



INTERNATIONAL TELECOMMUNICATION UNION

FINAL ACTS

of the World Administrative
Radio Conference on the Use
of the Geostationary-Satellite Orbit
and the Planning of Space
Services Utilizing It (ORB-88)

Geneva, 1988

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Final Acts of the WARC on
the Geostationary
Satellite Orbit and
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Space Services Utilizing It (Orb-88)
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NOTE

The following symbols have been used to indicate the nature of the revision in each case:

ADD	=	addition of a new provision
MOD	=	modification of an existing provision
(MOD)	=	editorial modification of an existing provision
NOC	=	provision unchanged
SUP	=	deletion of an existing provision

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FINAL ACTS

**adopted by the Second Session
of the World Administrative Radio Conference on the Use of
the Geostationary-Satellite Orbit and the Planning of
Space Services Utilizing It
Geneva, 1988 (WARC Orb-88)**

PREAMBLE

The World Administrative Radio Conference, Geneva, 1979, resolved in its Resolution 3 that a World Administrative Radio Conference be convened, in two sessions, to guarantee in practice for all countries equitable access to the geostationary-satellite orbit and the frequency bands allocated to space services

The Plenipotentiary Conference (Nairobi, 1982), in its Resolution 1, included such a conference in the Union's calendar of conferences. In its Resolution 8, it also instructed the Administrative Council to consider the inclusion, in the agenda of the First Session, of the question of the planning of the bands allocated to the fixed-satellite service and reserved exclusively for feeder links for the broadcasting-satellite service

The Administrative Council, at its 38th Session (1983), following consultations with the Members of the Union, adopted Resolution 895, by which it took the necessary steps to convene the First Session of this World Administrative Radio Conference, to be held in Geneva for a duration of five and a half weeks

Accordingly, the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of the Space Services Utilizing It, (WARC Orb-85), was held in Geneva from 8 August to 15 September 1985 and adopted a Report to the Second Session. This Report included the principles and methods to guarantee in practice for all countries equitable access to the geostationary orbit and frequency bands allocated to space services as well as the technical parameters to be used for planning. It also contained guidelines for the work to be carried out by the permanent organs of the Union in preparation for the Second Session of the Conference

At its 41st session (1986), the Administrative Council, by its Resolution 953, established the agenda for the Second Session of the Conference. At its 42nd session (1987), the Administrative Council, considering the results of consultations with the Members concerning the establishment of this agenda, resolved that the Second Session be convened in Geneva for five weeks and three days commencing on Monday, 29 August 1988.

Accordingly, the Second Session of the Conference (WARC Orb-88) met in Geneva for the stipulated period; it considered and, in conformity with its agenda, adopted a partial revision of the Radio Regulations and Appendices thereto, as contained in the present Final Acts and concerning the following:

ARTICLE 1	Terms and definitions
ARTICLE 8	Frequency Allocations
ARTICLE 11	Coordination of Frequency Assignments to Stations in a Space Radiocommunication Service Except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations
ARTICLE 12	Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Radiocommunication Stations
ARTICLE 13	Notification and Recording in the Master International Frequency Register of Frequency Assignments to Radio Astronomy and Space Radiocommunication Stations Except Stations in the Broadcasting-Satellite Service
ARTICLE 14	Supplementary Procedure to Be Applied in Cases Where a Footnote in the Table of Frequency Allocations Requires an Agreement with an Administration
ARTICLE 15A	Coordination, Notification and Recording of Frequency Assignments to Stations in the Fixed-Satellite Service (Earth-to-space) in the Frequency Bands 14.5 - 14.8 GHz (in Regions 1 and 3), 17.3 - 18.1 GHz (in Regions 1 and 3) and 17.3 - 17.8 GHz (in Region 2) Providing Feeder Links for the Broadcasting-Satellite Service and also to Stations of Other Services to Which these Bands are Allocated, so far as their Relationship to the Fixed-Satellite Service (Earth-to-space) in these Bands Is Concerned
ARTICLE 27	Terrestrial Radiocommunication Services Sharing Frequency Bands with Space Radiocommunication Services above 1 GHz

ARTICLE 28	Space Radiocommunication Services Sharing Frequency Bands with Terrestrial Radiocommunication Services above 1 GHz
ARTICLE 29	Special Rules Relating to Space Radiocommunication Services
ARTICLE 69	Entry into Force of the Radio Regulations
APPENDIX 3	Notices Relating to Space Radiocommunication and Radio Astronomy Stations
APPENDIX 4	Advance Publication Information to Be Furnished for a Satellite Network
APPENDIX 28	Method for the Determination of the Coordination Area Around an Earth Station in Frequency Bands Between 1 GHz and 40 GHz Shared Between Space and Terrestrial Radiocommunication Services
APPENDIX 29	Method of Calculation for Determining if Coordination is Required Between Geostationary-Satellite Networks Sharing the Same Frequency Bands
APPENDIX 30A (Orb-88)	Provisions and Associated Plans for Feeder Links for the Broadcasting-Satellite Service (11.7 - 12.5 GHz in Region 1, 12.2 - 12.7 GHz in Region 2 and 11.7 - 12.2 GHz in Region 3) in the Frequency Bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3, and 17.3 - 17.8 GHz in Region 2 (Articles, Plans and Annexes)
APPENDIX 30B	Provisions and Associated Plan for the Fixed-Satellite Service in the Frequency Bands 4 500 - 4 800 MHz, 6 725 - 7 025 MHz, 10 70 - 10 95 GHz, 11 20 - 11 45 GHz and 12 75 - 13 25 GHz (Articles, Plan and Annexes)

In accordance with its agenda, the Conference took other decisions considered necessary or appropriate, including the review and revision of existing Resolutions and Recommendations and the adoption of various new Resolutions and Recommendations as contained in the present Final Acts

The partial revision of the Radio Regulations, as referred to in this Preamble, shall form an integral part of the Radio Regulations and shall enter into force on **16 March 1990 at 0001 hours UTC**, except for such elements of the partial revision for which a different date of entry into force is specifically stipulated therein

The delegates signing the partial revision of the Radio Regulations, contained in the present Final Acts, which is subject to approval by their competent authorities, declare that, should an administration make reservations concerning the application of one or more of the provisions of the revised Radio Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.

Members of the Union shall inform the Secretary-General of their approval of this partial revision of the Radio Regulations. The Secretary-General shall inform Members promptly of the receipt of such notifications of approval.

IN WITNESS WHEREOF, the delegates of the Members of the International Telecommunication Union named below have, on behalf of their respective competent authorities, signed one copy of the present Final Acts in the Arabic, Chinese, English, French, Russian and Spanish languages. In case of dispute, the French text shall prevail. This copy shall remain deposited in the archives of the Union. The Secretary-General shall forward one certified true copy to each Member of the International Telecommunication Union.

Done at Geneva, 6 October 1988

ANNEX

**Partial Revision of the Radio Regulations
and the Appendices thereto**

ARTICLE 1

Terms and Definitions

Section III. Radio Services

- MOD 22 3.3 *Fixed-Satellite Service* A radiocommunication service
Orb-88 between earth stations at given positions, when one or more
satellites are used, the given position may be a specified fixed
point or any fixed point within specified areas, in some cases this
service includes satellite-to-satellite links, which may also be
operated in the inter-satellite service, the fixed-satellite service may
also include feeder links for other space radiocommunication
services

Section IV. Radio Stations and Systems

- MOD 109 4.52 *Feeder Link* A radio link from an earth station at a
Orb-88 given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas

Section VII. Frequency Sharing

- ADD 168A 7.10 *Effective Boresight Area* (of a steerable satellite beam)
Orb-88 An area on the surface of the Earth within which the boresight of a steerable satellite beam is intended to be pointed

There may be more than one unconnected effective boresight area to which a single steerable satellite beam is intended to be pointed.

- ADD 168B 7.11 *Effective Antenna Gain Contour* (of a steerable satellite beam): An envelope of antenna gain contours resulting from moving the boresight of a *steerable satellite beam* along the limits of the *effective boresight area*.

Section VIII. Technical Terms Relating to Space

- MOD 169 8.1 *Deep Space*: Space at distances from the Earth equal to, or greater than, 2×10^6 kilometres.
- ADD 183 8.15 *Steerable Satellite Beam* A satellite antenna beam that can be re-pointed.

ARTICLE 8

Frequency Allocations

- MOD 480 In Region 2, the use of the band 1 605 - 1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988)

In Region 2, in the band 1 625 - 1 705 kHz, the relationship between the broadcasting, fixed and mobile services is shown in No 419. However, the examination of frequency assignments to stations of the fixed and mobile services in the band 1 625 - 1 705 kHz under No 1241 shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988)

- SUP 792
Orb-88

- ADD 792A The use of the bands 4 500 - 4 800 MHz, 6 725 - 7 025 MHz, 10.7 - 10.95 GHz, 11.2 - 11.45 GHz and 12.75 - 13.25 GHz by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B

- MOD 839 The use of the bands 11.7 - 12.2 GHz by the fixed-satellite service in Region 2 and 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2 is limited to national and subregional systems. The use of the band 11.7 - 12.2 GHz by the fixed-satellite service in Region 2 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). For the use of the band 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2, see Article 15

- MOD 858 The band 14 - 14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe

- MOD 863 The use of the band 14.5 - 14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe

MOD 868 *Additional allocation* in Afghanistan, Algeria, the Federal Republic of Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Sudan, Sri Lanka, Sweden, Thailand and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos 2505 and 2508 shall apply.

MOD 884 In the band 31 - 31.3 GHz the power flux-density limits specified in ~~Orb-88~~ No. 2582 shall apply to the space research service.

ARTICLE 11

MOD Orb-88 **Coordination of Frequency Assignments to Stations in a Space Radiocommunication Service Except Stations in the Broadcasting Satellite Service and to Appropriate Terrestrial Stations**^{1, 2, 3}

NOC **Section I. Procedures for the Advance Publication of Information on Planned Satellite Networks**⁴

MOD A.11.1 ¹ For the coordination of frequency assignments to stations in the ~~Orb-88~~ broadcasting-satellite service and other services in the frequency bands 11.7 - 12.2 GHz (in Region 3), 11.7 - 12.5 GHz (in Region 1) and 12.2 - 12.7 GHz (in Region 2) as well as the coordination of frequency assignments to feeder-link stations utilizing the fixed-satellite service (Earth-to-space) in the frequency bands 17.3 - 17.8 GHz (in Region 2) and in the frequency bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3 and the other services in these bands, see also Article 15 and Article 15A respectively.

ADD A.11.2 ² These procedures may be applicable for earth stations of the earth ~~Orb-88~~ exploration-satellite service, space research service, space operation service and radiodetermination-satellite service intended to be used while in motion or during halts at unspecified points.

ADD A.11.3 ³ For the application of the provisions of this Article with respect to ~~Orb-88~~ stations in a space radiocommunication service using frequency bands covered by the fixed-satellite service Allotment Plan, see also Appendix 30B and Resolution 107 (Orb-88).

(MOD) A.11.4 ⁴ These procedures may be applicable to stations on board satellite ~~Orb-88~~ launching vehicles.

NOC 1041 *Publication of information*

MOD 1042 *Orb-88* § 1. (1) An administration (or one acting on behalf of a group of named administrations) which intends to bring into use a satellite network within a satellite system¹ shall, prior to the coordination procedure described in No. 1060 where applicable, send to the International Frequency Registration Board, not earlier than six years² and preferably not later than two years before the date of bringing into service of each satellite network, the information listed in Appendix 4.

MOD 1043 *Orb-88* (2) Amendments to the information sent in accordance with the provisions of No. 1042 shall also be sent to the Board as soon as they become available. Modifications which are of such a nature as to significantly change the character of the network may require recommencing the advance publication procedure.

MOD 1044 *Orb-88* (3) If the information is found to be incomplete, the Board shall immediately seek from the administration concerned any clarification and information not provided.

On receipt of the complete information sent under Nos 1042 and 1043, the Board shall publish it in a special section of its weekly circular within three months and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall indicate the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station. When the Board is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

ADD 1042.1 *Orb-88* ¹ For the use of frequency bands which are not covered by the fixed-satellite service Allotment Plan. See also Resolution 108 (*Orb-88*).

ADD 1042.2 *Orb-88* ² See also No. 1550

SUP 1045
Orb-88

NOC 1046 *Comments on published information*

MOD 1047 *Orb-88* § 2 If, after studying the information published under No. 1044, any administration is of the opinion that interference which may be unacceptable may be caused to assignments of its existing or planned satellite networks, it shall, within four months after the date of the weekly circular containing the complete information listed in Appendix 4, send the administration concerned its comments on the particulars of the interference to its existing or planned satellite systems. 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 the administration has no basic objections to the planned satellite network(s) of that system on which details have been published.

ADD 1047A *Orb-88* An administration sending information under No 1042 and No. 1043 may request the assistance of the Board in determining, with the aid of Appendix 29, if its planned network could affect or be affected by other satellite networks for which complete Appendix 4 information has been received by the Board

ADD 1047B *Orb-88* An administration receiving information published under No 1044 may request the assistance of the Board in identifying with the aid of Appendix 29, whether its existing or planned networks for which complete Appendix 4 information has been sent to the Board could affect or be affected by the planned network

NOC 1048 *Resolution of difficulties*

MOD 1049 *Orb-88* § 3 (1) An administration receiving comments sent in accordance with No. 1047 and administrations sending such comments shall endeavour to resolve any difficulties that may arise and shall provide any additional information that may be available

- MOD 1051
Orb-88
- a) the administration responsible for the planned network shall first explore all possible means of meeting its requirements, taking into account the characteristics of the geostationary-satellite networks of other systems, and without considering the possibility of adjustment to networks of other administrations. If no such means can be found, the administration concerned may then request other administrations, either bilaterally or multilaterally, or in exceptional circumstances through the convening of multilateral meetings similar to that provided for in No. 1085C, to mutually help resolve these difficulties
- MOD 1053
Orb-88
- c) if, after following the procedure described in Nos. 1051 and 1052, there are unresolved difficulties, the administrations concerned shall together make every possible effort to resolve these difficulties by means of mutually acceptable adjustments, for example, to geostationary space station locations and to other characteristics of the networks involved in order to provide for the normal operation of both the planned and existing networks
- MOD 1054
Orb-88
- (3) In their attempts to resolve the difficulties mentioned above, administrations may seek the Board's assistance which may consist of:
- ADD 1054A
Orb-88
- a) evaluating the levels of interference;
- ADD 1054B
Orb-88
- b) defining, with the agreement of the administrations concerned, the method and criteria to be used,
- ADD 1054C
Orb-88
- c) making arrangements to facilitate discussions as mutually agreed by the administrations concerned

- ADD 1054D
Orb-88
- In seeking the assistance of the Board, the administration(s) concerned shall send the details of the comments which have given rise to the difficulties and make any suggestions that it (they) may consider useful
- NOC 1055
- Results of advance publication*
- MOD 1056
Orb-88
- § 4. An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of Nos. 1042 to 1044 shall, after the period of four months specified in No. 1047, inform the Board whether or not comments provided for in No. 1047 have been received and of the progress made in resolving any 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 the notices to the Board. The Board shall publish this information in the special section of its weekly circular referred to in No. 1044 and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.
- ADD 1056A
Orb-88
- When, upon expiry of a period of six years plus the extension provided for in No. 1550 after the date of the publication of the special section referred to in No. 1044, the administration responsible for the network has not submitted the Appendix 3 information for coordination under No. 1060 or for notification under No. 1488, as appropriate, the information published under No. 1044 shall be cancelled after the administration concerned had been informed
- NOC 1057
- Commencement of Coordination or Notification Procedures*
- SUP 1058
Orb-88

- ADD 1058A § 5 (1) When communicating to the Board the information
Orb-88 referred to in No. 1042, an administration may, at the same time or
at a later time, communicate:
- ADD 1058B a) the information required for the network coordina-
Orb-88 tion of a frequency assignment to a station pertain-
ing to a geostationary-satellite network in accord-
ance with the provisions of No. 1074, including the
copy of the request for coordination sent to any
other administration; this information will be
treated in accordance with the provisions of Sec-
tion II of this Article; or
- ADD 1058C b) the information required for notification of a fre-
Orb-88 quency assignment to a station of a geostationary-
satellite network when coordination for that assign-
ment is not required; or
- ADD 1058D c) the information required for notification of a fre-
Orb-88 quency assignment to a station of a non-geostatio-
nary-satellite network.
- ADD 1058E The coordination or notification information, as the
Orb-88 case may be, shall be considered as having been received by the
Board not earlier than six months after the date of receipt of the
information referred to in No. 1042.
- MOD Orb-88 Section II. Coordination of Frequency Assignments
to a Space Station on a Geostationary Satellite or an
Earth Station Communicating with Such a Space Station
using Frequency Bands other than Those Covered by the
Fixed-Satellite Service Allotment Plan in Relation to
Stations of Other Geostationary-Satellite Networks *
- NOC 1059 Requirement for Coordination
- MOD 1060 § 6. (1) Before an administration (or one acting on behalf of
Orb-88 one or more named administrations) notifies to the Board or brings
into use any frequency assignment to a space station on a

* See also Section IB of Article 6 of Appendix 30B.

- geostationary satellite or to an earth station that is to communicate
with a space station on a geostationary satellite, it shall, except in
the cases described in Nos 1066 to 1071, effect coordination of the
assignment with any other administration whose assignment, for a
space station on a geostationary satellite or for an earth station
that communicates with a space station on a geostationary satellite,
might be affected ¹
- ADD 1060A Coordination under No. 1060 may be effected for a
Orb-88 satellite network using the information relating to the space station,
including its service area, and the parameters of one or more
typical earth stations which may be located in all or part of the
space station service area.
- ADD 1060B If a frequency assignment is brought into use before the
Orb-88 commencement of the coordination procedure of No 1060, when
this coordination is required, the operation in advance of the
receipt by the Board of the Appendix 3 information shall in no
way afford any priority of the date
- MOD 1061 (2) Frequency assignments to be taken into account in the
Orb-88 application of No. 1060 are those in the same frequency band as
the planned assignment, pertaining to the same service or to
another service to which the band is allocated with equal rights or
a higher category of allocation (see Nos. 420-425 and 435), and
which are:
- MOD 1062 a) in conformity with No. 1503; and
Orb-88
- ADD 1060.1 ¹ In cases where the application of Article 14 is required with
Orb-88 respect to one or more assignments of a network, the agreement obtained in
application of Article 14 in relation to an assignment of another satellite
network to which Nos 1061 to 1065 apply shall be deemed to constitute
successful application of the procedure of Section II of this Article

- MOD 1064
Orb-88 c) included in the coordination procedure with effect from the date of receipt¹ by the Board, in accordance with No. 1074, of the relevant information as specified in Appendix 3; or
- MOD 1065
Orb-88 d) already notified to the Board without any coordination in those cases where Nos. 1066 to 1071 apply
- NOC 1066 (3) No coordination under No. 1060 is required.
- ADD 1066A
Orb-88 a) when an administration proposes to notify or bring into use, within the service area of a satellite network, a typical earth station or an earth station which would not cause or suffer interference of a level greater than the typical earth station;
- (MOD) 1067
Orb-88 b) when the use of a new frequency assignment will cause, to any service of another administration, an increase in the noise temperature of any space station receiver or earth station receiver, or an increase in the equivalent satellite link noise temperature, as appropriate, calculated in accordance with the method given in Appendix 29, which does not exceed the threshold value defined therein;
- (MOD) 1068
Orb-88 c) when the interference resulting from a modification to a frequency assignment which has previously been coordinated will not exceed that value agreed during coordination;

¹ See No. 1058E concerning the date to be considered as the date of receipt by the Board of the information relating to the coordination of a satellite network or a notification of a frequency assignment

- MOD 1069
Orb-88 d) when an administration proposes to notify or bring into use a new earth station which would not cause or suffer interference of a level greater than that which would be caused by an earth station belonging to the same satellite network and whose characteristics have been published in accordance with No. 1078, or notified to the Board without coordination in those cases where coordination was not required,
- (MOD) 1070
Orb-88 e) when, for a new frequency assignment to a receiving station, the notifying administration states that it accepts the interference resulting from the frequency assignments referred to in Nos 1061 to 1065.
- (MOD) 1071
Orb-88 f) between earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth)
- NOC 1072 *Coordination Data*
- MOD 1073
Orb-88 § 7 (1) For the purpose of effecting coordination, the administration requesting coordination shall send to any other administration concerned under No 1060 all the information listed in Appendix 3 required for coordination including the characteristics of one or more typical earth stations and the respective areas in which they may be located. The request concerning coordination of a network may specify all or some of the frequency assignments expected to be used by the stations of the satellite network
- MOD 1074
Orb-88 (2) The administration requesting coordination shall at the same time send to the Board a copy of the request for coordination, with all the information listed in Appendix 3 required for coordination and the name(s) of the administration(s) with which coordination is sought. The Board shall immediately acknowledge the receipt of this information

ADD 1074A (3) An administration believing that the provisions of
Orb-88 Nos. 1066 to 1071 apply to its planned assignments may send to the Board the relevant information listed in Appendix 3, either under No. 1074 for publication or in accordance with Nos. 1488 to 1491.

MOD 1075 § 8. (1) On the receipt of the complete information referred to
Orb-88 in No. 1074, the Board shall:

MOD 1076 a) immediately examine this information with respect
Orb-88 to its conformity with No. 1503 and, as soon as possible, send a telegram to all administrations indicating the identity of the satellite network, its findings with respect to No. 1503 and the date of receipt¹ of the information; this date shall be considered as the date from which the assignment will be taken into account for coordination;

MOD 1078 c) publish in the special section of its weekly circular
Orb-88 referred to in No. 1044, within three months, the information received under No. 1074 and the result of the examination under Nos. 1076 and 1077. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram. When the Board is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations giving the reasons therefor.

ADD 1078A (2) If the information is found to be incomplete, the Board
Orb-88 shall immediately seek from the administration concerned any clarification and information not provided.

ADD 1076.1 ¹ See No 1058E concerning the date to be considered as the date of
Orb-88 receipt by the Board of the information relating to the coordination of a satellite network or a notification of a frequency assignment

NOC 1083 *Examination of Coordination Data and Agreement Between Ad-*
ministrations

MOD 1084 § 11 (1) On receipt of the coordination data, an administration
Orb-88 shall promptly examine the matter with regard to interference¹ which would be caused to the frequency assignments of its network in respect of which coordination is sought under No 1060 or caused by these assignments. In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination was requested. It shall then, within four months from the date of the relevant weekly circular, notify the administration requesting coordination of its agreement. If, however, 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, including those relevant characteristics contained in Appendix 3 which have not previously been notified to the Board, and make such suggestions as it is 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.

MOD 1085 (2) Either the administration seeking coordination or an
Orb-88 administration with which coordination is sought may request additional information which it may require to assess the interference to assignments of the network concerned.

MOD 1084.1 ¹ In the absence of specific provisions relating to the evaluation of
Orb-88 the interference, the calculation methods and the criteria should be based on relevant CCIR Recommendations agreed by the administrations concerned either as a result of Resolution 703 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.

ADD 1085A (3) Affected administrations as well as the administration
Orb-88 seeking coordination shall make all possible mutual efforts to overcome the difficulties, in a manner acceptable to the parties concerned.

ADD 1085B All administrations may use correspondence, any appropriate means of telecommunication, or bilateral or multilateral meetings, as necessary, to effect coordination with any other administration. The results thereof shall be communicated to the Board in accordance with No. 1087.

ADD 1085C (5) In exceptional cases the multilateral coordination among the administrations concerned, of networks in the fixed-satellite service, may take the form of a Multilateral Planning Meeting (MPM) in accordance with resolves 1 to 7 of Resolution 110 (Orb-88) and shall apply to the following frequency bands

3 700 - 4 200 MHz
5 850 - 6 425 MHz
10.95 - 11.20 GHz
11 45 - 11.70 GHz
11.70 - 12.20 GHz in Region 2¹
12.50 - 12.75 GHz in Region 1 and Region 3^{1,2}
14.00 - 14.50 GHz

ADD 1085D (6) Towards this end, the administration seeking coordination may initiate action to convene a Multilateral Planning Meeting (MPM) to resolve mutually the difficulties and effect the coordination of the satellite network.

ADD 1085C.1 ¹ In these bands this provision shall apply between networks of the
Orb-88 fixed-satellite service only

ADD 1085C.2 ² When a fixed-satellite service network is to be operated in the
Orb-88 frequency band 12.5 - 12.75 GHz as well as under No. 845 in the frequency band 12.2 - 12.5 GHz, this provision may apply for coordination of the network

NOC 1086 *Results of Coordination*

MOD 1087 § 12 (1) An administration which has initiated a coordination
Orb-88 procedure under the provisions of Nos 1060 to 1074 shall communicate to the Board, on expiry of the period of four months following the date of the relevant weekly circular mentioned in No 1078, the names of the administrations with which an agreement has been reached. It shall also inform the Board of the progress made in effecting coordination with the other administrations or of any difficulties. Such a communication shall be made to the Board every six months after the above-mentioned period. The Board shall publish this information in the special section of its weekly circular referred to in No 1044.

