International Telecommunication Union

Rules of Procedure

approved by the Radio Regulations Board

for the application, by the Radiocommunication Bureau, of the provisions of the Radio Regulations, Regional Agreements, Resolutions and Recommendations of World and Regional Radiocommunication Conferences

Edition of 2012
+rev.9

THE RADIOCOMMUNICATION SECTOR OF ITU

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Inquiries about radiocommunication matters

Please contact:

ITU
Radiocommunication Bureau
Place des Nations
CH-1211 Geneva 20
Switzerland

Telephone:	+41 22 730 5800
Fax:	+41 22 730 5785
E-mail:	brmail@itu.int
Web:	www.itu.int/itu-r

Placing orders for ITU publications

Please note that orders cannot be taken over the telephone. They should be sent by fax or e-mail.

ITU
Sales and Marketing Division
Place des Nations
CH-1211 Geneva 20
Switzerland

Fax:	**+41 22 730 5194**
E-mail:	**sales@itu.int**

The Electronic Bookshop of ITU: **www.itu.int/publications**

© ITU 2016

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

RULES OF PROCEDURE

Edition of 2012

approved by the Radio Regulations Board for the application, by the Radiocommunication Bureau, of the provisions

of the Radio Regulations, Regional Agreements, Resolutions and Recommendations of World and Regional Radiocommunication Conferences

PREAMBLE

The Rules of Procedure complement the Radio Regulations (RR) by providing clarification of the application of particular Regulations or establishing the necessary practical procedures that may not be provided for in the current Regulatory Provisions. This document incorporates the results of a comprehensive review and revision of the Rules of Procedure by the Radio Regulations Board (RRB) to take account of decisions of WRC-12 and the new edition of 2012 of the Radio Regulations. The Rules contained in the present document thus replace and supersede all formerly published Rules of Procedure. These rules shall be used by administrations and the Radiocommunication Bureau in the application of the Radio Regulations. The Rules of Procedure are presented in three Parts:

Part A: the Rules that relate to one or a limited number of Radio Regulatory provisions;

Part B: the Rules that relate to a process i.e. a technical examination;

Part C: internal arrangements and working methods of the Board.

In accordance with provision No. 95 of the Constitution, the Radio Regulations Board has approved the present Rules of Procedure including technical criteria given herein.

TABLE OF CONTENTS

PART A

Section	Rules concerning	Page
A1	Article **1** of the RR	AR1-1/2
	Article **4** of the RR	AR4-1/2
	Article **5** of the RR	AR5-1/23
	Article **6** of the RR	AR6-1
	Receivability	Receivability-1/5
	Notifying administration	Notifying administration -1
	Effective date of entry into force	Effective date of entry into force-1
	Article **9** of the RR	AR9-1/31
	Article **11** of the RR	AR11-1/25
	Article **12** of the RR	AR12-1/2
	Article **13** of the RR	AR13-1
	Article **21** of the RR	AR21-1/3
	Article **22** of the RR	AR22-1
	Article **23** of the RR	AR23-1
	Appendix **4** to the RR	AP4-1/2
	Appendix **5** to the RR	AP5-1
	Appendix **7** to the RR	AP7-1
	Appendix **27** to the RR	AP27-1/2
	Appendix **30** to the RR	AP30-1/22
	Appendix **30A** to the RR	AP30A-1/15
	Appendix **30B** to the RR	AP30B-1/8
	Resolution **1 (Rev.WRC-97)**	RES1-1/2
A2	Rules concerning the Regional Agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting service in the VHF and UHF bands (Stockholm, 1961) (ST61)	ST61-1/2
A3	Rules concerning the Regional Agreement concerning the use by the broadcasting service of frequencies in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1 (Geneva, 1975) (GE75)	GE75-1/5
A4	Rules concerning the Regional Agreement for the use of the band 535 to 1 605 kHz in Region 2 by the broadcasting service (Rio de Janeiro, 1981) (RJ81)	RJ81-1/5

Section **Page**

A5 Rules concerning the Regional Agreement relating to the use of the band 87.5-108 MHz for FM sound broadcasting (Geneva, 1984) (GE84) GE84-1

A6 Rules concerning the Regional Agreement relating to the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (Geneva, 1989) (GE89) GE89-1/3

A7 Rules concerning Resolution 1 of the RJ88 Conference and Article 6 of the RJ88 Agreement RJ88-1/2

A8 Rules concerning the Regional Agreement concerning the MF maritime mobile and aeronautical radionavigation services (Region 1) (Geneva, 1985) (GE85-MM-R1) GE85-R1-1/4

A9 Rules concerning the Regional Agreement concerning the planning of the maritime radionavigation service (radio-beacons) in the European Maritime Area (Geneva, 1985) (GE85-EMA) GE85-EMA-1/4

A10 Rules concerning the Regional Agreement relating to the planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (Geneva, 2006) (GE06) GE06-1/12

PART B

Section **Page**

B1 (Not used)

B2 (Not used)

B3 Rules concerning calculation methodology for calculation of probability of harmful interference between space networks (*C*/*I* ratios) B3-1/19

B4 Rules concerning calculation methodology and technical standards for determining the affected administrations and for assessing the probability of harmful interference in the bands between 9 kHz and 28 000 kHz B4-1/25

Section **Page**

B5 Rules concerning criteria for applying the provisions of No. **9.36** to a frequency assignment in the bands governed by No. **5.92** B5-1/3

B6 Rules concerning criteria for applying the provisions of No. **9.36** to a frequency assignment in the services whose allocation is governed by Nos. **5.292**, **5.293**, **5.297**, **5.309**, **5.323**, **5.325** and **5.326** B6-1/3

B7 Rules concerning the protection ratio values and minimum values of field strength to be used in the case of digital modulation transmission systems when applying the provisions of Article 4 of the GE75 Regional Agreement B7-1/5

PART C

Section **Page**

C Internal arrangements and working methods of the Radio Regulations Board C-1/6

_____

INTRODUCTION

PART A

Part A of the Rules of Procedure is related to the specific provisions of the Radio Regulations and Regional Agreements. The following sections are included:

A1 – RR: Radio Regulations (Articles, Appendices and Resolutions).

A2 – ST61: Rules concerning the Regional Agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting service in the VHF and UHF bands (Stockholm, 1961) (ST61).

A3 – GE75: Rules concerning the Regional Agreement concerning the use by the broadcasting service of frequencies in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1 (Geneva, 1975) (GE75).

A4 – RJ81: Rules concerning the Regional Agreement for the use of the band 535 to 1 605 kHz in Region 2 by the broadcasting service (Rio de Janeiro, 1981) (RJ81).

A5 – GE84: Rules concerning the Regional Agreement relating to the use of the band 87.5-108 MHz for FM sound broadcasting (Geneva, 1984) (GE84).

A6 – GE89: Rules concerning the Regional Agreement relating to the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (Geneva, 1989) (GE89).

A7 – RJ88: Rules concerning Resolution 1 of the RJ88 Conference and Article 6 of the RJ88 Agreement.

A8 – GE85-R1: Rules concerning the Regional Agreement concerning the MF maritime mobile and aeronautical radionavigation services (Region 1) (Geneva, 1985) (GE85-MM-R1).

A9 – GE85-EMA: Rules concerning the Regional Agreement concerning the planning of the maritime radionavigation service (radiobeacons) in the European Maritime Area, (Geneva, 1985) (GE85-EMA).

A10 – GE06: Rules concerning the Regional Agreement relating to the planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (Geneva, 2006) (GE06).

PART B

Part B of the Rules of Procedure contains rules applicable to complex technical procedures of a large scope not directly related to one unique provision of the Radio Regulations or Regional Agreements. The following sections are included:

B1: (Not used)

B2: (Not used)

B3: Rules concerning methodology for calculation of probability of harmful interference between space networks (*C*/*I* ratios).

B4: Rules concerning calculation methodology and technical standards for determining the affected administrations and for assessing the probability of harmful interference in the bands between 9 kHz and 28 000 kHz.

B5: Rules concerning criteria for applying the provisions of No. **9.36** to a frequency assignment in the bands governed by No. **5.92**.

B6: Rules concerning criteria for applying the provisions of No. **9.36** to a frequency assignment in the services whose allocation is governed by Nos. **5.292**, **5.293**, **5.297**, **5.309**, **5.323**, **5.325** and **5.326**.

B7: Rules concerning the protection ratio values and minimum values of field strength to be used in the case of digital modulation transmission systems when applying the provisions of Article 4 of the GE75 Regional Agreement

PART C

C: Internal arrangements and working methods of the Radio Regulations Board.

PRESENTATION

1 The Rules are presented with direct reference to the specific paragraph or provision numbers of the Radio Regulations or Regional Agreements. The reference number preceding a Rule in the framed box on the left of the page is the provision (or paragraph) number in the Radio Regulations or Regional Agreement, for example:

1.23

This means that the Rule following the above indication concerns the application of the Radio Regulations provision No. **1.23**.

2 To facilitate the reading throughout the present Rules a common system was established in the heading of each page. For example:

Part A1	AR11	page 7	rev.-

The page concerned in Part A1 is page 7 of the Chapter dealing with Article **11** of the Radio Regulations. The indication "rev.-" means that the page concerns the first version of the Rules. No revision has been effected.

_____

Rules concerning

ARTICLE 1 of the RR

1.23

1 Number **1.23** states that the functions of the space operation service (space tracking, space telemetry, space telecommand) will normally be provided within the service in which the space station is operating. The question thus arises as to the appropriateness of considering frequency assignment notices with classes of stations performing these functions, to be in conformity with the Table of Frequency Allocations when the Table does not contain an allocation to the space operation service.

2 In the No. **11.31** examinations, notices concerned with space operation functions will be considered in conformity with the Table of Frequency Allocations (favourable Finding) in the case where the assigned frequency (and the assigned frequency band) lies in a frequency band allocated to the:

– space operation service, or

– the main service in which the space station is operating (e.g. fixed-satellite service (FSS), broadcasting-satellite service (BSS), mobile-satellite service (MSS)).

3 In the case where the assigned frequency concerning space operation functions lies in a frequency band allocated to a service in which the space station has no operating function the No. **11.31** Finding will be unfavourable.

1.61

When, in a given location or aboard a satellite, transmitters or receivers are used for different radiocommunication services, this constitutes several stations each corresponding to a separate radiocommunication service. This distinction is essential in space radio-communications when a unique spacecraft is used for several services. (For the symbols of the different classes of station used in the notice forms for the services in which a station is operating, see Table No. 3 of the Preface to the BR IFIC.)

1.63

Transportable earth station: The Board considers a transportable earth station in the fixed-satellite service (see No. **1.21**) (or in any other space service) to be an earth station to be used only at fixed points. Consequently, its notice form is considered incomplete when it does not contain the geographical coordinates.

1.112

According to this definition, when a satellite system is composed of only one satellite it is at the same time a satellite network and when it is composed of more than one satellite each of its parts containing one satellite is a satellite network. The title of Annex 2A of Appendix **4** (as well as the sub-titles of § A and A1 of this Annex) indicate that the information contained in that Appendix shall be provided for each satellite network. Consequently the advance publication procedure is to be applied for each satellite network. According to § A.4 *b)* 4) of Appendix **4** one notice can cover more than one satellite in a non-geostationary network if their characteristics are identical.

On the basis of the above the following parts of a space system are considered as satellite networks:

a) a geostationary-satellite system using one satellite and two or more earth stations;

b) in the case of a geostationary-satellite system in which the radio link between two earth stations use two or more satellites communicating through intersatellite-links, each satellite with its associated earth stations is considered as a separate network. The intersatellite links connecting these satellites are to be notified for each of the satellites of the system;

c) a non-geostationary-satellite system composed of more than one satellite having identical characteristics and for which § A.4 *b)* 4) of Appendix **4** requires the indication of the number of satellites;

d) a combined system consisting of one geostationary satellite and a number of non-geostationary satellites.

Rules concerning

ARTICLE 4 of the RR

4.4

1 Use of a frequency under number 4.4

1.1 This provision allows an administration to use any part of the spectrum in derogation of the Radio Regulations provided that the station using that spectrum part shall not cause harmful interference to, or shall not claim protection from harmful interference caused by, stations of other services operating in accordance with the provisions of the Constitution, Convention and Radio Regulations.

1.2 It can be seen from Nos. **8.5** and **11.36** that the recording of an assignment with a reference to No. **4.4** includes the commitment by the notifying administration to eliminate any harmful interference which is actually caused to other uses operated in accordance with the Radio Regulations as soon as it is reported. This limitation on the use of an assignment notified with a reference to No. **4.4** is valid only when both categories of assignments detailed in No. **8.5** are in use.

1.3 Similarly and taking account of No. **4.4** as well as of Nos. **5.43** and **5.43A**, receiving frequencies not in conformity with the Radio Regulations are recorded with a symbol which includes the indication that the notifying administration cannot claim protection from any harmful interference that may be caused by frequency assignments operated in accordance with the Radio Regulations.

2 Emissions in bands where uses other than those authorized are prohibited

2.1 The provisions listed below relating either to frequencies or bands to be used for safety and distress communications or allocated for passive usage prohibit any other use:

a) Provisions relating to safety and distress communications:

Appendix **15** (GMDSS), Tables **15-1** and **15-2**: frequencies marked with an asterisk (*) to indicate that any emission causing harmful interference to distress and safety communications is prohibited.

b) Provisions relating to passive usage:

No. **5.340**.

2.2 The Board considers that, in view of this prohibition, a notification concerning any other use than those authorized in the band or on the frequencies concerned cannot be accepted even with a reference to No. **4.4**; furthermore the administration submitting such a notice is urged to abstain from such usage.

4.5

1 The application of this provision involves the case of an adjacent band not allocated to the service concerned as well as the case of an adjacent band allocated to the service concerned with a different category of allocation.

1.1 A frequency assignment, of which the assigned frequency band overlaps a band not allocated to the service concerned, shall receive an unfavourable regulatory finding under No. **11.31**.

1.2 A frequency assignment, of which the assigned frequency band overlaps a band allocated with a lower category of service will be considered as having the lower category of service and, when recorded, will bear a symbol to this effect. (See Symbols R and S in Table 13B, Column 13B2, of the Preface to the IFL.)

2 To resolve cases of harmful interference between services in adjacent bands it was decided that, irrespective of the phenomena at the origin of the interference (out-of-band emission, intermodulation products, etc.), the administration responsible for the emission overlapping a non-allocated band shall use appropriate means to eliminate the interference.

_____

Rules concerning

ARTICLE 5 of the RR

5.33

Number **5.152** illustrates this provision. When the transmitting and the receiving stations are both located within one of the countries listed in the footnote, the fixed service has equal rights with the amateur service. This is also the case when one station is located in one country and the other in another country, both countries being listed in No. **5.152**. When either station is not within one of the countries listed in the footnote, the assignment is out of band.

5.36

The Radio Regulations contain the procedure defined in No. **9.21** together with a number of footnotes of the Table of Frequency Allocations stipulating that an additional or alternative allocation is made "subject to agreement obtained under the procedure set forth in No. **9.21**". The Board had to indicate to the Bureau under which category of allocation an assignment in the service to which the procedure of No. **9.21** had been successfully applied and where the footnote did not indicate the category of allocation, should be recorded. The following conclusions were reached:

a) When a footnote allocates a frequency band to a service on a secondary basis or on a non-interference basis, this indication is considered by the Board as a restriction imposed on the allocation.

b) Number **5.37** stipulates that "If restrictions are imposed on an additional allocation ... this is indicated in the footnote of the Table".

c) Therefore, when a footnote does not contain such restrictions, the allocation is necessarily on a primary basis.

5.40

The interpretation given under No. **5.36** for additional allocations when the agreement under No. **9.21** is required applies also in this case to alternative allocations.

5.43

This provision specifies the operation on a non-interference and non-protection basis of a service, or station in a service, in respect to another service, or to another station in the same service. However, this provision does not specify the relation between the respective categories of allocations to which the operation on a non-interference and non-protection basis for a service, in respect to another service, applies. Bearing in mind the scope of application and the complexity of allocations contained in various provisions of Article **5**, as well as the circumstances under which the allocations were made, the Board considers that the respective status of each allocation which is subject to the condition of not causing harmful interference to, or not claiming protection from, other service or other station in the same service, is to be derived from the conditions specified in each specific provision.

Bearing in mind the various and complex allocation situations that are described in the provisions of Article **5**, as well as the circumstances under which the allocations were made, the Board considers that the attention of a future conference should be drawn to the footnotes specifying the operation on a non-interference and non-protection basis, which involve different categories of service, with the view to specifically establish the relationship between the respective categories of allocation to which the operation on a non-interference and non-protection basis refers.

5.43A

See comments under the Rules of Procedure concerning No. **5.43**.

5.49

Several provisions, mainly those relating to allocations to mobile services, restrict allocations to a type of operation or to some specific systems. The Board had no means to examine the extent to which these restrictions are respected. (This fact was noted by WARC Mob-87 where such restrictions were made.) Consequently the Board decided that no symbol relating to these types of restrictions should be included in Column 13C of the Master International Frequency Register (MIFR or Master Register).

5.73

1 This provision represents *de facto* an additional allocation, by providing the possibility for transmission of supplementary navigational information from any station in the maritime radionavigation service, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service.

2 *The meaning of narrow-band*: based on the information in Recommendation ITU-R M.476-5, the Board considered that 500 Hz represents a reasonable limit for narrow-band techniques and set this value as a regulatory limit to be checked in the examinations of the conformity of the notified bandwidth in the context of this provision. Therefore, the Bureau shall formulate an unfavourable regulatory finding, in the application of No. **5.73**, if that limit is exceeded for notified classes of emission F1B or G1D.

5.132A (ADD RRB13/64)

This provision limits the application of the radiolocation service to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. The *resolves* part of this Resolution enters into the category "the other provisions" referred to in Nos. 11.31 and is subject to examinations by the Bureau.

