,000 | 730 | - | 33,270 | 34,000 |
| | | 1,438,000 | 1,574,000 | 308,900 | 914,135 | 234,965 | 1,458,000 |
| | II. <u>Travel expenses</u> (outside Geneva) | - | - | - | - | - | - |
| | III. <u>Premises and equipment</u> | | | | | | |
| 14.301 | Premises, furniture, machines | 40,000 | 40,000 | - | 24,300 | 15,700 | 40,000 |

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 6 July 1983 | | | |
|----------|--|-----------------------|-----------------|----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| 14.302 | Document production | 72,000 | 72,000 | 60,700 | - | 25,300 | 86,000 |
| 14.303 | Office supplies and overheads | 30,000 | 30,000 | 9,561 | 7,400 | 8,039 | 25,000 |
| 14.304 | Postage, telephone calls, telegrams | 35,000 | 35,000 | 7,252 | - | 15,748 | 23,000 |
| 14.305 | Technical installations | 5,000 | 5,000 | - | - | - | - |
| 14.306 | Sundry and unforeseen | 10,000 | 10,000 | 6,751 | - | 3,249 | 10,000 |
| 14.307 | Use of outside computers | 85,000 | 85,000 | - | 13,170 | 6,830 | 20,000 |
| | | 277,000 | 277,000 | 84,264 | 44,870 | 74,866 | 204,000 |
| | IV. <u>Other expenses</u> | | | | | | |
| 14.401 | IFRB preparatory work | 730,000 | 730,000 | 521,704 | 165,522 | 42,774 | 730,000 |
| 14.402 | Meetings of the Panel of Experts | 356,000 | 356,000 | 285,462 | 3,510 | 1,028 | 290,000 |
| 14.403 | Interest credited to the ordinary budget | 54,000 | 54,000 | - | - | 70,000 | 70,000 |
| | | 1,140,000 | 1,140,000 | 807,166 | 169,032 | 113,802 | 1,090,000 |

| Item No. | Heading | Budget approved by AC | Adjusted Budget | Expenditure at 6 July 1983 | | | |
|----------|------------------------------|-----------------------|-----------------|----------------------------|-----------|-----------|-----------|
| | | | | Actual | Committed | Estimated | Total |
| 14.501 | V. <u>Final Acts</u> | | | | | | |
| | Final Acts of the Conference | 45,000 | 45,000 | - | - | 94,000 | 94,000 |
| | TOTAL | 2,900,000 | 3,036,000 | 1,200,330 | 1,128,037 | 517,633 | 2,846,000 |

BROADCASTING-SATELLITE CONFERENCE (REGION 2)

GENEVA, 1983

Document No. DT/58-E

11 July 1983

Original : French

COMMITTEE 3

DRAFT REPORT OF THE BUDGET CONTROL COMMITTEE TO THE PLENARY MEETING

The Budget Control Committee held three meetings during the Conference and examined the points arising from its terms of reference.

Under the provisions of Nos. 442 to 445 of the International Telecommunication Convention, Malaga-Torremolinos, 1973, its terms of reference were :

- a) to determine the organization and the facilities available to delegates, and
- b) to examine and approve the accounts for expenditure incurred throughout the duration of the Conference.

1. Determination of the organization and facilities available to delegates

As there were no comments by delegations on the subject, Committee 3 concluded that the organization and the working facilities available to delegates were satisfactory.

2. Conference budget

The Budget Control Committee took note of the Conference budget as approved by the Administrative Council at its 37th session (1982) and adjusted, under the provisions of Administrative Council Resolution No. 647, to take account of changes in the United Nations common system concerning staff salaries and allowances. The budget is shown in Annex 1 below.

It is pointed out that the expenses incurred for this Regional Conference do not form part of the ordinary budget. In conformity with Article 15, No. 95, of the Convention, the expenses must be borne in accordance with their unit of classification by all the Members of Region 2, and on the same basis by Members of other regions which have taken part in the Conference.

3. Final Acts of the Conference

Under the terms of Administrative Council Resolution No. 83 (amended) :

... if a conference prints, for its own use, documents of which the typographical composition can subsequently be used, in whole or in part, for the printing of the Final Acts, it must bear a percentage of the composition costs and the whole of the printing costs of the said document;

... the percentage of the composition cost ... shall be decided by the Plenary Meeting of the conference...

"Composition" costs, i.e. the costs of data capture for storage and the costs of maps and graphs, are estimated at 15,000 Swiss francs.

On the basis of the decisions of previous conferences, it is proposed to distribute these costs as follows :

1/3 to be charged to the Conference budget;

2/3 to be charged to the supplementary publications budget.

The statement of Conference accounts (see point 4 below) takes account of this cost distribution.

4. Position as regards Conference expenditure

Under No. 444 of the Convention, the Budget Control Committee is required to submit to the Plenary Meeting a report showing as accurately as possible the estimated amount of expenditure incurred by the Conference.

Annex 2 hereto gives a statement of the Conference budget with a breakdown of credits by budget subhead and item, along with actual expenditure to 6 July 1983. It also indicates the expenditure committed until that date and estimated expenditure up to the closing of the Conference accounts.