ADD 1087A (2) An administration which initiated the coordination, as
Orb-88 well as any administration with which coordination is sought, shall communicate to the Board any modifications to the published characteristics of their respective networks that were required to reach agreement on the coordination. The Board shall publish this information in accordance with No 1078, indicating that these modifications resulted from the joint effort of the administrations concerned to reach agreement on coordination and for this reason they should be given special consideration.

ADD 1087B (3) When the coordination process takes the form of a
Orb-88 Multilateral Planning Meeting (MPM), in accordance with resolves 1 to 7 of Resolution 110 (Orb-88), the administration which sought the coordination of its satellite network shall communicate to the Board the names of administrations with which coordination has been completed and an agreement reached, as well as the names of administrations with which coordination has not been completed.

ADD 1087C (4) Each administration participating in a Multilateral Planning Meeting (MPM) shall communicate to the Board any changes agreed upon in the published characteristics of frequency assignments of its satellite networks considered by the Multilateral Planning Meeting (MPM).

- ADD 1087D (5) The Board shall publish the information specified
Orb-88 in Nos 1087B and 1087C above in the special section of its weekly circular referred to in No. 1044 and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.
- NOC 1088 *Requests to the IFRB for Assistance in Effecting Coordination*
- ADD 1091A c) a bilateral or multilateral meeting, or a Multilateral
Orb-88 Planning Meeting (MPM) is required to achieve coordination and the administration concerned experiences difficulties in making arrangements for it;
- (MOD) 1092 d) there is disagreement between the administration
Orb-88 seeking coordination and an administration with which coordination is sought as to the acceptable interference, or
- (MOD) 1093 e) coordination is not possible for any other reason.
Orb-88
- MOD 1094 (2) In so doing, the administration shall provide the neces-
Orb-88 sary information to enable the Board to endeavour to effect such coordination.
- NOC 1095 *Action to be taken by the IFRB*
- ADD 1098A (4) Where the Board receives a request under No. 1091A, it
Orb-88 shall take appropriate steps to facilitate the holding of such meetings when all administrations concerned agree and shall also provide requested assistance that may help in achieving coordination.
- (MOD) 1099 (5) Where necessary, as part of the procedure under
Orb-88 Nos. 1089 to 1094, the Board shall assess the interference. In any case, the Board shall inform the administrations concerned of the results obtained.
- MOD 1100 (6) The Board may request additional information which it
Orb-88 may require to assess the interference to assignments of the network concerned.

- MOD 1101 (7) Where an administration fails to reply within thirty days
Orb-88 of dispatch of the Board's telegram requesting acknowledgement sent under No 1096, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under No 1097, or fails to reply to the Board's requests made in application of No 1098A, it shall be deemed that the administration with which coordination was sought has undertaken
- MOD 1102 a) that no complaint will be made in respect of any
Orb-88 harmful interference affecting the services rendered by its space radiocommunication stations which may be caused by the use of the assignment to a station of the satellite network for which coordination was requested,
- MOD 1103 b) that its space radiocommunication stations will not
Orb-88 cause harmful interference to the satellite network assignment for which coordination was requested
- SUP 1104
- Orb-88
- SUP 1105
- Orb-88
- MOD Orb-88 **Section III. Coordination of Frequency Assignments to an Earth Station Operating in a Geostationary or Non-Geostationary Satellite Network in Relation to Terrestrial Stations**
- ADD 1111A d) to bring into use a new frequency assignment to a
Orb-88 receiving earth station and the notifying administration states that it accepts the interference resulting from existing and future terrestrial station assignments. In such case, administrations responsible for the terrestrial stations are not required to apply the provisions of Section IV of this Article

- MOD 1118
Orb-88 a) interference¹ which would affect the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer; and
- MOD 1143
Orb-88 a) that no complaint will be made in respect of any harmful interference affecting the services rendered by its terrestrial stations which may be caused by the use of the assignment for which coordination was requested;
- MOD 1144
Orb-88 b) that its terrestrial stations will not cause harmful interference to the frequency assignment for which coordination was requested.
- SUP 1145
Orb-88
- SUP 1146
Orb-88
- MOD 1118.1
1119.1
Orb-88 ¹ In the absence of specific provisions relating to the evaluation of the interference, the calculation methods and the criteria should be based on relevant CCIR Recommendations agreed by the administrations concerned either as result of Resolution 703 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.

NOC

Section IV. Coordination of Frequency Assignments
to a Terrestrial Station for Transmission in
Relation to an Earth Station

- MOD 1164
Orb-88 § 26 (1) On receipt of the coordination data, the administration with which coordination is sought shall promptly examine the matter with regard to interference¹ which would affect the services rendered by its earth stations covered by Nos 1148 to 1154, which are operating, or are to be operated, within the next three years
- MOD 1166
Orb-88 (3) The administration with which coordination is sought shall, within an overall period of four months² from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is not possible, indicate the reasons for its objection and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem
- MOD 1167
Orb-88 § 27. Either the administration seeking coordination or the administration with which coordination is sought may request additional information which it may require to assess the interference to assignments of the network concerned
- ADD 1189
Orb-88 § 32. If requested by an administration participating in a Multilateral Planning Meeting (MPM), the Board, using such means at its disposal as are appropriate in the circumstances, shall render technical assistance for the completion of the procedures of Section II of this Article. In making such a request this administration shall furnish the Board with all necessary information

ARTICLE 12

MOD Orb-88 Notification and Recording in the Master International
Frequency Register of Frequency Assignments¹ to Terrestrial
Radiocommunication Stations^{2, 3, 4}

MOD A.12.4
Orb-88 ⁴ For the notification and recording of frequency assignments to
terrestrial stations in the frequency bands 14.5 - 14.8 GHz (in Regions 1
and 3), 17.7 - 17.8 GHz (in Region 2), and 17.7 - 18.1 GHz (in Regions 1
and 3), so far as their relationship to the fixed-satellite service (Earth-to-
space) in this band is concerned, see also Article 15A

ARTICLE 13

MOD Orb-88 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 Service^{2, 3, 4}

ADD 1493A (4) A notice submitted in accordance with Nos 1488
Orb-88 to 1491 and relating to a frequency assignment to a space station
for transmission or reception may indicate the characteristics of
one or more associated typical earth stations with the area in which
they are intended to be operated

MOD A.13.2 ² For the notification and recording of frequency assignments to
Orb-88 stations in the broadcasting-satellite service and other services in the
frequency bands 11.7 - 12.2 GHz (in Region 3), 11.7 - 12.5 GHz (in
Region 1) and 12.2 - 12.7 GHz (in Region 2), 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 bands
14.5 - 14.8 GHz in Region 1 (see No 863) and in Region 3, 17.3 - 18.1 GHz
in Regions 1 and 3, and 17.3 - 17.8 GHz in Region 2 and other services in
these bands, see also Article 15 and Article 15A respectively

ADD A.13.3 ³ These procedures may be applicable for earth stations of the earth
Orb-88 exploration satellite service, space research service, space operation service
and radiodetermination satellite service intended to be used while in
motion or during halts at unspecified points

ADD A.13.4 ⁴ For the application of the provisions of this Article with respect to
Orb-88 stations in a space radiocommunication service using frequency bands
covered by the fixed-satellite service Allotment Plan, see also
Appendix 30B

MOD 1494 (5) A notice submitted in accordance with Nos 1488
Orb-88 to 1491 and relating to a frequency assignment to earth stations in a satellite system shall include the technical characteristics either of each earth station, with its location, or of a typical earth station, with an indication of the area within which such typical earth stations are to be operated.

ADD 1494A Except for mobile earth stations, individual notification
Orb-88 of an earth station is required when:

ADD 1494B a) the coordination area calculated in accordance with
Orb-88 the method given in Appendix 28 overlaps the territory of another administration in which the frequency band is allocated with equal rights to the terrestrial services;

ADD 1494C b) the characteristics of the earth station are such that
Orb-88 the interference caused or suffered is greater than for any typical earth station coordinated under No 1060 for the relevant location.

MOD 1503 a) with respect to its conformity with the Convention,
Orb-88 the Table of Frequency Allocations¹ and the other provisions of the Radio Regulations, with the exception of those relating to the coordination procedures and the probability of harmful interference which are the subject of the following subparagraphs.

MOD 1517 § 12 (1) Finding unfavourable with Respect to No. 1503.
Orb-88

MOD 1518 (2) Where the notice includes a specific reference to the fact
Orb-88 that the station will be operated in accordance with the provisions of No. 342, the assignment shall be recorded in the Master Register on the understanding that the provisions of No. 1560 shall be applied, as appropriate. The date of receipt by the Board of the notice shall be entered in Column 2d.

ADD 1503.1 ¹ Conformity with the Table of Frequency Allocations implies the
Orb-88 successful application of Article 14, when necessary

SUP 1520
Orb-88

SUP 1521
Orb-88

SUP 1522
Orb-88

SUP 1523
Orb-88

SUP 1524
Orb-88

MOD 1529
Orb-88

b) if the Board's efforts toward securing agreement in application of No 1528 or Nos 1089 to 1094 or Nos 1130 to 1135 are unsuccessful, the Board shall examine the notice with respect to the provisions of Nos. 1506 to 1508 and Nos. 1509 to 1512, as appropriate. At the same time, the Board shall so inform the administrations concerned,

ADD 1530A
Orb-88

(4) Where the notifying administration states that it has been unsuccessful in the application of the coordination procedures mentioned in Nos 1504 and 1505, the Board shall examine the notice with respect to the provisions of Nos 1506 to 1508 and Nos. 1509 to 1512, as appropriate. At the same time, the Board shall so inform the administrations concerned.

(MOD) 1531
Orb-88

(5) Where the notifying administration resubmits the notice and the Board finds that the coordination procedures mentioned in Nos 1504 and 1505 have been successfully completed with all administrations whose space or terrestrial radiocommunication stations 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

(MOD) **1532** (6) Where the notifying administration resubmits the notice
Orb-88 with a request that the Board effect the required coordination under No. 1060 or 1107, it shall be treated in accordance with the provisions of Nos. 1527 and either 1528 or 1529. 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.

MOD **1550** (4) The notified date of bringing into use of the first
Orb-88 assignment of a satellite network shall not be later than six years following the date of publication of the special section of the weekly circular referred to in No. 1044. This notified date of bringing into use will be extended at the request of the notifying administration by no more than three years.

MOD **1556** (5) In the circumstances described in No. 1544, and as long
Orb-88 as an assignment which received an unfavourable finding cannot be resubmitted with a statement relating to operation without interference, the notifying administration may ask the Board to enter the assignment provisionally in the Master Register, in which event a special symbol to denote the provisional nature of the entry shall be entered in the Remarks Column. The Board shall delete this symbol when it receives from the notifying administration, at the end of the period in No. 1544, the information relating to the absence of complaint of harmful interference

ARTICLE 14

NOC

**Supplementary Procedure to Be Applied in Cases
 Where a Footnote in the Table of Frequency
 Allocations Requires an Agreement
 with an Administration**

ADD **1619A** When an administration intends to bring into use a
Orb-88 frequency assignment to a space radiocommunication station, the agreement of an administration having an existing or planned space radiocommunication station may be required with respect to the assignments of this administration

ADD **1619B** a) which are recorded in the Master Register, in
Orb-88 conformity with No 1503, *or*

ADD **1619C** b) which are notified to the Board.
Orb-88

ADD **1619D** c) for which information under No 1042² has been
Orb-88 received by the Board, *or*

ADD **1619E** d) for which the procedure of this Article has been
Orb-88 initiated

MOD **1613.1** ¹ The information in Appendix 3 or 4 submitted to the Board under
Orb-88 Article 11 may also be used for the purpose of this procedure. When the Appendix 4 information is submitted for an assignment to a geostationary-satellite network, the administration seeking agreement under this Article shall also submit the information required for the application of Appendix 29

ADD **1619D.1** ² The administration having such an assignment is requested to
Orb-88 communicate as soon as possible the Appendix 3 information *or*, in the case of a geostationary-satellite network, any information in addition to that communicated in accordance with Appendix 4 which is necessary for the application of Appendix 29

CHAPTER XIII

ARTICLE 69

Entry into Force of the Radio Regulations

MOD 5187 These Regulations, which are annexed to the Inter-
Orb-88 national Telecommunication Convention, shall enter into force on
1 January 1982, except as specified in Nos. 5188, 5189, 5193, 5194
and 5195.

MOD 5193 § 7. The partial revision of the Radio Regulations contained
Orb-88 in the Final Acts of WARC ORB-85 shall enter into force on
30 October 1986 at 0001 hours UTC.

ADD 5195 § 10. The partial revision of the Radio Regulations contained
Orb-88 in the Final Acts of WARC ORB-88 shall enter into force on
16 March 1990 at 0001 hours UTC.¹

SUP 5193.1
Orb-88

ADD 5195.1 ¹ For the provisional application of certain parts of this revision, see
Orb-88 Resolutions 104 (Orb-88) and 106 (Orb-88)

MOD

APPENDIX 3

Orb-88

NOC

Notices Relating to Space Radiocommunications
and Radio Astronomy Stations

MOD

(See Articles 11, 13 and 14)

MOD

Section I General Instructions

MOD 1. A separate notice shall be sent to the International Frequency
Registration Board for the purpose of

- a) coordinating under No 1060 frequency assignments of a geostationary-satellite network, taking into account the characteristics of its associated stations (see Section II of this Appendix),
- b) coordinating under No. 1060 frequency assignments to a specific earth station (see Section II of this Appendix),
- c) coordinating under No 1060 frequency assignments to a typical earth station not previously so coordinated (see Section II of this Appendix),
- d) coordinating under No 1107 frequency assignments to an earth station (see Section III of this Appendix),
- e) notifying each frequency assignment to a space station of a geostationary, non-geostationary or deep-space satellite network, taking into account the characteristics of its associated stations (see Section II of this Appendix),

- f) notifying each frequency assignment to an earth station (see Section III of this Appendix);
- g) notifying each frequency assignment to be received by a radio astronomy station (see Section IV of this Appendix);
- h) notifying any change in the characteristics of a frequency assignment recorded in the Master International Frequency Register (hereinafter called the *Master Register*),
- i) notifying any total deletion of a frequency assignment recorded in the Master Register.

MOD 2 When notices are submitted under Nos. 1488 to 1491 for frequency assignments to a space station and associated earth stations that together are to form a satellite network, for transmission and reception by the space station or any associated earth station, a single notice may be submitted that covers all basic characteristics of the network and listing the assigned frequencies as prescribed in this Appendix. However, when individual notices are submitted under Nos. 1488 to 1491 for frequency assignments to an earth or space station for transmitting or for frequency assignments to be used for reception by an earth or space station, separate notices shall be submitted to the Board for each station. In each of these cases, when the basic characteristics are identical with the exception of the frequency, a single notice may be submitted covering all basic characteristics and listing the assigned frequencies

A transmitting or receiving earth station, the basic characteristics of which may cause more interference or require more protection than those of a typical earth station associated with a previously notified network, may be associated with that network, as a new type of associated earth station, when it has been successfully coordinated under the provisions of No. 1060 as part of the network.

- NOC 3. In the case of a satellite system employing multiple space stations with the same general characteristics, a separate notice shall be submitted to the Board for each space station for transmitting or receiving assignments
- when it is aboard a geostationary satellite,
 - when it is aboard a non-geostationary satellite, except when a number of satellites have the same radio frequency characteristics and orbital characteristics (excluding the ascending node position), in the latter case, one notice covering all such space stations may be submitted to the Board
- ADD 4. The notices and basic characteristics shall also be used for seeking agreement in accordance with Article 14 of the Radio Regulations
- MOD 5 The following information, when appropriate, shall be shown on the notice
- a) the national serial number of the notice and the date on which the notice is sent to the Board,
 - b) the name of the notifying administration,
 - c) whether the notice reflects
 - 1) first notification and, if so, whether it is an addition (ADD), modification (MOD) or deletion (SUP),
 - 2) resubmission of the notice,
 - 3) a request for coordination in accordance with No 1060,
 - 4) a request for coordination in accordance with No 1107,
 - 5) notification in accordance with No 1488,
 - 6) a request for agreement in accordance with Article 14 of the Radio Regulations,
 - 7) a request for the assistance of the IFRB,

- d) reference to the IFRB weekly circular special section providing the advance publication information required in accordance with No. 1042;
- e) reference to the IFRB weekly circular special section providing the coordination information required in accordance with No. 1060;
- f) reference to the IFRB weekly circular special section providing the information required in accordance with Article 14 of the Radio Regulations;
- g) characteristics as outlined in Sections II, III, or IV of this Appendix as appropriate;
- h) any other information which the administration considers to be relevant, for instance: an indication that the assignment concerned would operate in accordance with No. 342; any factors taken into account when applying Appendix 28 to the Radio Regulations for determination of the coordination area; or whether the transmissions of the station are to be permanently switched off after a certain period.

- MOD **Section II. Notices Relating to Coordination
under No. 1060 of Satellite Networks,
and Notification of Space Stations**
- ADD 2.A General characteristics to be provided for the satellite network
- MOD 2.A 1 Identity of the satellite network
- Indicate the identity of the space station(s).
- (MOD) 2.A 2 Date of bringing into use³
- a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) of bringing the frequency assignment into use

- b) Whenever the assignment is changed in any of its basic characteristics (except in the case of a change in Item 2 A 1), the date to be given shall be that of the latest change (actual or foreseen, as appropriate)

(MOD) 2 A 3 Operating administration or company

MOD Give the name of the operating administration or company and the postal and telegraphic addresses of the administration to which communications should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the space station (see Article 22 of the Radio Regulations)

(MOD) 2 A 4 Orbital information

- a) In the case of a space station aboard a geostationary satellite indicate the nominal geographical longitude on the geostationary-satellite orbit and the planned longitudinal tolerance and inclination excursion. Indicate also in the case where a geostationary satellite is intended to communicate with an earth station

- 1) the arc of the geostationary-satellite orbit over which the space station is visible, at a minimum angle of elevation of 10° at the Earth's surface, from its associated earth stations or service areas,
- 2) the arc of the geostationary-satellite orbit within which the space station could provide the required service to its associated earth stations or service areas,
- 3) in the event that the arc defined in paragraph 2) above is less than the arc defined in paragraph 1) above, the reasons therefore

Note — The arcs specified in 1) and 2) will be indicated by the geographical longitude of the extremes of these arcs on the geostationary-satellite orbit

b) In the case of any space station(s) aboard non-geostationary satellite(s), indicate the angle of inclination of the orbit, the period, the altitudes in kilometres of the apogee and perigee of the space station(s) and the number of satellites used.

(MOD) 2.A.5 Coordination

MOD Give the name of any administration with which coordination has been successfully effected in accordance with No. 1060 and, if appropriate, the name of any administration with which coordination has been sought but not completed.

(MOD) 2.A.6 Agreements

MOD *a)* Give, if appropriate, the name of any administration with which agreement has been reached to exceed the limits prescribed in these Regulations

b) Give, if appropriate, the name of any administration with which agreement has been reached in accordance with Article 14 of the Radio Regulations.

ADD 2 B Characteristics of the satellite network for reception at the space station

All the information required in sub-section 2.B is to be provided for each satellite receiving beam if a network is to be coordinated or notified.

ADD Information related to satellite receiving beam

ADD 2.B.1 Name of satellite receiving beam

Indicate, for a geostationary satellite, the name of the satellite receiving antenna beam and whether it is a steerable or reconfigurable antenna beam

ADD 2 B 2 Service area or associated transmitting station(s)

a) When the associated transmitting stations are earth stations, indicate the service area or areas of the satellite beam on the Earth.

b) When the associated transmitting stations are space stations, identify each station by reference to the notification thereof or in any other appropriate manner

ADD 2.B.3 Assigned frequency (frequencies)

Indicate the assigned frequency (frequencies), as defined in No. 142, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz

If the basic characteristics are identical, with the exception of the frequency, a single notice may be submitted covering all basic characteristics and listing the assigned frequencies

(MOD) 2.B.4 Assigned frequency band

NOC Indicate the bandwidth of the assigned frequency band in kHz (see No 141).

(MOD) 2.B.5 Class of station(s) and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10

ADD 2.B.6 Space station receiving antenna characteristics

a) In the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station, indicate whether the receiving antenna beam will point in a fixed direction or will have a steerable beam (see No 183) capability

b) In the case of a space station aboard a geostationary satellite, indicate the name of the satellite antenna beam by a three character code. For steerable beams, the last character shall be an "R"

c) In the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station via a receiving antenna pointing in a fixed direction, indicate the maximum isotropic gain (dBi) and the 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 space station antenna gain contours shall be drawn as isolines of the isotropic gain, at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible the gain contours of the space station receiving antenna should also be provided in the form of a numerical equation.

d) In the case of a space station aboard a geostationary satellite where a steerable beam is used, data on the radiation characteristics shall be provided as follows:

- 1) if the effective boresight area (see No. 168A) is identical with the global or nearly global service area, provide only the maximum isotropic antenna gain (dBi). The maximum antenna gain is applicable to all points on the Earth's visible surface;
- 2) if the effective boresight area (see No. 168A) is less than the global or nearly global service area, provide the maximum antenna gain and the effective antenna gain contours (see No. 168B). These contours shall be provided as defined in c) above.

e)¹ In the case of a space station aboard a geostationary satellite, include, in the antenna gain contours of c) and d) 2) above, the effect of the planned longitudinal tolerance, inclination excursion and pointing accuracy of the antenna.

f) In the case of a space station aboard a geostationary satellite in which the antenna radiation beam is directed towards another satellite, also indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference

g) In the case of a space station aboard a non-geostationary satellite, indicate the isotropic gain of the space station receiving antenna in the direction of maximum radiation (dBi) and indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference.

h)¹ Indicate the type of polarization of the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos. 148 and 149). In the case of linear polarization, indicate the angle (in degrees) measured anticlockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the wave as seen from the satellite. Indicate also whether consent is given to the general use of this information in determining the need for coordination with other satellite networks according to Appendix 29 of the Radio Regulations

i) Indicate, for a geostationary satellite, the pointing accuracy of the antenna.

j) In the case of a space station aboard a geostationary satellite operating in a band allocated in the Earth-to-space direction and in the space-to-Earth direction, also indicate the gain of the space station receiving antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth, by means of a diagram showing estimated antenna gain versus orbital longitude.

MOD 2.B.7 Receiving system noise temperature

Indicate, in kelvins, the total receiving system noise temperature referred to the output of the receiving antenna of the space station.

ADD Information related to associated transmitting station(s)

This information is to be provided for each type of transmitting station associated with each space station receiving antenna beam.

ADD 2.B.8 Type and identity of the associated transmitting station(s)

Indicate whether the associated transmitting station is another space station, a typical earth station of the network, or a specific earth station.

When the associated transmitting station is:

- a) another space station, indicate its characteristics by reference to the notification thereof or in any other appropriate manner;
- b) a typical earth station of the network, the characteristics provided under the following items of sub-section 2.B shall represent the limiting characteristics for any earth station conforming to that type for the purpose of coordination under No. 1060;
- c) a specific earth station, the characteristics provided under the following items of sub-section 2.B only apply to that earth station and shall include the identity of the earth station and the geographical coordinates of the antenna site for the purpose of coordination under No. 1060.

The remaining information required in sub-section 2.B is to be provided for each associated earth station or typical earth station.

MOD 2.B.9 Class of station(s) and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10 to the Radio Regulations.

MOD 2.B.10 Earth station transmitting antenna characteristics

- a) Indicate the isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. 154)
- b) Indicate the beamwidth in degrees between the half power points (describe in detail if not symmetrical)
- c) Either attach the measured radiation diagram of the antenna (taking as a reference the direction of maximum radiation) or indicate the reference radiation diagram to be used for coordination
- d)¹ Indicate the type of polarization of the transmitted wave in the direction of maximum radiation, also indicate the direction in the case of circular polarization and the plane in the case of linear polarization (see Nos 148 and 149).

MOD 2.B.11 Class of emission, necessary bandwidth and description of the transmission

In accordance with Article 4 and Appendix 6 of the Radio Regulations.