Resolves 6 of Resolution **612 (Rev.WRC-12)** specifies the separation distances to be respected for oceanographic radars for "rural" and "quiet rural" areas for the land, sea or mixed propagation paths, unless prior explicit agreements from affected administrations are obtained. Concerning "rural" and "quiet rural" areas, the Bureau has no means to identify whether emissions from oceanographic radars reach a "rural" or "quiet rural" area at the border of another country since the Bureau does not have the relevant topographical data to determine these areas.

As the Bureau has no means for the identification of rural or quiet rural areas, the Board decided that for examination of the notified frequency assignment to a station in the radiolocation service from the view point of its conformity with *resolves* 6 of Resolution **612 (Rev.WRC-12)** the Bureau shall use the separation distances for quiet rural paths listed in Columns 3 and 5, as appropriate, of the Table of *resolves* 6.

5.145A (ADD RRB13/64)

The comments and decision made under the Rule of Procedure concerning No. **5.132A** apply.

5.149

There is no allocation to radio astronomy in the bands 73-74.6 MHz (Regions 1 and 3), 1 330-1 400 MHz, 3 260-3 267 MHz, 3 332-3 339 MHz, 3 345.8-3 352.5 MHz, 6 650-6 675.2 MHz, 22.01-22.21 GHz, 22.81-22.86 GHz, 23.07-23.12 GHz, 31.2-31.3 GHz, 36.43-36.5 GHz, 168.59-168.93 GHz, 171.11-171.45 GHz (except for KOR), 172.31-172.65 GHz (except for KOR), 173.52-173.85 GHz (except for KOR) and 195.75-196.15 GHz. Notification of frequency assignments to radio astronomy stations in the bands 73-74.6 MHz (Regions 1 and 3), 1 330-1 400 MHz, 3 260-3 267 MHz, 3 332-3 339 MHz, 3 345.8-3 352.5 MHz, 6 650-6 675.2 MHz, 22.01-22.21 GHz, 22.81-22.86 GHz, 23.07-23.12 GHz, 31.2-31.3 GHz, 36.43-36.5 GHz, 168.59-168.93 GHz, 171.11-171.45 GHz (except for KOR), 172.31-172.65 GHz (except for KOR), 173.52-173.85 GHz (except for KOR) and 195.75-196.15 GHz will be considered by the Bureau not to be in conformity with the Table of Frequency Allocations.

5.161A (ADD RRB13/64)

The comments and decision made under the Rule of Procedure concerning No. **5.132A** apply.

5.164

Literal interpretation of this provision for an assignment to a land-mobile station in a country listed in the footnote would require recording:

– a symbol to indicate that the assignment is primary with respect to the countries listed in this footnote,

– a symbol to indicate that the assignment is secondary with respect to the broadcasting service for other countries,

– a symbol to indicate that the assignment is primary with respect to fixed and mobile services in countries listed in Nos. **5.165** and **5.171**,

– a symbol to indicate that the assignment is primary with respect to the amateur service in countries listed in No. **5.169**,

– etc.

The Board decided to have such assignments recorded with Symbol R in Column 13B2 and a reference to the footnote concerned in Column 13B1.

5.172

The French overseas departments and communities in Region 2 are the following geographical areas:

Guadeloupe, Saint Barthélemy, the French part of Saint Martin, French Guyana, Martinique and Saint Pierre and Miquelon.

5.233

1 The band mentioned in this provision is allocated in the body of the Table for Region 3 to three services, i.e. fixed, mobile and broadcasting. The Board interpreted this situation as follows:

a) The successful application of the No. **9.21** procedure to the space services will give them the same status as the fixed and mobile services, i.e. primary.

b) In respect of the broadcasting service, irrespective of the result of the application of the procedure of the No. **9.21** procedure, the space services can be operated only under No. **5.43**.

2 In accordance with the comments made under No. **5.164**, when an assignment is primary with respect to one service (or country) and secondary with respect to another service (or country), it will be recorded with Symbol R in Column 13B2 indicating this situation and a reference to the appropriate footnote in Column 13B1.

5.257

1 Space telemetry is limited to measurements made in the spacecraft which may be:

– either made by a sensor to detect phenomena outside the spacecraft; or

– related to the functioning of the spacecraft.

The first type normally pertains to services such as the earth exploration-satellite service or the space research service, while the second type pertains to the space operation service. This provision does not indicate the service to which the additional allocation is made. The Board understands it as being limited to space telemetry in the space operation service. Consequently, frequency assignments for telemetry (space-to-Earth) in the space operation service in the band 267-272 MHz may be used on a secondary basis without any condition. They may obtain a primary status within the territory of the notifying administration following the successful application of the procedure of No. **9.21**.

2 The qualification “in their countries” can be easily checked when an earth station is concerned, but it is unclear for a space station. The Board considers that this provision will apply to those space stations having a service area mainly limited to the territory of the notifying administration.

5.281

With respect to the French overseas departments and communities in Region 2, see comments under the Rules of Procedure concerning No. **5.172**.

5.291

This footnote is similar to No. **5.233**; the same Rule applies.

5.327A

1 Appendix **4** does not contain data elements which would enable examination as to whether the notified frequency assignment is associated to a system that operates in accordance with recognized international aeronautical standards or to a system that operates under other standards. As the Bureau has no means to make such differentiation, the Board decided that the Bureau shall make no examination of the notified frequency assignment to a station in the aeronautical mobile (R) service (AM(R)S) from the view point of its conformity with this provision. (MOD RRB12/60)

2 With respect to the requirements contained in *resolves* 2 and 3 of Resolution **417 (Rev.WRC-12)**, the Board decided that the Bureau shall make no examination of the notified frequency assignment to a station in the AM(R)S from the view point of its conformity with these provisions since Appendix **4** does not contain data elements which would enable to determine whether the notification is related to a Universal Access Transceiver system or to another system in the AM(R)S. (ADD RRB12/60)

3 With respect to the power limits contained in *resolves* 6 of Resolution **417 (Rev.WRC-12)**, the Board decided that the Bureau shall check the e.i.r.p. limits for the ground based and airborne stations only for the band 960 – 1 164 MHz since frequency assignments to stations in the AM(R)S notified in the band 960 – 1 164 MHz do not contain any information concerning out-of-band emissions in the frequency band 1 164 – 1 215 MHz. (ADD RRB12/60)

5.329

Assignments to stations of the radionavigation-satellite service if recorded need to indicate that they shall not cause harmful interference to assignments to stations of the radionavigation service of the countries listed in No. **5.331** and to stations of the radiolocation service (Symbol R in Column 13B2 and reference to No. **5.329** in Column 13B1).

5.340

The comments made under the Rules of Procedure concerning No. **4.4** apply.

5.351

1 This provision permits, in derogation of the definitions contained in Nos. **1.70**, **1.72**, **1.76** and **1.82**, the use of the bands allocated to a mobile-satellite service by a station at a specified fixed point (without being a coast, land, base or an aeronautical earth station).

2 The exceptional circumstances referred to in this provision cannot be evaluated by the Bureau.

3 The Board therefore concluded that assignments notified under this provision shall receive a favourable regulatory finding.

5.357

The terrestrial uses authorized by this provision appear to be closely related to the operational conditions within a combined aeronautical system using space and terrestrial radiocommunications. The Bureau has no means to verify such uses and considers this provision an additional allocation to the aeronautical mobile (R) service.

5.364

This provision contains two different types of equivalent isotropically radiated power (e.i.r.p.) density limits for transmitting mobile earth stations in the frequency band 1 610-1 626.5 MHz, namely:

a) peak e.i.r.p. density limit, and

b) mean e.i.r.p. density limit.

The peak e.i.r.p. density limit is derived from the maximum power density of the assignment as submitted by the responsible administration.

For the second type, it is not clear whether it is spectral mean, or temporal mean, or spatial mean. The Board decided that, on a provisional basis, and until the relevant ITU-R Recommendation is available, the Bureau use a spectral mean e.i.r.p. density when applying this provision. This spectral mean e.i.r.p. will be derived from the mean power density of an assignment, which is obtained from its total power divided by its necessary bandwidth and multiplied by 4 kHz.

5.366

This provision is considered an additional allocation to the aeronautical radionavigation-satellite service. The comments made under No. **5.49** apply. However, when the Special Section is to be published it shall contain an indication that the assignment is for use on a worldwide basis for "airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities".

5.376

The comments made under the Rules of Procedure concerning No. **5.357** apply.

5.399

The Board instructed the Bureau when recording assignments to stations of the radiodetermination-satellite service operating in the frequency band 2 483.5-2 500 MHz to which this footnote applies to place Symbol R in Column 13B2 and a reference to footnote 5.399 in Column 13B1. (MOD RRB13/64)

5.415

1 In this provision, the allocation "is limited to national and regional systems". The Board concluded that a national system is a system having a service area limited to the territory of the notifying administration. As a consequence of this, the regional system to which reference is made shall be considered to be an aggregate of two or more national systems; they shall be limited to the territories (which are not necessarily restricted to bordering countries) of the administrations concerned and they shall be notified by one of these administrations on behalf of all the administrations concerned. When the allocation is made to more than one Region, a regional system may cover territories in those Regions for which the allocation exists. The Board reached this conclusion keeping in mind No. **5.2.1**, relating to the interpretation of the word "regional" without a capital "R".

2 In accordance with this provision, the fixed-satellite service is limited for use by national or regional systems in the band 2 500-2 690 MHz in Region 2 and in the bands 2 500-2 535 MHz and 2 655-2 690 MHz in Region 3. Only those assignments which satisfy the following conditions shall be considered to be in conformity with the Table of Frequency Allocations:

a) The service area for a regional system is within the Region concerned, i.e. in Region 2 only in the band 2 535-2 655 MHz or in Regions 2 and 3 in the other bands between 2 500 and 2 690 MHz and:

i) When an administration submits a coordination request for a service area that covers its national territory and extends beyond it, the responsible administration shall submit at the same time the list of administrations that agreed to form the regional system and the service area shall be formed accordingly. If no agreement is obtained, the service area shall be limited to its national territory;

ii) When an administration submits a coordination request for a service area that does not include its national territory but only territories of other administrations, it shall submit at the same time the list of administrations that agreed to form the regional system and the service area shall be formed accordingly. If no agreement is obtained, the relevant assignments shall be considered not to be in compliance with the Table of Frequency Allocations and the finding shall be unfavourable.

b) In the case of a national system, the service area is limited to the territory under the jurisdiction of the notifying administration.

c) If the satellite network is operated within the framework of an international system to which other countries pertain, the notice must indicate that the use is limited to the Region(s) concerned.

5.416

1) See comments under the Rules of Procedure concerning No. **5.415** about the use limited to national and regional systems.

2) In view of the indications in this provision, the Board concluded that the reference to the coordination procedure of No. **9.19** in this provision is a matter for administrations. Consequently, at the stage of examination under No. **11.32**, the Bureau will not make any examination of the notified frequency assignment to a transmitting station of a terrestrial service or to a transmitting earth station in the FSS (Earth-to-space) from the viewpoint of its conformity with No. **9.19**.

5.418C

1 In accordance with provision No. **5.418C**, modified by WRC-03, the use of the band 2 630-2 655 MHz by geostationary-satellite networks is subject to the application of the provisions of No. **9.13** with respect to non-GSO satellite systems in the BSS (sound) pursuant to No. **5.418**, as of 3 June 2000. Resolution **33** (**Rev.WRC-03**) resolves that for satellite networks for which the API has been received by the Bureau prior to 1 January 1999, only the procedure in Sections A to C in Resolution **33** (**Rev.WRC-03**) shall be applied.

2 The Board undertook an in-depth examination of the different procedures and provisions that apply to satellite systems in the band 2 630-2 655 MHz and noted the difficulty in linking No. **5.418C** reference to "notification information" of GSO BSS systems to the No. **22.2** application referred to in No. **5.418A**.

3 In the above context, and taking into account of WRC-03 discussion and decision, the Board understands that No. **9.13** coordination applies as described in the Table below.

GSO satellite network	**Date of receipt of coordination information (No. 9.6)**	**Date of receipt of notification information (No. 11.2)**	**No. 9.13 applicability**
BSS (No. **5.418**)	< 3.6.2000	< 3.6.2000	NO
	< 3.6.2000	≥ 3.6.2000	NO
	≥ 3.6.2000	≥ 3.6.2000	YES

Band 2 605-2 655 MHz

1 Provisions Nos. **5.416**, **5.417A**, **5.417B**, **5.417C**, **5.417D**, **5.418**, **5.418A**, **5.418B** and **5.418C** provide information on the different constraints and procedures applying to the broadcasting-satellite service (BSS) and fixed-satellite service (FSS) in the frequency range 2 605-2 655 MHz.

2 The Board undertook an in-depth examination of the different provisions and the applicability of the different coordination procedures (space network-to-space network (Nos. **9.7**, **9.12**, **9.12A** and **9.13**)) that apply to satellite systems in the band 2 605-2 655 MHz and noted the possible difficulty in assessing the service (BSS (sound), BSS (television), FSS) and the nature of the satellite network (GSO or non-GSO) to which Nos. **5.417B**, **5.417C**, **5.417D**, **5.418A**, **5.418B** and **5.418C**, should apply, taking due account of the dates of reception of the complete Appendix **4** coordination or notification information, as appropriate. Indeed, in the band 2 630-2 655 MHz, No. **5.418A** refers to the application of the provisions of No. **9.12A** for non-GSO systems in the BSS (sound) in certain countries listed in No. **5.418**, in respect of GSO systems; without further details on the involved services; No. **5.418B** refers to the application of the provisions of No. **9.12** for non-GSO systems in the BSS under No. **5.418**, in respect of other non-GSO systems; and No. **5.418C** refers to the application of No. **9.13** by GSO networks in respect of non-GSO systems in the BSS (sound), allocated under No. **5.418**. The same wording is also used in Nos. **5.417B**, **5.417C** and **5.417D** relating to BSS systems in the band 2 605-2 630 MHz.

3 Taking the above into account and in the light of WRC-03 discussions and decisions, in particular the addition of an explicit reference to No. **5.418** in Nos. **5.418B**, **5.418C**, and the explicit reference to No. **5.417A** in Nos. **5.417B**, **5.417C** and **5.417D**, the Board understands Nos. **5.418A**, **5.418B** and **5.418C**, and Nos. **5.417B**, **5.417C**, **5.417D** to only address cases of coordination as follows: non-GSO BSS (sound) (Nos. **5.418** and **5.417A**) systems vis-à-vis any GSO systems under No. **9.12A**, and vis-à-vis any non-GSO systems under No. **9.12**, and vice versa, i.e. any GSO systems vis-à-vis non-GSO BSS (sound) (Nos. **5.418** and **5.417A**) systems under No. **9.13**, and any non-GSO systems vis-à-vis non-GSO BSS (sound) (Nos. **5.418** and **5.417A**) systems under No. **9.12**, as described in the Table below. This Table applies to coordination requirements between GSO and non-GSO satellite systems for which the API has been received following 1 January 1999 and complete coordination/notification information was received after 2 June 2000 in the band 2 630-2 655 MHz and after 4 July 2003 in the band 2 605-2 630 MHz.

Coordination request (CR): Column vis-à-vis Row (↙) (2 605-2 655 MHz)	Non-GSO BSS (sound) ↓ (**5.417A**, **5.418**)	GSO BSS ↓ (**5.416**, **5.417A**, **5.418**) or FSS ↓ (Region 2)	Non-GSO BSS ↓ (**5.416**) or FSS ↓ (Region 2)
Non-GSO BSS (sound) ↓ (**5.417A**, **5.418**)	**9.12** (**5.417C**, **5.418B**)	**9.13** (**5.417D**, **5.418C**)	**9.12** (**5.417C**, **5.418B**)
GSO BSS (sound) ↓ (**5.416**, **5.417A**, **5.418**) or FSS ↓ (Region 2)	**9.12A** (**5.417B**, **5.418A**)	**9.7**	No CR **22.2**
Non-GSO BSS ↓ (**5.416**) or FSS ↓ (Region 2)	**9.12** (**5.417C**, **5.418B**)	No CR **22.2**	No CR

5.441

1 Article **5** defines, in the band 10.7-11.7 GHz, a bidirectional allocation for the fixed-satellite service (FSS) in Region 1. Three provisions (Nos. **5.441**, **5.484** and **5.484A**) further regulate the usage of the bands. The provisions of No. **5.484** apply to the up-link (Earth-to-space) allocation for BSS feeder links. Nos. **5.441** and **5.484A** (covering parts of the band 10.7-11.7 GHz) apply to the down-link. The following problems were noted:

1.1 the Table of Frequency Allocations defines a bidirectional allocation of the whole band 10.7-11.7 GHz for the FSS in Region 1. Number **5.484** defines the up-link allocation for Region 1, while Nos. **5.441** and **5.484A** regulate the down-link use for GSO and non-GSO FSS systems. The sub-bands 10.7-10.95 GHz and 11.2-11.45 GHz, for the space-to-Earth direction, are, for GSO applications, covered by the provisions of Appendix **30B**. The up- and down-link allocations, for GSO use, are of the same category. Non-GSO uses are under equivalent power flux-density limitations defined by Article **22** and are subject to certain conditions as stipulated in No. **5.484A**. The application of No. **22.2** is described in No. **22.5I**;

1.2 the applicable Radio Regulatory Procedures for the FSS are as follows:

a) Earth-to-space (No. **5.484**): 10.7-11.7 GHz (Region 1): Articles **9** and **11** apply;

b) space-to-Earth:

10.7-10.95 GHz and 11.2-11.45 GHz:

- for GSO use: Appendix **30B** (and Article **11**) apply (No. **5.441**);
- for non-GSO: Articles **9**, **11** and **22** apply.