The statement reveals that total expenditure is estimated at Swiss francs, i.e. Swiss francs less than the amount approved by the Administrative Council and adjusted by virtue of its Resolution No. 647.

5. Contributions from recognized private operating agencies and non-exempt international organizations

Article 16 of the Financial Regulations of the Union provides that the report by the Budget Control Committee to the Plenary Meeting must include a statement of recognized private operating agencies (RPOA) and international organizations (IO) required to contribute to the defrayal of Conference expenditure, together with a list of international organizations that are exempted from contributions under No. 548 of the Convention.

This statement constitutes Annex 4 hereto.

On the subject of contributions, Article 79 of the International Telecommunication Convention, Malaga-Torremolinos, 1973, states that :

- RPOA shall share in defraying the expenses of the administrative conferences in which they have agreed to participate;

- IO shall also share in defraying the expenses of the conferences in which they have been allowed to participate, unless exempted by the Administrative Council;

- RPOA/IO which share in defraying the expenses of conferences shall freely choose their class of contribution for defraying Union expenses;

- the amount of the contribution per unit payable towards the expenses of conferences by RPOA/IO shall be fixed by dividing the total amount of the budget of the conference in question by the total number of units contributed by Members as their share of Union expenses.

As the total Conference budget amounts to 3,036,000 Swiss francs and Members' contributory units amount to $154 \frac{3}{8}$, the amount of the contribution per unit of RPOA/IO will be 19,667 Swiss francs.

6. Sharing of Conference expenditure

Since the present Conference is a Regional Conference within the meaning of No. 42 in Article 7 of the Convention (Malaga-Torremolinos, 1973) the expenditure arising from it must be borne by all the Members of Region 2 and the Members of other regions which have taken part in the Conference, according to the class of contribution they have chosen. Annex 3 hereto gives a list of the Members which must bear the costs of the Conference.

According to the statement of account in Annex 2, the total expenditure is estimated at Swiss francs. On the basis of the contributions of the international organizations (see 5 above) and the number of contributory units of the Members required to bear the Conference expenditure (see Annex 3), the amount of the contributory unit may be estimated at Swiss francs.

Under Article 28 of the Financial Regulations of the Union, interest is payable on regional conference accounts after a period of 60 days from the date of dispatch. Since invoices can probably be sent to participants on 30 September 1983, they should be settled not later than 30 November 1983. From 1 December 1983 they will be subject to interest at 3 percent for the first 180 days and at 6 percent thereafter.

7. Additional expenditure to be envisaged for implementation of the decisions of the Conference

(To be completed after the third meeting of Committee 3.)

In accordance with the provisions of No. 445 of the Convention, this report will be transmitted together with any comments by the Plenary Meeting to the Secretary-General for reference to the Administrative Council at its next annual session.

The Plenary Meeting is requested to approve this report.

P.R.H. BALDUINO
Chairman of Committee 3

A N N E X 1BUDGET OF THE BROADCASTING-SATELLITE CONFERENCE (REGION 2)

| Section 14.2 | | Budget 1983 | Adjusted 1983 budget 1) |
|--|--|------------------|-------------------------------|
| <u>Regional Administrative</u> <u>Conference, SAT-R2</u> Items | | - Swiss francs - | |
| I. | <u>Staff expenses</u> | | |
| 14.101 | Salaries and related expenses of the Conference Secretariat staff | 766,000 | 844,000 |
| 14.102 | Salaries and related expenses of the translation, typing and reproduction services staff | 616,000 | 674,000 |
| 14.103 | Travel (recruitment) | 20,000 | 20,000 |
| 14.104 | Insurance | 36,000 | 36,000 |
| | | 1,438,000 | 1,574,000 |
| II. | <u>Travel expenses away from Geneva</u> | - | - |
| III. | <u>Premises and equipment</u> | | |
| 14.301 | Premises, furniture, machines | 40,000 | 40,000 |
| 14.302 | Document production | 72,000 | 72,000 |
| 14.303 | Office supplies and overheads | 30,000 | 30,000 |
| 14.304 | Postage, telephone calls, telegrams | 35,000 | 35,000 |
| 14.305 | Technical installations | 5,000 | 5,000 |
| 14.306 | Sundry and unforeseen | 10,000 | 10,000 |
| 14.307 | Use of outside computers | 85,000 | 85,000 |
| | | 277,000 | 277,000 |
| IV. | <u>Other expenses</u> | | |
| 14.401 | IFRB preparatory work | 730,000 | 730,000 |
| 14.402 | Meetings of Group of Experts | 356,000 | 356,000 |
| 14.403 | Interest credited to the ordinary budget | 54,000 | 54,000 |
| | | 1,140,000 | 1,140,000 |
| V. | <u>Final Acts</u> | | |
| 14.501 | Final Acts of the Conference | 45,000 | 45,000 |
| | | 2,900,000 | 3,036,000 |
| Total, section 14.2 | | | |

Note :

- 1) Budget approved by the Administrative Council and adjusted to take account of changes introduced in the UN common system of salaries and allowances.