- a) indicate the class of emission and the necessary bandwidth;
- b)¹ indicate the carrier frequency or frequencies of the emission(s);
- c)¹ indicate, for each carrier, the class of emission, necessary bandwidth and description of transmission,
- d)¹ indicate, for the carrier having the smallest bandwidth of the assignments in the system, the class of emission, necessary bandwidth and a description of the transmission

MOD 2.B.12 Power characteristics of the earth station transmission

a)¹ Indicate for each carrier the peak envelope power (dBW) supplied to the input of the antenna.

b)¹ Indicate the total peak envelope power (dBW) and the maximum power density (dB(W/Hz))⁴ supplied to the input of the antenna averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz.

c)¹ Indicate for each carrier the minimum value of the peak envelope power supplied to the input of the antenna.

d)¹ Indicate for each carrier type⁸ (see 2.B.13), the maximum power density (dB(W/Hz))⁴ supplied to the input of the antenna, averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz.

e)¹ Indicate the maximum aggregate power (dBW) of all carriers (per transponder, if applicable) supplied to the input of the antenna and their aggregate bandwidth. If this corresponds to the bandwidth of a transponder, so indicate

MOD 2.B.13¹ Modulation characteristics

For each carrier, according to the nature of the signal modulating the carrier and the type of modulation, indicate the following characteristics:

a) carrier frequency modulated by a frequency-division multi-channel telephony baseband (FDM/FM) or by a signal that can be represented by a multi-channel telephony baseband: indicate the lowest and highest frequencies of the baseband and the r.m.s. frequency deviation of the test tone as a function of baseband frequency;

b) carrier frequency modulated by a television signal indicate the standard of the television signal (including, where appropriate, the standard used for colour), the frequency deviation for the reference frequency of the pre-emphasis characteristic and the pre-emphasis characteristic itself, also indicate, where applicable, the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals,

c) carrier phase-shift modulated by a digital signal. indicate the bit rate and the number of phases,

d) amplitude modulated carrier (including single side-band) indicate as precisely as possible the nature of the modulating signal and the kind of amplitude modulation used,

e) for all other types of modulation, provide such particulars as may be useful for an interference study,

f) for any type of modulation, as applicable, indicate the characteristics of energy dispersal, such as the peak-to-peak frequency deviation (MHz) and the sweep frequency (kHz) of the energy dispersal waveform

ADD 2 C Characteristics of the satellite network for transmission from the space station

ADD All the information required in sub-section 2 C is to be provided for each satellite transmitting beam if a network is to be coordinated or notified

ADD Information related to satellite transmitting beam

ADD 2 C 1 Name of the satellite transmitting beam

Indicate, for a geostationary satellite, the name of the satellite transmitting antenna beam and whether it is a steerable or reconfigurable antenna beam

ADD 2.C.2 Service area or associated receiving station(s)

a) If the associated receiving stations are earth stations, indicate the service area or areas of the satellite beam on the Earth.

b) If the associated receiving stations are space stations, identify each station by reference to the notification thereof or in any other appropriate manner.

ADD 2.C.3 Space station transmitting antenna characteristics

a) In the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station, indicate whether the transmitting antenna beam will point in a fixed direction or will have a steerable beam (see No. 183) capability.

b) In the case of a space station aboard a geostationary satellite, indicate the name of the satellite antenna beam by a three character code. For steerable beams, the last character shall be an "R".

c) In the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station via a transmitting antenna pointing in a fixed direction, indicate the maximum isotropic gain (dBi) and the 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 space station antenna gain contours shall be drawn as isolines of the isotropic gain at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible the gain contours of the space station transmitting antenna should also be provided in the form of a numerical equation.

d) In the case of a space station aboard a geostationary satellite where a steerable beam is used, data on the radiation characteristics shall be provided as follows

- 1) if the effective boresight area (see No. 168A) is identical with the global or nearly global service area, provide only the maximum isotropic antenna gain (dBi). The maximum antenna gain is applicable to all points on the Earth's visible surface,
- 2) if the effective boresight area (see No. 168A) is less than the global or nearly global service area, provide the maximum antenna gain and the effective antenna gain contours (see No. 168B). These contours shall be provided as defined in c) above

e)¹ In the case of a space station aboard a geostationary satellite, include, in the antenna gain contours of c) and d) 2) above, the effect of the planned longitudinal tolerance, inclination excursion and pointing accuracy of the antenna

f) In the case of a space station aboard a geostationary satellite in which the antenna radiation beam is directed towards another satellite, also indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference

g) In the case of a space station aboard a non-geostationary satellite, indicate the isotropic gain of the space station transmitting antenna in the direction of maximum radiation (dBi) and indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference

h)¹ Indicate the type of polarization of the radiation emitted by the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos 148 and 149). In the case of linear polarization, indicate the angle (in degrees) measured anticlockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the wave as seen from the satellite

i) For a geostationary satellite, indicate the pointing accuracy of the antenna.

j) In the case of a space station aboard a geostationary satellite operating in a band allocated in the Earth-to-space direction and in the space-to-Earth direction, also indicate the gain of the space station transmitting antenna in the direction of those parts of the geostationary satellite orbit which are not obstructed by the Earth, by means of a diagram showing estimated antenna gain versus orbital longitude.

MOD 2 C 4 Assigned frequency (frequencies)

Indicate the assigned frequency (frequencies), as defined in No 142, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz.

If the basic characteristics are identical, with the exception of the frequency, a single notice may be submitted covering all basic characteristics and listing the assigned frequencies.

(MOD) 2.C 5 Assigned frequency band

Indicate the bandwidth of the assigned frequency band in kHz (see No 141)

MOD 2 C 6 Class of station(s) and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10 to the Radio Regulations

MOD 2 C 7 Class of emission, necessary bandwidth and description of the transmission⁶

In accordance with Article 4 and Appendix 6 of the Radio Regulations

- a) indicate the class of emission and the necessary bandwidth,
- b)¹ indicate the carrier frequency or frequencies of the emission(s),
- c)¹ indicate, for each carrier, the class of emission, necessary bandwidth and description of transmission,

- d)¹ indicate, for the carrier having the smallest bandwidth of the assignments in the system, the class of emission, necessary bandwidth and a description of the transmission

MOD 2 C 8 Power characteristics of the space station transmission⁶

a)¹ Indicate for each carrier the peak envelope power (dBW) supplied to the input of the antenna

b) Indicate the maximum power density (dB(W/Hz))⁴ supplied to the input of the antenna, averaged over the worst 4 kHz band for carriers below 15 GHz or averaged over the worst 1 MHz band for carriers above 15 GHz

c)¹ Indicate for each carrier the minimum value of the peak envelope power supplied to the input of the antenna

d) Indicate the maximum total peak envelope power (dBW) supplied to the input of the antenna for each contiguous satellite bandwidth and this bandwidth. For a satellite transponder, this corresponds to the maximum saturated peak envelope power and the bandwidth of each transponder

e)¹ Indicate for each carrier type⁸ (see item 2 C 9), the maximum power density (dB(W/Hz))⁴ supplied to the input of the antenna, averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz

MOD 2.C.9¹ Modulation characteristics⁶

For each carrier, according to the nature of the signal modulating the carrier and the type of modulation, indicate the following characteristics

- a) carrier frequency modulated by a frequency-division multi-channel telephony baseband (FDM/FM) or by a signal that can be represented by a multi-channel telephony baseband indicate the lowest and highest frequencies of the baseband and the r m s frequency deviation of the test tone as a function of baseband frequency,

- b) carrier frequency modulated by a television signal: indicate the standard of the television signal (including, where appropriate, the standard used for colour), the frequency deviation for the reference frequency of the pre-emphasis characteristic and the pre-emphasis characteristic itself; also indicate, where applicable, the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals,
- c) carrier phase-shift modulated by a digital signal: indicate the bit rate and the number of phases;
- d) amplitude-modulated carrier (including single side-band), indicate as precisely as possible the nature of the modulating signal and the kind of amplitude modulation used;
- e) for all other types of modulation, provide such particulars as may be useful for an interference study;
- f) for any type of modulation, as applicable, indicate the characteristics of energy dispersal, such as the peak-to-peak frequency deviation (MHz) and the sweep frequency (kHz) of the energy dispersal waveform.

ADD Information related to associated receiving station(s)

ADD This information is to be provided for each type of receiving station associated with each space station transmitting antenna beam

ADD 2.C.10 Type and identity of the associated receiving station(s)

Indicate whether the associated receiving station is another space station, a typical earth station of the network, or a specific earth station.

When the associated receiving station is,

- a) another space station, indicate its characteristics by reference to the notification thereof or in any other appropriate manner;
- b) a typical earth station of the network, the characteristics provided under the following items of sub-section 2.C shall represent the limiting characteristics for any earth

station conforming to that type for the purpose of coordination under No 1060,

- c) a specific earth station, the characteristics provided under the following items of sub-section 2 C only apply to that earth station and shall include the identity of the earth station and the geographical coordinates of the antenna site for the purpose of coordination under No 1060

The remaining information required in sub-section 2 C is to be provided for each associated earth station or typical earth station

MOD 2 C 11 Class of station(s) and nature of service

Indicate the class of station and nature of service performed, using the symbols shown in Appendix 10 of the Radio Regulations

MOD 2 C.12 Earth station receiving antenna characteristics

a) Indicate the isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No 154)

b) Indicate the beamwidth in degrees between the half-power points (describe in detail if not symmetrical)

c) Either attach the measured radiation diagram of the antenna (taking as a reference the direction of maximum radiation) or indicate the reference radiation diagram to be used for coordination

d)¹ Indicate the type of polarization of the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos 148 and 149). In the case of linear polarization, indicate the plane of polarization. Indicate also if consent is given to the general use of this information in determining the need for coordination with other satellite networks according to Appendix 29 of the Radio Regulations

MOD 2.C.13 Noise temperature of the associated receiving station(s)

Indicate, in kelvins, the lowest total receiving system noise temperature referred to the output of the receiving antenna of the earth station under clear sky conditions. This value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is aboard a geostationary satellite and, in other cases, for the minimum value of angle of elevation.

ADD 2.D Overall link characteristics

For simple frequency-changing transponders on board a geostationary satellite, the following information is to be provided.

ADD 2.D 1 Connection between Earth-to-space and space-to-Earth frequencies in the network

Indicate, in tabular form the connection between up-link and down-link frequency assignments in each transponder for each intended combination of receiving and transmitting beams.

ADD 2 D 2 Transmission gains and associated equivalent satellite link noise temperatures

For each entry under 2.D.1 indicate in tabular form

- a) the lowest equivalent satellite link noise temperature and the associated transmission gain under the conditions defined in 2.C.13 (see No 168),
- b) the values of transmission gain and associated equivalent satellite link noise temperature that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature. The transmission gain is evaluated from the output of the receiving antenna of the space station to the output of the receiving antenna of the earth station.

MOD

APPENDIX 4

Orb-88

NOC

**Advance Publication Information to Be Furnished
for a Satellite Network**

NOC

(see Article 11)

NOC

Section A. General Instructions

(MOD) A 1

Information shall be provided separately for each satellite network

MOD A 2

Information to be furnished for each satellite network shall include general characteristics (Section B) and, as applicable, characteristics in the Earth-to-space direction (Section C), characteristics in the space-to-Earth direction (Section D), overall link characteristics (Section E), and characteristics for space-to-space relay (Section F). In addition, the administration, or one acting on behalf of a group of named administrations submitting the advance information, may provide, as supplementary information, data for interference calculations for the purpose of inter-network coordination (Section G).

NOC

**Section B. General Characteristics to Be Furnished
for a Satellite Network**

(MOD) B 1 Identity of the satellite network

Clearly identify the satellite network and, if applicable, identify the satellite system of which it will form a part.

(MOD) B.2 Date of bringing into use ¹

Indicate the date by which the satellite network is expected to be brought initially into use.

(MOD) B.3 Administration or group of administrations submitting the advance information

Give the name of the administration or the names of the administrations in the group submitting the advance information on the satellite network and the postal and telegraphic addresses of the administration(s) to which any communication should be sent

(MOD) B 4 Orbital information relating to the space station(s)

a) In the case of a space station aboard a geostationary satellite, give the planned nominal geographical longitude on the geostationary-satellite orbit and the planned longitudinal tolerance and inclination excursion. Indicate also:

- 1) the arc of the geostationary-satellite orbit over which the space station is visible, at a minimum angle of elevation of 10° at the Earth's surface, from its associated earth stations or service areas;

(MOD) ¹ See also Resolution 4 (Rev.Orb-88).

- 2) the arc of the geostationary-satellite orbit within which the space station could provide the required service to its associated earth stations or service areas;
- 3) in the event that the arc defined in paragraph 2) above is less than the arc defined in paragraph 1) above, provide the reasons therefore

Note The arcs specified in 1) and 2) will be indicated by the geographical longitude of the extremes of these arcs on the geostationary-satellite orbit

b) In the case of space station(s) aboard non-geostationary satellite(s), indicate the angle of inclination of the orbit, the period, the altitudes in kilometres of the apogee and perigee of the space station(s) and the number of satellites used having the same characteristics

NOC

**Section C. Characteristics of the Satellite Network
in the Earth-to-Space Direction**

(MOD) C.1 Earth-to-space service area(s)

Indicate the service area(s) on the Earth associated with each receiving antenna of the space station

(MOD) C 2 Class of stations and nature of service

For each Earth-to-space service area, indicate the class of the stations in the satellite network and the nature of the service to be performed, using the symbols shown in Appendix 10 of the Radio Regulations

(MOD) C 3 Frequency range

For each Earth-to-space service area, indicate the frequency range within which the carriers will be located

(MOD) C 4 Power characteristics of the transmitted wave

a) For each Earth-to-space service area, indicate the maximum spectral power density (dB(W/Hz))¹ to be delivered to the antenna of the transmitting earth stations (the bandwidth over which this is averaged depends on the nature of the service concerned) for each size of transmitting earth station antenna and, if available, the total peak envelope power (dBW) and the necessary bandwidth of this emission.

b) If available, indicate, for each Earth-to-space service area, the actual radiation pattern (relative to isotropic) of the transmitting earth station antenna having the highest off-beam equivalent isotropically radiated spectral power density for each size of transmitting earth station antenna.

c) If available, for television carriers and for each Earth-to-space service area, indicate the peak envelope power to be delivered to the input of the earth station transmitting antenna.

d) If available, indicate the minimum carrier power delivered to the antenna of the earth station for narrow-band carriers.

(MOD) C.5 Characteristics of space station receiving antennas

MOD Provide information for each receiving satellite antenna beam.

MOD a) in the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station, indicate whether the receiving antenna beam will be pointing in a fixed direction or has a steerable beam (see No. 183) capability;

NOC ¹ The most recent version of CCIR Report 792 should be used to the extent applicable in calculating the maximum power density per Hz.

MOD

b) in the case of a space station aboard a geostationary satellite, indicate the name of the satellite antenna beam by a three character code. For steerable beams, the last character shall be an "R";

MOD

c) in the case of a space station aboard a geostationary satellite employing a receiving antenna pointing in a fixed direction, indicate the maximum isotropic gain (dBi) and the gain contours plotted on a map of the Earth's surface, preferably using a radial projection from the satellite in a plane perpendicular to the axis from the centre of the Earth to the satellite. The space station antenna gain contours shall be drawn as isolines of the isotropic gain at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible the gain contours of the space station receiving antenna should also be provided in the form of a numerical equation;

MOD

d) in the case of a space station aboard a geostationary satellite using a steerable beam, data on the radiation characteristics shall be provided as follows.

1) when the effective boresight area (see No 168A) is identical with the global or nearly global service area, provide only the maximum isotropic antenna gain (dBi). The maximum antenna gain is applicable to all points on the Earth's visible surface,

2) when the effective boresight area (see No 168A) is less than the global or nearly global service area, provide the maximum antenna gain and, to the extent practicable, the effective antenna gain contours (see No. 168B). These contours shall be provided as defined in c) above. If the gain contours are not provided, then the maximum antenna gain is applicable to all points on the Earth's visible surface,

ADD *e)* in the case of a space station aboard a geostationary satellite in which the antenna radiation beam is directed towards another satellite, also indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference;

ADD *f)* in the case of a space station aboard a non-geostationary satellite, indicate the isotropic gain of the space station receiving antenna in the direction of maximum radiation (dBi) and indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference;

ADD *g)* if available, for each space station receiving antenna, indicate the type of polarization of the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos. 148 and 149),

ADD *h)* in the case of a space station aboard a geostationary satellite operating in a band allocated in the Earth-to-space direction and in the space-to-Earth direction, also indicate the estimated gain of the space station receiving antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth by means of a diagram showing estimated antenna gain versus orbit longitude

(MOD) C.6 Noise temperature of the receiving space station

For each Earth-to-space service area, when other than a simple frequency-changing transponder is used aboard the space station, indicate, in kelvins, the lowest total receiving system noise temperature referred to the output of the receiving antenna.

(MOD) C.7 Necessary bandwidth

If available, in the case of narrow-band carriers, indicate the necessary bandwidth.

(MOD) C.8 Modulation characteristics

If available, in the case of television carriers, indicate the characteristics of energy dispersal such as the peak-to-peak frequency deviation (MHz) and the sweep frequency (kHz) of the energy dispersal waveform

NOC Section D. Characteristics of the Satellite Network in the Space-to-Earth Direction

(MOD) D.1 Space-to-Earth service area(s)

NOC Indicate the service area(s) on the Earth associated with each transmitting antenna of the space station

(MOD) D.2 Class of stations and nature of service

NOC For each space-to-Earth service area, indicate the class of the stations in the satellite network and the nature of the service to be performed, using the symbols shown in Appendix 10 of the Radio Regulations.

(MOD) D.3 Frequency range

NOC For each space-to-Earth service area, indicate the frequency range within which the carriers will be located

(MOD) D.4 Power characteristics of the transmission

NOC *a)* For each space-to-Earth service area, indicate the maximum spectral power density (dB(W/Hz))¹ to be delivered to the transmitting antenna of the space station (the bandwidth over which this is averaged depends on the nature of the service concerned) and, if available, the total peak envelope power (dBW) and the necessary bandwidth of this emission

NOC ¹ The most recent version of CCIR Report 792 should be used to the extend applicable in calculating the maximum power density per hertz

NOC b) If available, for narrow-band carriers and for television carriers, indicate the peak envelope power to be delivered to the input of the space station transmitting antenna.

NOC c) If available, indicate the minimum carrier power delivered to the antenna of the space station for narrow-band carriers.

MOD D.5 Characteristics of space station transmitting antennas

Provide information for each transmitting satellite antenna beam:

- a) in the case of a space station aboard a geostationary satellite that is intended to communicate with an earth station, indicate whether the transmitting antenna beam will be pointing in a fixed direction or has a steerable beam (see No. 183) capability;
- b) in the case of a space station aboard a geostationary satellite, indicate the name of the satellite antenna beam by a three character code. For steerable beams, the last character shall be an "R";
- c) in the case of a space station aboard a geostationary satellite employing a transmitting antenna pointing in a fixed direction, indicate the maximum isotropic gain (dBi) and the gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite in a plane perpendicular to the axis from the centre of the Earth to the satellite. The space station antenna gain contours shall be drawn as isolines of the isotropic gain at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible, the gain contours of the space station transmitting antenna should also be provided in the form of a numerical equation;

d) when a steerable beam is used, data on the radiation characteristics shall be provided as follows:

1) when the effective boresight area (see No 168A) is identical with the global or nearly global service area, provide only the maximum isotropic antenna gain (dBi) The maximum antenna gain is applicable to all points on the Earth's visible surface,

2) when the effective boresight area (see No 168B) is less than the global or nearly global service area, provide the maximum antenna gain and, to the extent practicable, the effective antenna gain contours (see No 168B) These contours shall be provided as defined in c) above If the gain contours are not provided, then the maximum antenna gain is applicable to all points on the Earth's visible surface;

e) in the case of a space station aboard a geostationary satellite in which the antenna radiation beam is directed towards another satellite also indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference;

f) in the case of a space station aboard a non-geostationary satellite, indicate the isotropic gain of the space station transmitting antenna in the direction of maximum radiation (dBi) and indicate the antenna radiation pattern, taking the gain in the direction of maximum radiation as a reference;

g) if available, for each space station transmitting antenna, indicate the type of polarization of the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos. 148 and 149).

- h)* in the case of a space station aboard a geostationary satellite operating in a band allocated in the Earth-to-space direction and in the space-to-Earth direction, also indicate the estimated gain of the space station receiving antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth by means of a diagram showing estimated antenna gain versus orbit longitude.

(MOD) D.6 Necessary bandwidth

If available, in the case of narrow-band carriers, indicate the necessary bandwidth.

(MOD) D.7 Modulation characteristics

If available, in the case of television carriers, indicate the characteristics of energy dispersal such as the peak-to-peak frequency deviation (MHz) and the sweep frequency (kHz) of the energy dispersal waveform.

(MOD) D.8 Characteristics of receiving earth stations

MOD *a)* For each space-to-Earth service area, when other than a simple frequency-changing transponder is used aboard the space station, indicate, in kelvins, the lowest total receiving system noise temperature on the earth stations referred to the output of the receiving antenna.

MOD *b)* If available, indicate for each space-to-Earth service area the actual radiation pattern (relative to isotropic) of the receiving earth station for each size of receiving earth station antenna having the highest off-beam level. When simple frequency-changing transponders are used on the space station, indicate also, if available, the pattern associated with each equivalent satellite link noise temperature indicated below

ADD

Section E. Overall Link Characteristics

ADD E 1 Relationship between Earth-to-space and space-to-Earth frequency bands

Indicate, preferably in tabular form, for each usage¹, when available, the frequency bands to be used for corresponding up-link and down-link beams.

ADD E 2 Transmission gains and associated equivalent satellite link noise temperatures

For each space-to-Earth service area and for each projected usage¹ when simple frequency-changing transponders are used on a geostationary space station, indicate preferably in tabular form

- a)* the lowest equivalent satellite link noise temperature and the associated value of transmission gain, and
- b)* the values of transmission gain and associated equivalent satellite link noise temperature that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature. The transmission gain is evaluated from the output of the space station receiving antenna to the output of the earth station receiving antenna. For each projected usage, indicate also the receiving antenna(s) of the space station to which each simple frequency-changing transponder will be connected

MOD

¹ A different usage will be considered to take place when different types of carriers are employed (different by virtue of maximum power spectral density), or when different types of receiving earth stations are employed (different by virtue of receiving antenna gain), or when up-link beams are connected to different down-link beams with their respective associated frequency bands

(MOD)

**Section F. Characteristics to Be Furnished
for Space-to-Space Relays**

NOC

Where the satellite network is connected to one or more satellite networks by means of space-to-space relay, indicate the following:

- a) identity or identities of the other satellite network(s) to which the satellite network is connected;
- b) transmit and receive frequency bands;
- c) classes of emission;
- d) nominal equivalent isotropically radiated power(s) (e.i.r.p) on the beam axis.

(MOD)

Section G. Supplementary Information (if available)

(MOD) G.1 General

NOC

Supplementary information may be provided by an administration or one acting on behalf of a group of named administrations which so desire. This information may be used for interference calculations associated with the advance publication process. The information may consist of part or all of the data contained in the following items which are not exhaustive but provide an indication of the type of information which may be supplied.

ADD

The attention of administrations is also drawn to techniques for assessing potential interference which may facilitate reaching an agreement between administrations under the provisions of this Appendix. These techniques may be found in the relevant CCIR texts.

(MOD) G 2 Earth-to-space direction

NOC

For each Earth-to-space service area, the following information may be provided

NOC

- a) class of emission, necessary bandwidth and modulation characteristics (including energy dispersal if employed) for each type of carrier transmitted,

NOC

- b) earth station e i r p for each type of carrier associated with each type and diameter of earth station antenna;

NOC

- c) technical description and system parameters of telecommand (except for coding data).

(MOD) G 3 Space-to-Earth direction

NOC

For each space-to-Earth service area, the following information may be provided

NOC

- a) class of emission, necessary bandwidth and modulation characteristics (including energy dispersal if employed) for each type of carrier,

NOC

- b) satellite transmitter power to be delivered to the satellite transmitting antenna for each type of carrier;

NOC

- c) technical description and system parameters of beacon and space telemetry emissions (except for coding data)

(MOD) G.4 Any other information which may be useful

ADD

**Section H. Forms of Notice for Provision
of Advance Publication Information**

ADD

The Board shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences

APPENDIX 30A (Orb-88)

Orb-88

MOD

**Provisions and Associated Plans for Feeder Links
for the Broadcasting-Satellite Service (11.7 - 12.5 GHz
in Region 1, 12.2 - 12.7 GHz in Region 2 and 11.7 - 12.2 GHz
in Region 3) in the Frequency Bands 14.5 - 14.8 GHz ¹
and 17.3 - 18.1 GHz in Regions 1 and 3, and 17.3 - 17.8 GHz in Region 2**

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ADD
Europe

¹ This use of the band 14.5 - 14.8 GHz is reserved for countries outside

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ARTICLE 10

NOC

Interference

MOD 10.1 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 Plans

ARTICLE 11

MOD

Period of Validity of the Provisions and Associated Plans

MOD 11.1 The provisions and associated Plans have been prepared in order to meet the requirements for feeder links for the broadcasting-satellite service in the bands concerned for a period extending until at least 1 January 1994

MOD 11.2 In any event, the provisions and associated Plans 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

ANNEX 1

MOD **Limits for Determining Whether a Service of an Administration is Considered to be Affected by a Proposed Modification to One of the Regional Plans or When It Is Necessary Under This Appendix to Seek the Agreement of Any Other Administration**

MOD 1 *Limits applicable to protect a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth) (see paragraphs 4.2.1.2 and 4.2.3.2 of Article 4)*

NOC An administration shall be considered as being affected if, upon application of the procedures of Section 3 of Annex 4 to this Appendix, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station

MOD For the purpose of this calculation, the feeder-link transmitting earth station parameters notified by the administration, which may differ from those given in Annex 3 to this Appendix, are used.