10.95-11.2 GHz and 11.45-11.7 GHz:

- for GSO: Articles **9** and **11** apply;
- for non-GSO: Articles **9**, **11** and **22** apply.

2 The regulatory relationship between GSO FSS uses, namely the up-link (Region 1) and the down-link (Appendix **30B**) utilization of the spectrum is not covered by any Radio Regulatory procedure. The Board thus considered this situation as follows. Based on the general principle that the utilization of the spectrum by two internationally recognized applications (coordinated vs. planned use), with the same status, should be mutually taken into account even if the case is not covered by specific procedures and also on the basis of the existing analogies (Article 7 of Appendix **30**, Article 7 of Appendix **30A**, the Board considering that:

a) up to now the Bureau has received only one case of the bidirectional use by GSO FSS of the bands 10.7-10.95 GHz and 11.2-11.45 GHz, and

b) the complexity of the issue does not justify the establishment of a sophisticated methodology to treat this case, and thus decided that the Bureau act as follows:

2.1 Up-link FSS applications in the bands 10.7-10.95 GHz and 11.2-11.45 GHz (Article **9**)

The FSS up-link usage (according to No. **5.484**) should protect the continuing rights of the Appendix **30B** Plan as well as the entries in the Appendix **30B** List, as they evolve. To this effect the FSS up-link networks shall apply the coordination (Article **9**) and notification (Article **11**) procedures not only vis-à-vis other up-link FSS networks of the same direction (Earth-to-space) but also vis-à-vis the Plan and List entries of the opposite direction (space-to-Earth). To take into account the Appendix **30B** Plan within the Article **9** procedure, the Plan shall be considered as a coordinated usage of the spectrum. Administrations responsible for the FSS up-link shall obtain coordination agreements from those other administrations whose systems in the Plan or assignments in the List are likely to be affected. The method and criteria for the identification of the administrations to be coordinated with shall be, similar to the case of Appendix **30A** (where the same bidirectional problem exists between planned feeder links and other FSS), as follows:

a) Since in the space-to-space interference scenario a receiving space station of the up-link FSS is subject to receive interference from a transmitting space station of the Appendix **30B** FSS Plan, and since currently an agreed method for the assessment of this interference is not available to the Bureau, assignments to receiving space stations operating in the up-link FSS submitted under Articles **9** or **11**, shall provisionally not undergo the examination relating to compatibility with Appendix **30B**. Therefore a note shall be included in the relevant Special Section to reflect the situation and a symbol shall be inserted in the Master Register to indicate that such assignments shall not claim protection from Appendix **30B**.

b) For the compatibility assessment between earth stations (transmitting ES of the FSS up-links and the receiving ES within the Plan allotment) the method defined in Appendix **7** will be used. The service areas defined in Appendix **30B** will be extended by the coordination distance to form an “agreement area” within which a transmitting earth station of the FSS up-link has to be coordinated. For the calculation of the coordination distance the most up-to-date ITU-R Recommendation will be used.

2.2 Down-link FSS applications in the bands 10.7-10.95 GHz and 11.2-11.45 GHz (Appendix **30B**, planned usage):

a) As for the interference which is likely to be caused to FSS up-link from Appendix **30B** down-link the same condition referred to in 2.1 *a)* above applies, i.e., in the examination of Appendix **30B** Plan and List entries no account shall be taken of the FSS up-link assignments included in the MIFR with the above-mentioned symbol.

b) As for the interference which is likely to be caused to Appendix **30B** down-link receiving earth stations from FSS up-link transmitting earth stations the same condition referred to in 2.1 *b)* above applies.

5.444B

1 This provision limits the use of the band 5 091-5 150 MHz by the aeronautical mobile service to two different applications. However, Appendix **4** does not contain data elements which would enable examination as to whether the notified frequency assignment is associated with any of these specific applications or with other applications in the aeronautical mobile service. As the Bureau has no means to make such differentiation, the Board decided that the Bureau shall make no examination of the notified frequency assignment to a station in the aeronautical mobile service from the view point of its conformity with this provision. (MOD RRB12/60)

2 With respect to the submissions in the aeronautical mobile (R) service, including the ones referred to in the first indent of this provision, and given the indications in *resolves* 1 of Resolution **748 (Rev.WRC-12)**, the recording of any such assignment in the MIFR will be associated with the symbol "R" in column 13B2 (*"Finding observation"*) and with symbol "RS748" in column 13B1 (*"Finding reference"*). The Board also considered that the indications in *resolves* 3 of Resolution **748 (Rev.WRC-12)**, including the reference to No. **4.10**, are intended for administrations and the Bureau shall make no examination of frequency assignments from the view point of their conformity with the conditions set forth in *resolves* 3 of Resolution **748 (Rev.WRC-12)**. (MOD RRB12/60)

3 With respect to the submissions related to aeronautical telemetry transmissions referred to in the second indent of this provision, and in addition to the considerations in § 1 of this Rule of Procedure which are also applicable for aeronautical telemetry applications, the Board considered that the indications in *resolves* 1 and in *resolves* 2 of Resolution **418 (Rev.WRC-12)** are intended for administrations and the Bureau shall make no examination of the notified frequency assignment to a station in the aeronautical mobile service from the view point of its conformity with the conditions set forth in Annex 1 to Resolution **418 (Rev.WRC-12)**. (MOD RRB12/60)

5.446A

1 This provision stipulates that the use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (Rev.WRC-12)**. Accordingly, Resolution **229 (Rev.WRC-12)** specifies that the use of these bands, by the mobile service, will be for the implementation of wireless access systems (WAS) including radio local area networks (RLAN) (see *resolves* 1) and, in addition to this, it specifies the maximum e.i.r.p. levels for stations in the mobile service (see *resolves* 2, 4 and 6).

As far as the band 5 150-5 350 MHz is concerned, the situation is rather simple, given the fact that the provisions of Resolution **229 (Rev.WRC-12)** are applicable to all stations in the mobile, except aeronautical mobile, service, with the exception of cases referred to in No. **5.447**, which apply to the band 5 150-5 250 MHz and where other (e.g. less stringent) conditions may be established in the context of the application of the procedure of No. **9.21**.

On the other hand, the situation in the band 5 470-5 725 MHz is more complex, bearing in mind that other provisions are applicable to stations in the mobile, except aeronautical mobile, service (e.g. those indicated in Nos. **5.451**, **5.453** and in Table **21-2** of Article **21**), which are stipulating different conditions (e.g. power limits) than the ones indicated in Resolution **229 (Rev.WRC-12)**. Consequently, administrations referred to in No. **5.453** (for the band 5 650-5 725 MHz) and in No. **5.451** (for the band 5 470-5 725 MHz) may implement other applications in the mobile, except aeronautical mobile, service, which are not necessarily WAS, subject to compliance with the conditions set forth in No. **5.451** and the power limits set forth in Table **21-2** of Article **21**. (MOD RRB12/59)

2 Given the fact that, for the implementation of WAS, high deployment densities are expected, such implementation options could be adequately covered through notifications in the form of typical stations. The notification of terrestrial stations in the mobile, except aeronautical mobile, service in the form of typical stations is normally possible with no restrictions in the bands 5 150-5 350 MHz and 5 470-5 670 MHz in all countries, and in the band 5 670-5 725 MHz in the countries not mentioned in No. **5.453**. However, provision No. **11.21A**, in conjunction with Table **21-2**, does not provide for the possibility of notifying terrestrial stations in the mobile, except aeronautical mobile, service, in the form of typical stations, for the band 5 670-5 725 MHz, for the countries listed in No. **5.453**. The strict application of these provisions would mean that the countries listed in No. **5.453** cannot notify their WAS applications in the form of typical stations, even though they conform with the limits of Resolution **229 (Rev.WRC-12)**. The Board concluded that such a restricted interpretation of all the relevant provisions for the band 5 670-5 725 MHz, for the countries

listed in No. **5.453**, would result in unnecessary burden for both the administrations listed in No. **5.453** and the Bureau. Consequently, the Board instructed the Bureau to accept notifications for mobile, except aeronautical mobile, stations, in the form of typical stations, from the administrations listed in No. **5.453**, provided that the maximum e.i.r.p. does not exceed 1 W, which implies that each typical station notice receivable in the band 5 670-5 725 MHz (with an e.i.r.p. of less than or equal to 1 W) is deemed to be part of a WAS. (MOD RRB12/59)

5.484

See comments under the Rules of Procedure concerning No. **5.441**.

5.485

1 The wording of this provision raised the following basic question: "Is the band 11.7-12.2 GHz in Region 2 allocated to the broadcasting-satellite service?" The Board considered the following:

a) that the provision is not titled an "additional allocation". Some provisions do not have such a title and the Board considered them additional allocations. However, in this case, it is not clear that the intent was to permit an additional allocation;

b) the provision states that "transponders on space stations in the fixed-satellite service may be used additionally ... in the broadcasting-satellite service": the use of the word "additionally", together with the last sentence saying that "this band shall be used principally for the fixed-satellite service", leads to the understanding that the use by the broadcasting-satellite service is not of the same nature as would be the use of a given band by a service to which the band is allocated;

c) the provision refers to transponders, which are to be considered transmitting stations. As the procedures of Articles **9** and **11** and Resolution **33 (Rev.WRC-03)** apply to each assignment, each transponder shall be considered independently from the others. Consequently the provision may be interpreted in either of the following two ways:

- a first interpretation consists in considering that some transponders will be used for the FSS and others for the BSS, and this is equivalent to a sharing of the band between two services which raises a question about the word "principally": how many transponders would be allowed for each of the two services?

- a second interpretation consists in considering that a given transponder of the FSS may be used in a given period of time for broadcasting (this is not to be confused with the use of the FSS for the transport of a video signal between two fixed points). If in such a case the provision was to be considered an additional allocation, a question arises in relation to the procedure to be applied: Should it be that of Articles **9** and **11** or that of Resolution **33 (Rev.WRC-03)**?

2 Keeping in mind the above comments, the Board concluded that the band 11.7-12.2 GHz is not allocated in Region 2 to the broadcasting-satellite service. Those transponders of the fixed-satellite service which are used for broadcasting-satellite purposes will be treated in accordance with Articles **9** and **11** (and Appendix **30** if required to define inter-regional sharing). When such a use is indicated in the notice, the Bureau will assume that the coordination of the network was made on the basis that for the period during which a transponder is used for broadcasting, the e.i.r.p. will not exceed the e.i.r.p. notified for the fixed-satellite service. Considering that the fixed-satellite service uses relatively low e.i.r.p., the Bureau will consider the value of 53 dBW to be a limit not to be exceeded.

5.488

Application of power flux-density (PFD) No. 9.14 coordination thresholds (Region 2 GSO FSS in the band 11.7-12.2 GHz) to steerable beams

1 Use of steerable beams is becoming widespread. PFD values produced by assignments in steerable beams often exceed the applicable PFD coordination thresholds for some or all positions of those beams. In these cases, administrations tend to state that PFD coordination thresholds will not be exceeded and sometimes provide appropriate technical description as to how it would be done.

2 For the purpose of transparency and to set an upper limit on the acceptable extent of the PFD control and avoid subjectivity in the evaluation of the PFD control method, the Board concluded that until the time that a relevant ITU-R Recommendation is available, the following Rule will apply on a provisional basis.

3 In cases where frequency assignments in steerable beams of a GSO FSS satellite network operating in the band 11.7-12.2 GHz exceed, for certain positions of these beams, the PFD thresholds that trigger coordination under No. **9.14** in respect to stations of terrestrial services, the Bureau will establish that coordination is not required only if:

a) there is at least one position of the steerable beam where the applicable PFD coordination thresholds are not exceeded without any reduction of the notified power density; and

b) the administration states that for the other positions of the steerable beam the applicable PFD coordination thresholds will not be exceeded by applying a method, the description of which should be submitted to the Bureau. One possible example of such a method is described in the Annex to the Rule relating to No. **21.16**.

5.492

1 The Board concluded that the frequency bands covered by Appendix **30** are not allocated to the FSS in the Regions where the BSS is subject to the Plan of Appendix **30**. Those transponders of the BSS which are also used for FSS purposes will be treated in accordance with Article 5 of Appendix **30**.

2 Earth stations receiving FSS transmissions from the BSS transponders will be treated as earth stations of the BSS and are not to be notified as individual earth stations.

5.496

1 The fixed and mobile (except aeronautical mobile) services in the countries listed in this provision:

– have equal rights with the FSS in the countries of the footnote and in the relations between them, and the coordination under No. **9.17** and No. **9.18** shall be applied;

– shall be operated under No. **5.43** with respect to the FSS in the other countries of Region 1, and coordination under No. **9.17** cannot be imposed on earth stations. The fixed and mobile stations shall apply coordination under No. **9.18**;

– have equal rights with the services to which the band is allocated in Regions 2 and 3.

2 The comments made under the Rules of Procedure concerning No. **5.164** apply.

5.502

1 As from 5 July 2003, No. **5.502** specifies a minimum antenna diameter of 1.2 and 4.5 m for an earth station of a GSO and non-GSO fixed-satellite service network, respectively, in the frequency band 13.75-14 GHz. Submission of information on antenna diameter became mandatory as from 1 January 2004, with the entry into force of Appendix **4** as modified by WRC-03. To cover the examination of submissions received in the period between these two dates, the Bureau is instructed to use the following maximum earth station antenna gains instead of antenna diameter: maximum antenna gain of 42.3 dBi for $D = 1.2$ m and 53.8 dBi for $D = 4.5$ m (the relation between gain and diameter is derived for the lowest frequency of the band, i.e. $f = 13.75$ GHz, and an antenna efficiency of 57.2%).

2 Power flux-density (PFD) limits of No. **5.502** are applicable as from 5 July 2003. In accordance with Appendix **4** as modified by WRC-03 (data element A.16.b) administrations are required to provide commitment of compliance with these limits when notifying or coordinating a specific earth station with a diameter ≥ 1.2 m and < 4.5 m. Where, for submissions received between 5 July 2003 and 1 January 2004 (date of entry into force of modified Appendix **4**), administrations have not provided the commitment, the Bureau shall establish favourable finding and request the responsible administrations to submit the commitment after 1 January 2004. If the commitment is not submitted within 30 days of the request, the finding shall be changed to unfavourable.

5.503

1 In No. **5.503,** maximum e.i.r.p. density of emissions from a transmitting earth station in the FSS in the frequency band 13.77-13.78 GHz are specified. Non-compliance with these limits results in an unfavourable finding under No. **9.35/11.31**. No. **5.503** also permits these limits to be exceeded to compensate for rain attenuation as long as the power flux-density at the FSS space station does not exceed the value resulting from the use by an earth station of an e.i.r.p. meeting the limits in clear-sky conditions. However, No. **5.503** and Appendix **4** do not specify which value for the power-density and total power of an emission (with maximum antenna gain they form on-axis e.i.r.p density and e.i.r.p.) is to be provided:

i) those prevailing in clear-sky conditions, or

ii) those prevailing during rainfall.

The Board therefore decided that, for frequency assignments to which No. **5.503** applies, administrations shall provide clear-sky values of maximum power-density (Appendix **4** data item C.8.a.2 or C.8.b.2) and maximum power of emissions (Appendix **4** data item C.8.a.1 or C.8.b.1), when requesting coordination or notifying satellite networks or earth stations. This shall apply to coordination requests and notifications received as from 1 January 2009.

2 In No. **5.503**, WRC-03 included e.i.r.p. density limits for earth stations as a function of antenna diameter. These limits are applicable as from 5 July 2003. Antenna diameter not being available before 1 January 2004 (see the Rule relating to No. **5.502**), the Bureau shall use the following e.i.r.p. density limits, as a function of maximum earth station antenna gain (or antenna diameter), for examination of submissions received between 5 July 2003 and 1 January 2004.

	e.i.r.p. density limits in frequency band 13.77-13.78 GHz for earth stations in the FSS operating with GSO space station	
Earth station antenna size (measured by diameter, *D* (m) or maximum antenna gain, *G* (dBi))	**For emissions with necessary bandwidth**	
	≥ 40 kHz	**< 40 kHz**
42.3 dBi ≤ *G* < 53.8 dBi (1.2 m ≤ *D* < 4.5 m)	$0.04324 \times 10^{G/20} + 28$ dB(W/40 kHz) ($4.7D + 28$ dB(W/40 kHz))	
53.8 dBi ≤ *G* < 70.8 dBi (4.5 m ≤ *D* < 31.9 m)	*G* – 4.6 dB(W/40 kHz) (49.2 + 20 log(*D*/4.5) dB(W/40 kHz))	56.2 dB(W/4 kHz)
G ≥ 70.8 dBi (*D* ≥ 31.9 m)	66.2 dB(W/40 kHz)	

The conversion of e.i.r.p. limits from a function of antenna diameter to a function of maximum antenna gain is derived for a frequency of 13.75 GHz and an antenna efficiency of 57.2%.

5.504B

With respect to the observance of mandatory power flux-density limits and other conditions of Recommendation ITU-R M.1643, applicable under Nos. **5.504B**, **5.504C**, **5.508A** and **5.509A** to aircraft earth stations operating in the secondary aeronautical mobile-satellite service, the Board is of the opinion that this is an operational matter. It is therefore for the notifying administration of the satellite network and notifying administrations of aircraft earth stations to ensure the observance of those limits. The Bureau will not perform examination under No. **9.35/11.31** with respect to conformity with those conditions.

5.504C

See Rules of Procedure relating to No. **5.504B**.

5.506A

As from 5 July 2003, No. **5.506A** requires ship earth stations in the frequency band 14-14.5 GHz with an e.i.r.p. greater than 21 dBW to operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (WRC-03)**. While Annex 2 of that Resolution specifies a minimum antenna diameter of 1.2 m, Appendix **4** does not include antenna diameter of these ship earth stations as a required data element. The Bureau is instructed to use antenna gain value of 42.5 dBi when checking the compliance with the minimum ship earth station antenna diameter requirement (the relation between gain and diameter is derived for the lowest frequency of the band, i.e. $f = 14$ GHz, and antenna efficiency of 57.2%).