A N N E X 2

STATEMENT OF CONFERENCE ACCOUNTS

ON 6 JULY 1984

(See separate document)

A N N E X 3

CONTRIBUTION BY MEMBERS OF THE UNION TO THE DEFAYAL
OF THE EXPENSES OF THE REGIONAL CONFERENCE

No. 95 of the International Telecommunication Convention, Malaga-Torremolinos, 1973, provides that the expenses incurred by regional administrative conferences shall be borne by all the Members of the Regions concerned. These Members are the following :

| <u>Members of Region 2</u> | <u>Contributory</u> <u>Units</u> | |
|--|-------------------------------------|-----|
| 1. Argentine Republic | 3 | |
| 2. Bahamas (Commonwealth of the) | $\frac{1}{2}$ | |
| 3. Barbados | $\frac{1}{2}$ | |
| 4. Belize | $\frac{1}{8}$ | **) |
| 5. Bolivia (Republic of) | $\frac{1}{2}$ | |
| 6. Brazil (Federative Republic of) | 5 | |
| 7. Canada | 18 | |
| 8. Chile | 1 | |
| 9. Colombia (Republic of) | 3 | |
| 10. Costa Rica | $\frac{1}{2}$ | |
| 11. Cuba | 1 | |
| 12. Denmark | 5 | |
| 13. Dominican Republic | $\frac{1}{2}$ | |
| 14. El Salvador (Republic of) | $\frac{1}{2}$ | |
| 15. Ecuador | 1 | |
| 16. United States of America | 30 | |
| 17. France | 30 | |
| 18. Grenada | $\frac{1}{8}$ | **) |
| 19. Guatemala (Republic of) | $\frac{1}{2}$ | *) |
| 20. Guyana | $\frac{1}{2}$ | |
| 21. Haiti (Republic of) | $\frac{1}{2}$ | |
| 22. Honduras (Republic of) | $\frac{1}{2}$ | |
| 23. Jamaica | $\frac{1}{2}$ | |
| 24. Mexico | 3 | |
| 25. Nicaragua | 1 | |
| 26. Panama (Republic of) | $\frac{1}{2}$ | |
| 27. Paraguay (Republic of) | $\frac{1}{2}$ | |
| 28. Netherlands (Kingdom of the) | 10 | |
| 29. Peru | $\frac{1}{2}$ | |
| 30. United Kingdom of Great Britain and Northern Ireland | 30 | |
| 31. Saint Vincent and the Grenadines | $\frac{1}{8}$ | **) |
| 32. Suriname (Republic of) | $\frac{1}{2}$ | |
| 33. Trinidad and Tobago | 1 | |
| 34. Uruguay (Eastern Republic of) | $\frac{1}{2}$ | |
| 35. Venezuela (Republic of) | 3 | |

*) Pursuant to Resolution No. 53 of the Plenipotentiary Conference, Nairobi, 1982.

***) Pursuant to Resolution No. 50 of the Nairobi Conference, 1982.

Members of Regions 1 and 3

Contributory
Units

1. Iran (Islamic Republic of)

1

154 3/8

A N N E X 4

PARTICIPATION BY RECOGNIZED PRIVATE OPERATING AGENCIES AND
INTERNATIONAL ORGANIZATIONS IN THE WORK OF THE CONFERENCE

Number of
Contributory Units

1. Recognized private operating agencies

None

2. International organizations

Will be completed on the basis of the list
of participants.

*) International organizations exempt from any contribution under
Administrative Council Resolution No. 574.

1) The class of contribution has not yet been indicated.

**BROADCASTING-SATELLITE
CONFERENCE (REGION 2)**

GENEVA, 1983

Document No. DT/59-E

12 July 1983

Original : EnglishCOMMITTEE 5

DOWN-LINK RAIN ATTENUATION

An examination of the beams (down-link) contained in the third draft Plan (ref. Document No. 190(Rev.1)) shows that 16 of the 89 beams in the Plan used rain attenuation values in excess of 6 dB in determining the required e.i.r.p. to satisfy the planning criteria. These beams and the values are presented in the Table below :

| Beam identification | Max. rain attenuation (dB) |
|---------------------|-------------------------------|
| ARGNORT2 | 6.6 |
| BOLAND01 | 9.3 |
| BOOCE411 | 6.1 |
| BOOCE511 | 6.8 |
| BOON0611 | 6.5 |
| BOON0711 | 6.2 |
| BOOSE911 | 7.3 |
| CLMAND01 | 7.1 |
| CLM00001 | 6.6 |
| CRBEC001 | 6.8 |
| CTROO201 | 7.7 |
| NCG00001 | 7.7 |
| PNRIFRB2 | 8.7 |
| SLVIFRB2 | 6.9 |
| USAWH004 | 7.6 |
| VENAND02 | 8.6 |

This information is presented to Committee 5 in order to aid in its consideration of the establishment of a limit value of rain attenuation to be used in planning the down-link.

P.D. CROSS
Chairman of Committee 5