MOD 2 *Limits applicable to protect a terrestrial station in the bands 14.5-14.8 GHz and 17.7-18.1 GHz (see paragraphs 4.2.1.3 and 4.2.3.3 of Article 4)*

MOD An administration shall be considered as being affected if, upon application of the procedures of Appendix 28 to the Radio Regulations, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station¹.

ADD ¹ In Regions 1 and 3, for the application of the procedures of Appendix 28, the *crip* for the feeder-link earth station is the sum of the values specified in columns 8 and 9 of the Plan

MOD For the purpose of this calculation, the feeder-link transmitting earth station parameters notified by the administration, which may differ from those given in Annex 3 to this Appendix, are used

MOD 3. *Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 Plan¹*

MOD With respect to the modification to the Region 2 Plan and when it is necessary under this Appendix to seek the agreement of any other administration of Region 2, except in cases covered by Resolution 42 (Rev.Orb-88), an administration shall be considered affected if the overall equivalent protection margin² corresponding to a test point of its entry in the Plan, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from

- the Plan as established by the 1983 Conference, *or*
- a modification of the assignment in accordance with this Appendix; *or*
- a new entry in the Plan under Article 4 of this Appendix, *or*
- any agreement reached in accordance with this Appendix except for Resolution 42 (Rev.Orb-88)

MOD ¹ With respect to Section 3 the limit specified relates to the overall equivalent protection margin calculated in accordance with Section 1.12 of Annex 3 to this Appendix.

NOC ² For the definition of the overall equivalent protection margin, see Section 1.14 of Annex 5 to Appendix 30 (Orb-85)

ADD 4 *Limits to the change in the feeder-link equivalent protection margin with respect to frequency assignments in conformity with the Regions 1 and 3 Plan¹*

MOD With respect to the modification to the Regions 1 and 3 Plan and when it is necessary under this Appendix to seek the agreement of any other administration of Region 1 or 3, an administration shall be considered affected if the feeder-link equivalent protection margin² corresponding to a test point of its entry in the Plan, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:

- the Plan as established by the 1988 Conference; or
- a modification of the assignment in accordance with this Appendix; or
- a new entry in the Plan under Article 4 of this Appendix; or
- any agreement reached in accordance with this Appendix

ADD 5 *Limits applicable to protect a frequency assignment in the bands 17.3 - 18.1 GHz (Regions 1 and 3) and 17.3 - 17.8 GHz (Region 2) to a receiving space station in the fixed-satellite service (Earth-to-space)*

An administration in Region 1 or 3 shall be considered affected by a proposed modification in Region 2 or vice versa when the power flux-density arriving at the receiving space station of a broadcasting-satellite

ADD ¹ With respect to Section 4, the limit specified relates to the feeder-link equivalent protection margin calculated in accordance with Section 1.7 of Annex 3 to this Appendix.

ADD ² For the definition of the equivalent protection margin, see Section 1.7 of Annex 3 to this Appendix.

feeder-link station would cause an increase in the noise temperature of the feeder-link space station which exceeds the threshold value of $\Delta T/T$ corresponding to 3%,

where

$\Delta T/T$ is calculated in accordance with the method given in Appendix 29, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the total RF bandwidth of the feeder-link carriers (24 MHz for Region 2 and 27 MHz for Regions 1 and 3)

Interim systems of Region 2 in accordance with Resolution 42 (Rev.Orb-88) shall not be taken into consideration when applying this provision to proposed modifications to the Regions 1 and 3 Plan. However, this provision shall be applied to Region 2 interim systems with respect to the Regions 1 and 3 Plan.

ADD

APPENDIX 30B

Orb-88

**Provisions and Associated Plan for the Fixed-Satellite Service
in the Frequency Bands 4 500 - 4 800 MHz, 6 725 - 7 025 MHz,
10.70 - 10.95 GHz, 11.20 - 11.45 GHz and 12.75 - 13.25 GHz¹**

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¹ See also Resolution 108 (Orb-88)

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ARTICLE 1

Objective of the Provisions and Associated Plan

1.1 The objective of the procedures prescribed in this Appendix is to guarantee in practice, for all countries, equitable access to the geostationary-satellite orbit in the frequency bands of the fixed-satellite service covered by this Appendix.

1.2 The procedures prescribed in this Appendix shall in no way prevent the implementation of assignments in conformity with Part A of the Plan.

ARTICLE 2

Definitions

2.1 *Conference*. World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, First Session, Geneva, 1985, Second Session, Geneva, 1988.

2.2 *Plan*. The Plan for the fixed-satellite service in the frequency bands contained in this Appendix, consisting of two parts

- a) Part A, containing the national allotments,
- b) Part B, containing the networks of existing systems

2.3 *Allotment*. For the purpose of this Appendix, an allotment comprises

- a nominal orbital position;
- a bandwidth of 800 MHz (up-link and down-link) in the frequency bands listed in Article 3 of this Appendix;

- a service area for national coverage,
- generalized parameters as defined in Annex 1 to this Appendix,
- a predetermined arc (PDA)

2.4 *Existing systems*. Those satellite systems, in the frequency bands covered by this Appendix

- a) which are recorded in the Master International Frequency Register, or
- b) for which the coordination procedure has been initiated, or
- c) for which the information relating to advance publication was received by the Board before 8 August 1985,

and which in all cases are listed in Part B of the Plan

2.5 *Subregional systems*. For the purpose of the application of the provisions of this Appendix, a subregional system is a satellite system created by agreement among neighbouring countries Members of the ITU or their authorized telecommunications operating agencies and intended to provide domestic or subregional services within the geographical areas of the countries concerned

2.6 *Additional use*. For the application of the provisions of this Appendix, additional uses shall be those of an administration

- a) which has a requirement whose characteristics differ from those used in the preparation of Part A of the Plan, any such requirement shall be limited to the national coverage, taking into account technical constraints, of the administration concerned, unless otherwise agreed. Additionally, such requirement can be met only if the allotment of the interested administration, or part of this allotment, has been converted into an assignment, or if the requirement cannot be met by the conversion of the allotment into an assignment
- b) which requires the use of all or part of its national allotment that has been suspended in accordance with paragraph 6.54 of Article 6,
- c) which intends to participate in a subregional system using the procedures of Section III of Article 6, instead of using the procedures of Section II thereof

ARTICLE 3

Frequency Bands

3.1 The provisions of this Appendix shall apply to the fixed-satellite service in the frequency bands between:

- 4 500 and 4 800 MHz (space-to-Earth);
- 6 725 and 7 025 MHz (Earth-to-space);
- 10.70 and 10.95 GHz (space-to-Earth);
- 11.20 and 11.45 GHz (space-to-Earth);
- 12.75 and 13.25 GHz (Earth-to-space)

ARTICLE 4

Execution of the Provisions and Associated Plan

4.1 The Members of the Union shall adopt, for their fixed-satellite service stations operating in the frequency bands referred to in this Appendix, the characteristics consistent with those specified in the Plan and its associated provisions.

4.2 The Members of the Union shall not change the characteristics, or bring into use assignments to fixed-satellite service 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 5

The Plan and the Associated List of Assignments

5.1 The Plan consists of.

- a) Part A containing the allotments;
- b) Part B containing the networks of existing systems.

5.2 A List of Assignments as described in paragraph 5.5 will be associated with the Plan

5.3 The predetermined arc (PDA) is a segment of the geostationary-satellite orbit (GSO) about a nominal orbital position intended to provide flexibility in the Plan

a) The size of the PDA depends on the stage of development of the satellite system

- for a system in the *pre-design stage*, the PDA is the fixed portion of the GSO defined by the intersection between a segment of $\pm 10^\circ$ about the nominal orbital position established at the Conference and the corresponding service arc after twenty years from the date of entry into force of this Appendix, the PDA for a system in the pre-design stage is the fixed portion of the GSO defined by the intersection between a segment of $\pm 20^\circ$ about the nominal orbital position established at the Conference and the corresponding service arc, provided that the minimum elevation angle after the application of this procedure will not be less than the value indicated for each climatic zone in Annex 1 to this Appendix for all allotments affected,

- for a system in the *design stage*, the PDA is the fixed portion of the GSO defined by the intersection between a segment of $\pm 5^\circ$ about the nominal orbital position as may be modified by the application of this Appendix and the PDA defined for the pre-design stage,

- for a system in the *operational stage*, the PDA will be considered as being zero

b) The stage of development to be associated with allotments in Part A and assignments in the List derived from allotments in Part A, with existing systems in Part B, with subregional systems or additional uses, is given in Table 1

TABLE I

Stage of development	Part A allotments, subregional systems or additional uses	Part B
Pre-design	Part A allotments	—
Design	Assignments for which the IFRB has received complete information under paragraph 6.2 of Section I or paragraph 6.43 of Section II of Article 6	Networks for which the IFRB has received complete information to start the application of Section I of Article 11 of the Radio Regulations
Operational	Assignments for which the IFRB has received complete information under paragraph 6.58 of Section III of Article 6 or for notification under Article 8	Networks for which the IFRB has received complete information, in order to start the application of Section II of Article 11 or for notification under Article 13 of the Radio Regulations

- c) An administration will not be considered to be affected if the nominal orbital position associated with its allotment in the Plan or with its assignments in the List is moved within the corresponding PDA while keeping an aggregate $C/I \geq 26$ dB

5.4 The PDA concept may be applied only

- to provide an allotment to a new Member of the ITU,
- in the process of conversion of an allotment into an assignment,
- to accommodate a subregional system,
- to resolve incompatibilities with existing systems (except for the implementation of additional uses),
- to resolve incompatibilities with the assignments in the List (except for the implementation of additional uses)

5.5 The List of Assignments to be associated with the Plan will contain

- a) assignments derived from allotments in Part A of the Plan,
- b) assignments relating to existing systems in Part B of the Plan,
- c) assignments resulting from the introduction of subregional systems,
- d) assignments relating to additional uses

5.6 Whenever a new assignment is entered in this List, the Board shall inform administrations in its weekly circular, indicating the characteristics of the assignment concerned

ARTICLE 6

**Procedures for Implementation of the Plan and
Regulation of the Fixed-Satellite Service in the Planned Bands**

Section I. Procedure for Conversion of an Allotment into an Assignment

6.1 When an administration intends to convert an allotment into an assignment employing all or part of its allotment in Part A of the Plan, it shall, not earlier than five years and not later than one year before the planned date of bringing the network into use, send to the IFRB the information specified in Annex 2

6.2 Upon receipt of a complete notice of a frequency assignment related to that allotment, the Board shall examine it with respect to its conformity with Part A of the Plan.

6.3 A notice of an assignment is considered to be in conformity with Part A of the Plan if:

- a) the service area is not greater than the service area in Part A of the Plan,
- b) it meets the criteria of Annex 3A;
- c) the orbital position corresponds to the nominal orbital position in the Plan.

6.4 A notice shall be returned to the notifying administration whenever the service area is not within a geographical area for which the notifying administration is responsible.

6.5 When the Board finds that the proposed assignment is in conformity with paragraph 6.3, the Board shall apply the provisions of Annex 3B (Macrosegmentation Concept).

6.6 When Annex 3B has been applied successfully and the Board has found that the proposed assignment is compatible with Part B of the Plan in accordance with Annex 4, the Board shall record the assignment in the List. The administration shall then notify the assignment in accordance with Article 8

6.7 When the Board finds that the proposed assignment is in conformity with Part A of the Plan after examination using Annexes 3A and 3B but it is incompatible with Part B of the Plan, the provisions of paragraph 6.10 shall apply.

6.8 If a notice is not in conformity with Part A of the Plan, the provisions in Section IA shall apply.

6.9 If under paragraph 6.5 after the application of Annex 3B coordination is required, then the provisions of Section IA beginning at paragraph 6.18 shall apply

6.10 For the purpose of resolving the incompatibilities mentioned in paragraph 6.7:

- a) an administration responsible for an existing system or an additional use shall, depending on the stage of development of its system, take all technically and operationally possible measures to remove incompatibilities at the pre-design, design and operational stages in order to accommodate the requirements of the administration seeking to convert its allotment into an assignment,
- b) an administration whose allotment is being converted into an assignment shall assist in the resolution of incompatibilities,
- c) both administrations, with the assistance of the Board if requested, shall cooperate in reaching an equitable agreement, taking into account the respective stages of development of their systems and recognizing that a means must be found to convert the allotment into an assignment which is acceptable to both parties.

6.11 After resolution of any incompatibilities through the application of paragraph 6.10, the Board shall record the assignment in the List. The administration shall then notify the assignment in accordance with Article 8

**Section IA. Procedure for Conversion of an Allotment
into an Assignment that Is not in Conformity With Part A
of the Plan or that Does not Comply with Annex 3B**

6.12 The Board shall use this Section to determine if the proposed assignment affects

- a) the allotments in the Plan,
- b) the assignments which appear in the List,
- c) the assignments with respect to which the Board has previously received information in accordance with this Article

6.13 If the proposed assignment is not in conformity with Annex 3A, the Board shall return the notice to the notifying administration indicating that it may take the following action.

- a) modify the characteristics of its proposed assignment in order to ensure its compatibility; or
- b) select an alternative orbital position, preferably within its PDA, or
- c) request the assistance of the Board in either course of action

6.14 After the notice is returned to the administration following the application of paragraph 6.13, the administration may resubmit the notice and the Board shall apply again the provisions starting at paragraph 6.2, with the exception of paragraph 6.3 c) which is not applicable.

6.15 When the Board is requested to assist in the selection of an alternative orbital position for the proposed assignment, it shall endeavour to identify an orbital position which would ensure compatibility with the allotments in the Plan and the assignments in the List and shall communicate the results to the notifying administration

6.16 If it is not possible to solve the problem mentioned in paragraph 6.13 after having considered the possibility of finding an alternative orbital position, the concept of PDA (Annex 5) shall be used by the notifying administration or by the Board, if its assistance is requested

6.17 When paragraph 6.16 has been applied successfully, the provisions of paragraph 6.5 of Section I shall be applied

6.18 If the provisions of Annex 3B are not met, the Board shall then identify affected administrations having assignments in the List by using the criteria of Annex 4

6.19 If no administrations are affected under paragraph 6.18, the Board shall record the assignment in the List. The administration shall then notify the assignment in accordance with Article 8.

6.20 If administrations are affected under paragraph 6.18, the administration responsible for the proposed assignment shall seek the agreement of the affected administrations using the techniques described in Annex 6

6.21 When agreement is reached, the administration responsible shall advise the Board which shall modify the orbital position and PDA in the Plan, if necessary, and shall record the assignment in the List with a special symbol. The administration shall then notify the assignment in accordance with Article 8

6.22 The special symbol referred to in paragraph 6.21 shall represent an undertaking by the administration responsible for the proposed assignment that it will accommodate, if necessary, future conforming assignments made under paragraph 6.6

6.23 When no agreement is reached under paragraph 6.20, the notice shall be returned

Section IB. Procedure for Recording in the List of the Existing Systems Contained in Part B of the Plan

6.24 The Board shall use the method of Annex 4 to determine whether the proposed assignment affects

- a) the allotments in Part A,
- b) the existing systems in Part B¹,
- c) the assignments which appear in the List,
- d) the assignments with respect to which the Board has previously received information in accordance with this Article

6.25 Assignments for networks contained in Part B of the Plan for which notices for recording in the Master Register were received by the Board prior to 29 August 1988 and recorded subsequently in the MIFR will be entered in the List. However, for notices received after 29 August 1988, the assignments will be entered in the List if the notified characteristics are identical to those contained in Part B of the Plan

6.26 If, under paragraph 6.24, no allotments or assignments are affected, the Board shall publish the results of its calculations in a special section of the weekly circular and shall enter the proposed assignment in the List. The administration shall then notify the assignment in accordance with Article 8

¹ Administrations with networks in Part B shall continue to apply the provisions of Section II of Article 11 with respect to other networks listed in Part B

6.27 If, under paragraph 6.24, allotments or assignments are affected¹, the Board shall return the notice to the notifying administration indicating that it may take the following action:

- a) modify the characteristics of its proposed assignment in order to ensure its compatibility; *or*
- b) select an alternative orbital position and proceed in accordance with paragraph 6.24; *or*
- c) request the assistance of the Board in either course of action

6.28 After the notice is returned to the administration following application of paragraph 6.24, the administration may resubmit the notice and the Board shall apply again paragraphs 6.24 to 6.27.

6.29 For existing systems in Part B of the Plan the provisions of No 1056A of the Radio Regulations shall be applied

6.30 When the Board is requested to assist in the selection of an alternative orbital position for the proposed assignment, it shall endeavour to identify an orbital position which would ensure compatibility with the allotments in the Plan and the assignments in the List and shall communicate the results to the notifying administration.

6.31 If it is not possible to solve the problem of incompatibility mentioned in paragraph 6.27 after having considered the possibility of finding an alternative orbital position, the concept of PDA shall be used (see paragraph 5.3 of Article 5) by the notifying administration or by the Board, if its assistance is requested.

6.32 If paragraph 6.31 has been successfully applied, the Board shall use the method of Annex 4 as in paragraph 6.24.

¹ Incompatibility between assignments in Part B shall be disregarded whenever an agreement under the provisions of Section II of Article 11 was obtained

6.33 If paragraphs 6.31 and 6.32 have been successfully applied, the Board shall publish the results of its calculations and the modified orbital positions in a special section of the weekly circular

6.34 If, within sixty days of the weekly circular mentioned in paragraph 6.33 the Board receives no comments, it shall be deemed that there are no objections to the proposed relocations and the Board shall record the assignment in the List. The administration shall then notify the assignment in accordance with Article 8

6.35 Comments under paragraph 6.34, if any, shall be limited to the case of an administration believing that the agreed protection criteria have not been met or to the case in which the administration envisages problems in re-coordinating any satellite network under consideration. If such comments are received the Board shall initiate the appropriate action to resolve the problem

6.36 In the event of an unsuccessful application of paragraphs 6.31 and 6.32, the provisions of paragraph 6.37 shall apply (with respect to incompatibilities with allotments and assignments derived from allotments)

6.37 If it is necessary for the purpose of resolving the incompatibilities mentioned in paragraph 6.32

- a) the administration responsible for an existing system shall, depending on the stage of development of its system, take all technically and operationally possible measures to remove incompatibilities,
- b) an administration whose allotment or assignment is being affected shall assist in the resolution of incompatibilities,
- c) both administrations, with the assistance of the Board if requested, shall cooperate in reaching an equitable agreement taking into account the respective stages of development of their systems

**Section II. Procedure for the Introduction of
a Subregional System**

6.38 When a group of administrations intends to bring into use a subregional system it shall select one or more orbital positions for the system, preferably from the national allotments concerned, and send details of the assignment of the proposed network to the Board, not earlier than five years and not later than one year before the planned date of bringing into use. For this purpose, the administrations shall designate one among them to act on their behalf in the application of the provisions of this Appendix. The selected administration shall be known as the notifying administration.

6.39 All or part of the national allotments used by the subregional system shall be suspended for the period of operation of this subregional system unless it can be used in a way that does not affect allotments in the Plan or assignments made in accordance with the procedures associated with the Plan.

6.40 Suspended national allotments (see paragraph 6.39) shall continue to enjoy the same protection as that afforded to other allotments in the Plan which are not suspended, for use in the event of cessation of the subregional system.

6.41 When determining which administrations are affected by subregional systems, the mutual interference between the subregional system and its members' suspended national allotments shall not be taken into account for the period of the life of the subregional system.

6.42 In determining which administrations are affected, the interference caused by either the subregional system or the suspended allotments as specified in paragraph 6.39 shall be taken into account, but not both at the same time in view of their respective implementation schedules.

6.43 Upon receipt of a complete (Annex 2) notice relating to the proposed assignment, the Board shall use the method of Annex 4 to determine whether the proposed assignment affects.

- a) the allotments in the Plan,
- b) the assignments which appear in the List,
- c) the assignments for which the Board has previously received complete information in accordance with this Article

6.44 In the event of a favourable finding with regard to compatibility, the Board shall enter the proposed assignment in the List. The administration shall then notify the assignment in accordance with Article 8.

6.45 In the event of an unfavourable finding with regard to compatibility, the Board shall return the notice to the notifying administration, indicating that it may take the following action:

- a) modify the characteristics of its proposed assignment in order to ensure its compatibility, *or*
- b) select an alternative orbital position and proceed in accordance with paragraph 6.38, *or*
- c) request the assistance of the Board in either course of action

6.46 After the notice is returned to the administration following application of paragraph 6.43, the administration may resubmit the notice and the Board shall apply again paragraphs 6.43 to 6.45.

6.47 When the Board is requested to assist in the selection of an alternative orbital position for the proposed assignment, it shall endeavour to identify an orbital position which would ensure compatibility with the allotments in the Plan and the assignments in the List and shall communicate the results to the notifying administration.

6.48 If it is not possible to solve the problem of incompatibility mentioned in paragraph 6.45 after having considered the possibility of finding an alternative orbital position, the concept of PDA shall be used (see paragraph 5.3 of Article 5) by the notifying administration or by the Board, if its assistance is requested.

6.49 In the event of a successful application of paragraph 6.48, the Board shall publish the result of its calculations and the modified orbital locations in a special section of the weekly circular

6.50 If, within sixty days from the date of the weekly circular mentioned in paragraph 6.49, the Board receives no comments, it shall be deemed that there are no objections to the proposed solution and the proposed assignment shall be recorded in the List. The administration shall then notify the assignment in accordance with Article 8. Comments, if any, shall be limited to the case of an administration believing that the agreed protection criteria have not been met. If it receives such comments, the Board shall initiate the appropriate action to resolve the matter.

6.51 In the event of an unsuccessful application of paragraphs 6.48, 6.49 and 6.50, the Board shall return the notice to the notifying administration

6.52 If an administration withdraws from a subregional system, it shall inform the IFRB. The Board shall take account of this withdrawal when applying the provisions relating to the compatibility of new assignments.

6.53 If an administration which has withdrawn from a subregional system wishes to implement a national system, and is unable to satisfy the condition of paragraph 6.39 for the use of all or part of its allotment, it may proceed under the provisions of Section III of this Article relating to additional uses for the allotment or part of the allotment, as appropriate.

6.54 When a subregional system is terminated by the participating administrations, the notifying administration shall inform the Board as early as possible and the Board shall:

- a) publish this information in a special section of its weekly circular;
- b) cancel all frequency assignments in the List relating to that system;
- c) modify Part A of the Plan to indicate that the corresponding national allotments are no longer suspended.

Section III. Supplementary Provisions Applicable to Additional Uses in the Planned Bands

6.55 These bands are used for the fixed-satellite service Plan and their use in accordance with this section should be avoided if possible. Administrations are urged to use other available bands

6.56 An administration, or one acting on behalf of a group of administrations, may apply the procedure of this Section for an additional use as defined in Article 2, provided that the proposed assignments have a maximum period of validity of 15 years and will not, except if agreed to by the administrations affected, require any displacement of the orbital position of an allotment in Part A of the Plan or the orbital position of an assignment in the List, nor be incompatible with

- a) the allotments in the Plan,
- b) the assignments in the List,
- c) the assignments for which the Board has previously received information in accordance with this Article

6.57 For this purpose it shall, not earlier than five years and not later than one year before the planned date of bringing the related assignment into use, send the information specified in Annex 2 to the IFRB

6.58 Upon receipt of a complete notice, the Board shall examine it to ensure its compliance with paragraph 6.56 and in the event of non-compliance the notice shall be returned to the notifying administration

6.59 If the Board finds that the notice complies with the provisions of paragraph 6.56 it shall enter the assignment in the List. The administration shall then notify the assignment in accordance with Article 8.

6.60 The provisions of this Section shall not be applied before one year from the date of entry into force of this Plan.

ARTICLE 7

Procedure for the Addition of a New Allotment to the Plan for a New Member of the Union

7.1 The administration of a country which has joined the Union as a new Member shall obtain a national allotment in Part A of the Plan by the following procedure.