5.508A

See Rules of Procedure relating to No. **5.504B**.

5.509A

See Rules of Procedure relating to No. **5.504B**.

5.510

1 Provision No. **5.510** limits the use of the band 14.5-14.8 GHz by the fixed-satellite service (FSS) (Earth to-space) to feeder-links for the broadcasting-satellite service (BSS) for countries outside Europe, which means that such use is authorized in Region 2. This allocation was made at WARC-79 with the view to provide feeder-links to the 12 GHz broadcasting-satellite service for the three Regions. Article 2 of Appendix **30A** indicates that the provisions of this Appendix applies to FSS feeder links in the band 14.5-14.8 GHz in Regions 1 and 3 for the BSS in Regions 1 and 3, but there is no mention of the same application in Region 2. Articles 4 and 7 of Appendix **30A** do not include the regulatory procedures to deal with the possible sharing situation between FSS feeder-link networks for the BSS in Region 2 and the Regions 1 and 3 BSS feeder-link Plan and List (outside Europe) in the 14.5-14.8 GHz band.

2 Taking account of the above context, where the utilisation of spectrum is not covered by specific procedures, and that similar existing procedures should be applicable to services having allocations with equal rights, the Board concluded that:

a) the use of the band 14.5-14.8 GHz for BSS feeder-links in the FSS (Earth to-space) in Region 2 is in accordance with the Table of Frequency Allocation;

b) coordination of a BSS feeder-link frequency assignment in the FSS (Earth-to-space) in Region 2 in the band 14.5-14.8 GHz with frequency assignments of the BSS feeder-link subject to a plan shall be effected using the provision of Section I of Article 7 of Appendix **30A**; and,

c) coordination of a frequency assignment to be included in the Regions 1 and 3 feeder-link list with BSS feeder-link frequency assignments in the FSS (Earth-to-space) in Region 2 in the band 14.5-14.8 GHz shall be effected using Appendix **30A** § 4.1.1d).

5.523A

Provision No. **5.523A** obliges administrations which have communicated their GSO satellite systems in the bands 18.8-19.3 GHz and 28.6-29.1 GHz to the Bureau, prior to 18 November 1995, to "*cooperate to the maximum extent possible* to coordinate pursuant to No. **9.11A** with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned". Since there is no basis on which the Bureau could formulate a regulatory finding in this respect, the Board decided on the following course of action:

Administration(s) responsible for the GSO satellite network, when notifying the assignments to the Bureau, shall include a statement indicating that the obligation "shall cooperate to the maximum extent possible" referred to in this provision has been fulfilled and the Bureau shall publish this information in its BR IFIC accordingly.

The above Rule of Procedure was to be applied by administrations and the Radiocommunication Bureau as of 14 July 1998.

5.523B, 5.523C, 5.523D, 5.523E

Provisions Nos. **5.523B**, **5.523C**, **5.523D** and **5.523E** provide information on the different constraints and procedures applying to the FSS in the frequency range 19.3-19.7 GHz. The Board studied the interrelationship between the different FSS usages and also vis-à-vis the terrestrial stations. The Tables relative to 19.3-19.6 GHz and 19.6-19.7 GHz bands below contain the Board's conclusions on this matter.

Table 19.3-19.6 GHz

Coordination request (CR): Column vis-à-vis Row (↗)	Non-GSO FSS ↑ (MSS feeder-link) (RR No.)	Non-GSO FSS ↓ (MSS feeder-link) (RR No.)	Non-GSO FSS ↓ (other) (RR No.)	GSO FSS ↓ (CR < 18.11.95) (RR No.)	GSO FSS ↓ (18.11.95 ≤ CR) (RR No.)	Terrestrial (RR No.)
Non-GSO FSS ↑ (MSS feeder-link)	**9.12** (**5.523B**)	**9.12** (**5.523B/5.523D**)	No CR (**5.523D**)	**22.2** (**5.523C**)	**9.12A** (**5.523B**)	--- (**5.523B**)
Earth station	---	**9.17A**	**9.17A**	**9.17A**	**9.17A**	**9.15**
Non-GSO FSS ↓ (MSS feeder-link)	**9.12** (**5.523B/5.523D**)	**9.12** (**5.523D**)	No CR (**5.523D**)	**22.2** (**5.523D**)	**9.12A** (**5.523D**)	--- PFD limits (**5.523D**)
Earth station	**9.17A**	---	---	---	---	**9.15**
Non-GSO FSS ↓ (other)	No CR (**5.523D**)	No CR (**5.523D**)	No CR (**5.523D**)	**22.2** (**5.523D**)	**22.2** (**5.523D**)	--- PFD limits (**5.523D**)
Earth station	**9.17A**	---	---	---	---	**9.17**
GSO FSS ↓ (CR < 18.11.95)	**22.2** (**5.523C**)	**22.2** (**5.523D**)	**22.2** (**5.523D**)	**9.7**	---	--- PFD limits
Earth station	**9.17A**	---	---	---	---	**9.17**
GSO FSS ↓ (18.11.95 ≤ CR)	**9.13** (**5.523B**)	**9.13** (**5.523D**)	**22.2** (**5.523D**)	**9.7**	**9.7**	--- PFD limits
Earth station	**9.17A**	---	---	---	---	**9.17**
Terrestrial	---	**9.16** (**5.523D**)	**9.18** (**5.523D**)	**9.18**	**9.18**	---

Table 19.6-19.7 GHz

CR request: Column vis-à-vis Row (↗)	Non-GSO FSS ↑ (MSS feeder-link) (RR No.)	Non-GSO FSS ↑ (other) (RR No.)	Non-GSO FSS ↓ (MSS feeder-link) (RR No.)	Non-GSO FSS ↓ (other) (RR No.)	GSO FSS ↑ (CR < 21.11.97) (RR No.)	GSO FSS ↓ (CR < 21.11.97) (RR No.)	GSO FSS ↑ (21.11.97 ≤ CR) (RR No.)	GSO FSS ↓ (21.11.97 ≤ CR) (RR No.)	Terrestrial (RR No.)
Non-GSO FSS ↑ (MSS feeder-link)	**9.12**	**9.12**	**9.12**	No CR	**22.2 (5.523E)**	**22.2 (5.523E)**	**9.12A (5.523D)**	**9.12A (5.523D)**	**(5.523D)**
Earth station	---	---	**9.17A**	**9.17A**	---	**9.17A**	---	**9.17A**	**9.15**
Non-GSO FSS ↑ (other)	**9.12**	**9.12**	**9.12**	No CR	**22.2 (5.523D)**	**22.2 (5.523D)**	**9.12A (5.523D)**	**9.12A (5.523D)**	**(5.523D)**
Earth station	---	---	**9.17A**	**9.17A**	---	**9.17A**	---	**9.17A**	**9.15**
Non-GSO FSS ↓ (MSS feeder-link)	**9.12**	**9.12**	**9.12 (5.523D)**	No CR **(5.523D)**	**22.2 (5.523E)**	**22.2 (5.523E)**	**9.12A (5.523D)**	**9.12A (5.523D)**	PFD limits (21/Section V) **(5.523D)**
Earth station	**9.17A**	**9.17A**	---	---	**9.17A**	---	**9.17A**	---	**9.15**
Non-GSO FSS ↓ (other)	No CR	No CR	No CR **(5.523D)**	No CR **(5.523D)**	**22.2 (5.523D)**	**22.2 (5.523D)**	**22.2 (5.523D)**	**22.2 (5.523D)**	PFD limits (21/Section V) **(5.523D)**
Earth station	**9.17A**	**9.17A**	---	---	**9.17A**	---	**9.17A**	---	**9.17**
GSO FSS ↑ (CR < 21.11.97)	**22.2 (5.523E)**	**22.2 (5.523D)**	**22.2 (5.523E)**	**22.2 (5.523D)**	**9.7**	**9.7**	---	---	---
Earth station	---	---	**9.17A**	**9.17A**	---	**9.17A**	---	**9.17A**	**9.17**
GSO FSS ↓ (CR < 21.11.97)	**22.2 (5.523E)**	**22.2 (5.523D)**	**22.2 (5.523E)**	**22.2 (5.523D)**	**9.7**	**9.7**	---	---	PFD limits (21/Section V)
Earth station	**9.17A**	**9.17A**	---	---	**9.17A**	---	---	---	**9.17**
GSO FSS ↑ (21.11.97 ≤ CR)	**9.13 (5.523E)**	**9.13 (5.523D)**	**9.13 (5.523D)**	**22.2 (5.523D)**	**9.7**	**9.7**	**9.7**	**9.7**	---
Earth station	---	---	**9.17A**	**9.17A**	---	**9.17A**	---	**9.17A**	**9.17**
GSO FSS ↓ (21.11.97 ≤ CR)	**9.13 (5.523D)**	**9.13 (5.523D)**	**9.13 (5.523D)**	**22.2 (5.523D)**	**9.7**	**9.7**	**9.7**	**9.7**	PFD limits (21/Section V)
Earth station	**9.17A**	**9.17A**	---	---	**9.17A**	---	**9.17A**	---	**9.17**
Terrestrial	---	---	**9.16 (5.523D)**	**9.18 (5.523D)**	---	**9.18**	---	**9.18**	---

5.538

For up-link power control beacons, this provision sets an e.i.r.p. limit "in the direction of adjacent satellites on the geostationary-satellite orbit".

The Board is of the opinion that the intention of this provision is to protect parts of the GSO arc adjacent to the satellite under examination in the direction "laterally tangential to the GSO at the position of the network under examination."

5.543

The Board concluded that this provision is an additional allocation to the Earth exploration-satellite service for inter-satellite links. The use of the words "telemetry, tracking, and control purposes" leads the Board to understand that the use is limited to space operation.

5.554

This provision does not provide additional allocation for the FSS in the frequency bands specified therein. It authorizes links between land stations at specified fixed points within the MSS or radionavigation-satellite service. A land station in the context of the latter two services means a land earth station, which, in accordance with its definition, is a feeder-link earth station. Therefore, a space or earth station in the FSS (class of station EC or TC) is not authorized in the frequency bands listed in No. **5.554** (except in the band 123-130 GHz where there is an FSS allocation) and links between specific (as opposed to typical) feeder-link earth stations (e.g. class of station VA, or TI, or the like) are authorized within the MSS or radionavigation-satellite service.

5.556

There is no allocation to radio astronomy in the bands listed in this provision. The Board concluded that the words "national arrangements" are referring to arrangements to be made in each country. These arrangements are not required to be communicated to the Bureau. Notifications of frequency assignments to radio astronomy stations in these bands will be considered by the Bureau not to be in conformity with the Table of Frequency Allocations.

_____

Rules concerning

ARTICLE 6 of the RR

6.7

The information on the effected coordination referred to in this provision, when communicated to the Bureau, will be recorded in the Master Register with a reference to this provision.

Rules concerning the Receivability of forms of notice generally applicable to all notified assignments submitted to the Radiocommunication Bureau in application of the Radio Regulatory Procedures (MOD RRB12/60)

1 Submission of information in electronic format

1.1 Space services (ADD RRB12/60)

The Board noted the requirement for mandatory electronic filing and submission of comments/objections and requests for inclusion or exclusion specified in the *resolves* of Resolutions **55 (Rev.WRC-12)** and **908 (WRC-12)**. It also noted that capture and validation software had been made available to administrations by the Bureau, including software to submit information required in Annex 2 of Resolution **552 (WRC-12)** and in the *instructs the Director of the Radiocommunication Bureau* of Resolution **908 (WRC-12)**. Accordingly, all information indicated in the *resolves* of Resolution **55 (Rev.WRC-12)** and in Annex 2 of Resolution **552 (WRC-12)** and in the Attachment to Resolution **553 (WRC-12)** under § 8 and § 9, shall be submitted to the Bureau in electronic format (except graphical data which can still be submitted in paper form) which is compatible with the BR electronic notice form capture software (SpaceCap) and comments/objections software (SpaceCom) or Capture API Online function of SpaceWISC (Space **W**eb-based **I**nterface for **S**ecure **C**ommunication). In case of Advance publication of information on satellite networks or satellite systems that are subject to coordination procedure under Section II of Article **9**, submission shall be made exclusively via the ITU web interface SpaceWISC available at https://extranet.itu.int/itu-r/spacewisc, instead of e-mail or surface mail. (MOD RRB14/66)

(ADD RRB12/60)

1.2 Terrestrial services

Submission of frequency assignment/allotment notices for terrestrial services in the context of Articles **9**, **11**, **12** and Appendix **25** of the Radio Regulations and various regional agreements shall be made exclusively via the ITU web interface *WISFAT* (**W**eb **I**nterface for **S**ubmission of **F**requency **A**ssignments/allotments) available at http://www.itu.int/ITU-R/go/wisfat/en.

2 Receipt of notices (MOD RRB12/60)

It is incumbent on all administrations to meet deadlines established in the Radio Regulations and, accordingly, to take account of possible mail delays, holidays or periods during which ITU may be closed[1].

Having regard to the various means available for transmission and delivery of notices and other related correspondence, the Board has decided that:

a) Mail received through the postal service[2] shall be recorded as received on the first working day on which it is delivered to the ITU/BR's offices in Geneva. Where the mail is subject to a regulatory time limit that occurs on a date on which the ITU is closed, the mail should be accepted if it has been recorded as received on the first working day following the period of closure.

b) E-mail, telefax documents, SpaceWISC or WISFAT submissions shall be recorded as received on the actual date of receipt, irrespective of whether or not that is a working day at the ITU/BR's offices in Geneva. (MOD RRB14/66)

c) In the case of e-mails (except those to which electronic forms created using SpaceCom are attached), an administration is required to send, within 7 days of the date of the e-mail, a confirmation by either telefax or mail, which shall be regarded as being received on the same date as the original e-mail.

d) All mail must be sent to the following address:

Radiocommunication Bureau
International Telecommunication Union
Place des Nations
CH-1211 Geneva 20
Switzerland

e) All telefaxes must be sent to:

+41 22 730 57 85 (several lines)

f) All e-mails must be sent to:

brmail@itu.int

g) Information received in the ITU/BR by e-mail shall be acknowledged immediately by e-mail by the ITU/BR.

---

1 The Radiocommunication Bureau shall inform administrations by circular letter at the beginning of each year, and as appropriate, about holidays or periods in which ITU may be closed in order to assist them in meeting their obligations.

2 Includes courier, messenger or other services.

3 Establishment of a formal date of receipt of information in accordance with Annex 2 to Appendix 4

3.1 According to provisions Nos. **11.28**[3] and **11.29**, complete notices are examined by date order of their receipt and the Bureau cannot act upon a notice having a technical bearing on an earlier notice until the earlier notice has been dealt with. While similar provisions do not exist in all the regulatory procedures defined in the Radio Regulations, nevertheless, several other provisions tacitly require the same general concept. The Board decided that the principle of treatment by date order of receipt of any submission is to be applied in each of the procedures described in Articles **9** and **11**, Appendices **30**, **30A** and **30B** and Resolutions containing specific procedures. When more than one submission is received on the same date, all those submissions shall be mutually taken into account.

3.2 In order to establish a formal date of receipt for the purpose of treatment of the submissions (notices for advance publication, request for coordination, modification to the Region 2 Plan or proposed new or modified assignments in the Regions 1 and 3 Lists under Article 4 of Appendices **30** or **30A**, proposed new or modified assignments in the guardbands to provide space operation functions under Article 2A of Appendices **30** or **30A**, or request for application of Articles 6 or 7 of Appendix **30B**, and notifications for recording in the Master International Frequency Register (Master Register)), the Bureau shall examine *inter alia* the completeness and correctness of the information submitted by administrations. It shall also take account of the requirements of No. **9.1** when establishing the formal date of receipt of coordination information and notification information with respect to the date of receipt (when the coordination procedure of Section II of Article **9** is applicable) and the date of publication (when coordination is not required by Section II of Article **9**) of advance information, respectively.

3.3 Considering the requirement for mandatory electronic filing and availability to administrations of capture and validation software, where a notice received by the Bureau does not contain all of the mandatory information as defined in Annex 2 of Appendix **4** or appropriate reason for any omissions, the Bureau shall regard the notice as incomplete. The Bureau shall immediately inform the administration and seek the information not provided. Further processing of the notice by the Bureau will remain in abeyance and a formal date of receipt (see § 3.1 above) will not be established until the missing information is received. The formal date of receipt will be the date of receipt of the missing information (see also § 3.6 to 3.10 below).

---

[3] The Board notes that there is an inconsistency between the English (and Spanish) and French texts of provision No. **11.28**. While the English (and Spanish) texts stipulate that "it shall be examined in the date order of their receipt", the French text stipulates that "… il les examinera dans l'ordre ou il les reçoit". There is no mention of "date" in the French text. The current practice of processing in the date order of their receipt will continue until the matter is considered by the next WRC.

3.4 The latest version of the validation software available to administrations, as advised by Circular Letter, is used by the Bureau when assessing the completeness of Appendix **4** Forms of Notice. Administrations are encouraged to run the validation software themselves in order to overcome any difficulties in the notices before they are submitted to the Bureau.

3.5 After processing the Appendix **4** Form of Notice as set out in § 3.3, if the Bureau finds that further clarification is required concerning the correctness of the mandatory data submitted, it shall request the administration responsible for the station or network to provide the clarification within 30 days, otherwise it shall establish the formal date of receipt as that recorded in accordance with § 2 and § 3.2 above.

3.6 If the information or clarification is provided within that period of 30 days (counted from the date of the dispatch of Bureau's message), the date of receipt established by the Bureau in accordance with § 2 and § 3.2 above will be considered as the formal date of receipt for the purpose of any subsequent processing of the notice.