7.2 The administration shall submit its request for an allotment to the Board, with the following information.

- a) the geographical coordinates of not more than 10 test points for determining the minimal ellipse to cover its national territory;
- b) the height above sea level of each of its test points and the rain zone or zones;
- c) any special requirement, other than a fixed orbital position, which is to be taken into account to the extent practicable

7.3 Upon receipt of the complete information (mentioned in paragraph 7.2 above), the Board shall find an appropriate orbital position, if necessary using the PDA concept, and shall enter the national allotment of the new Member of the Union in Part A of the Plan.

7.4 For this purpose the Board shall consult, and if necessary seek the agreement of, any administrations that may be affected.

ARTICLE 8

Procedure for Notification and Recording in the Master Register of Assignments in the Planned Bands for the Fixed-Satellite Service

8.1 Any assignment for which the relevant procedure of Article 6 has been successfully applied shall be notified to the Board in accordance with Article 13 of the Radio Regulations.

8.2 Upon reception by the Board of a complete notice under Article 13, a PDA of zero degrees (operational stage) shall be associated with this assignment

8.3 Such an assignment shall not be subject to the procedures for advance publication and coordination contained in Sections I and II of Article 11 of the Radio Regulations¹. Consequently, the provisions of Article 13 of the Radio Regulations shall continue to be applicable except with regard to No 1504 and related provisions (see Resolution 107)

8.4 No provision of this Appendix shall be considered as modifying the requirements under Sections III and IV of Article 11 of the Radio Regulations relating to coordination between the fixed-satellite service and stations of terrestrial services sharing the planned bands on an equal primary basis

¹ For existing systems in Part B of the Plan, see Section 1B of Article 6

ANNEX 2

Basic Data to be Furnished in Notices Relating to Stations in the Fixed-Satellite Service Entering the Design Stage Using Frequency Bands of the Plan

1 *Space station characteristics*

The following information shall be supplied for both the transmitting and receiving space stations

1.1 *Country and identification of the allotment* (for a network not derived from the Allotment Plan, give the name of the network)

1.2 *Preferred or nominal orbital position* (xxx xx degrees east or west from the Greenwich meridian. In addition, in the case of a network not derived from the Allotment Plan, give the service arc)

1.3 *Frequency bands*

1.4 *Dates proposed for bringing into use*

1.5 *Identity of the space station*

1.6 *Service area* as defined by the allotment in the Plan. Alternatively, the service area may be defined by a number of geographical points

1.7 *Power characteristics of the transmission*

a) Maximum value of power density, in dB(W/Hz), averaged over the necessary bandwidth of the modulated carrier, supplied to the input of the antenna. (This value will be used for calculation of the *C* and *D* parameters. See Annex 1, Section B)

b) Maximum carrier power density, in dB(W/Hz), averaged over the worst 4 kHz band, supplied to the antenna input

- c) Frequency below which signals whose peak-to-average ratio is less than 5 dB will be located.

1.8 *Space station transmitting and receiving antenna characteristics*

- a) gain of the antenna in the direction of maximum radiation referred to an isotropic antenna (dBi);
- b) boresight coordinates (xx.xx degrees north or south, yy.yy degrees east or west from the Greenwich meridian);
- c) pointing accuracy (degrees);
- d) shape of the beam (elliptical, circular, or other);
- e) for circular beams indicate the following
- half-power beamwidth in degrees,
 - radiation pattern;
- f) for elliptical beams indicate the following
- radiation pattern;
 - rotational accuracy in degrees,
 - major axis orientation in degrees anticlockwise from the Equator;
 - major axis beamwidth (degrees) at the half-power points,
 - minor axis beamwidth (degrees) at the half-power points,
- g) for beams of other than circular or elliptical shape, indicate the following:
- 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. The gain contours shall be drawn as isolines of the isotropic gain, at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when

any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. The antenna gain contours shall include the effect of the planned pointing accuracy and rotational accuracy of the antenna;

- whenever practicable, a numerical equation providing the necessary information to allow the gain contours to be plotted.

1 9 *Space station receiving system noise temperature (kelvins)*

1 10 *Station-keeping accuracy (degrees)*

2 *Earth station characteristics*

The following information shall be supplied for both the transmit and receive earth stations

2 1 *Identity of the space station with which communication is to be established*

2 2 *Power characteristics of the transmission*

- a) Maximum value of power density, in dB(W/Hz), averaged over the necessary bandwidth of the modulated carrier, supplied to the input of the antenna (This value will be used for calculation of the *A* and *B* parameters. See Annex 1, Section B)
- b) Maximum carrier power density, in dB(W/Hz), averaged over the worst 4 kHz band, supplied to the antenna input
- c) Frequency below which signals whose peak-to-average ratio is less than 5 dB will be located

2.3 *Earth station antenna characteristics*

- a) antenna gain in the direction of maximum radiation referred to an isotropic antenna (dBi);
- b) half-power beamwidth in degrees (describe in detail if not symmetrical);
- c) the radiation diagram(s) of the antenna (taking as a reference the direction of maximum radiation)

2.4 *Earth station receiving system noise temperature (kelvins)*3 *Coordination/agreement, if any*4 *Not used*5 *Subregional systems*

Indicate the type of system and participating administrations. If applicable, indicate the part of the national allotment proposed to be used to form the subregional system, and the notifying administration

6 *Required protection ratio*

Indicate the minimum acceptable aggregate carrier-to-interference ratio, if less than 26 dB. The carrier-to-interference ratio is to be expressed in terms of the power averaged over the necessary bandwidth of the modulated wanted and interfering signals.

7. *Other information, if any.*

ANNEX 3A

Criteria for Determining when Proposed Assignments are Considered as Being in Conformity with the Plan

In this method, the generalized parameters are calculated (see Annex 1, Section B), and the results are compared with the corresponding reference set:

- If the calculated *A*, *B*, *C* and *D* values are less than or equal to the relevant reference set, then the use of the assignment is considered to be in conformity with the Plan
- If the calculated values of *A* or *C* are greater than the relevant reference set, the use of the assignment is considered not to be in conformity with the Plan
- If the calculated values of *B* or *D* are greater than the relevant reference set, the assignment is protected only to the level of the relevant reference set

ANNEX 3B

Macrosegmentation Concept

In this method, an administration shall not be required to coordinate if, in addition to meeting the conditions of Annex 3A, the proposed frequency assignments are ordered in such a way that the upper 60% of each allotment band is used for high-density carriers and the lower 40% for low-density carriers

For the purposes of this annex, the term "high-density carriers" shall be used for those carriers whose ratio of power spectral density peak (averaged over the worst 4 kHz) to average (defined over the necessary bandwidth of the modulated carrier) is greater than 5 dB, and the term "low-density carriers" shall be used for those for which this ratio is less than 5 dB

ANNEX 4

Limits for Determining whether an Allotment or an Assignment Made in Accordance with the Provisions of Appendix 30B is Considered to Be Affected

An allotment shall be considered as being affected by another administration if, at its nominal orbital position within the predetermined arc, the calculated single-entry carrier-to-interference ratio is less than or equal to 30 dB, or the calculated value, based on the Plan, due to that other administration (whichever is the lower), at any test point within the service area of the interfered-with satellite network. The single-entry carrier-to-interference ratio is calculated using the method in Appendix 1 to this Annex.

An assignment shall be considered affected by a signal whose peak-to-average ratio (k) exceeds 5 dB in that portion of the spectrum which has been defined for low-density carrier usage, as identified in Annex 3B, if the single-entry carrier-to-interference ratio, calculated on the basis of power density averaged over the necessary bandwidth of the desired carrier, falls below:

$$25 + k \text{ (dB)}$$

Even if the single-entry carrier-to-interference ratio is above 30 dB (or the calculated value based on the Plan due to that other administration, whichever value is lower), an allotment or an assignment shall be considered affected if the overall aggregate C/I , as calculated using Appendix 1 to this Annex, falls below 26 dB or the calculated value for the assignment, based on the Plan, whichever is lower.

APPENDIX 1 TO ANNEX 4

Method for determination of the single-entry and aggregate carrier-to-interference ratio averaged over the necessary bandwidth of the modulated carrier

1 *Single-entry*

This section describes the method for calculating the single-entry interference potential.

The method is based on the single-entry carrier-to-interference ratio (C/I) which a given allotment or assignment made in accordance with the provisions of Appendix 30B might experience due to emission from the proposed modification. The single-entry C/I due to a single interfering satellite network is given by

$$(C/I)_i = \left(\frac{p_1' g_1'(\theta) g_2(\rho) 1_{1u}}{p_1 g_1(\varphi) g_2(\varphi) 1_{su}} + \frac{p_3' g_3'(\eta) g_4(\xi) 1_{1d}}{p_3 g_3(\varphi) g_4(\varphi) 1_{sd}} \right)^{-1}$$

or

$$(C/I)_i = \left(A'(\theta) \cdot B(\rho) \Delta g_2(\varphi) \frac{1_{su}}{1_{su}} + C'(\eta) D(\xi) \Delta g_3(\varphi) \frac{1_{sd}}{1_{sd}} \right)^{-1}$$

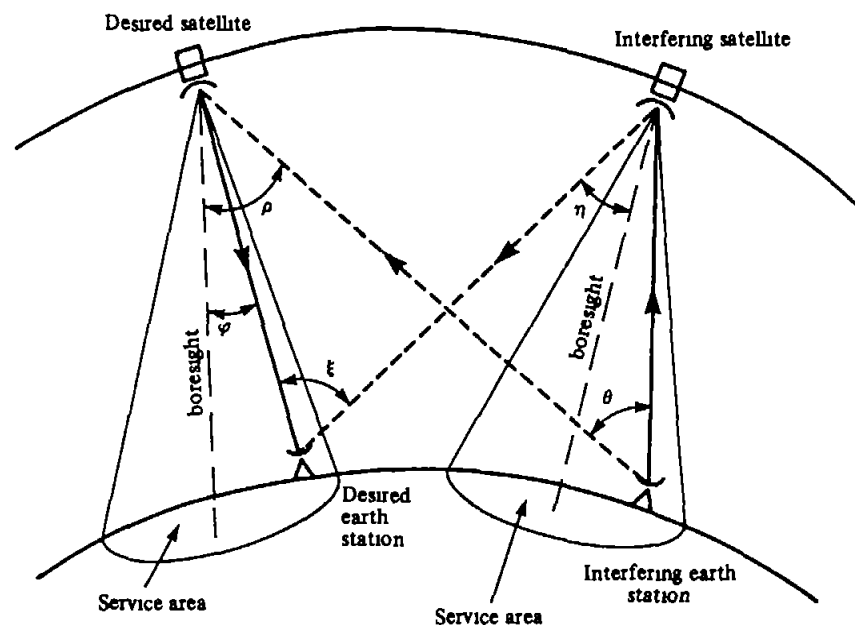


FIGURE 1

where

$\theta, \varphi, \rho, \eta, \xi$ are angles as defined in Figure 1, above.

In the following, all ratios are numerical power ratios.

p_1	the power density, averaged over the necessary bandwidth of the modulated carrier, fed into the desired earth station transmitting antenna (W/Hz)
g_1	the maximum gain of the desired transmitting earth station antenna
l_{su}	the free-space path loss of the desired up-path signal
$l_{su'}$	the free-space path loss of the interfering up-path signal

$g_2(\varphi)$	the gain of the desired space station receiving antenna in the direction of the desired earth station
$\Delta g_2(\varphi) = \frac{g_2}{g_2(\varphi)}$	discrimination of the desired space station receiving antenna in the direction of the desired earth station
g_2	the maximum gain of the desired space station receiving antenna
p_1'	the power density, averaged over the necessary bandwidth of the modulated carrier, fed into the interfering earth station transmitting antenna (W/Hz)
$g_1'(\theta)$	the interfering earth station antenna gain in the direction of the desired satellite
l_{sd}	the free-space path loss of the desired down-path signal
$l_{sd'}$	the free-space path loss of the interfering down-path signal
$g_2(\rho)$	the gain of the desired space station receiving antenna in the direction of the interfering earth station
p_3	the power density, averaged over the necessary bandwidth of the modulated carrier, fed into the desired space station transmitting antenna (W/Hz)
$g_3(\varphi)$	the desired space station transmitting antenna gain in the direction of the desired earth station
$\Delta g_3(\varphi) = \frac{g_3}{g_3(\varphi)}$	discrimination of the desired space station transmitting antenna in the direction of the desired earth station

- g_3 : the maximum gain of the desired space station transmitting antenna
- g_4 : the maximum gain of the desired receiving earth station antenna
- p_3' : the power density, averaged over the necessary bandwidth of the modulated carrier, fed into the interfering space station transmitting antenna (W/Hz)
- $g_3'(\eta)$: the interfering space station transmitting antenna gain in the direction of the desired earth station
- $g_4(\xi)$: the desired earth station receiving antenna gain in the direction of the interfering satellite
- A', C' : value of A, C of the interfering network in the direction of the desired network
- B, D : value of B, D of the desired network in the direction of the interfering network

A, B, C, D are defined in Annex 1, Section B.

2 Aggregate carrier-to-interference ratio

The aggregate carrier-to-interference ratio, is given by:

$$(C/I)_{agg} = \left(\sum_j \frac{1}{(C/I)_j} \right)^{-1}$$

$$j = 1, 2, 3 \dots n$$

where n is the total number of networks within the arc of the geostationary orbit visible to the desired network.

ANNEX 5

Application of the PDA (Predetermined Arc) Concept

1. The following method will be used in the application of the PDA Concept, which is based on the criteria set out in Section 1.1 below

1.1 For the purposes of this Annex, an administration will be considered as being affected by another administration if, at its nominal orbital position within the predetermined arc, the calculated single-entry carrier-to-interference ratio is less than or equal to 30 dB, or the calculated value, based on the Plan, due to that other administration (whichever is lower), at any test point within the service area of the interfered-with satellite network. The single-entry C/I ratio is calculated by the method in Appendix 1, Annex 4

Even if the single-entry C/I ratio is above 30 dB, or the calculated value, based on the Plan, due to that other administration (whichever is lower), an administration shall be considered as being affected if the overall aggregate C/I ratio, calculated by the method in Appendix 1, falls below 26 dB¹, or the value for the assignment (whichever is lower)

1.2 The PDA Concept shall be applied in the following steps

- a) the order of all satellites and also the position of satellites in the "design" or "operational" stages shall be fixed so as to minimize the impact on these systems. Next, the nominal positions of "pre-design" systems shall be adjusted so as to compensate for the degraded C/I ratio. The adjustments of nominal positions shall be limited to the range of their respective predetermined arcs,

¹ For allotments with an aggregate C/I ratio less than 26 dB, the calculated C/I ratio based on the Plan will be used. However, if through the use of the PDA Concept, this value is improved in the latter application of this procedure, the improved value will be used until it reaches 26 dB

- b) if compatibility is not obtained through 1.2 a), the ordering of allotments of satellites in the "pre-design" stage shall be subject to change within their predetermined arcs, as defined in Article 5;
- c) if the C/I objectives are not achieved, the affected administration may at this stage opt to select other measures than repositioning, as described in 1.2 d) below;
- d) if compatibility is not achieved under 1.2 b), and if the measures of 1.2 c) are unsuccessful, the allotment(s)/assignment(s) subject to repositioning shall include the systems in the "design" stage, for their predetermined arc as defined in Article 5.

1.3 Administrations for which the criteria of Section 1.1 are not met shall be identified for the purposes of this Annex.

ANNEX 6

Technical Means which May Be Used to Avoid Incompatibilities Between Systems in the Fixed-Satellite Service at Their Implementation Stage

1. Improved frequency modulated TV carrier dispersal techniques with up to 4 - 5 MHz peak-to-peak deviation.
2. Frequency separation between signals with high peak spectral density and narrow-band signals (bandwidth segmentation).
3. The use of transmitting and receiving antennas with special beams providing minimum gain in the direction to neighbouring satellites.
4. Shaped beams for transmitting satellite antennas.
5. Transmission (modulation) and reception techniques allowing for the C/I ratios less than 26 dB.

FINAL PROTOCOL*

At the time of signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Geneva, 1988), the undersigned delegates take note of the following statements made by signatory delegations

No 1

Original English

For the Hungarian People's Republic

The Delegation of the Hungarian People's Republic to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for its Government the right to take any action it may consider necessary to safeguard its interest should any Member of the Union fail to comply with the provisions of this Conference, or should reservations by other countries jeopardize its telecommunication services

No 2

Original English

For the Republic of Afghanistan

The Delegation of the Republic of Afghanistan to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves the right for its Government to take any action it deems necessary to safeguard its interests, should any Member in any way fail to comply with the provisions of the Final Acts of this Conference, or should the consequences of reservations by other countries jeopardize its interests, in particular proper functioning of its telecommunication services

**Note by the General Secretariat* The texts of the Final Protocol are shown in the chronological order of their deposit. In the Table of Contents these texts are grouped in the alphabetical order of country names

No. 3

*Original: English**For the Federal Republic of Nigeria:*

After noting the declaration already deposited in signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Nigeria reserves its Government's right to take any measures it considers necessary to protect its interests should some Members of the ITU fail to comply with the requirements of the Nairobi Convention of the ITU (1982) or with the Annexes or Protocols attached to these Final Acts or if declarations by other countries were to threaten the proper operation of its telecommunication services.

No. 4

*Original: English**For the Republic of Kenya.*

The Delegation of the Republic of Kenya herewith declares the following on behalf of its Government and in accordance with the powers conferred on it.

1 That it reserves the right of its Government to take any action it may consider necessary to safeguard and protect its interests should any Member fail to comply as required with the provisions contained in the Final Acts and the Annexes thereto as adopted by this Conference

2 That the Government of the Republic of Kenya does not accept responsibility for consequences arising out of the reservations made by Members of the Union.

No. 5

*Original: French**For the People's Republic of Angola:*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the People's Republic of Angola reserves for its Government the right to take any action it may consider necessary to protect its interests should non-compliance with the Final Acts and the Annexes thereto or reservations entered by other Members of the International Telecommunication Union jeopardize the proper operation of its radio services.

No. 6

*Original: Spanish**For Ecuador'*

The Delegation of Ecuador, in signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) does not consider itself bound with respect to the assignment of orbital positions to other countries in the segments of the geostationary orbit corresponding to its territory, by the signing of the Final Acts, nor by the Resolutions, Agreements or Decisions of this Conference. The Government of Ecuador reserves the right, moreover, to adopt such measures as it considers appropriate to safeguard its interests, in accordance with its own legislation and with international law, should any of the declarations made by other States affect the telecommunication services of Ecuador or the exercise of its sovereign rights. Within the Legal Sub-Committee of the United Nations Committee on Outer Space, Ecuador will continue advocating the need to guarantee access to the geostationary orbit by means of Regulations and technical planning, taking into account the interests of all countries, and in particular the needs of developing countries and the legitimate rights of equatorial countries.

No. 7

*Original: English**For Trinidad and Tobago*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Trinidad and Tobago reserves the right of its Government

- a) not to accept any decision of this Conference which might affect its sovereign rights,
- b) to take the measures necessary to protect its interests should they be affected by the failure of other Members to comply with the provisions contained in these Acts,
- c) not to accept any reservation entered by other countries if they are detrimental to the national interest of Trinidad and Tobago

No 8

*Original. English**For Thailand*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Thailand reserves the right of its Government to take any action that it deems necessary to safeguard its interests should any Member or Members of the International Telecommunication Union fail, in any way, to comply with the Final Acts of this Conference and the Annexes thereto, or should any of the declarations by other Members jeopardize its telecommunication services or threaten its national sovereignty.

No 9

*Original. French**For the Islamic Republic of Mauritania*

The Delegation of the Islamic Republic of Mauritania to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member fail to comply with the provisions of the Final Acts of this Conference or should reservations entered by other countries jeopardize the proper operation of its telecommunication services

No 10

*Original. French**For the Gabonese Republic:*

The Delegation of the Gabonese Republic to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), noting that the Allotment Plan does not take into account all the requirements it expressed during the Conference, reserves for its Government the right to take any necessary action to safeguard its interests

No 11

*Original. Spanish**For Chile*

1. The Delegation of Chile declares that the contents of the Final Acts and of any other document of any nature issued by this Conference (WARC Orb-88) shall in no way affect Chile's territorial sovereignty, including over its Antarctic territory

2. The Delegation of Chile further reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any other Members of the Union fail to comply with the provisions of the Radio Regulations or the Annexes thereto, as amended by this Conference, or should reservations entered by other Members directly or indirectly jeopardize the operation of its telecommunication services or its sovereignty

3. The Chilean Delegation also reserves for its country the right to take appropriate measures should its frequencies be affected as a result of transfers or changes

No 12

*Original. English**For Papua New Guinea*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Papua New Guinea declares that its Government reserves the right to take any measures it may deem necessary to safeguard its interests if other countries or administrations fail to observe the provisions contained in the Final Acts adopted by this Conference

No 13

*Original. English**For the Kingdom of Saudi Arabia, the State of Bahrain, the United Arab Emirates, the State of Kuwait, the Sultanate of Oman and the State of Qatar*

The above-mentioned Delegations declare that their Governments reserve the right to take such action as they may consider to protect their interests, should any Members of the Union fail in any way to comply with the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), or with the provisions and Associated Plan attached thereto, or should reservations by other countries jeopardize their telecommunication services

No. 14

*Original: English**For the Republic of Indonesia*

The Delegation of the Republic of Indonesia to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988).

1 Reserves the rights of its Government to take any action and preservation measures to safeguard its national interests should the Final Acts drawn up in this Conference be in contravention with the Constitution, Laws and Rights of the Republic of Indonesia which exist and may result from any principles of international law. In this regard the Government of the Republic of Indonesia will recognize the legitimate interests of other countries with a view to enhancing international cooperation in the peaceful uses of outer space for the benefit of mankind.

2 Further reserves the rights of its Government to take any action and preservation measures to safeguard its national interests should Members of the Union fail to comply with the requirements in the Final Acts of the Conference or should reservations by other Members jeopardize its rights under the Final Acts.

No. 15

*Original: French**For the Republic of Senegal*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Senegal declares that its signature does not signify recognition of the existing satellite networks listed in Part B of the Plan and having extra-national coverage.

The Delegation of the Republic of Senegal considers that the above-mentioned satellite networks are included in the Plan for information only, so that they can be taken into account for planning purposes in order to resolve any incompatibilities with national allotments, in accordance with the decisions of the First Session of the Conference.

Accordingly, these networks do not enjoy recognition and they will have to be removed from the Radio Regulations, together with the whole of Part B in which they are listed, upon expiry of the 20-year period after the date of entry into force of these Final Acts, in accordance with the decisions of the Second Session.

No. 16

Original: English

For the Republic of Afghanistan, the People's Democratic Republic of Algeria, the Kingdom of Saudi Arabia, the State of Bahrain, the United Arab Emirates, the Islamic Republic of Iran, the Republic of Iraq, the Hashemite Kingdom of Jordan, the State of Kuwait, the Socialist People's Libyan Arab Jamahiriya, the Kingdom of Morocco, the Islamic Republic of Mauritania, the Sultanate of Oman, the Islamic Republic of Pakistan, the State of Qatar, the Syrian Arab Republic and Tunisia

The Delegations of the above-mentioned countries to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), declare that the signature and possible approval by their respective Governments or competent authorities of the Final Acts of this Conference are not valid with respect to the Zionist Entity appearing in Annex 1 of the Convention under the name of the so-called Israel and in no way whatsoever imply its recognition.

No. 17

*Original: French**For the Kingdom of Morocco*

1 The Delegation of Morocco to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for the Government of its country the right to take any action it may deem necessary to safeguard its interests should any Member fail to comply with the relevant provisions of this Agreement and its Annexes.

2. Signature of the Final Acts of this Conference does not in any way imply recognition of Spanish sovereignty over the towns of Sebta (Ceuta) and Mellilia (Melilla) or over the Jaâfarine (Chafarinas) Islands.

The above territories form an integral part of the territory of the Kingdom of Morocco.

No. 18

*Original: French**For the Socialist Republic of Romania*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Socialist Republic of Romania declares that it reserves for its Government the right to take any action it may deem necessary to provide proper operating conditions for its telecommunication media, while respecting the principles of equitable access to the geostationary orbit and the frequency bands discussed at this Conference.

No 19

*Original: Spanish**For the Republic of Venezuela*

The Delegation of the Republic of Venezuela declares that it reserves for its government the right of take any action it may deem necessary to safeguard its national interests should they be jeopardized by the decisions of this Conference or by the reservations entered by representatives of other Member States of the ITU.

No 20

*Original: Spanish**For the Eastern Republic of Uruguay.*

The Delegation of the Eastern Republic of Uruguay reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member fail in any way to comply with the provisions of the Final Acts and the Annexes thereto approved by this Conference or should reservations entered by other Members jeopardize the proper operation of its telecommunication services

No 21

*Original: French**For Tunisia*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Tunisian Delegation reserves for its Government the right to take any action it may deem necessary, pursuant to national legislation and international law, to safeguard its interests and to ensure the proper operation of its telecommunication and broadcasting-satellite services should its interests be jeopardized by reservations entered by other countries.

No 22

*Original: Spanish**For Peru*

The Delegation of Peru reserves for its Government the right to take any action it may deem necessary, in accordance with its domestic legislation and international law, to safeguard its national interests should reservations entered by the representatives of other States jeopardize Peru's telecommunication services and its full sovereign rights or should the application or interpretation of any of the Resolutions or Agreements of the Conference so require

No 23

*Original: English**For the Republic of Iraq*

The Delegation of the Republic of Iraq reserves the right of its Government to take any action it deems necessary to safeguard its national interests in the light of any implications and consequences that may result from

1 Resolution 520. Future Change in Article 8 for the Broadcasting-Satellite Service (Sound) in the Frequency Range 500 MHz to 3 000 MHz. This Delegation considers that the future consequences of this Resolution will give rise to severe economic and technical constraints and will jeopardize telecommunication services and limit their growth and development, thereby running counter to the ITU Convention

2 The inclusion of existing systems in the FSS Plan and continuation of these systems beyond their useful life, as provided for in the procedures associated with the Plan. These systems were identified throughout the Conference as the main source of deterioration to the FSS Plan in the planned bands identified for allotment planning

No 24

*Original: French**For the Togolese Republic*

The Delegation of the Togolese Republic to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), in signing the Final Acts of the Conference, reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member fail in any way to comply with the provisions of the ITU Convention or of the Radio Regulations or should reservations entered by other Administrations jeopardize the proper operation and development of its telecommunication services

No 25

*Original: French**For the Socialist Republic of Viet Nam*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Viet Nam makes the following comments

1 A number of the necessary technical parameters are not published in the Allotment Plan adopted by the Conference. It is to be hoped that they will be added, as agreed by the Conference

2. The Delegation of Viet Nam takes note of the calculations and allocations for space-to-Earth feeder links for Viet Nam's broadcasting services made by the World Broadcasting-Satellite Administrative Radio Conference (WARC-77). However, the results produced by the WARC-77 calculation have not satisfied Viet Nam's requirements and therefore are not in line with the results of this Conference. The Delegation of Viet Nam wishes that the WARC-77 results for Viet Nam should be modified as soon as possible in accordance with the Radio Regulations.

3. WARC Orb-88 is a purely technical Conference where political questions have no place. It is regrettable that one Delegation raised a matter relating to Viet Nam's territorial sovereignty at this Conference. The Delegation of Viet Nam wishes to reiterate Statement No. 48 set out in the Final Protocol to the International Telecommunication Convention (Nairobi, 1982).

No. 26

Original: English

For the Socialist People's Libyan Arab Jamahiriya.

The Socialist People's Libyan Arab Jamahiriya reserves its right to accept or refuse to accept the consequences of any reservations made by other countries.

Also it reserves its right to take any measures it deems necessary to safeguard its interests and telecommunication services should any Member fail in any way to observe the provisions of the International Telecommunication Convention or of its related regulations.

No. 27

Original: English

For the Republic of Liberia:

The Delegation of the Republic of Liberia, headed by the Honourable Julius F. Hoff, Assistant Minister of Telecommunications Planning, in attendance of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), considering the many inherent technical and procedural imperfections of the Plan, found in Parts A and B of the Plan, treating of national allotments, and existing systems, together with the associated procedures, reserves the rights of its Government, to resort to any actions that may be deemed necessary by the Government of Liberia to safeguard its national interest.

However the Delegation of Liberia expresses the hope that the Plan developed by the ITU at this Conference will lead to the equitable access of the Geostationary Orbit by all Member States of the ITU.

No. 28

Original: Arabic

For the Syrian Arab Republic

The Delegation of the Syrian Arab Republic to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for its Government the right

- to accept or reject the consequences of reservations entered by other countries,
- to take any action it may deem necessary to safeguard its interests and protect its telecommunication services should any Member of the Union fail to comply with the provisions of the International Telecommunication Convention and the Regulations annexed thereto.

No. 29

Original: English

For the Islamic Republic of Iran

In the Name of God, The Almighty,

1 The Administration of the Islamic Republic of Iran declares that due to the time constraint it was not possible to carefully verify the precise geographical coordinates (longitudes and latitudes) of the test points submitted by other Administrations to the Conference. Should any of the above-mentioned test points be situated (partially or totally) within the territory under the jurisdiction of this Administration

- a) The association of the subject test points to the Administration(s) notified is fully rejected by this Administration
- b) Said test points will in no way be protected with respect to (vis-à-vis) the assignments of this Administration as contained in the Plan(s)

This Administration further declares that it rejects the test point 55 0(55 03)E 25 9(25 87)N submitted by and appearing in the entry of the Administration of the United Arab Emirates to the Plan(s). This test point as presently specified is situated within the territory under the jurisdiction of the Islamic Republic of Iran, and therefore, its association to and inclusion with the entry of the Administration of the United Arab Emirates may directly or indirectly affect the operation of telecommunication services or the sovereign rights of the Administration of the Islamic Republic of Iran.

2 The Delegation of the Islamic Republic of Iran reserves for its Government the right to take any action as it may consider necessary to safeguard its interests should they be affected by decisions taken at this Conference, or by failure on the part of any other country or Administration in any way to comply with the requirements of the International Telecommunication Convention (Nairobi, 1982) or its Annexes or the Protocols or the Regulations attached thereto, or these Final Acts, or should reservations or declarations by other countries or Administrations jeopardize the proper and efficient operation of its telecommunication services, or infringe the full exercise of the sovereign rights of the Islamic Republic of Iran.

No 30

*Original: English**For the United Republic of Tanzania:*

In signing these Final Acts, the Delegation of the United Republic of Tanzania reserves the right of its Government to take any action it will deem necessary to safeguard its interests (national, subregional or international) should any Member fail to comply with these Final Acts

Furthermore, reservations of any administration shall not be recognized by the United Republic of Tanzania if it will in any way jeopardize the smooth implementation of the allotment of the United Republic of Tanzania in accordance with the guaranteed C/I criterion as adopted by the Conference

No. 31

*Original: English**For the Islamic Republic of Pakistan:*

1 In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Islamic Republic of Pakistan hereby declares that its Government reserves the right to take any action which it considers necessary to safeguard its interests, should any country or countries fail to observe the provisions of the Final Acts and its Annexes or the Protocols attached thereto or should the reservations made by other countries adversely affect the satellite-broadcasting and telecommunications services of the Islamic Republic of Pakistan

2. The Delegation of the Islamic Republic of Pakistan declares that the decisions of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) regarding areas falling within the territory of the disputed state of Jammu and Kashmir are without prejudice to the position recognized by the relevant resolutions of the United Nations on the question.

3 The Delegation of the Islamic Republic of Pakistan has noted with concern that the Plan has frequency assignments to the Indian Administration for providing fixed-satellite services and feeder links for the satellite-broadcasting services to include coverage of a large area of the territory of Pakistan. This spillover, which is technically avoidable, is not acceptable to the Pakistan Administration. The Government of Pakistan reserves the right to take appropriate measures to ensure that its territory does not come under international coverage by such Indian services.

No 32

*Original: French**For the Central African Republic*

The Delegation of the Central African Republic to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), hereby declares that it reserves for its Government the right to take any action it may deem necessary to safeguard its interests should the reservations entered by other Delegations to the Conference or non-compliance by other Member countries of the provisions adopted by the Conference jeopardize the proper operation of its telecommunication services

No 33

*Original: English**For the Socialist Federal Republic of Yugoslavia*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Socialist Federal Republic of Yugoslavia reserves for its Government the right to take any measures that it deems necessary to safeguard the interest of its telecommunications should any Member fail in any way to comply with the provisions adopted by this Conference

No 34

*Original: English**For Malaysia*

The Delegation of Malaysia hereby

1 reserves for its Government the right to take such action as it may deem necessary to safeguard its interest should any Member fail in any way to comply with the Final Acts of this Conference, or should reservation by any country jeopardize its telecommunication services;

2. declares that the signature, and possible subsequent approval by the Government of Malaysia of the Final Acts of this Conference, is not valid with respect to the Member appearing under the name of Israel, and in no way implies its recognition

No. 35

*Original: French**For France:*

The French Administration approves the Final Acts of this Conference as a whole, and in particular, accepts the orbital positions foreseen in the Allotment Plan. It nevertheless regrets that some operating parameters are not entirely satisfactory.

With regard to the Allotment Plan, it considers that better results could have been obtained using other methods and other initial hypotheses. It expresses reservations with regard to the coherence of the procedures associated with the Plan, which were developed under difficult conditions in the very last days of the Conference, and to their applicability by the Administrations and the IFRB.

No. 36

*Original: French**For the People's Democratic Republic of Algeria.*

The Delegation of the People's Democratic Republic of Algeria to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member fail in any way to comply with the provisions of these Final Acts or should reservations entered by other Members jeopardize its telecommunication services or lead to an increase in its contribution to defraying the expenses of the Union.

No. 37

*Original: English**For the United Arab Emirates.*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the United Arab Emirates reserves the right of its Government to take such steps as it may deem necessary, to protect its national interests should Abu Musa island be shown or claimed to be territory other than ours, by reservation or claim entered by the Islamic Republic of Iran with the Annexes or Protocols of the Final Acts

No. 38

*Original: English**For Turkey*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Turkey reserves its Government's right to take whatever action may be necessary to safeguard its interests in the Plans adopted by the Conference and ensure the proper functioning of its broadcasting-satellite, fixed-satellite and terrestrial services should any country fail in any way to comply with the Final Acts, Annexes and the Radio Regulations thereto, or should reservations by other countries jeopardize its above-mentioned services and the Plans

No. 39

*Original: French**For the Republic of Mali*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Mali reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member fail in any way to comply with the provisions of the Convention or the Regulations annexed thereto or should reservations entered by other administrations jeopardize the proper operation of its telecommunication services

No. 40

*Original: Spanish**For the Argentine Republic*

- a) The Argentine Republic, exercising its sovereign rights over the Malvinas Islands, the South Georgia Islands and the South Sandwich Islands does not recognize the allotments (or the assignments deriving therefrom) appearing on behalf of the United Kingdom of Great Britain and Northern Ireland in the Plans established by this Conference to provide services in the territories mentioned and denies any right on the part of the United Kingdom to submit requirements, to notify the bringing into use of the allotments referred to or to set up any installation therein

The Argentine Republic therefore reaffirms its inalienable and indefeasible sovereign rights over the Malvinas Islands, the South Georgia Islands and the South Sandwich Islands, which constitute an integral part of its territory

The United Nations General Assembly adopted Resolutions 2065 (XX), 3160 (XXVIII), 31/49, 37/9 and 39/6 recognizing the existence of a sovereignty dispute on the Malvinas question and urging the Argentine Republic and the United Kingdom to resume negotiations with a view to reaching, as soon as possible, a peaceful and definitive solution to the dispute and the remaining differences relating to this matter through the good offices of the Secretary-General of the United Nations, who is to inform the General Assembly of the progress made. The 40th United Nations General Assembly adopted on 27 November 1985, Resolution 40/21 reiterating its appeal to both parties to resume negotiations, an appeal that was further repeated in Resolutions 41/40 and 42/19.

- b) The Argentine Republic further reserves the right to adopt throughout its territory such measures as it considers necessary to ensure the provision of its telecommunication services should the interests of the nation be affected by the decisions taken at this Conference or by the reservations expressed by other countries

No. 41

*Original French**For Burkina Faso.*

The Delegation of Burkina Faso to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) finds that the C/I ratio of its allotment for the fixed-satellite service (FSS) in the band 13/10 GHz is below the value of 26 dB adopted for planning. This situation is due mainly to the existing system EU1B1 of EUTELSAT.

The Delegation reserves the right of its Government to take any steps which it may consider useful to safeguard its interests in the event that Members of the Union fail to comply with the decisions of the Conference or that any reservations expressed jeopardize the proper operation of its telecommunication services

The fatherland or death — we shall overcome!

No. 42

*Original: Spanish**The Republic of Paraguay:*

The Delegation of the Republic of Paraguay states that its Government reserves the right to take such action as it considers necessary to protect its telecommunication services, if they should be affected by the application of these Final Acts or as the result of any reservations expressed by other administrations.

No 43

*Original French**For the People's Republic of Benin*

In signing the Final Acts, the Delegation of the People's Republic of Benin expresses its general satisfaction at the results achieved by the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988)

However, it feels some concern about certain provisions which some administrations, possibly still excessively attached to the "first come, first served" principle, albeit obsolete at the ITU, with regard to the use of the geostationary-satellite orbit, have been anxious to include in the procedures associated with the Allotment Plan for the fixed-satellite service

For this reason, it reserves its Government's right to take any action which it may deem necessary to safeguard its interests if other administrations, in implementing certain provisions of the procedures, were to jeopardize the satisfactory bringing into use of its allotment appearing in the Plan for the fixed-satellite service adopted by the Conference

No 44

*Original Spanish**For the Republic of Colombia*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of Colombia, having regard to the fact that, in accordance with the decisions of WARC Orb-85, this Conference has no authority to settle questions of sovereignty or jurisdiction, reaffirms its previous views on the geostationary orbit as a limited national resource and concerning the rights of the developing countries, including the equatorial countries

The Delegation of Colombia likewise reserves its Government's right to take any action it may deem necessary — in keeping with its domestic legal system and international law — to safeguard its national interests in the event that the reservations expressed by representatives of other States affect the telecommunication services of Colombia or the full exercise of its sovereign rights, likewise, in the event that such action may be required by the application or interpretation of any provision adopted by the Conference for its incorporation in the Radio Regulations or the modification thereof

No 45

(This number has not been used)

No. 46

*Original: Spanish**For Cuba*

The Delegation of the Republic of Cuba to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) reserves for its Government the right to take any action it may deem necessary to safeguard its interests should they be affected by the decisions taken at this Conference or should reservations entered by other administrations jeopardize the proper operation of its radiocommunication services.

No. 47

*Original: Spanish**For Mexico*

On behalf of its Government, the Delegation of Mexico reserves the right to take any measures that it deems necessary to safeguard its interests in the event that other Members of the Union fail in any way to comply with the provisions contained in the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), or that reservations expressed by them jeopardize its telecommunication services.

No. 48

*Original: French**For Austria, Denmark, Greece and the Kingdom of the Netherlands.*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegations of the above-mentioned States declare that, in the establishment of the Allotment Plan applicable to the fixed-satellite service (FSS) in the bands 6/4 and 14/11-12 GHz:

1 the planning guidelines enunciated in the Report of the First Session of the Conference (WARC Orb-85), and particularly those relating to the guarantee to all countries, in practice, of equitable access to the geostationary-satellite orbit and the radio frequency bands as limited natural resources, and also to equal burden sharing, are not applied in certain cases or in a satisfactory manner;

2 the scientific and technical means of ensuring optimized planning have not been fully explored;

3 the case of countries affected by the operation of existing systems is not dealt with in either an equitable or non-discriminative manner;

4. finally, the specific purpose and underlying philosophy of WARC Orb-88 have not been adopted, since, instead of seeking largely to meet the national requirements of countries by simply taking account of the requirements of existing systems, the Plan, on the contrary, confers priority on such systems

Consequently, the above-mentioned Delegations, while recognizing the utility of the existence of the Allotment Plan and the associated procedures contained in annex to these Final Acts, at the same time reserve their respective Governments' right to improve the Plan and associated procedures concerned in the light of the principles referred to above and with the assistance of the ITU

No. 49

*Original: English**For the Republic of India*

In signing the Final Acts of WARC Orb-88, the Delegation of the Republic of India reserves for its Government the right to take such action as may be considered necessary to safeguard its interests should any administration make reservations and/or not accept the provisions of the Final Acts or fail to comply with one or more provisions of the Final Acts, including those which form a part of the Radio Regulations

The Delegation of the Republic of India reiterates its reservation entered in paragraph 2 of the Statement No. 13 in the Final Protocol of the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference (WARC BC-1977) and states that the BSS feeder-link Plan adopted by the present Conference includes frequency assignments for the Administration of the Islamic Republic of Pakistan with service area covering part of the States of Jammu and Kashmir, which is an integral part of India. The Delegation of the Republic of India further wishes to state that some of the test points associated with the frequency allotments/assignments for the Administration of the Islamic Republic of Pakistan in the Plan for the fixed-satellite service, including those for its existing systems, are located in the States of Jammu and Kashmir. The Indian Administration, therefore, does not recognize any of these frequency allotments/assignments to the Administration of the Islamic Republic of Pakistan for operating such services. The Indian Administration reserves the right of its Government to take appropriate measures to ensure that its territory does not come under intentional coverage by the above-mentioned services of the Islamic Republic of Pakistan

No. 50

*Original: Spanish**For the Republic of Venezuela*

On 5 October, the Delegation of Côte d'Ivoire proposed an amendment in Document 470 to sub-paragraph b) of paragraph 202 of Section IA "Procedures for Conversion of an Allotment into an Assignment that is not in Conformity with Part A of the Plan or that Does not Comply with Annex 3B", to the effect that an alternative orbital position could be selected "within the PDA"

The Conference did not approve that amendment and, since it was 0200 hours in the morning, decided to leave the text unchanged as it appears in Document 477, which reads, "b) select an alternative orbital position preferably within its PDA".

WARC Orb-85 had decided that an orbital position would be identified with a pre-determined arc in order to guarantee equitable access to the GSO and make the FSS Plan sufficiently flexible.

In the case of the text approved, there is so much flexibility that an administration may obtain an orbital position either within or outside its PDA, with the result that those who come first will have a much wider choice of orbital position than those unfortunate enough to begin using the geostationary orbit at a later date.

Accordingly, we wish to place on record and emphasize that although this planning model constitutes a step in the right direction in respect of access to the geostationary orbit, it falls a long way short of the concept of equality.

No 51

Original: French

For the Republic of Cameroon.

The Delegation of the Republic of Cameroon to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of the Space Services Utilizing It (Second Session - Geneva, 1988) declares that its Government fulfils its international commitments. However, it reserves the right to take any appropriate measures to safeguard its interests in the event that the Final Acts of this Conference, particularly with regard to Part B of the Plan, the list of assignments associated with the Plan and additional uses, impede the development of its telecommunications

No 52

Original: English

For the Republic of Singapore:

The Delegation of the Republic of Singapore reserves for its Government the right to take such action as it may deem necessary to safeguard its interest if any Member country fails in any way to comply with the Final Acts of this Conference; or should any reservation by any Member country jeopardize its telecommunication services or its allotment in the fixed-satellite service Allotment Plan.

No 53

Original: French

For Italy:

The Allotment Plan for the fixed-satellite service established by the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) provides for Italy a totally unsatisfactory allotment in relation to the existing systems, as defined by this Conference, which considerably reduce Italy's possibilities for operating the allotment reserved to it. Italy is not in a position to approve these decisions which, in its opinion, conflict with the principle - reaffirmed by WARC Orb-88 - of guaranteeing in practice to all countries equitable access to the geostationary-satellite orbit.

In signing the Final Acts of the Conference, the Italian Delegation states that its signature does not signify the acceptance of the Allotment Plan in question, on which it wishes to reserve its position.

No 54

Original: English

For Brunei Darussalam

The Delegation of Brunei Darussalam reserves for its Government the right to take such action as it may deem necessary to safeguard its interests if any Member country fails in any way to comply with the Final Acts of this Conference, or should any reservation by any Member country jeopardize its telecommunication services or its allotment in the fixed-satellite Allotment Plan.

No 55

Original: English

For the Arab Republic of Egypt

The Delegation of the Arab Republic of Egypt to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), (WARC Orb-88), reserves for its Government the right to take such action as it may deem necessary to protect its interests, should any Member fail in any way to comply with the provisions of the Final Acts of this Conference, or should reservations entered by other Members jeopardize its telecommunication services.

No 56

Original: English

For the Republic of Malta

In signing the Final Acts and Final Protocol of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Malta reserves for its Government the right to take such action as it may consider necessary to safeguard its interests should any Members fail in any way to comply with the provisions of the said Final Acts or should reservations by other countries jeopardize the operation of its telecommunication and broadcasting services.

No 57

Original: French

*For Portugal**Considering*

- a) that, for the purposes of the establishment by the Conference of the Allotment Plan for the fixed-satellite service, specific requirements were submitted with regard to the orbital position of 31° West by Spain, Ireland and Portugal for technical operational reasons,
- b) that Ireland's specific requirements were considered later as a case of reduction of possible incompatibilities between allotments in the Plan and existing systems, and then finally as improvement to the Plan,
- c) that, in view of the numerous specific requirements of the types indicated above which were submitted, Committee 4 of the Conference decided to take no further account of them for planning purposes

having taken note

in the presentation of the final draft of the Plan, of the fact that this draft contains, for Ireland, the orbital position of 31° West, contrary to what occurred in the previous planning exercises,

the Delegation of Portugal declares that, on grounds of principle, the allotment to Ireland, in the Allotment Plan adopted by the Conference, of the orbital position of 31° West constitutes an extremely serious case of discrimination between Members of the Union enjoying the same rights and a breach of a relevant and valid decision already adopted

No 58

Original: Russian

For the Byelorussian Soviet Socialist Republic, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics.

In signing the Final Acts of the Conference, the above-mentioned Delegations reserve their right to take the necessary organizational and technical steps consistent with the provisions contained in the Final Acts of this Conference to ensure the normal operation of their existing systems

The Delegations of the Byelorussian Soviet Socialist Republic, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics declare that they will take any steps that they consider necessary to safeguard their interests in the event that any Members of the Union fail in any way to comply with the provisions of the Final Acts of this Conference or that any reservations expressed by any Member of the Union affect the operation of their radio services

No 59

Original: French

For Greece

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Greece declares that it reserves its Government's right to take any action in keeping with the constitution, legislation and international commitments of Greece that it may deem or judge necessary or useful to protect and safeguard its national rights and interests in the event that States Members of the Union should fail, in any way whatever, to comply with the provisions of these Final Acts and the Annexes thereto

It likewise reserves its Government's right to refuse to accept any effect of any reservations expressed by other parties, which, *inter alia*, might entail financial implications, or if such reservations were to jeopardize the proper and efficient operation of the telecommunication services of the Republic of Greece

No 60

Original: English

For Norway

Noting that a number of countries have submitted requirements in respect of Antarctica, the Government of Norway declares that its decision not to submit such requirements does not imply any change in Norway's sovereign position in Antarctica. In this context the Government of Norway draws the attention of the Conference to Article IV of the Antarctic Treaty

No 61

*Original English**For the Republic of San Marino*

The Republic of San Marino, considering that its allotment in the 11/13 GHz band is affected, not reaching an aggregate carrier-to-interference ratio over 26 dB, reserves the right to take all necessary measures to protect the said allotment and to ensure an aggregate C/I ratio over 26 dB.

No. 62

*Original Spanish**For Spain,*

The Delegation of Spain to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) declares that it cannot accept the procedure followed during the Conference in allotting the nominal orbital position 31° W

The Spanish Delegation therefore rejects that allotment, which it considers arbitrary and invalid, and reserves for its Government the right to take any action it deems necessary should that allotment jeopardize its rights with respect to the use of the geostationary orbit/radio spectrum resource.

No. 63

*Original French**For the Republic of Senegal*

In signing these Final Acts, subject to ratification by its Government, the Delegation of the Republic of Senegal hereby declares, on behalf of its Government, that it does not accept any of the consequences of reservations entered by other governments which might jeopardize the operation of its telecommunication services

Furthermore, the Republic of Senegal reserves the right to take any action it may deem necessary to safeguard its interests should any Member fail to comply with the provisions of the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988)

No 64

*Original French**For Luxembourg*

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Luxembourg Delegation takes note of the reservations expressed by various countries and reserves its Government's right to take appropriate steps in the event that the application or interpretation of the decisions emerging from this Conference jeopardize its interests

No 65

*Original French**For the Republic of Côte d'Ivoire*

After noting the Declarations already deposited and upon signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Republic of Côte d'Ivoire hereby declares that it reserves for its Government the right to approve them and to take any action it may deem necessary to safeguard its interests should any Member or Members of the Union enter reservations liable to prejudice the sovereign rights of the Republic of Côte d'Ivoire

No 66

*Original English**For the State of Israel*

The Declarations made by certain Delegations in Nos 16 and 34 of the Final Protocol, being in flagrant contradiction with the principles and purposes of the International Telecommunication Union and, therefore, devoid of any legal validity, the Government of Israel wishes to put on record that it rejects these Declarations outright and will proceed on the assumption that they can have no validity with respect to the rights and duties of any Member State of the International Telecommunication Union

In any case, the Government of Israel will avail itself of its rights to safeguard its interests should the Governments of those Delegations in any way violate any of the provisions of the Convention, or the Annexes, Protocols or Regulations attached thereto or the Final Acts of this Conference

The Delegation of Israel further notes that Declaration No 16 does not refer to the State of Israel by its full and correct name. As such it is totally inadmissible and must be repudiated as a violation of recognized rules of international behaviour

No 67

*Original: French**For the Republic of Guinea.*

In signing the Final Acts, the Delegation of the Republic of Guinea to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), after noting the Declarations which have been deposited, reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any Member of the Union fail to comply with the provisions of the Final Acts of this Conference or the Annexes thereto, or should reservations entered by other countries jeopardize the proper operation of its telecommunication services.