3.7 Nevertheless, for replies received within the above period of 30 days, a new formal date of receipt is established in those cases (or for the concerned part of the station or network) where the information submitted subsequently is outside the scope and beyond the objective of the Bureau's enquiry pursuant to § 3.5 above, if the new or modified data has impact on the regulatory and technical examination, irrespective of whether the newly provided information adds new affected administrations or not. See also the Rules of Procedure relating to provision No. **9.27**.

3.8 If the information or clarification is not provided within the above period of 30 days, the submission shall be considered incomplete and the Bureau will establish no formal date of receipt. A new formal date of receipt will be established when the complete information is received.

3.9 One year after the Bureau sought information under § 3.3 or 3.5, as appropriate, unless otherwise specified in the relevant procedure, any pending submissions containing incomplete information shall be returned to the notifying administration.

3.10 In case of the request for deletion of an assignment, a group of assignments, an emission, beams or other characteristics of a satellite network or satellite system, two situations may arise:

a) The satellite network or satellite system in question has not yet been examined and published by the Bureau. In that case, the initial formal date of receipt will be maintained for the remaining part of the satellite network or system, if any.

b) The satellite network or satellite system in question has already been examined and published by the Bureau. In that case, the request for deletion shall be published in a modification to the previously published relevant Special Section and the technical bearing of the deletion will be examined by the Bureau in the date order of receipt of the request.

4 Other non-receivable submissions

There are, in addition to the above cas of incomplete notice, other circumstances when a notice is not receivable. These cases are described in the following non-exhaustive paragraphs.

4.1 An advance publication notice sent to the Bureau earlier than 7 years before the planned date of bringing into use of the satellite network is not receivable and shall be returned to the administration responsible for the network. (No. **9.1** refers.)

4.2 A notification received by the Bureau earlier than the date limits prescribed in provisions No. **11.25** (date limits relate to the date of bringing into use of a station in a space service) is not receivable and shall be returned to the administration responsible for the network.

4.3 One coordination request of satellite network and possible subsequent modifications can only correspond to one API, including its possible modifications and vice-versa. In accordance with the Rule of Procedure concerning the definition of a satellite network contained in No. **1.112**, this coordination request would thus have only one set of orbital characteristics, i.e. those specified in Section A4 of Appendix **4**. A further coordination request making reference to the same API will only be receivable if the set of orbital characteristics included in that submission are unchanged relative to those in the earlier coordination request submission or are intended to replace that earlier set of orbital characteristics. In all other cases a new API is required as the submission then pertains to a new satellite network.

4.4 The Radio Regulations prescribe, in some cases, the application of multiple procedures, which have to be applied, for the same stations or satellite network, one after another. A typical example of such a case of multiple procedures is a geostationary satellite network to which the application of the advance publication, the coordination (in some cases more than one form of coordination) and the notification procedures, in this order, are mandatory. In such cases, a notice for a particular procedure is receivable only if the previously applicable procedure has been effected. A notice for a request for coordination is not receivable if the advance publication information was not submitted to the Bureau (see also the Rule of Procedure on No. **9.5D**). A notification under Article **11** is not receivable if the advance publication information and coordination request, where applicable, were not received for the satellite network, and shall be returned to the notifying administration. The same shall also apply for the notification of an earth station whose associated space station is not yet notified.

4.5 A notification, received under Article 8 of Appendix **30B** and Article **11** relating to a satellite network/system for which the regulatory time limit (8 or 7 years, as appropriate) has expired, is not receivable and shall be returned to the notifying administration.

5 Whenever the Bureau returns a form of notice, the necessary justification for such an action shall be provided to the notifying administration.

(ADD RRB16/72)

Rules concerning the treatment by the Radiocommunication Bureau of requests for coordination under Article 9 or notification under Article 11 of the Radio Regulations submitted to the Bureau as of the first day after a WRC but before the effective date of entry into force of the WRC new or updated frequency allocations[1]

For a coordination request or notification notice including a frequency assignment under a new or updated allocation adopted by a WRC and received by the Bureau as of the first day after the Conference, the conformity of the frequency assignments, with the Table of Frequency Allocations is considered through the examinations under No. **9.35** (with respect to the conformity with No. **11.31**) or No. **11.31**, as appropriate, and the Findings of the Bureau will reflect the status of the frequency assignment with respect to the conformity with the Table of Frequency Allocations. The Board decided that the following categories of the No. **11.31** Finding shall be formulated according to the dates of receipt of the concerned request for coordination or notification notice and the dates of bringing the frequency assignment into use:

a) the Finding is favourable if, at the date of receipt by the Bureau of the coordination request or notification notice, the frequency allocation concerned is in force;

b) the Finding is unfavourable if, at the date of receipt by the Bureau of the coordination request or notification notice, the frequency allocation concerned has not yet been adopted by the conference;

c) the Finding is "qualified favourable" if, at the date of receipt by the Bureau of the coordination request or notification information, the frequency allocation concerned has been adopted by the conference but is not yet in force. This Finding will permit a network subject to coordination procedure under Section II of Article 9 to coordinate its assignments and to be taken into account in the application of No. **9.27**, and for a network not subject to Section II of Article 9 to be processed under No. **11.36**;

d) the "qualified favourable" Finding will become favourable after the date of coming into force of the frequency allocation and upon confirmation that the date of bringing the frequency assignment into use is actually after the date of entry into force of the subject frequency allocation. Otherwise the finding will become unfavourable.

Except for examination of conformity with the frequency allocation mentioned above, the concerned requests for coordination and notification notices shall be examined under No. **9.36** and with respect to conformity with No. **11.31** and No. **11.32** using the conditions applying to the new or update frequency allocation on the date of entry into force of this allocation as adopted by the WRC (e.g. power limits, coordination criteria…).

---

[1] This Rule of Procedure refers to Article 9 and 11 of the Radio Regulations.

Rules concerning the treatment of change of Notifying administration which acts as the notifying administration of a satellite network on behalf of a group of named administrations

9.1, 9.6.1, 11.15.1, AP30 (4.1.25, 4.1.3, 4.2.6, 5.1.1), AP30A (4.2.6, 4.1.25, 4.1.3, 5.1.2), AP30B (2.6, 6.1)

1 Change of Notifying Administration

Certain provisions of the Radio Regulations (Nos **9.1, 9.6.1, 11.15.1,** Appendix **30 (**§ **4.1.25, 4.1.3, 4.2.6** and **5.1.1),** Appendix **30A (**§ **4.2.6, 4.1.25, 4.1.3** and **5.1.2),** Appendix **30B (**§ **2.6** and **6.1)**) allow for an administration to act on behalf of a group of named administrations for the purpose of notifying the Radiocommunication Bureau of frequency assignments to satellite networks. In such cases, the administration acting on behalf of the group is designated notifying administration for the group within the meaning of the Radio Regulations.

In some cases, the above-mentioned provisions are used for the benefit of an intergovernmental organization (a grouping of States constituted on the basis of an international treaty and having its own common organs).

On several occasions, intergovernmental satellite telecommunication organizations have requested the Bureau to make a change in their notifying administration. In order to clarify the conditions under which the Bureau can effect a change in the name of the notifying administration and update its various databases and the Preface to the BR IFIC (Space Services) (Table 2 and 12A/B), the Board has concluded as follows:

– When an intergovernmental satellite telecommunication organization wishes to designate a new notifying administration vis-à-vis ITU for its satellite networks, the Bureau shall effect the corresponding modifications upon receipt of due written notification to that effect by the legal representative of the intergovernmental organization in question under the terms of its constitutive Act. This notification shall include the evidence of agreement from the newly named administration to act as the notifying administration on behalf of the intergovernmental organization.

Rules concerning

ARTICLE 9 of the RR[1]

(ADD RRB13/62)

Rules concerning the late payment of cost recovery fees and cancellation of satellite network filings due to non-payment of cost recovery fees in accordance with Council Decision 482

1 The provisions of Nos. 9.2B.1 and 9.38.1 of Article 9, A.11.6 of Article 11, footnotes 7 to § 4.1.5, 8 to § 4.1.15, 16 to § 4.2.8, 17 to § 4.2.19, 18 to the title of Article 5, of Appendix 30, footnotes 9 to § 4.1.5, 10 to § 4.1.15, 19 to § 4.2.8, 20 to § 4.2.19, 22 to the title of Article 5, of Appendix 30A and footnote 1 to the title of Article 6, footnote 11 to the title of Article 8 of Appendix 30B, stipulate that if the payments for a notice submitted in accordance with the above provisions are not received in accordance with the provisions of Council Decision 482, as amended, on the implementation of cost recovery for satellite networks filings, the Bureau shall cancel the publication after informing the administration concerned.

2 Council Decision 482 stipulates that payment of charges shall be made within a period of a maximum of six months after issue of the invoice, on the basis of an invoice issued upon receipt of the filing by the Bureau and sent to the notifying administration.

3 Due to administrative delay related mainly to the confirmation of payment by financial institutions and internal validation between the Bureau and the Financial Resources Management Department of the General Secretariat, the decision by the Bureau on a late or non-payment of a satellite network notice is normally submitted for consideration and confirmation at the BR IFIC meeting which normally takes place no more than six weeks after the six-month deadline for cost-recovery fees of the considered notices.

4 In view of the above, the Board decided that satellite networks filings for which the payment has been received after the six-month deadline but prior to the BR IFIC meeting where the late payment is considered, shall continue to be taken into account.

5 Any satellite network filing for which a payment is received after the BR IFIC meeting where a decision to cancel that filing for non-payment has been taken, shall no longer be taken into account, and the information would be reported to a meeting of the Radio Regulations Board.

---

[1] This Rule of Procedure refers to Article 9, 11, to Articles 4 and 5 of Appendices 30 and 30A, and to Articles 6 and 8 of Appendix 30B of the Radio Regulations. (ADD RRB13/62)

Advance publication (Article 9, Section I)

(MOD RRB12/61)

9.2

1 The question may arise as to whether a change of orbital location of a geostationary satellite network up to ±6° is cumulative during the entire regulatory processing (i.e. Advance Publication (Article **9**, Section I), Coordination (Article **9**, Section II), and Notification (Article **11**)) of a network. The Board considers that the cumulative modification of the orbital location of a geostationary satellite network during the entire regulatory processing of a network up to ±6° from the reference orbital position (i.e. the nominal orbital position indicated in the first advance publication of the network) does not require a new advance publication.

2 Networks that have changed their orbital position by 6 to 12° in the period between 3 June 2000 and 4 July 2003 may retain that position and may modify it in the direction of the reference position. Once their orbital position enters into the segment of ±6° from the reference position, further modifications are restricted to that segment.

9.2B (ADD RRB14/66)

In accordance with Resolution **908 (WRC-12)** *instructs the Director of the Radiocommunication Bureau,* the notices for Advance publication of information on satellite networks or satellite systems that are subject to coordination procedure under Section II of Article **9** submitted via the ITU web interface SpaceWISC, shall be published in a Special Section within three months, on the SpaceWISC website: https://extranet.itu.int/itu-r/spacewisc. This publication shall be also linked to the Table of Contents of the related BR IFIC (space services).

9.3

See comments relating to the exclusion of the territory made under the Rules of Procedure concerning No. **9.50**.

9.5

This provision concerns the publication of administrations' comments after the publication by the Bureau of advance publication information of a satellite network or a satellite system that are not subject to the coordination procedures of Section II of Article **9**. The Bureau, using the information received from administrations, will publish a summary of the comments received under No. **9.3** together with the report submitted by the administration responsible for the network under No. **9.4**, if any, in a manner that correctly reflects the situation.

When the administration responsible for the network or any other administration having submitted comments finds the published summary unsatisfactory, the Bureau will publish that administration's comments in extenso.

9.5B

1 See comments relating to the exclusion of the territory made under the Rules of Procedure concerning No. **9.50**.

2 Any comments from administrations under No. **9.5B** submitted via the ITU web interface SpaceWISC, shall be considered as "a copy of these comments to the Bureau" specified in No. **9.5B** of the Radio Regulations and will be made available on the SpaceWISC website: https://extranet.itu.int/itu-r/spacewisc. (MOD RRB14/66)

9.5D

1 Under the provisions of No. **9.5D**, Appendix **4** Forms of Notice containing the coordination request of the satellite network as referred to in Nos. **9.30** and **9.32**, where applicable, must be received by the Bureau within a period of 24 months after the date of receipt of the advance publication information on a satellite network that is subject to the coordination procedure under Section II of Article **9.** The Bureau shall send to the responsible administration a reminder of the requirements of this provision and request for clarification on the status of the satellite network at least 3 months before the expiry of the 24-month period. If Forms of Notice (Appendix **4**) containing the coordination request data have not been submitted to the Bureau within the 24-month period, the Bureau shall cancel the advance information from its databases. For the coordination submission, the general Rules of Procedure on receivability apply.

Coordination requests received after the above-mentioned 24 months shall be considered as advance publication information and coordination data sent at the same time as foreseen by No. **9.1**. The advance publication procedure will have to restart with a new date of receipt and the coordination procedure will be effective not earlier than six months after the date of receipt of the submission.

2 Provision **9.23** stipulates that requests shall be appropriately identified by reference to Nos. **9.7** to **9.14** and **9.21**, and they shall as far as possible be sent to the Bureau and where appropriate, shall be published simultaneously. The Board therefore decided that advance publication information should not be cancelled if the relevant request for coordination relating to at least one form of coordination is received by the Bureau within a period of 24 months after the date of receipt of the relevant information for Advance Publication.

3 When the information under Nos. **9.30** and **9.32**, as the case may be, relating to only one form of coordination (e.g. No. **9.7**) has been received by the Bureau within the above-mentioned time limit, in the case where there is a need to effect more than one form of coordination in accordance with Nos. **9.30** and **9.32**, as the case may be, it is in the interest of administrations that the Bureau establishes those other forms of coordination requirement immediately, rather than to proceed with them after receiving the request at a later date. Moreover, it will be more efficient, expeditious and easy to proceed with the publication required under Nos. **9.34/9.38** at one time (same date of receipt) on the same information.

In view of the above the Board decided to take the following practical approach. The Bureau, as far as possible, identifies any administrations with which coordination may need to be effected under Nos. **9.7** to **9.14** and **9.21** where applicable and includes their names in the publication even if the requests for specific coordination form is not received by the Bureau at that time. If no comment is received from the administration responsible within the four months from the date of publication, it shall be considered that this publication is implemented according to the request of the administration and the corresponding coordination requirement has been established.

Coordination of frequency assignments (Article 9, Section II)

9.6

1 Based on an analysis of Articles **9** and **11** and Appendix **5**, the Board agreed that as far as coordination requests, submitted to the Bureau under Nos. **9.30** or **9.32** (space network coordination cases), are concerned:

a) publication, under No. **9.38**, of requests for coordination shall be made in the order of their date of receipt (see also the general Rules of Procedure on Receivability);

b) the intent of Nos. **9.6** (**9.7** to **9.21**), **9.27** and Appendix **5** is to identify to which administrations a request for coordination is to be addressed, and not to state an order of priorities for rights to a particular orbital position;

c) the coordination process is a two way process. This understanding was included in the Radio Regulations by WARC Orb-88 with the adoption of the former RR provision No. 1085A which was confirmed by WRC-97 in No. **S9.53**;

d) in the application of Article **9** no administration obtains any particular priority as a result of being the first to start either the advance publication phase (Section I of Article **9**) or the request for coordination procedure (Section II of Article **9**).

2 Cases of continuing disagreement or unsuccessful coordination (See No. **9.65**) are dealt with in Article **11** where the goal of the procedures, i.e. the international recognition of frequencies, is secured through the recording of frequency assignments in the Master Register (see also Nos. **11.32A**, **11.33**, **11.41** and **11.41A**).

9.11A

1 With the provisional date of entry into force of the "Simplified Radio Regulations" on 1 January 1999, the provisions of No. **9.11A**, relating to Nos. **9.12** to **9.16** and **9.17A** as appropriate together with associated part of Appendix **5** as well as the relevant provisions of Article **11** replace Resolution **46 (Rev.WRC-97)***.

2 Application of No. 9.11A to different services/frequency bands

2.1 This provision does not specifically define the services to which the coordination procedure required under Nos. **9.12** to **9.16** applies.

2.2 Administrations found some difficulties in applying the equivalent procedure contained in Resolution **46 (Rev.WRC-97)*** now incorporated in Articles **9**, **11** and Appendix **5** with respect to certain categories of services. The question was whether, in addition to the space services specifically mentioned in the footnotes (MSS and radiodetermination-satellite service as well as non-GSO MSS feeder links and non-GSO FSS), the procedure is applicable or not to the other terrestrial and space services not specifically mentioned in the appropriate footnotes.

2.3 While recognizing the difficulties of harmonizing the text of the footnotes to Article **5** introduced by WARC-92, WRC-95 and WRC-97 on the one hand and the text of the provision of No. **9.11A** (including Nos. **9.12** to **9.16**) and **9.17A**, as appropriate with respect to the services to which this provision is applicable, on the other hand, the Board concluded that the procedure is applicable to all other space and terrestrial services with respect to those satellite services having allocations with equal rights and mentioned in the specific footnotes to which this provision applies. The frequency bands are those to which, in a footnote, reference is made to this provision in the Table of Frequency Allocations (see Tables 9.11A-1 and 9.11A-2 below). In these Tables, there is an indication of those other space services

* *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

(in addition to the MSS and radiodetermination-satellite service as well as non-GSO MSS feeder links and non-GSO FSS included in the footnotes) to which this coordination procedure shall also apply. This application is subject to the same condition as that of the space services specifically mentioned in the footnotes, e.g. the coordination of space stations of the other space services (space-to-Earth), with respect to terrestrial services, is required only if the threshold values indicated in Annex 1 to Appendix **5** are exceeded.

2.4 WRC-2000 decided to delete Table S5-1A of Appendix **S5** subject to the condition that it be included in a Rule of Procedure with appropriate modifications (e.g. inclusion of terrestrial services, etc.) (minutes of the Plenary (B.17) refer). The extended version of the above-mentioned Table is contained in Tables 9.11A-1 and 9.11A-2, based on the following considerations:

a) No. **9.15** applies to a specific earth station or typical earth station of a non-GSO satellite network in a frequency band allocated with equal rights to space and terrestrial services, where the allocation to the space service (non-GSO) includes Earth-to-space and/or space-to-Earth direction and for which the requirement to coordinate refers to No. **9.11A**, i.e. coordination of a transmitting earth station in respect of receiving terrestrial stations and coordination of a receiving earth station in respect of transmitting terrestrial stations, if the coordination area of the earth station in a non-GSO satellite network includes the territory of another country (see also Appendix **5**).

b) No. **9.16** applies to a transmitting station of a terrestrial service in a frequency band allocated with equal rights to space and terrestrial services, where the allocations to the space service (non-GSO) includes space-to-Earth direction and for which the requirement to coordinate refers to No. **9.11A**, i.e. coordination of a transmitting terrestrial station within the coordination area of a receiving earth station in a non-GSO satellite network.

2.5 The Board studied the applicability of Nos. **9.15** and **9.16** vis-à-vis Nos. **9.17** and **9.18** and concluded that:

a) coordination requirements under Nos. **9.15** and **9.16** shall apply only to earth stations of a non-geostationary-satellite network in a space service for which the requirement to coordinate is specified in a footnote to the Table of Frequency allocations referring to the provisions of No. **9.11A;** and

b) in all other cases, No. **9.17** or No. **9.18** shall apply, as appropriate.

3 Frequency allocation matters

3.1 The Board studied the relationship between the date of implementation of the new procedure and the date of entry into force of those allocations the associated footnote of which includes a reference to No. **9.11A**. The Board's conclusions are as follows.

3.2 WRC-97, in its Resolution **54 (WRC-97)**[*] instructed the Bureau to apply the provisions of Resolution **46 (Rev.WRC-97)**[**]/No. **S9.11A** as of 22 November 1997 to those bands in which the Resolution is mentioned even though the footnotes to the Table of Frequency Allocations are not in force until a later date. The Board understands that the

[*] *Note by the Secretariat*: This Resolution was suppressed by WRC-2000.

[**] *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

earlier date of implementation of the procedure does not influence the date of entry into force of the related allocations. Tables 9.11A-1 and 9.11A-2 below contain indications on the dates of entry into force of the allocations concerned with the application of No. **9.11A**.

4 Application of the procedure for "existing" networks

4.1 The Board noted that:

a) As of 18 November 1995, in the frequency bands 18.9-19.6 GHz and 28.7-29.4 GHz, and on 22 November 1997, in the frequency bands, 19.6-19.7 GHz, and 29.4-29.5 GHz to which the No. **S9.11A**/Resolution **46**[*] was referred by WRC-95 and WRC-97, as appropriate, some GSO satellite systems were already under the coordination (former Article 11 of the RR) or Master Register recording (former Article 13 of the RR) procedures (complete Appendix **S4**/3 information had been received by the Bureau) and some non-GSO systems were under the Master Register recording procedure (complete Appendix **S4**/3 information had been received by the Bureau under former Article 13 of the RR). On the basis of WRC-97 decisions (see Nos. **S5.523A**, **S5.523C**, **S5.523D**, **S5.523E**) these networks are not subject to the application of No. **S9.11A**/§ 2.1 and 2.2 of Annex 1 to Resolution **46**[*] (to "effect" coordination). This means that, when they are examined under the notification procedure of Article **S11**, the provisions of No. **S11.32** with respect to the application of No. **S9.11A** will not apply with respect to them and that GSO satellite networks already under coordination on 18 November 1995 or 22 November 1997, in the appropriate bands, will not be published by the Bureau in a Special Section in the application of No. **S9.11A**. The Rules of Procedure relating to No. **S5.523A** also apply.

b) As of 18 November 1995, in the frequency bands 18.8-18.9 GHz and 28.6-28.7 GHz, to which the No. **S9.11A**/Resolution **46**[*] was referred by WRC-97, some GSO satellite systems were already under the coordination (former Article 11 of the RR) or Master Register recording (former Article 13 of the RR) procedures (complete Appendix **S4**/3 information had been received by the Bureau before 18 November 1995) and some non-GSO systems were under the Master Register recording procedure (complete Appendix **S4**/3 information had been received by the Bureau under former Article 13 of the RR before 18 November 1995). On the basis of WRC-97 decisions (*resolves* 1 and *instructs the* Radiocommunication Bureau of Resolution **132 (WRC-97)**[**] and No. **S5.523A**) these networks are not subject to the application of No. **S9.11A**/§ 2.1 and 2.2 of Annex 1 to Resolution **46**[*] (to "effect" coordination). This means that, when they are examined under the notification procedure of Article **S11**, the provisions of No. **S11.32** with respect to the application of No. **S9.11A** will not apply with respect to them and that GSO satellite networks already under coordination at that date (18 November 1995) in the above-mentioned bands, will not be published by the Bureau in a Special Section in the application of No. **S9.11A**. The Rules of Procedure relating to No. **S5.523A** also apply.

---

[*] *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

[**] *Note by the Secretariat*: This Resolution was suppressed by WRC-07.

However, GSO and non-GSO satellite systems in the frequency bands 18.8-18.9 GHz and 28.6-28.7 GHz, which were at the stage of coordination (under former Article 11 of the RR) procedure in the period between 18 November 1995 and 17 February 1996 [1] are subject to application of § 2.1 and 2.2 of Annex 1 of Resolution **46 (Rev.WRC-95)*** (to "effect" coordination). This means that, when they are examined under the notification procedure of Article **S11**, the provisions of No. **S11.32** with respect to the application of No. **S9.11A** will apply with respect to them and these networks already under coordination or under Master Register recording in that period in the above-mentioned bands, will be published by the Bureau in a Special Section in the application of No. **S9.11A**/Resolution **46***.

c) GSO satellite networks (under coordination or coordinated under provisions other than No. **S9.11A**/Resolution **46***) as well as GSO and non-GSO cases notified to the Bureau under former Article 13 of the RR before 18 November 1995 will be taken into account in the coordination process under No. **S9.11A** initiated by other administrations after 18 November 1995 or 22 November 1997, as appropriate, in application of No. **S9.27**.

4.2 One of the new frequency bands allocated by WRC-95 to MSS feeder links (FSS allocation limited to this use in the space-to-Earth direction) is the band 6 700-7 075 MHz. The band had already been allocated to the FSS (Earth-to-space) and a portion of the band (6 725-7 025 MHz) is used through the application of the Appendix **S30B** (allotment) Plan. From the establishment of maximum PFD limits to be observed by non-GSO MSS feeder links at the GSO and within a sector of ±5° included in the provisions of § 2.2 of Annex 1 to Appendix **S5** and of No. **S22.5A** (for the protection of emissions in the Earth-to-space direction received by GSO space stations), the Board understands that, when applying No. **S9.11A** to MSS feeder links, Appendix **S30B** entries (Part A allotments, Part B or List assignments) in the band 6 725-7 025 MHz or other GSO receiving space stations (operating in the Earth-to-space direction) in the bands 6 700-6 725 MHz and 7 025-7 075 MHz, shall not be taken into account under No. **S9.27**.

---

[1] Between 18 February 1996 and 22 November 1997, the use of this frequency was frozen by WRC-95.

* *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

TABLE 9.11A-1

Applicability of the provisions of Nos. 9.11A-9.15 to stations of space services

1	2	3		4		5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
137-137.025 137.175-137.825	**5.208**	MOBILE-SATELLITE (non-GSO)	↓	SPACE OPERATION METEOROLOGICAL-SATELLITE SPACE RESEARCH	↓	**9.12, 9.12A, 9.13, 9.14**	FIXED (**5.204**, **5.205**) LAND MOBILE (**5.204**, **5.205**) MARITIME MOBILE (**5.204**, **5.205**) AERONAUTICAL MOBILE (OR) (**5.204**, **5.206**) BROADCASTING (**5.207**)	1
137.025-137.175 137.825-138	**5.208**	Mobile-satellite (non-GSO)	↓	---	↓	**9.12, 9.14**	Fixed (in countries other than those listed in Nos. **5.204** and **5.205**) Land mobile (in countries other than those listed in Nos. **5.204** and **5.205**) Maritime mobile (in countries other than those listed in Nos. **5.204** and **5.205**) Aeronautical mobile (OR) (in countries other than those listed in Nos. **5.204** and **5.206**)	
148-149.9	**5.219**	MOBILE-SATELLITE (non-GSO)	↑	--- (See No. **5.219**)		**9.12**	--- (See No. **5.219**)	
149.9-150.05	**5.220**	MOBILE-SATELLITE (non-GSO)* * Limited to LMSS system until 1.1.2015 (see No. **5.224A**)	↑	--- (See No. **5.220**)		**9.12**	---	
312-315	**5.255**	Mobile-satellite (non-GSO)	↑	Mobile-satellite (GSO)	↑	**9.12, 9.12A, 9.13**	---	
312-315	**5.255**	Mobile-satellite (non-GSO) (**5.254**)	↑	Mobile-satellite (non-GSO) (**5.254**) Mobile-satellite (GSO) (**5.254**)	↓ ↓↑	**9.12, 9.12A, 9.13**	--- (See No. **5.254**)	2
387-390	**5.255**	Mobile-satellite (non-GSO)	↓	Mobile-satellite (GSO)	↓	**9.12, 9.12A, 9.13**	---	
387-390	**5.255**	Mobile-satellite (non-GSO) (**5.254**)	↓	Mobile-satellite (non-GSO) (**5.254**) Mobile-satellite (GSO) (**5.254**)	↑ ↓↑	**9.12, 9.12A, 9.13**	--- (See No. **5.254**)	2
399.9-400.05	**5.220**	MOBILE-SATELLITE (non-GSO)* * Limited to LMSS system until 1.1.2015 (see No. **5.224A**)	↑	--- (See No. **5.220**)		**9.12**	---	

TABLE 9.11A-1 (*continued*)

1	2	3		4		5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
400.15-401	**5.264**	MOBILE-SATELLITE (non-GSO)	↓	METEOROLOGICAL-SATELLITE SPACE RESEARCH	↓	**9.12, 9.12A, 9.13, 9.14**	FIXED (**5.262**) MOBILE (**5.262**) METEOROLOGICAL AIDS	1
454-455	**5.286A**	MOBILE-SATELLITE (non-GSO) (**5.286D**, **5.286E**)	↑	---		**9.12**	--- (See Nos. **5.286B** and **5.286C**)	
455-456 459-460	**5.286A**	MOBILE-SATELLITE (non-GSO) (Region 2 (**5.286E**))	↑	---		**9.12**	--- (See Nos. **5.286B** and **5.286C**)	
1 164-1 215	**5.328B**	RADIONAVIGATION-SATELLITE	↓ ↔	---		**9.12, 9.12A, 9.13**	---	
1 215-1 260	**5.328B**	RADIONAVIGATION-SATELLITE	↓	--- (See No. **5.332**)		**9.12, 9.12A, 9.13**	--- (See No. **5.329**)	
1 215-1 300	**5.328B**	RADIONAVIGATION-SATELLITE	↔	--- (See No. **5.332** and **5.329A**)		**9.12, 9.12A, 9.13**	--- (See No. **5.329**)	
1 260-1 300	**5.328B**	RADIONAVIGATION-SATELLITE	↓	EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active)		**9.12, 9.12A, 9.13**	--- (See No. **5.329**)	
1 518-1 525	**5.348**	MOBILE-SATELLITE (except USA (**5.344**))	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED MOBILE (except on the territory of USA in Region 2, see No. **21.16**)	
1 525-1 530	**5.354**	MOBILE-SATELLITE	↓	SPACE OPERATION (No. **9.14**, Region 2 only, see No. **21.16**)	↓	**9.12, 9.12A, 9.13, 9.14**	FIXED (Region 1, Region 3, see also No. **5.352A**) LAND MOBILE (**5.349**) MARITIME MOBILE (**5.349**) AERONAUTICAL MOBILE (**5.342**, **5.350**)	
1 530-1 535	**5.354**	MOBILE-SATELLITE	↓	SPACE OPERATION	↓	**9.12, 9.12A, 9.13, 9.14**	AERONAUTICAL MOBILE (**5.342**)	
1 535-1 545	**5.354**	MOBILE-SATELLITE	↓	---		**9.12, 9.12A, 9.13**	---	
1 545-1 550	**5.354**	MOBILE-SATELLITE	↓	---		**9.12, 9.12A, 9.13, 9.14**	AERONAUTICAL MOBILE (R) (**5.357**)	3
1 550-1 555	**5.354**	MOBILE-SATELLITE	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED (**5.359**) AERONAUTICAL MOBILE (R) (**5.357**)	3
1 555-1 559	**5.354**	MOBILE-SATELLITE	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED (**5.359**)	
1 559-1 610	**5.328B**	RADIONAVIGATION-SATELLITE	↓	---		**9.12, 9.12A, 9.13**	---	
1 559-1 610	**5.328B**	RADIONAVIGATION-SATELLITE	↔	--- (See No. **5.329A**)		**9.12, 9.12A, 9.13**	---	

TABLE 9.11A-1 (*continued*) (MOD RRB12/61)

1	2	3		4		5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
1 610-1 626.5	**5.364**	MOBILE-SATELLITE (except S (**5.363**)) RADIODETERMINATION-SATELLITE (Region 2 (except country in No. **5.370**), countries in No. **5.369**)	↑	AERONAUTICAL MOBILE-SATELLITE (R) (**5.367**)	↓↑ ↔	**9.12, 9.12A, 9.13**	---	
1 610-1 626.5	**5.364**	Radiodetermination-satellite (Region 1 (**5.371**), Region 3, country in No. **5.370**))	↑	---		**9.12, 9.12A, 9.13**	---	
1 613.8-1 626.5	**5.365**	Mobile-satellite	↓	---		**9.12, 9.12A, 9.13, 9.14**	Fixed (**5.355**)	
1 626.5-1 660.5	**5.354**	MOBILE-SATELLITE	↑	---		**9.12, 9.12A, 9.13**	---	
1 668-1 668.4	**5.379B**	MOBILE-SATELLITE	↑	SPACE RESEARCH		**9.12, 9.12A, 9.13**		
1 668.4-1 670	**5.379B**	MOBILE-SATELLITE	↑	---		**9.12, 9.12A, 9.13**	---	
1 670-1 675	**5.379B**	MOBILE-SATELLITE	↑	METEOROLOGICAL-SATELLITE	↓	**9.12, 9.12A, 9.13**	---	6
1 980-2 010	**5.389A**	MOBILE-SATELLITE	↑	---		**9.12, 9.12A, 9.13**	---	
2 010-2 025	**5.389C**	MOBILE-SATELLITE (Region 2)	↑	---		**9.12, 9.12A, 9.13**	---	
2 160-2 170	**5.389C**	MOBILE-SATELLITE (Region 2)	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED (Region 2) MOBILE (Region 2) (see also No. **5.389E**)	
2 170-2 200	**5.389A**	MOBILE-SATELLITE	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED MOBILE (see also No. **5.389F**)	
2 483.5-2 500	**5.402**	MOBILE-SATELLITE RADIODETERMINATION-SATELLITE	↓	---		**9.12, 9.12A, 9.13, 9.14**	FIXED MOBILE RADIOLOCATION (Region 2, Region 3) (see also No. **5.398A** & **5.399**)	
2 483.5-2 500	**5.402**	Radiodetermination-satellite (Region 1 and Region 3)	↓	---		**9.12, 9.12A, 9.13**	--- (See No. **5.399**)	
2 500-2 520	**5.414**	MOBILE-SATELLITE (Region 3)	↓	FIXED SATELLITE (Region 2 and Region 3), RADIODETERMINATION-SATELLITE (**5.404**)	↓	**9.12, 9.12A, 9.13, 9.14*** * Only applicable to MSS in J and IND (see No. **5.414A**)	FIXED LAND MOBILE MARITIME MOBILE	

TABLE 9.11A-1 (*continued*) (MOD RRB12/61)