No 68

*Original: English**For the United Kingdom of Great Britain and Northern Ireland.*

With reference to Statement No 40 by the Argentine Republic and to all other statements and reservations by the Argentine Delegation during the proceedings of this Conference concerning the Falkland Islands, and South Georgia and South Sandwich Islands, the Government of the United Kingdom of Great Britain and Northern Ireland have no doubt as to United Kingdom sovereignty over the Falkland Islands and South Georgia and South Sandwich Islands.

The United Kingdom is the recognized Administration for these territories and, as such, has the sole right to submit requirements in respect of them: all allotments (or assignments deriving therefrom) relating to these territories which, on behalf of the United Kingdom Administration, are contained in the Plans established by this Conference, or in other Conference documents, and are therefore not open to question.

No. 69

*Original: English**For the United Kingdom of Great Britain and Northern Ireland.*

With reference to statement No 11 by the Delegation of Chile, the Government of the United Kingdom of Great Britain and Northern Ireland draws the attention of the Chilean Delegation to Article IV of the Antarctic Treaty to which both the Chilean Government and the Government of the United Kingdom of Great Britain and Northern Ireland are parties. Article IV freezes claims to Antarctic Territory south of latitude 60 degrees South.

The Government of the United Kingdom of Great Britain and Northern Ireland has no doubt as to the sovereignty of the United Kingdom over the British Antarctic Territory.

No 70

*Original: English**For the People's Democratic Republic of Ethiopia*

In signing the Final Acts, the Delegation of the People's Democratic Republic of Ethiopia to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), after noting the reservations and statements made by some Delegations regarding the FSS Allotment Plan, reserves the right of its Government to take all steps it may deem necessary to safeguard its telecommunication services should any Member of the Union fail to comply with the provisions of this Conference.

No 71

*Original: English**For the People's Republic of China*

In signing the Final Acts, the Delegation of the People's Republic of China to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) declares that

1 Having noted the Statement No 25, the Delegation of the People's Republic of China reiterates the position of its Government, already stated in its Declaration (No 115) included in the Final Protocol to the International Telecommunication Convention (Nairobi, 1982)

2 Should failure to comply with the Radio Regulations or the Decisions in the Final Acts of the relevant Administrative Radio Conference, or reservations by any other Member country, affect the interests and the telecommunication services of the People's Republic of China, the Chinese Delegation reserves for its Government the right to take any action it deems necessary to ensure that its rights are not encroached upon.

No 72

*Original: English**For Ireland*

- a) Ireland reserves the right to take such action as it may consider necessary to safeguard its interests should any Member fail to observe the provisions of this Conference or should Declarations by other administrations jeopardize its rights with respect to the use of the geostationary orbit/radio spectrum resource
- b) The Delegation of Ireland referring to statement No 57 by Portugal wishes to state that its allotment is in accordance with the procedures adopted by this Conference

No 73

*Original: Spanish**For the Argentine Republic.*

With reference to Declaration No. 11 in the Final Protocol of this Conference and to any other claim to sovereignty over the Antarctic territories that may be raised by any other State, the Argentine Republic hereby declares that no such claim can affect its inalienable and inalienable rights of sovereignty over the sector of the Antarctic south of latitude 60° South between longitude 25° and 74° West.

No. 74

Original: English

For the Federal Republic of Germany, Australia, Austria, Belgium, Canada, Denmark, the United States of America, Finland, France, Greece, Italy, Japan, Luxembourg, Norway, New Zealand, the Kingdom of the Netherlands, Papua New Guinea, Portugal, the United Kingdom of Great Britain and Northern Ireland, Sweden and the Confederation of Switzerland

The above-mentioned Delegations, referring to the Declarations made by the Republic of Colombia and Ecuador, consider that, inasmuch as these statements refer to the Bogota Declaration of 3 December 1976 by equatorial countries and to the claims of those countries to exercise sovereign rights over segments of the geostationary-satellite orbit, the claims in question cannot be recognized by this Conference. Further, the above-mentioned Delegations wish to reaffirm the Declarations made on behalf of their administrations in this regard when signing the Final Acts of the World Administrative Radio Conference (Geneva, 1979), and the World Administrative Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985), and the International Telecommunication Convention (Nairobi, 1982) by which the Conference is bound

The above-mentioned Delegations also wish to state that reference in Article 33 to the "geographical situation of particular countries" does not imply a recognition of claim to any preferential rights to the geostationary orbit

No 75

*Original: French**For the Socialist Republic of Viet Nam:*

As time does not permit the Delegation of the Socialist Republic of Viet Nam to check all the test points and service areas submitted by other administrations in the region, it reserves the right not to recognize the test points and service areas located on Viet Nam's territory

No 76

*Original: French**For the Rwandese Republic:*

Having taken note of the Declarations already deposited and upon signing the Final Acts, the Delegation of the Rwandese Republic reserves for its Government the right to take any action it may deem necessary to safeguard its interests should the application of the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) by any other Member of the Union jeopardize the orbital position it obtained when the Allotment Plan was established, or worsen the C/I ratio of 26 dB

No 77

*Original: English**For the Federal Republic of Germany and Sweden*

The above-mentioned Delegations wish to state that the Declaration made by Chile can in no way restrict or otherwise modify the provisions of Article IV of the Antarctic Treaty

No 78

*Original: English**For the Federative Republic of Brazil*

Having carefully studied the Declarations and, in particular, the reservations contained in Document 484, the Delegation of Brazil to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) is compelled to reserve for its Government the right to take all necessary measures to protect its interests should any country fail to comply with the decisions of this Conference or as a consequence of reservations expressed by other countries in the document referred to above

No 79

*Original: English**For the Islamic Republic of Pakistan*

The Delegation of Pakistan has the honour to refer to paragraph 2 of the reservation made by the Delegation of the Republic of India (Document 484) and wishes to make the following comments

The State of Jammu and Kashmir has been recognized by the United Nations as a disputed territory and its final status has yet to be determined by the people of the State, in accordance with the relevant resolutions of the United Nations. Decisions regarding areas falling within the territory of the disputed State are without prejudice to the position recognized by the relevant resolutions of the United Nations on the question. The test points and areas to be covered by the Republic of India in the Plan for the fixed-satellite services, including part B of the Plan for the existing systems, and in the feeder-link Plan for the broadcasting-satellite services which fall within the State of Jammu and Kashmir are, therefore, not recognized by Pakistan as being in the Indian territory.

No 80

*Original: English**For the Islamic Republic of Iran:*

In the Name of God, The Almighty,

In signing the Final Acts of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988), the Delegation of the Islamic Republic of Iran referring to the statement No 37 as appeared in Document 484, reserves the right of its Government for total sovereignty over the Abu Musa Island and rejects any claim or reservation by any Administration as far as the question of sovereignty is concerned.

No. 81

*Original: Spanish**For Spain*

The Delegation of Spain to the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988) rejects the reservation appearing as No 17 in the Final Protocol, submitted by the Delegation of the Kingdom of Morocco on the Spanish territories of Ceuta, Melilla and the Chafarinas Islands.

*(The signatures follow)**(The signatures following the Final Protocol are the same as those shown on pages 5 to 20)*

RESOLUTION No. 4 (Rev Orb-88)

Period of Validity of Frequency Assignments to Space Stations Using the Geostationary-Satellite Orbit¹

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988),

considering

- a) that rational and efficient use must be made of the frequency spectrum and the geostationary-satellite orbit and that account should be taken of the provisions of Resolution 2 of the World Administrative Radio Conference, Geneva, 1979, relating to the use by all countries, with equal rights, of frequency bands for space radiocommunication services,
- b) that limiting the period of validity of frequency assignments to space stations using the geostationary-satellite orbit is a concept which could promote the attainment of these objectives,
- c) that amortizing the considerable investments made in connection with the development of space radiocommunications is a particularly heavy burden for all administrations and that these investments should be spread over a predetermined period,
- d) that efforts should be made to encourage administrations in a position to do so to develop techniques designed to improve the utilization of the frequency spectrum and the geostationary-satellite orbit with a view to increasing the total radiocommunication facilities available to the world community;

¹ This Resolution does not apply to the frequency bands covered by the Allotment Plan as contained in Appendix 30B

e) that it would be advantageous to introduce an experimental procedure to gain experience from application of the new concept of notifying the period of validity of an assignment in space radiocommunication, but that it is not desirable to impose on administrations a statutory period identical in all cases but that on the contrary administrations should be left to propose the period of validity themselves in the light of their requirements and of the common interest,

f) that the present Conference has reviewed this Resolution and decided that more time is required in its application before it can be properly assessed;

resolves

1 that, until this Resolution is reviewed by the next competent world administrative radio conference, frequency assignments to space radiocommunication stations located on the geostationary orbit shall be dealt with as follows.

1.1 a frequency assignment to a space station¹ on a geostationary satellite shall be deemed definitively discontinued after the expiry of the period of operation shown on the assignment notice, reckoned from the date on which the assignment was brought into service. This period shall be limited to that for which the satellite network was designed. The Board shall then invite the notifying administration to take steps to cancel the assignment. If the Board receives no reply within three months following the expiry of the period of operation, it shall insert a symbol in the Remarks Column of the Master Register to indicate that the assignment is not in conformity with this Resolution,

¹ The expression "space station" may apply to more than one satellite provided that only one satellite is in operation at any particular moment and that the stations installed on board successive satellites have identical basic characteristics

12 if a notifying administration which wishes to extend the period of operation originally shown on the assignment notice of a frequency assignment of an existing space station¹ informs the Board accordingly more than three years before the expiry of the period in question and if all other basic characteristics of that assignment remain unchanged, the Board shall amend as requested the period of operation originally recorded in the Master Register and publish that information in a special section of the weekly circular,

13 if, at least three years before the expiry of the period of operation recorded in the Master Register of a frequency assignment to an existing space station¹, an administration initiates the coordination procedure specified in No 1060 to bring into service a new space station using the same assigned frequency and the same orbital position but with different technical characteristics, and if the Board finds after the notification that the new assignment conforms with the provisions of No 1503 and does not increase, in relation to the preceding assignment, the probability of interference to the detriment of a frequency assignment recorded in the Master Register or involved in the coordination procedure, the new assignment shall be given a favourable finding and shall be entered in the Master Register,

14 a notifying administration which wishes to modify a basic characteristic of a frequency assignment of a space station¹ recorded in the Master Register shall initiate, in any case other than those covered by paragraphs 12 and 13, the appropriate modification procedure in accordance with the provisions of Nos 1547 to 1551,

2 that, for the application of the provisions of paragraph 11 above, the information concerning the period of validity of frequency assignments to space stations shall be notified in addition to that contained in Appendices 3 and 4 to the Radio Regulations,

¹ The expression "space station" may apply to more than one satellite provided that only one satellite is in operation at any particular moment and that the stations installed on board successive satellites have identical basic characteristics.

3. that the application of this Resolution shall not prejudice in any way the decisions of future administrative radio conferences;

invites the next competent world administrative radio conference

to take cognizance of the results of the application of this Resolution and take action, as appropriate;

instructs the Secretary-General

to bring this Resolution to the attention of the Administrative Council.

RESOLUTION No. 92 (Orb-88)

**Revision, Replacement and Cancellation of Resolutions
of the World Administrative Radio Conference, Geneva, 1979, and the
World Administrative Radio Conference on the Use of the
Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It
(First Session - Geneva, 1985) (Orb-85)**

The World Administrative Radio Conference on the Use of the
Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It
(Second Session - Geneva, 1988),

considering

its agenda, in particular items 6, 7, 10 and 13, and the action taken
on a number of Resolutions of the World Administrative Radio Conference,
Geneva, 1979, and of the World Administrative Radio Conference on the
Use of the Geostationary-Satellite Orbit and the Planning of Space Services
Utilizing It (First Session - Geneva, 1985) (Orb-85),

further considering

a) that the following Resolutions of the conferences referred to above
have been revised as indicated:

Resolution 4

Relating to the Period of Validity of Fre-
quency Assignments to Space Stations
Using the Geostationary-Satellite Orbit,
replaced by Resolution 4 (Rev.Orb-88),

Resolution 42 (Orb-85) Relating to the Provisional Application for Region 2 of Resolution No. 2 - (Sat-R2), replaced by Resolution 42 (Rev.Orb-88) relating to the Use of Interim Systems in Region 2 in the Broadcasting-Satellite and Fixed-Satellite (Feeder Link) Services in Region 2 for the Bands Covered by Appendix 30 (Orb-85) and Appendix 30A (Orb-88);

Resolution 506 Relating to the Use, by Space Stations Operating in the 12 GHz Frequency Bands Allocated to the Broadcasting-Satellite Service, of the Geostationary-Satellite Orbit and No Other, replaced by Resolution 506 (Rev.Orb-88);

b) that all necessary action has been taken for the implementation of the following Resolutions of the conferences referred to above:

Resolution 3 Relating to the Use of the Geostationary-Satellite Orbit and to the Planning of Space Services Utilizing It;

Resolution 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;

Resolution 40 (Orb-85) Relating to the Recording in the Master International Frequency Register of the Assignments for Region 2 contained in Appendix 30 (Orb-85) and Appendix 30A ;

Resolution 41 (Orb-85) Relating to the Provisional Application of the Partial Revision of the Radio Regulations as Contained in the Final Acts of the WARC Orb-85 Prior to its Entry into Force.

Resolution 43 (Orb-85) Relating to Orbital Position Limitations for the Broadcasting-Satellite Service in Regions 1 and 2 in the Band 12.2 - 12.5 GHz and for the Fixed-Satellite Service (Feeder-Link Stations) in Region 2 for the Band 17.3 - 17.8 GHz.

Resolution 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 2.

Resolution 101 Concerning the Drawing Up of Agreements and of the Associated Plans for Feeder Links to Space Stations in the Broadcasting-Satellite Service Operating in the 12 GHz Band Under the Plan Adopted by the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, for Regions 1 and 3.

Resolution 102 Relating to Coordination among Administrations of the Technical Characteristics of Feeder Links to Space Stations in the Broadcasting-Satellite Service in the Band 11.7 - 12.5 GHz (Region 1) and 11.7 - 12.2 GHz (Region 3) during the Period Between the Entry into Force of the Final Acts of the World Administra-

tive Radio Conference, Geneva, 1979, and the Entry into Force of the Final Acts of a Future Conference on the Planning of Feeder Links to Such Space Stations;

Resolution 502

Relating to the Period Between the Entry into Force of the Final Acts of the Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, and the Date on Which the Provisions and Associated Plan Adopted by that Conference Are Annexed to the Radio Regulations;

Resolution 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 2;

Resolution 504

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

Resolution 700

Relating to Sharing Between the Fixed-Satellite Service in Regions 1 and 3 and the Broadcasting-Satellite Service in the 12 GHz Band and Associated Feeder Links in Region 2;

Resolution 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 2;

resolves

that the Resolutions of the World Administrative Radio Conference, Geneva, 1979, and the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985) (Orb-85), listed under *a)* above shall apply as revised by this Conference and that those listed under *b)* above shall be cancelled

RESOLUTION No. 106 (Orb-88)

**Provisional Application of the Partial Revision
of the Radio Regulations (Appendix 30A (Orb-88))
as Contained in the Final Acts of the WARC Orb-88
Prior to its Entry into Force**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988),

considering

a) that the present Session has decided to incorporate in the Radio Regulations the provisions and the associated Plans for the fixed-satellite service for feeder links in the bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3;

b) that during the period preceding the date of entry into force of the partial revision of the Radio Regulations, as contained in the Final Acts of the Second Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (WARC Orb-88), administrations of countries of Regions 1 and 3 may wish to bring into use assignments appearing in the Regions 1 and 3 feeder-link Plans or to modify them;

c) that there is a need to apply the interregional sharing criteria developed by this Session for all Regions;

further considering

that there is a need for procedures to be applied by all administrations and the IFRB during the interim period referred to in *b)* above;

resolves

1 that during the period preceding the date of entry into force of the partial revision of the Radio Regulations included in Appendix 30A (Orb-88), as contained in the Final Acts of the WARC Orb-88, administrations and the IFRB shall apply the said partial revision on a provisional basis,

2 that on the date of entry into force of the partial revision of the Radio Regulations referred to in *resolves* 1, as contained in the Final Acts of the WARC Orb-88, the IFRB shall publish the modifications to the Plans introduced in application of *resolves* 1 above, in a special section of its weekly circular in order to enter them into the Regions 1 and 3 feeder-link Plan

RESOLUTION No. 107 (Orb-88)

**Satellite Networks Intended for Use in the Frequency
Bands of the Plan in Appendix 30B for Which
Information Was Communicated to the IFRB
Between 8 August 1985 and 5 October 1988**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session — Geneva, 1988),

considering

a) that it has adopted a Plan with a Part B containing the existing systems which had commenced the procedures of Article 11 of the Radio Regulations before 8 August 1985;

b) that, since that date, information on new satellite networks intended for use in the frequency bands of the Plan has been communicated to the IFRB between 8 August 1985 and 5 October 1988 (see Annex),

c) that in order to safeguard the Plan and its associated procedures, it is essential to prevent other satellite networks from being implemented in the planned bands before the date of the entry into force of Appendix 30B,

d) that, nevertheless, the satellite networks referred to in *considering b)* should be permitted to develop if they can be regarded as a conversion of national allotments in Part A of the Plan into assignments;

resolves

1. that the satellite networks mentioned in *considering b)* may continue to develop and, if necessary, the provisions of Section I or IA of Article 6 of Appendix 30B may exceptionally be applied to only one of those networks per administration before the date of the entry into force of the Plan provided it is compatible with Parts A and B of the Plan,

2. that the Board shall invite the Administrations concerned to indicate whether their satellite networks listed in the Annex to this Resolution are to be regarded as a conversion of their national allotments in Part A of the Plan into assignments;

3. that the networks not identified in the application of *resolves 2* will be considered as additional uses and be subject to the provisions of Section III of Article 6 of Appendix 30B

ANNEX

Administration	Space station	Longitude	Status *	11 GHz	13 GHz
D	DFS 5	33 50	A	X	X
	DFS 1	23 50	A	X	X
	DFS 2	28 50	A	X	X
E	HISPASAT 1/2	-31 00	A	X	X
USA	USASAT 13N	70 00	C	X	
	USASAT 13L	-165 00	A	X	
I	SARIT	-19 00	A	X	X

* A Advance publication
C Coordination

RESOLUTION No 521 (Orb-88)

**Selection of a Frequency Band for Use by the Broadcasting-Satellite Service
and Intended for Wide RF-Band High Definition Television¹,
and of an Associated Frequency Band for HDTV Feeder Links,
and the Adoption of Related Provisions by a
Future Competent Conference**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session – Geneva, 1988),

considering

- a)* that the development of techniques for high definition television broadcasting is rapidly progressing;
- b)* that the frequency bands around 12 GHz allocated to the broadcasting-satellite service do not, as presently planned, provide a worldwide allocation suitable for the implementation of HDTV via satellite,
- c)* that a worldwide frequency allocation to the broadcasting-satellite service suitable for HDTV transmissions is desirable to facilitate the implementation of a unique worldwide standard for HDTV transmissions by satellite and to reduce interregional inter-service sharing constraints,

¹ Wide RF-Band High Definition Television is referred to in the text of this Resolution as HDTV

d) that the band 22.5 - 23 GHz is allocated to the broadcasting-satellite service in Regions 2 and 3, and is authorized in those Regions subject to agreement obtained under the procedure set forth in Article 14 of the Radio Regulations,

e) that due account should be taken of other radiocommunication services appearing in Article 8 of the Radio Regulations;

considering also

a) that the CCIR has carried out a number of studies concerning the broadcasting of HDTV signals, propagation aspects, and the difficulties of sharing with other services (see the CCIR Reports to the First and Second Sessions of this Conference);

b) that the CCIR in its Report to the Second Session has concluded that:

- i) narrow RF-band systems (operating in a 24 - 27 MHz channel) are characterized by relatively high degrees of bandwidth compression and by analogue modulation;
- ii) wide RF-band systems (both analogue and digital) require an RF channel bandwidth typically in the order of 50 - 120 MHz,
- iii) some use of the 12 GHz band, as planned, can be made for narrow RF-band systems using single channel, highly compressed signal formats and, at the expense of a significant reduction in the number of available programmes, for formats using two RF channels. However, the 12 GHz band, as planned, will not accommodate single wide RF channel high definition TV, analogue or digital signals on a worldwide basis,
- iv) from a propagation point of view, all bands from 12 GHz to 23 GHz may be suitable, but rain attenuation, which increases with frequency, and atmospheric absorption need to be taken into account,

c) that this Conference has confirmed the need for a suitable band to be made available, preferably on a worldwide basis, for the future introduction of HDTV in the broadcasting-satellite service (BSS) with an associated band for HDTV feeder links, also preferably on a worldwide basis;

resolves

1. that opportunities be given in Article 8 of the Radio Regulations to achieve a well balanced situation for all Regions to facilitate the introduction of HDTV on a worldwide basis,

2. that the frequency range 12.7 - 23 GHz be considered for the choice of an appropriate band for HDTV,

3. that, while the Plans for the 11.7 - 12.7 GHz band can already be used for certain types of high definition television, studies should be continued on the long range future suitability of these bands for HDTV without prejudice to the existing plans in this band,

4. that appropriate bands be considered for associated HDTV feeder links,

5. that further studies (going beyond those presented in the Reports of the CCIR to this Conference) will be essential before the most suitable bands can be chosen,

6. that, in choosing the band for the long term use by HDTV, due account must be taken of other services with allocations in the band and of existing systems operating in the band, and a minimum period, to be determined by the Conference referred to in *resolves to recommend 2* below, should be allowed for any re-accommodation or adjustment of these services that might arise,

resolves to recommend

1 that the Plenipotentiary Conference, Nice, 1989, when establishing the post-1989 programme of conferences and meetings, should include provision for a world administrative radio conference competent to deal, *inter alia*, with matters relating to HDTV, which should be held sufficiently early to take due account of any period that may be needed to re-accommodate or adjust other services if necessary;

2 that the Administrative Council, when establishing the agenda for the above-mentioned WARC, should ensure that the Conference is authorized:

- a) to make definitive selection of, and the appropriate radio regulatory provision for, a frequency band for HDTV in the broadcasting-satellite service in the long-term and for an associated HDTV feeder-link band, both preferably on a world-wide basis,
- b) to adopt appropriate provisions to regulate the sharing of any such bands with other radiocommunication services, being guided by the appropriate CCIR studies, taking into account the needs of any existing services which might perhaps have to be adjusted or re-accommodated elsewhere in the frequency spectrum, including the time required to effect any necessary changes,
- c) to determine the dates for the entry into force of its decisions, including the earliest date for the introduction of HDTV and associated feeder links into any frequency bands selected for these purposes;

invites the CCIR

to undertake further studies of feeder links and down-links necessitated by this Resolution and to submit its report not later than one year before the WARC mentioned above. These studies are to include the following

1. system parameters for HDTV transmissions by satellite, with emphasis on the effect of the choice of frequency, e.g.

- modulation (including baseband coding and channel coding),
- satellite power requirements,
- satellite and earth station technology,
- receiving system characteristics,
- type of polarization (including propagation effects).

2. propagation characteristics, e.g.