1	2	3		4		5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
2 520-2 535	**5.403**	MOBILE-SATELLITE (except AERONAUTICAL MOBILE-SATELLITE) (Region 3)	↓	BROADCASTING-SATELLITE, FIXED SATELLITE (Region 2 and Region 3) AERONAUTICAL MOBILE-SATELLITE (countries in No. **5.415A**)	↓	**9.12, 9.12A, 9.13, 9.14*** * Only applicable to MSS, including AMSS in J and IND (see Nos. **5.414A** and **5.415A**)	FIXED LAND MOBILE MARITIME MOBILE	
2 605-2 630	**5.417B** **5.417C** **5.417D**	BROADCASTING-SATELLITE (sound) (**5.417A**)	↓	BROADCASTING-SATELLITE (**5.416**) FIXED-SATELLITE (Region 2)	↓	**9.12, 9.12A, 9.13**	---	4, 5
2 630-2 655	**5.418A** **5.418B** **5.418C**	BROADCASTING-SATELLITE (sound) (**5.418**)	↓	BROADCASTING-SATELLITE (**5.416**) FIXED-SATELLITE (Region 2)	↓	**9.12, 9.12A, 9.13**	---	4, 5
2 655-2 670	**5.420**	MOBILE-SATELLITE (except AERONAUTICAL MOBILE-SATELLITE) (Region 3)	↑	BROADCASTING-SATELLITE FIXED SATELLITE (Region 2 and Region 3)	↓ ↑ ↓	**9.12, 9.12A, 9.13**	---	
2 670-2 690	**5.419**	MOBILE-SATELLITE (Region 3)	↑	FIXED SATELLITE (Region 2 and Region 3)	↑ ↓	**9.12, 9.12A, 9.13**	---	
5 010-5 030	**5.328B**	RADIONAVIGATION-SATELLITE	↓ ↔	AERONAUTICAL MOBILE-SATELLITE (R)	↓ ↑ ↔	**9.12, 9.12A, 9.13**	---	
5 030-5 091	**5.443D**	AERONAUTICAL MOBILE-SATELLITE (R)	↓ ↑ ↔	---		**9.12, 9.12A, 9.13, 9.14**	AERONAUTICAL MOBILE (R)	
5 091-5 150	**5.444A**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	AERONAUTICAL MOBILE-SATELLITE (R)	↓ ↑ ↔	**9.12, 9.12A, 9.13**	---	
5 150-5 216	**5.447A** **5.447B**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↓ ↑	RADIODETERMINATION-SATELLITE (non-GSO) (**5.446**), with date of bringing into use prior to 17.11.1995 (see No. **5.447C**)	↓	**9.12, 9.12A, 9.13**	---	
5 216-5 250	**5.447A**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	---		**9.12, 9.12A, 9.13**	---	
6 700-7 075	**5.458B**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↓	FIXED-SATELLITE (non-GSO) in bands 6 700-6 725 MHz and 7 025-7 075 MHz (see also No. **5.458C**)	↑	**9.12**	---	

TABLE 9.11A-1 (*continued*)

1	2	3		4		5	6	7
Frequency band (GHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
10.7-11.7	**5.441** **5.484A**	FIXED-SATELLITE (non-GSO)	↓	FIXED-SATELLITE (non-GSO) (Region 1)	↑	**9.12**	---	
11.7-12.2	**5.488** and Res. **142** **(WRC-03)**	FIXED-SATELLITE (GSO) (Region 2)	↓	---		**9.14**	FIXED (except in United States of America and Mexico (see No. **5.486**), in the band 11.7-12.1 GHz FIXED (Regions 1 and 3) and in Peru, (see No. **5.489**), in the band 12.1-12.2 GHz MOBILE except aeronautical mobile (Regions 1 and 3)	
11.7-12.5	**5.484A** **5.487A**	FIXED-SATELLITE (non-GSO)	↓	---		**9.12**	---	
12.5-12.7	**5.484A** **5.487A**	FIXED-SATELLITE (non-GSO)	↓	FIXED-SATELLITE (non-GSO) (Region 1) BROADCASTING-SATELLITE (non-GSO) (Region 3)	↑ ↓	**9.12**	---	
12.7-12.75	**5.484A**	FIXED-SATELLITE (non-GSO) (Region 1 and Region 3)	↓	FIXED-SATELLITE (non-GSO) (Region 1 and Region 2) BROADCASTING-SATELLITE (non-GSO) (Region 3)	↑ ↓	**9.12**		
12.75-13.25	**5.441**	FIXED-SATELLITE (non-GSO)	↑	---		**9.12**	---	
13.75-14.5	**5.484A**	FIXED-SATELLITE (non-GSO)	↑	---		**9.12**	---	
15.43-15.63	**5.511A**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↓ ↑	---		**9.12**	---	
15.63-15.65	**5.511D**	FIXED-SATELLITE (non-GSO)	↓	FIXED-SATELLITE	↑	**9.12, 9.12A, 9.13, 9.14**	AERONAUTICAL RADIONAVIGATION (see also No. **5.511D**)	
17.3-17.7	**5.516**	FIXED-SATELLITE (non-GSO) (Region 1 and Region 3)	↑	FIXED-SATELLITE (non-GSO) (Region 1) BROADCASTING-SATELLITE (Non-GSO) (Region 2)	↓	**9.12**	---	
17.7-17.8	**5.516**	FIXED-SATELLITE (non-GSO) (Region 1 and Region 3)	↑	FIXED-SATELLITE (non-GSO) (Region 1 and Region 3) BROADCASTING-SATELLITE (Non-GSO) (Region 2)	↓	**9.12**	---	
17.8-18.1	**5.516** **5.484A**	FIXED-SATELLITE (non-GSO)	↑ ↓	---		**9.12**	---	
18.1-18.6	**5.484A**	FIXED-SATELLITE (non-GSO)	↓	---		**9.12**	---	
18.8-19.3	**5.523A**	FIXED-SATELLITE	↓	---		**9.12, 9.12A, 9.13**	---	

TABLE 9.11A-1 (*end*)

1	2	3		4		5	6	7
Frequency band (GHz)	Footnote No. in Article **5**	Space services mentioned in a footnote referring to Nos. **9.11A**, **9.12**, **9.12A**, **9.13** or **9.14**, as appropriate		Other space services or systems to which Nos. **9.12** to **9.14** provisions(s) apply equally, as appropriate		Applicable Nos. **9.12** to **9.14** provision(s), as appropriate	Terrestrial services in respect of which No. **9.14** apply equally	Notes
19.3-19.6	**5.523B**	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	---		**9.12, 9.12A, 9.13**	---	
	5.523D	FIXED-SATELLITE (GSO with coordination information received as of 18.11.1995 and non-GSO MOBILE-SATELLITE SERVICE feeder links) (see also No. **5.523C**)	↓					
19.6-19.7	**5.523D**	FIXED-SATELLITE (GSO with coordination information received as of 22.11.1997 and non-GSO MOBILE-SATELLITE SERVICE feeder links) (see also No. **5.523E**)	↓	FIXED-SATELLITE (GSO with coordination information received as of 22.11.1997 and non-GSO) (see also No. **5.523E**)	↑	**9.12, 9.12A, 9.13**	---	
19.7-20.1	**5.484A**	FIXED-SATELLITE (non-GSO)	↓	MOBILE-SATELLITE (Non-GSO) (Region 2)	↓	**9.12**	---	
20.1-20.2	**5.484A**	FIXED-SATELLITE (non-GSO)	↓	MOBILE-SATELLITE (Non-GSO)	↓	**9.12**	---	
27.5-28.6	**5.484A**	FIXED-SATELLITE (non-GSO)	↑	FIXED-SATELLITE (Non-GSO) in the band 27.5-27.501 GHz (**5.538**)	↓	**9.12**	---	
28.6-29.1	**5.523A**	FIXED-SATELLITE	↑	---		**9.12, 9.12A, 9.13**	---	
29.1-29.5	**5.535A**	FIXED-SATELLITE (GSO) (see also Nos. **5.523C** and **5.523E**) and non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	---		**9.12, 9.12A, 9.13**	---	
29.5-29.9	**5.484A**	FIXED-SATELLITE (non-GSO)	↑	MOBILE-SATELLITE (Non-GSO) (Region 2)	↑	**9.12**	---	
29.9-30	**5.484A**	FIXED-SATELLITE (non-GSO)	↑	MOBILE-SATELLITE (Non-GSO) FIXED-SATELLITE (Non-GSO) in the band 29.999-30 GHz (**5.538**)	↑ ↓	**9.12**		

Notes to Table 9.11A-1:

[1] Coordination thresholds indicated in Annex 1 to Appendix **5** apply only to the MOBILE-SATELLITE service.

[2] For the status of this additional allocation with respect to other services see No. **5.254**.

[3] See Rule of Procedure on No. **5.357**.

[4] The coordination of the non-GSO BROADCASTING-SATELLITE service (sound) in respect of terrestrial services is subject to the provisions of Resolution **539 (Rev.WRC-03)**.

[5] For the applicability of the forms of coordination (Nos. **9.12**, **9.12A** or **9.13**) to be applied between services mentioned in columns 3 and 4, please refer to the Rules of Procedure on frequency band 2 605-2 655 MHz and the Rules of Procedure relating to No. **5.418C**, as appropriate.

[6] For the relation between the MOBILE-SATELLITE service and earth stations in the METEOROLOGICAL-SATELLITE service, see also No. **5.380A**.

TABLE 9.11A-2

Applicability of the provisions of No. 9.15 to earth stations of a non-geostationary satellite network and No. 9.16 to stations of terrestrial services

1	2	3	4	5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Terrestrial services to which No. **9.16** applies and in respect of which No. **9.15** applies	Space services mentioned in a footnote referring to No. **9.11A** to which No. **9.15** applies and in respect of which No. **9.16** applies		Applicable Nos. **9.15**, **9.16** provision(s)	Notes
137-137.025 137.175-137.825	**5.208**	FIXED (**5.204**, **5.205**) LAND MOBILE (**5.204**, **5.205**) MARITIME MOBILE (**5.204, 5.205**) AERONAUTICAL MOBILE (OR) (**5.204**, **5.206)** BROADCASTING (**5.207**)	MOBILE-SATELLITE (non-GSO (**5.209**))	↓	**9.15, 9.16**	1
137.025-137.175 137.825-138	**5.208**	Fixed (in countries other than those listed in Nos. **5.204**, **5.205**) Land mobile (in countries other than those listed in Nos. **5.204**, **5.205)** Maritime mobile (in countries other than those listed in Nos. **5.204**, **5.205**) Aeronautical mobile (OR) (in countries other than those listed in Nos. **5.204**, **5.206**)	Mobile-satellite (non-GSO (**5.209**))	↓	**9.15, 9.16**	1

TABLE 9.11A-2 (*continued*)

1	2	3	4	5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Terrestrial services to which No. **9.16** applies and in respect of which No. **9.15** applies	Space services mentioned in a footnote referring to No. **9.11A** to which No. **9.15** applies and in respect of which No. **9.16** applies		Applicable Nos. **9.15**, **9.16** provision(s)	Notes
400.15-401	**5.264**	FIXED (**5.262**) MOBILE (**5.262**) METEOROLOGICAL AIDS	MOBILE-SATELLITE (non-GSO (**5.209**))	↓	**9.15, 9.16**	1
1 518-1 525	**5.348** **5.348A** **5.348B**	LAND MOBILE (except J (No. **5.348A**)) MARITIME MOBILE (except J (No. **5.348A**)) AERONAUTICAL MOBILE (In Regions 2 and 3, except J (No. **5.348A**) and with the exception of aeronautical mobile telemetry in USA (**5.348B**))	MOBILE-SATELLITE (except USA (**5.344**))	↓	**9.15, 9.16**	1
1 525-1 530	**5.354**	FIXED (Region 1, Region 3, see also No. **5.352A**) LAND MOBILE (**5.349**) MARITIME MOBILE (**5.349**) AERONAUTICAL MOBILE (**5.342**, **5.350**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1
1 530-1 535	**5.354**	AERONAUTICAL MOBILE (**5.342**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1
1 545-1 550	**5.354**	AERONAUTICAL MOBILE (R) (**5.357**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1, 2
1 550-1 555	**5.354**	FIXED **(5.359)** AERONAUTICAL MOBILE (R) (**5.357**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1, 2
1 555-1 559	**5.354**	FIXED (**5.359**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1
1 610-1 626.5	**5.364**	Fixed **(5.355)**	Radiodetermination-satellite (Region 1 (**5.371**), Region 3, country in No. **5.370**)	↑	**9.15**	1
1 613.8-1 626.5	**5.365**	Fixed (**5.355)**	Mobile-satellite	↓	**9.15, 9.16**	1
1 626.5-1 631.5 1 634.5-1 645.5	**5.354**	FIXED (**5.359**)	MOBILE-SATELLITE	↑	**9.15**	1
1 646.5-1 656.5	**5.354**	FIXED (**5.359**) AERONAUTICAL MOBILE (R) (**5.376**)	MOBILE-SATELLITE	↑	**9.15**	1
1 668.4-1 670	**5.379B**	FIXED MOBILE (except aeronautical mobile) METEOROLOGICAL AIDS	MOBILE-SATELLITE	↑	**9.15**	1, 3

TABLE 9.11A-2 (*continued*) (MOD RRB12/61)

1	2	3	4	5	6	7
Frequency band (MHz)	Footnote No. in Article **5**	Terrestrial services to which No. **9.16** applies and in respect of which No. **9.15** applies	Space services mentioned in a footnote referring to No. **9.11A** to which No. **9.15** applies and in respect of which No. **9.16** applies		Applicable Nos. **9.15**, **9.16** provision(s)	Notes
1 670-1 675	**5.379B**	FIXED LAND MOBILE METEOROLOGICAL AIDS	MOBILE-SATELLITE	↑	**9.15**	1, 3, 4
1 980-1 990	**5.389A**	FIXED (except Region 2 countries in No. **5.389B**) MOBILE (except Region 2 countries in No. **5.389B**) (see also No. **5.389F**)	MOBILE-SATELLITE	↑	**9.15**	1
1 990-2 010	**5.389A**	FIXED MOBILE (see also No. **5.389F**)	MOBILE-SATELLITE	↑	**9.15**	1
2 010-2 025	**5.389C**	FIXED (Region 2) MOBILE (Region 2) (see also Nos. **5.389E** and **5.390**)	MOBILE-SATELLITE (Region 2)	↑	**9.15**	1
2 160-2 170	**5.389C**	FIXED (Region 2) MOBILE (Region 2) (see also Nos. **5.389E** and **5.390**)	MOBILE-SATELLITE (Region 2)	↓	**9.15, 9.16**	1
2 170-2 200	**5.389A**	FIXED MOBILE (see also No. **5.389F**)	MOBILE-SATELLITE	↓	**9.15, 9.16**	1
2 483.5-2 500	**5.402**	RADIOLOCATION (Region 2, Region 3) (see also No. **5.398** & **5.399**) FIXED MOBILE	MOBILE-SATELLITE RADIODETERMINATION-SATELLITE	↓	**9.15, 9.16**	1
2 500-2 520	**5.414**	FIXED LAND MOBILE MARITIME MOBILE	MOBILE-SATELLITE (R3)	↓	**9.15, 9.16**	1
2 520-2 535	**5.403**	FIXED LAND MOBILE MARITIME MOBILE	LAND MOBILE-SATELLITE (R3) MARITIME MOBILE-SATELLITE (R3)	↓	**9.15, 9.16**	1
2 655-2 670	**5.420**	FIXED LAND MOBILE MARITIME MOBILE	LAND MOBILE-SATELLITE (R3) MARITIME MOBILE-SATELLITE (R3)	↑	**9.15**	1

TABLE 9.11A-2 (*continued*) (MOD RRB12/61)

1	2	3	4	5	6	7
Frequency band (MHz/GHz)	Footnote No. in Article **5**	Terrestrial services to which No. **9.16** applies and in respect of which No. **9.15** applies	Space services mentioned in a footnote referring to No. **9.11A** to which No. **9.15** applies and in respect of which No. **9.16** applies		Applicable Nos. **9.15**, **9.16** provision(s)	Notes
2 670-2 690	**5.419**	FIXED LAND MOBILE MARITIME MOBILE	MOBILE-SATELLITE (R3)	↑	**9.15**	1
5 030-5 091	**5.443D**	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE SATELLITE (R)	↑	**9.15**	1
5 030-5 091	**5.443D**	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE SATELLITE (R)	↓	**9.15, 9.16**	1
5 091-5 150	**5.444A**	AERONAUTICAL MOBILE	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	**9.15**	1
5 150-5 216	**5.447B**	AERONAUTICAL RADIONAVIGATION LAND MOBILE MARITIME MOBILE AERONAUTICAL MOBILE (**5.447**)	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↓	**9.15, 9.16**	1
5 150-5 250	**5.447A**	AERONAUTICAL RADIONAVIGATION	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	**9.15**	1
6 700-7 075	**5.458B**	FIXED MOBILE	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↓	**9.15, 9.16**	1
15.43-15.63	**5.511A**	AERONAUTICAL RADIONAVIGATION	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links (**5.511A**))	↑	**9.15**	1, 6
15.43-15.63	**5.511A**	AERONAUTICAL RADIONAVIGATION	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links (**5.511A**))	↓	**9.15, 9.16**	1, 5
15.63-15.65	**5.511D**	AERONAUTICAL RADIONAVIGATION	FIXED-SATELLITE (limited to non-GSO (**5.511D**))	↓	**9.15, 9.16**	1
18.8-19.3	**5.523A**	FIXED MOBILE	FIXED-SATELLITE	↓	**9.15, 9.16**	1
19.3-19.6	**5.523B**	FIXED MOBILE	FIXED-SATELLITE (limited to non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	**9.15**	1
19.3-19.6	**5.523B**	FIXED MOBILE	FIXED-SATELLITE (non-GSO MOBILE-SATELLITE SERVICE feeder links) (see also No. **5.523C**)	↓	**9.15, 9.16**	1

TABLE 9.11A-2 (*continued*)

1	2	3	4	5	6	7
Frequency band (GHz)	Footnote No. in Article **5**	Terrestrial services to which No. **9.16** applies and in respect of which No. **9.15** applies	Space services mentioned in a footnote referring to No. **9.11A** to which No. **9.15** applies and in respect of which No. **9.16** applies		Applicable Nos. **9.15**, **9.16** provision(s)	Notes
19.6-19.7	**5.523D**	FIXED MOBILE	FIXED-SATELLITE (non-GSO MOBILE-SATELLITE SERVICE feeder links) (see also No. **5.523E**)	↓	**9.15, 9.16**	1
28.6-29.1	**5.523A**	FIXED MOBILE	FIXED-SATELLITE (non-GSO)	↑	**9.15**	1
29.1-29.5	**5.535A**	FIXED MOBILE	FIXED-SATELLITE (non-GSO MOBILE-SATELLITE SERVICE feeder links)	↑	**9.15**	1

[1] See § 2.4.b), 2.4.c) and 2.5 of the Rules of Procedure relating to No. **9.11A** for the application of Nos. **9.15**, **9.16**, **9.17** and **9.18**.