- attenuation, including precipitation losses,
- atmospheric absorption,
- cross-polar discrimination,

3 inter- and intra-service sharing and interference, interregional sharing,

invites administrations

to carry out studies as required, taking into account the above-listed topics, and to communicate the results to the CCIR,

instructs the Secretary-General

to bring this Resolution to the attention of the Plenipotentiary Conference, Nice, 1989, and of the Administrative Council

RECOMMENDATION No 32 (Orb-88)

**International Monitoring of Emissions
Originating from Space Stations**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session — Geneva, 1988),

considering

- a)* that the geostationary-satellite orbit and the radio-frequency spectrum are limited natural resources and are being increasingly utilized by space services,
- b)* that it is desirable to ensure efficient and economical use of the radio-frequency spectrum and geostationary-satellite orbit and also to eliminate harmful interference;
- c)* the provisions of the Radio Regulations, under which the IFRB shall review the entries in the Master International Frequency Register with a view to bringing them into conformity, to the maximum extent practicable, with the actual use being made of the radio spectrum;
- d)* that monitoring information obtained should assist the IFRB in discharging that function,
- e)* Recommendation 2 of the World Administrative Radio Conference, 1979, relating to the examination by world administrative radio conferences of the situation with regard to occupation of the frequency spectrum in space radiocommunications,
- f)* that facilities for monitoring of emissions originating from space stations may be expensive,

noting

that the CCIR is studying the question of monitoring of radio emissions from spacecraft at fixed monitoring stations and CCIR Report 276-5 contains current results of these studies;

invites the CCIR

to continue the studies in collaboration with the IFRB, and to provide technical guidelines concerning the space monitoring facilities,

recommends administrations

- 1 to participate in the CCIR studies concerning the possible development of guidelines for space monitoring facilities,
2. to consider the various aspects of monitoring the emissions originating from space stations to enable the provisions of Article 20 of the Radio Regulations to be applied.

RECOMMENDATION No 715 (Orb-88)

**Multi-band and/or Multiservice Satellite Networks
Using the Geostationary-Satellite Orbit**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988),

considering

- a) that, for economic and practical reasons, administrations may find it desirable to utilize multi-band and/or multiservice satellite networks using the geostationary-satellite orbit (for example fixed-satellite, broadcasting-satellite and mobile-satellite services),
- b) that there may be several different regulatory mechanisms covering the services provided by multi-band and/or multiservice satellites and that some of these regulatory mechanisms are associated with plans that include fixed orbital positions,
- c) that the need to apply separate regulatory procedures may lead to incompatible results for the different bands or services concerned,
- d) that the application of these procedures to bands and services with equal category of allocation shall normally result in equal rights for the networks concerned,

recognizing

- a) that an administration having a satellite network subject to more than one procedure will need to apply the procedures independently,
- b) that an administration attempting to bring into use a satellite network subject to more than one procedure may find that the process can be difficult to complete but may be facilitated by the sequence in which the coordination procedures are initiated,

c) that additionally there is less flexibility when one of the procedures includes a plan with fixed orbital positions;

d) that, when one or more of these services are planned, it may be practicable to use the modification provisions of those plans as aids in the resolution of difficulties;

e) that it is desirable to simplify the process for bringing into use multi-band and/or multiservice satellite networks;

recommends

1. that administrations should take into account the above *considering* and *recognizing* when planning and implementing multi-band and/or multi-service satellite networks,

2. that administrations cooperate to overcome the particular problems of bringing into use multi-band and/or multiservice satellite networks, subject to multiple procedures;

invites

1. the CCIR to continue its technical studies into the efficient use of the geostationary-satellite orbit as it pertains to multi-band and/or multi-service satellite networks;

2. the Administrative Council, in the light of experience with the bringing into use of multi-band and/or multiservice satellites, to place on the agenda of a future competent world administrative radio conference, if necessary, a review of the process for bringing into use multi-band and multiservice satellite networks.

instructs the Secretary-General

to bring this Recommendation to the attention of the Plenipotentiary Conference, Nice, 1989, and of the Administrative Council.

RECOMMENDATION No 716 (Orb-88)

**Use of Certain Frequency Bands Below 3 000 MHz by the
Space Research and Space Operation Services**

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session - Geneva, 1988),

considering

a) that the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz are allocated to the space research and space operation services, subject to the provisions of Article 14 of the Radio Regulations,

b) that both this Conference and the World Administrative Radio Conference for the Mobile Services (Geneva, 1987) have requested the convening of a future competent world administrative radio conference to address allocation issues in certain frequency bands below 3 000 MHz,

recognizing

a) that there is increasing use of these bands by the space research and space operation services, leading to increased coordination difficulties in view of the provisions of Article 14,

b) that the task of obtaining the agreements required for the development of space systems in the bands mentioned in *considering a)* above has therefore become more difficult;

invites the Administrative Council

to place this matter on the agenda of the next competent world administrative radio conference, in order to examine the difficulties referred to in *recognizing a)* and *b)* above;

invites the CCIR

to continue its studies of sharing criteria for the services in these bands

ARTICLE 1

General Definitions

- ADD 1.1 *Regions 1 and 3 feeder link Plan*. The Plan for the feeder links in the frequency bands 14.5 - 14.8 GHz¹ and 17.3 - 18.1 GHz for the broadcasting-satellite service in Regions 1 and 3 contained in this Appendix together with any modifications resulting from the successful application of the procedure of Article 4 of this Appendix herein referred to as the Regions 1 and 3 Plan.
- MOD 1.2 *Region 2 feeder link Plan*. The Plan for the feeder links in the frequency band 17.3 - 17.8 GHz for the broadcasting-satellite service in Region 2 contained in this Appendix, together with any modifications resulting from the successful application of the procedure of Article 4 of this Appendix herein referred to as the Region 2 Plan.
- MOD 1.3 *Frequency assignment in conformity with the Plans*. Any frequency assignment for a receiving space station or transmitting earth station which appears in the Regions 1 and 3 Plan or the Region 2 Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.
- NOC 1.4 *1983 Conference*. Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band 12.2 - 12.7 GHz and Associated Feeder Links in the Frequency Band 17.3 - 17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983

ADD ¹ This use of the band 14.5 - 14.8 GHz is reserved for countries outside Europe

- NOC 1.5 *1985 Conference*. First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85
- ADD 1.6 *1988 Conference*. Second Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1988, called in short WARC Orb-88.

ARTICLE 2

MOD Frequency Bands

- MOD 2.1 The provisions of this Appendix apply to the feeder links in the fixed satellite service (Earth-to-space) in the frequency bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz for the broadcasting-satellite service in Regions 1 and 3, and 17.3 - 17.8 GHz for the broadcasting-satellite service in Region 2 and to other services to which these bands are allocated in Regions 1, 2 and 3 so far as their relationship to the fixed-satellite service (Earth-to-space) in these bands is concerned.

ARTICLE 3

MOD Execution of the Provisions and Associated Plans

- MOD 3.1 The Members of the Union in Regions 1, 2 and 3 shall adopt for their feeder-link space and earth stations in the fixed-satellite service (Earth-to-space) in the frequency bands referred to in this Appendix the characteristics specified in the appropriate Regional Plan and the associated provisions

- MOD 3.2 Members of the Union shall not change the characteristics specified in the Regions 1 and 3 Plan or in the Region 2 Plan, or bring into use assignments to receiving space stations or transmitting earth stations in the fixed-satellite service or to stations of the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix
- ADD 3.3 The procedures for the use of interim systems in Region 2 for feeder links in the fixed-satellite service for the bands covered by this Appendix are given in Resolution 42 (Rev.Orb-88).

ARTICLE 4

Procedure for Modifications to the Plans

- MOD 4.1 When an administration intends to make a modification to one of the Regional Plans, i.e. either,
- a) to modify the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the appropriate Regional 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 in the fixed-satellite service; or
 - c) to cancel a frequency assignment in the fixed-satellite service,
- the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix and Resolution 42 (Rev.Orb-88)).

- MOD 4.1.1 Before an administration proposes to include in the Plan under the provisions of paragraph 4.1 b) a new frequency assignment for reception at a space station¹ or to include in the Plan a new frequency assignment for reception at a space station whose orbital position is not designated in the Plan to that administration, all of the assignments to the service areas involved should normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix. Should this not be the case, the administration concerned shall inform the Board of the reasons thereof
- MOD 4.2 *Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or proposed inclusion in that Plan of a new frequency assignment*
- ADD *For Regions 1 and 3*
- MOD 4.2.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations
- MOD 4.2.1.1 of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, in the same orbital position or an adjacent orbital position in the range $\pm 12.5^\circ$, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of paragraphs 4.2.6.1 and 4.2.7 of this Article, or
- MOD 4.2.1.2 having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No 1060 of the Radio Regulations and which is located within the coordination area of the feeder-link fixed-satellite earth station, or

- MOD 4.2.1.3 having a frequency assignment in the bands 14.5 - 14.8 GHz or 17.7 - 18.1 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder-link modification into use, and which is located within the coordination area of the feeder-link fixed-satellite earth station; *or*
- MOD 4.2.1.4 having an assignment for feeder links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 feeder-link Plan, or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of paragraphs 4.2.6.1 and 4.2.7 of this Article,
- NOC 4.2.1.5 which are considered affected
- NOC 4.2.1.6 The services of an administration are considered to be affected when the limits shown in Annex 1 to this Appendix are exceeded
- ADD 4.2.2 The agreement referred to in paragraph 4.2.1 is not required when an administration proposes to bring into use, with characteristics¹ appearing in the Plan, a fixed feeder-link earth station or a transportable feeder-link earth station in the bands 14.5 - 14.8 GHz or 17.3 - 18.1 GHz
- ADD *For Region 2*
- MOD 4.2.3 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations:
- MOD 4.2.3.1 of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of paragraphs 4.2.6.1 and 4.2.7 of this Article; *or*

MOD 4.2.3.2 having a frequency assignment in the band 17.7 - 17.8 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated in or is being coordinated under the provisions of No 1060 of the Radio Regulations and which is located within the coordination area of the feeder-link fixed-satellite earth station, *or*

MOD 4.2.3.3 having a frequency assignment in the band 17.7 - 17.8 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder-link modification into use, and which is located within the coordination area of the feeder-link fixed-satellite earth station, *or*

MOD 4.2.3.4 having an assignment for feeder links in the fixed-satellite service (Earth-to-space) with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 feeder-link Plan, or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of paragraphs 4.2.6.1 and 4.2.7 of this Article.

MOD 4.2.3.5 which are considered affected

(MOD) 4.2.3.6 The services of an administration are considered to be affected when the limits shown in Annex 1 to this Appendix are exceeded

ADD 4.2.4 The agreement referred to in paragraph 4.2.3 is not required when an administration proposes to bring into use, with characteristics appearing in the Plan, a fixed feeder-link earth station in the band 17.3 - 17.8 GHz or a transportable feeder-link earth station in the band 17.3 - 17.7 GHz. Administrations may communicate to the Board the characteristics of such earth stations for inclusion in the Plan.

ADD ¹ The power to be taken into account is obtained by adding the values specified in columns 8 and 9 of the Plan

ADD *For all Regions*

MOD 4.2.5 An administration intending to modify characteristics in one of the Regional Plans shall send to the Board, not earlier than eight years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2 to this Appendix.

ADD 4.2.6 If an administration wishes to modify its assignments in the Plans contained in Appendix 30 (Orb-85) and in Appendix 30A (Orb-88), the eight-year period of paragraph 4.2.5 will be applicable in lieu of the five-year period specified in paragraph 4.3.5 of Appendix 30 (Orb-85)

(MOD) 4.2.6.1 Where as a result of the intended modification the limits defined in Annex 1 to this Appendix are not exceeded, this fact shall be indicated when submitting to the Board the information required by paragraph 4.2.5. The Board shall then publish this information in a special section of its weekly circular.

MOD 4.2.6.2 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 paragraphs 4.2.1 and 4.2.3 as well as of those with which agreement has already been reached

MOD 4.2.7 The Board shall determine on the basis of Annex 1 to this Appendix the administrations whose frequency assignments are considered to be affected within the meaning of paragraphs 4.2.1 and 4.2.3. The Board shall include the names of those administrations with the information received under paragraph 4.2.6.2 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.

(MOD) 4.2.8 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

(MOD) 4.2.9 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 to this Appendix and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Plan.

(MOD) 4.2.10 Any modification to a frequency assignment which is in conformity 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 to this Appendix shall be subject to the agreement of all affected administrations

(MOD) 4.2.11 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

(MOD) 4.2.12 Comments from administrations on the information published pursuant to paragraph 4.2.7 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

(MOD) 4.2.13 An administration which 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 paragraph 4.2.6.1 or paragraph 4.2.7 shall be understood to have agreed to the proposed modification. This time-limit may be extended by up to three months for an administration which has requested additional information under paragraph 4.2.11 or for an administration which has requested the assistance of the Board under paragraph 4.2.21. In the latter case the Board shall inform the administrations concerned of this request

(MOD) 4.2.14 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of paragraph 4.2.5 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal

- (MOD) 4.2.15 If no comments have been received on the expiry of the periods specified in paragraph 4.2.13, 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 of this Appendix 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
- (MOD) 4.2.16 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period
- (MOD) 4.2.17 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.
- (MOD) 4.2.18 The Board shall publish in a special section of its weekly circular the information received under paragraph 4.2.15 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 in conformity with the Plan.
- (MOD) 4.2.19 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.
- (MOD) 4.2.20 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

- (MOD) 4.2.21 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
- (MOD) 4.2.22 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Board
- NOC 4.3 *Cancellation of frequency assignments*
- MOD When a frequency assignment in conformity with one of the Regional Plans is no longer required, 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 and delete the assignment from the Plan
- MOD 4.4 *Master copies of the Plans*
- MOD 4.4.1 The Board shall maintain up-to-date master copies of the Plans as well as master copies of the margin reports, including for each assignment the overall equivalent protection margins in respect of Region 2 and the feeder-link equivalent protection margins and the overall equivalent protection margins in respect of Regions 1 and 3, taking account of the application of the procedure specified in this Article. Each master copy of the margin reports shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference in the case of Region 2 and the feeder-link equivalent protection margins and the overall equivalent protection margins for the 1988 Conference in the case of Regions 1 and 3 and those derived from all modifications to the Plans as a result of the successful completion of the modification procedure of this Article
- MOD 4.4.2 The Secretary-General shall be informed by the Board of any modifications made to the Regional Plans and shall publish up-to-date versions of the Plans in an appropriate form when justified by the circumstances

ARTICLE 5

MOD **Coordination, Notification, Examination and Recording in the Master International Frequency Register of Frequency Assignments to Feeder-Link Transmitting Earth Stations and Receiving Space Stations in the Fixed-Satellite Service**

MOD 51 *Coordination and notification*

ADD 511 When an administration wishes to determine whether it is possible to use, at a given location, an amount of power control which is in excess of that contained in column 9 of the Regions 1 and 3 feeder-link Plan, it shall request the Board to determine the amount of permissible power control (not to exceed 10 dB) from that given location using the procedure contained in Section 3.11 of Annex 3 to this Appendix

MOD 512 Whenever an administration intends to bring into use a frequency assignment to a transmitting earth station or receiving space station in the fixed-satellite service in the bands between 14.5 and 14.8 GHz and between 17.3 and 18.1 GHz in Regions 1 and 3, and between 17.3 and 17.8 GHz in Region 2, it shall notify this frequency assignment to the Board. For this purpose, the notifying administration shall apply the following provisions

ADD 513 Before an administration in Region 1 or 3 notifies to the Board or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz with an eirp greater than the sum of the values specified in columns 8 and 9 of the Plan, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station using the method detailed in Appendix 28

ADD 514 Before an administration in Region 1 or 3 notifies to the Board or brings into use any frequency assignment to a transmitting feeder-link earth station in the bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz, it shall effect coordination of this assignment with each administration whose territory lies wholly or partly within the coordination area of the planned earth station, using the method detailed in Appendix 28, in respect of notices concerning stations of the mobile and fixed services in the bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz and of the fixed-satellite service (space-to-Earth) in the band 17.7 - 18.1 GHz received by the Board prior to 29 August 1988 for recording in the Master Register

ADD 515 If an administration with which coordination is sought under paragraph 514 does not respond within three months, the administration intending to bring into use a frequency assignment to a feeder-link earth station shall notify this frequency assignment in accordance with paragraph 512 above¹

(MOD) 51.6 For any notification under 5.12, an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2 to this Appendix, 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

(MOD) 5.17 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 date¹

ADD ¹ In order to facilitate the coordination process, attention is drawn to Resolution 709 (Orb-88)

(MOD) 5.1.8 Any frequency assignment the notice of which reaches the Board after the applicable period specified in paragraph 5.1.7 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with paragraph 5.1.7.

(MOD) 5.1.9 Any notice made under paragraph 5.1.2 which does not contain the characteristics specified in Annex 2 to this Appendix shall be returned by the Board immediately by airmail to the notifying administration with the relevant reasons.

(MOD) 5.1.10 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

(MOD) 5.1.11 The circular shall constitute the acknowledgements to the notifying administration of the receipt of a complete notice.

(MOD) 5.1.12 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.

NOC 5.2 *Examination and recording*

MOD 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 (with the exception of those relating to b), c), d) and e) below); and

b) with respect to its conformity with the appropriate Regional Plan, *or*

c) with respect to its conformity with the appropriate Regional Plan, however, having characteristics differing from those in the Plan in one or more of the following aspects

- use of a reduced e i r p ,
- use of a reduced coverage area entirely situated within the coverage area appearing in the Plan,
- use of other modulating signals in accordance with the provisions of Section 3.1.3 to Annex 5 of Appendix 30 (Orb-85),
- in the case of Region 2, use of an orbital position under the conditions specified in paragraph B of Annex 7 to Appendix 30 (Orb-85),
- in the case of Regions 1 and 3, use of an orbital position under the conditions specified in Section 3.1.5 of Annex 3 to Appendix 30A (Orb-88)¹,
- use of an antenna diameter greater than 5 metres for the 17.3 - 18.1 GHz band and 6 metres for the 14.5 - 14.8 GHz band without increasing the on-axis e i r p ,
- in the case of Region 2, use of an antenna diameter greater than 5 metres resulting in a greater on-axis e i r p if the orbital separation with any other space station is greater than 0.5°, *or*

ADD

¹ The Board shall also apply this provision to paragraph 5.2.1 c) of Appendix 30 (Orb-85) for Regions 1 and 3

d) for Region 2, with respect to its conformity with the provisions of Resolution 42 (Rev.Orb-88);

ADD e) for Regions 1 and 3, with respect to its conformity with the provisions of paragraph 5.1.3 and also its conformity with paragraph 5.1.4 or 5.1.5 relating to coordination.

MOD 5.2.2 When the Board reaches a favourable finding with respect to paragraphs 5.2.1 a), 5.2.1 b) and 5.2.1 e), the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Board 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.

MOD 5.2.2.1 When the Board reaches a favourable finding with respect to paragraphs 5.2.1 a), 5.2.1 c) and 5.2.1 e), the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Board shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the Plan

MOD 5.2.2.2 In the case of Region 2, when the Board reaches a favourable finding with respect to paragraph 5.2.1 a) but an unfavourable finding with respect to paragraphs 5.2.1 b) and 5.2.1 c), it shall examine the notice with respect to the successful application of the provisions of Resolution 42 (Rev.Orb-88). A frequency assignment for which the provisions of Resolution 42 (Rev.Orb-88) have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations all frequency assignments

brought into use following the successful application of the provisions of Resolution 42 (Rev.Orb-88) and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. If the finding with respect to paragraph 5.2.1 d) is unfavourable, the notice shall be returned immediately by airmail to the notifying administration

ADD 5.2.2.3 In the case of Regions 1 and 3, when the Board reaches a favourable finding with respect to paragraph 5.2.1 a) but an unfavourable finding with respect to paragraphs 5.2.1 b) and 5.2.1 c), the notice shall be returned immediately by airmail to the notifying administration with the Board's reasons 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

ADD 5.2.2.4 In the case of Regions 1 and 3, when the Board reaches a favourable finding with respect to paragraphs 5.2.1 a), 5.2.1 b) and 5.2.1 c) but an unfavourable finding with respect to paragraph 5.2.1 e), the notice shall be returned immediately by airmail to the notifying administration with the Board's reasons 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. If the unfavourable finding under paragraph 5.2.1 e) is due to the coordination under paragraph 5.1.3 only not being effected, the administration shall undertake only to bring this assignment into use with an eirp level not greater than the sum of the values specified in columns 8 and 9 of the Regions 1 and 3 Plan

ADD 5.2.2.5 When an assignment is recorded as a result of a favourable finding with respect to paragraph 5.2.1 e), a remark shall be included indicating that coordination has been effected

NOC 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

(MOD) 5.2.4 When the Board reaches an unfavourable finding with respect to paragraphs 5.2.1 a), 5.2.1 b) and 5.2.1 c), the notice shall be returned immediately by airmail to the notifying administration with the Board's reasons 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

(MOD) 5.2.5 When the notifying administration resubmits the notice and the finding of the Board becomes favourable with respect to the appropriate parts of paragraph 5.2.1, the notice shall be treated as in paragraph 5.2.2, 5.2.2.1 or 5.2.2.2 as appropriate

NOC 5.2.6 - 5.3.2

ARTICLE 6

MOD **Procedure Concerning Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Receiving Terrestrial Stations in Regions 1 and 3 in the Bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz, and in Region 2 in the Band 17.7 - 17.8 GHz, when Frequency Assignments to Feeder-Link Transmitting Earth Stations for the Broadcasting-Satellite Service in Conformity with the Regions 1 and 3 Plan or the Region 2 Plan are Involved**

MOD 6.1 Administrations planning to implement assignments for terrestrial stations in Regions 1 and 3 in the bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz, and in Region 2 in the 17.7 - 17.8 GHz band should evaluate the level of interference assessed on the basis of coordination contours calculated in accordance with Appendix 28 to the Radio Regulations¹, which might be caused by the closest feeder-link earth station which could be located on the border of the territory of another administration. Should the administration planning terrestrial stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth station to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

ADD ¹ In the case of Regions 1 and 3, the feeder-link earth-station power to be taken into account is obtained by adding the values specified in columns 8 and 9 of the Plan

MOD 6.2 In the case of Region 2, when the entry in the Plan contains information on specific earth stations, this shall be used in the interference calculations mentioned in paragraph 6.1 above. When such information is not contained in the Region 2 Plan, an administration which receives a request under paragraph 6.1 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the terrestrial station, and to the Board in order to update the Plan.

MOD 6.3 In the case of Regions 1 and 3, an administration which receives a request under paragraph 6.1 shall, within a period of three months, communicate the details of the feeder-link stations to the administration planning the terrestrial station, and to the Board for information

MOD 6.4 If, at the end of a period of three months, the administration responsible for the terrestrial station does not receive a reply, it may request the assistance of the Board

MOD 6.5 If the administration responsible for the feeder-link earth station does not communicate to the Board, within a period of three months, the information requested under paragraph 6.1, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the terrestrial station under consideration

ADD 6.6 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, the administration responsible for the terrestrial station may notify this station under Article 12 of the Radio Regulations for recording in the Master International Frequency Register. A remark shall be included indicating either that an agreement has been reached or that no comments have been received

ARTICLE 7

MOD **Procedure Concerning Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Stations in the Fixed-Satellite Service (Space-to-Earth) in Regions 1 and 3 in the Band 17.7 - 18.1 GHz and in Region 2 in the band 17.7 - 17.8 GHz, when Frequency Assignments to Feeder Links for Broadcasting-Satellite Stations Appearing in the Regions 1 and 3 Plan or the Region 2 Plan are Involved**

MOD 7.1 The provisions of Articles 11 and 13 and Appendix 29 of the Radio Regulations are applicable to transmitting space stations in the fixed satellite service in the band 17.7 - 18.1 GHz, together with the provisions of Annex 4 to this Appendix, except that in relation to feeder-link stations, the relevant criteria mentioned in Appendix 29 to the Radio Regulations are replaced by those given in Section 1 of Annex 4 to this Appendix.

MOD 7.2 Administrations planning to implement assignments for receiving earth stations in Regions 1 and 3 in the 17.7 - 18.1 GHz band and in Region 2 in the 17.7 - 17.8 GHz band in the fixed-satellite service (space-to-Earth) should evaluate the level of interference, assessed on the basis of coordination contours calculated in accordance with Section 3 of Annex 4 to this Appendix, which might be caused by the closest feeder-link earth station which could be located on the border of the territory of another administration. Should the administration planning receiving earth stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth stations to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

MOD 7.3 In the case of Region 2, when the entry in the Plan contains information on specific earth stations this shall be used in the interference calculations mentioned in paragraph 7.2 above. When such information is not contained in the Plan an administration which receives a request under paragraph 7.2 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Board in order to update the Plan.

ADD 7.4 In the case of Regions 1 and 3, an administration which receives a request under paragraph 7.2 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the receiving earth station, and to the Board for information.

NOC 7.5 If, at the end of the period of three months, the administration responsible for the fixed-satellite receiving earth station does not receive a reply, it may request the assistance of the Board.

MOD 7.6 If the administration responsible for the feeder-link earth stations does not communicate to the Board, within a period of three months, the information requested under paragraph 7.2, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the fixed-satellite earth station under consideration.

ADD 7.7 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, and when the station is recorded in the Master Register in accordance with Article 13 of the Radio Regulations, the Board shall enter a remark indicating either that an agreement has been reached or that no comments have been received.