[2] See Rule of Procedure relating to No. **5.357.**

[3] Not subject to the provisions of No. **9.15** in respect of the METEOROLOGICAL AIDS service in countries listed in No. **5.379E**.

[4] Not subject to the provisions of No. **9.15** in respect of the FIXED and MOBILE service in CAN and USA (No. **5.379D**).

[5] Stations in the aeronautical radionavigation service in this band are subject to power limits indicated in Recommendation ITU-R S.1340 (see No. **5.511C**).

9.15 to 9.19

1 The expression in Nos. **9.15**, **9.17** and **9.17A** of "band allocated with equal rights" is understood to mean equality of rights between services to which the band is allocated. According to footnote 1 to § 1 of Appendix **5** the "equality of right" condition is extended to all coordination forms under Nos. **9.15** to **9.19**.

2 See also the Rules of Procedure concerning Appendix **7**.

9.18

The coordination procedure of No. **9.18** is to be applied only in frequency bands allocated to a space service in the direction space-to-Earth, i.e. when transmitting terrestrial stations are inside the coordination area of a receiving earth station for which coordination under No. **9.17** has already been initiated and in the case where both services have the same category of allocation.

The coordination between receiving terrestrial stations and transmitting earth stations is done only when the transmitting earth station is coordinated in application of No. **9.17**. Once that coordination is initiated an administration wishing to operate terrestrial stations within the coordination area of the transmitting earth station can evaluate the level of interference that its station may receive and decide by itself whether to proceed or not with the implementation of its terrestrial stations.

9.19

This provision relates to the requirements of coordination of transmitting terrestrial stations and transmitting earth stations in the FSS (Earth-to-space) with respect to typical BSS earth stations. To date, there is no ITU-R Recommendation defining the power flux-density level produced by the terrestrial stations and transmitting earth stations in the FSS at the edge of the service area of non-planned BSS to be used for triggering the coordination. Until such time that a calculation method and technical criteria are included in the relevant ITU-R Recommendations, in applying this provision, for the identification of affected administrations, the Bureau, in addition to the frequency overlap examination, also uses, on a provisional basis, the power flux-density limits in the nearest frequency band(s), where available.

9.21

1 Notification under Article 11 before the completion of the procedure of No. 9.21

The Bureau accepts notifications under Article **11** with a reference to No. **4.4** in a band where the coordination procedure of No. **9.21** is to be applied at any moment before starting the procedure or during the application of the procedure of No. **9.21** (See No. **11.31.1**). For cases of notification under Article **11**, where the coordination of No. **9.21** was already initiated but not yet fully completed, see comments under the Rules of Procedure relating to No. **11.31.1** and No. **11.37**.

2 Secondary services

2.1 Upgrade of the status of the allocation for specific assignments

The following Rule has been adopted by the Board for application in cases where the application of the coordination procedure of No. **9.21** will upgrade a secondary allocation made in the Table or in a footnote (e.g. No. **5.371**) to a primary status for specific assignments (e.g. Nos. **5.325** and **5.326**). (MOD RRB12/61)

For the purpose of identifying other administrations (Administration B) likely to be affected, assignments to stations of secondary services already entered in the Master Register and subject to provisions of Nos. **5.28** to **5.31** shall not be taken into consideration in cases involving those services of the requesting administration (Administration A) which are

subject to the coordination procedure of No. **9.21** and will have primary status once that procedure has been successfully applied. Consequently, when criteria are drawn up for identifying affected administrations, secondary services shall not be regarded as enjoying protection against a primary service subject to the coordination procedure of No. **9.21**.

2.2 Coordination of assignments in allocation situations on a secondary basis

There are several provisions where the allocation is made on a secondary basis subject to the application of the procedure defined in No. **9.21** (e.g. **5.181**, **5.197**, **5.259**, **5.371**). For the application of the **9.21** procedure in these cases, some specific elements would need to be taken into account.

It is to be noted that in accordance with No. **9.52**, any administration may object to the planned use on the basis of its existing or planned stations and that No. **9.52C** stipulates that "an administration not responding ... shall be regarded as unaffected". An administration may consider that the application of the No. **9.21** procedure will result in a secondary status, and assume that there is no need for it to comment, since the secondary service is required to not cause harmful interference to a primary service. Consequently an assignment for which the No. **9.21** procedure was applied shall be considered secondary with respect to administrations which have given their agreement as well as to administrations which have not commented upon it within the time-limits specified in No. **9.52**. Any other arrangement between administrations when reaching agreement in application of the No. **9.21** agreement procedure is considered only in the relations between those administrations.

3 Coordination of a satellite network

When an administration communicates Appendix **4** data (AP**4**/II Notice Forms) for a satellite network to initiate the coordination procedure of No. **9.21**, the Bureau will act under Nos. **9.36** to **9.38** for that satellite network with respect to other satellite networks and for the space station of that satellite network with respect to terrestrial services, as appropriate.

If the administration requests that No. **9.21** be also initiated for earth stations of the satellite network, the request shall be accompanied with the AP**4**/III Notice Forms. The Bureau will then establish coordination and/or "agreement" areas, as appropriate, for specific and/or typical earth stations located on the territory of the requesting administration, and publish the information under No. **9.38**. In case horizon elevation data were not provided, as well as in the case of typical earth stations, a value of 0° will be assumed by the Bureau.

9.23

See comments under the Rules of Procedure concerning No. **9.5D**.

9.27

1 Frequency assignments to be taken into account in the coordination procedure

Frequency assignments to be taken into account in the coordination procedure are mentioned in § 1 to 5 of Appendix **5** (see also Rules of Procedure concerning No. **9.36** and Appendix **5**).

1.1 The period between the date of receipt by the Bureau of relevant information under No. **9.1** or **9.2** for a satellite network and the date of bringing into use of the assignments of the satellite network in question shall in no circumstance exceed seven years as referred to in No. **11.44**. Consequently, frequency assignments not complying with these time-limits will no longer be taken into account under the provisions of No. **9.27** and Appendix **5**. (See also Nos. **11.43A**, **11.48,** Resolution **49 (Rev.WRC-12)** and Resolution **552 (WRC-12)**.) (MOD RRB12/61)

2 Modification of characteristics of a satellite network during coordination

2.1 After an administration informs the Bureau of a modification of characteristics of its network, it is essential to establish its proper coordination requirements with respect to other administrations, i.e. with which administration(s), and for which of their network(s), the modified part of the network needs to effect coordination before it can be notified for recording.

2.2 The guiding principles for dealing with modifications are:

– general obligation to effect coordination before notification (No. **9.6**), and

– the fact that coordination is not required when the nature of the change is such as not to increase the interference to or from, as the case may be, the assignments of another administration, as specified in Appendix **5**.

2.3 Based on these principles, and provided that the appropriate coordination trigger limit is exceeded, the modified part of the network will need to effect coordination with respect to space networks that are to be taken into account for coordination:

a) networks with "2D-Date"[2] before D1[3];

---

[2] The "2D-Date" is the date from which an assignment is taken into account as defined in § 1 *e)* of Appendix **5**.

[3] D1 is the original "2D-Date" of the network undergoing modification.

b) networks with "2D-Date" between D1 and D2[4], where the nature of the change is such as to increase the interference to or from, as the case may be, the assignments of these networks. In case of GSO networks referred to in No. **9.7**, including those to which the coordination arc approach has been applied (see No. **9.7** of Table 5-1 of Appendix **5)**, the increase of interference will be measured in terms of $\Delta T/T$, or pfd values when Resolution **553** (WRC-12) or Resolution **554** (WRC-12) apply. (MOD RRB12/61)

2.3.1 Where the coordination requirements of the modification involve any network under *b)* above, the modified assignments will have D2 as their "2D-Date". Otherwise, they will retain D1 as their "2D-Date".

2.3.2 In case of successive modifications of the same part of the network, if the next modification (compared with the previous modification) does not increase the interference to or from a particular network not included in the coordination requirements under *b)* above, that particular network will not be included in the coordination requirements of that next modification.

2.3.3 If it is not possible to verify that there is no increase of interference (e.g. in the absence of appropriate criteria or calculation methods), the "2D-Date" of the modified assignments will be D2.

2.4 After having examined the modified network as described in § 2.3 above, the Bureau shall publish the modification, including its coordination requirements, in the appropriate Special Section for comments by administrations within the usual 4-month period. Initial characteristics are thus replaced by the published modified characteristics, and only the latter will be taken into account in subsequent applications of No. **9.36**.

3 Modification to characteristics of an earth station

3.1 The use of another associated space station may be one of the modifications of characteristics to an earth station. In the case of examination under Nos. **9.15**, **9.17** and **9.17A**, a new coordination contour is drawn and compared with the previous one. Coordination is then required with any administration on the territory of which a coordination distance is increased. In the case of examination under No. **9.19**, the pfd of the transmitting earth station with modified characteristics is calculated at the edge of the BSS service area. Coordination is then required with any administration on the territory of which the pfd at the edge of the BSS service area is increased as the result of modification of characteristics of the transmitting earth station in the FSS and is above the permissible level. However, if the initial associated space station has been cancelled or if the coordinated frequency assignments of the earth station do not cover the newly notified assignments, this notification of the assignments of the earth station will be considered as a new notice (first notification).

3.2 Generally, the Bureau uses the same approach, i.e. an increase of the coordination distance or an increase of the pfd at the edge of the BSS service area, according to the case, in order to decide if there is an increase of interference.

---

[4] D2 is the date of receipt of request for modification. Concerning the date of receipt, see the Rule of Procedure on Receivability.

9.28, 9.29 and 9.31

1 These provisions of the Radio Regulations establish the complete responsibility of the requesting administration for effecting the coordination of the frequency assignments to stations in the terrestrial services and to earth stations (specific or typical) of satellite networks with respect to other earth stations and stations of terrestrial services (see Nos. **9.15** to **9.19**), without any involvement of the Radiocommunication Bureau, except the cases referred to in Nos. **9.33** and/or **9.52**. Therefore, the Board considers these provisions as being addressed to administrations, and the Bureau has no action to take in this respect.

2 See also the Rules of Procedure under No. **11.32** (§ 4).

9.36

1 Under this provision, the Bureau "shall identify any administrations with which coordination may need to be effected". In applying Appendix **5** with respect to No. **9.21**, the Bureau uses the following calculation methods and criteria[5]:

– space network vs. space network: Appendix **8**;

– earth station vs. terrestrial stations and *vice versa*, and earth station vs. other earth stations operating in the opposite direction of transmission: Appendix **7**;

– transmitting terrestrial stations vs. receiving space stations: criteria of Article **21**;

– transmitting space stations vs. terrestrial services[6];

  – power flux-density (pfd) limits defined in Article **21** (where such limits are not applicable as hard limits to the service which is subject to No. **9.21**); or

  – coordination threshold pfd values applicable to other services in the same frequency band (e.g. pfd values in Table 5-2 of Annex 1 to Appendix **5**);

– receiving space stations vs. transmitting terrestrial stations: frequency overlap within the visibility area of the satellite network;

– between stations of terrestrial services in some specific frequency bands: Rules of Procedure B4, B5 and B6 as appropriate.

2 For coordination requests under Nos. **9.11** to **9.14** and **9.21**, it is to be noted that irrespective of the identification by the Bureau under No. **9.36** (see footnote **9.36.1**), any administration, even one which was not identified, may disagree with the published assignment under No. **9.52** and any administration, including one identified by the Bureau, that has not commented on the proposed use within the regulatory time limit is considered to be unaffected by that use in accordance with No. **9.52C**.

---

5 For cases not covered under this paragraph, the Bureau, in collaboration with the appropriate Radiocommunication Study Groups, continue to develop applicable calculation methods and criteria in the form of Rules of Procedure to be submitted to the Board for approval.

6 Cases relevant to this indent are shown in the Annex to this Rule.

Annex to the Rule of Procedure concerning No. 9.36

	Case 1	**Case 2**	**Case 3**	**Case 4**
In frequency band	F1 - F2	F1 - F2	F1 - F2	F1 - F2
Space service (A) under No. **9.21** (footnote No. **5.xxx** refers) is	A	A	A	A
Another space service (B), not under No. **9.21**, with which the same frequency band is shared is	–	B	B	B
Hard pfd limit (Article **21**, a footnote or a Resolution refers) is applicable to space service	A	B	–	–
Coordination threshold pfd value is applicable (under e.g. No. **9.14**) to space service	–	–	B	–
Agreement threshold pfd value used to identify, under No. **9.21**, potentially affected administrations in respect of their terrestrial stations/ services (*Note:* In Special Section CR/C and in the BR's database, this relation is indicated by the provision symbol 9.21/C, see Preface to the BR IFIC (space services), Table 11A.1, and also Attachment 1 to CR/172)	*None* No need for agreement in respect of terrestrial services is indicated in either the Special Section CR/C or BR's database. The hard pfd limit applicable to service A is considered to be there to protect terrestrial services from space service A. If that limit is observed (as checked under No. **9.35**), the finding for the space service assignment is **favourable**, terrestrial services are protected and there is no need for an agreement under No. **9.21** in respect of terrestrial services. If the hard pfd limit is exceeded, the finding for the assignment is **unfavourable** and the agreement procedure is not applicable	*Hard pfd limit applicable to service B (4th indent of the Rule)* If such pfd limit is good enough to protect terrestrial services from service B, it is good enough to protect them from service A, too. If such limit is not exceeded, an administration is not potentially affected with respect to symbol 9.21/C. If that limit is exceeded, the finding for service A is still **favourable** (the limit is not a hard limit applicable to service A) and an administration on whose territory the limit is exceeded is considered as potentially affected with respect to symbol 9.21/C	*Coordination threshold pfd value applicable to service B (4th indent of the Rule)* If such pfd limit is good enough to indicate if terrestrial services are potentially affected or not from service B, it is good enough to indicate the same with respect to service A, too	*None* (none exists) Frequency overlap with recorded terrestrial stations is used to indicate potentially affected administrations with respect to symbol 9.21/C. Any administration, visible from the satellite, may disagree under No. **9.52** with respect to its terrestrial services

9.41-9.42

1 The Board has closely studied provisions Nos. **9.36.2**, **9.41** and **9.42** (modified by WRC-12) and has arrived at the following conclusions regarding the application of the provisions of No. **9.41** by an administration which considers that its name or any of its satellite networks should have been identified under No. **9.36** in the context of a request for coordination stemming from the application of No. **9.7**: (MOD RRB12/61)

2 Administrations are entitled, based on the $\Delta T/T > 6\%$ criterion, to include themselves, or any of their networks, in coordination, in application of Nos. **9.41** and **9.42**. Requests under No. **9.41** must be substantiated by $\Delta T/T > 6\%$ calculations. To minimize the administrative burden on the Bureau and administrations, it shall be deemed sufficient for an administration wishing to be added in a coordination request under No. **9.41** to provide $\Delta T/T > 6\%$ calculations for only one pair of assignments for each satellite network to be further considered in the coordination process (a pair consisting of one assignment of the published network and one assignment of the network of the requesting administration); the Bureau will then examine all assignments of the specific networks of the requesting administration and then establish coordination requirements for all the assignments of the network referred to in the publication vis-à-vis the requesting administration under No. **9.42** commensurate with the results of such examination. (MOD RRB12/61)

3 Calculations showing that $\Delta T/T$ ratios do not exceed 6% for all groups of assignments of involved satellite networks shall be submitted by an administration believing that an administration, or a satellite network of an administration, identified under No. **9.36.2** should not have been included under No. **9.36** in the coordination request of its own satellite network. (MOD RRB12/61)

9.47 (ADD RRB14/66)

1 The Board concluded that when the Bureau acts under No. **9.47** following a request for assistance from an administration under No. **9.46** and in the absence of an acknowledgement from the concerned administration within thirty days of the Bureau's telefax under No. **9.46**, the Bureau shall immediately send a reminder providing an additional fifteen day period for the acknowledgement.

2 In the absence of such an acknowledgement within fifteen days after the reminder, the provisions of Nos. **9.48 - 9.49** shall apply. Subsequently, the Bureau shall communicate to the concerned administration the application of Nos. **9.48** and **9.49** and provide a copy of that communication to the requesting administration.

9.48

The Board concluded that this provision applies only to those radiocommunication stations which were taken into consideration when the coordination request was either sent to the other administration as stipulated in No. **9.29** or submitted to the Bureau in the case of application of Nos. **9.30** and **9.32**. Other existing assignments of the administration to which this provision is not applied remain entitled to protection. Assignments of the same administrations which are considered at a later date are also entitled to protection.

9.49

The comments made in the Rules of Procedure concerning No. **9.48** apply. This administration is deemed to have undertaken not to cause interference to those stations for which the agreement was requested.

9.50

Comments relating to the exclusion of the territory of a country from the service area of a space station

1 When an Administration B requests the Bureau to exclude its territory from the service area of a space station of an Administration A, this raises the following questions:

– should that comment have any effect on the identification of the administrations concerned in the coordination process or on the assessment of the level of harmful interference?

– what action shall the Bureau take in respect of it?

2 The question of a request concerning the exclusion of the territory of a country from the service area of a space station can be studied at two different levels:

– the compatibility between services and stations and the related status that may be derived from the application of the procedures contained in the Radio Regulations, on one hand, and

– the principles embodied in the Preamble to the Convention and the Radio Regulations as well as in Resolution **1 (Rev.WRC-97)** in respect of the sovereign right of each country to use the frequency spectrum and the GSO, on the other hand.

3 Compatibility matters are well defined in the Radio Regulations; they involve:

– power flux-density limitations which are deemed to avoid any problem of incompatibility without any recourse to coordination with terrestrial services;

– coordination between administrations using or intending to use stations of the same service or of different services sharing the same frequency band;

– examination by the Bureau of the probability of harmful interference in cases where, for one reason or another, agreement on coordination could not be reached between the administrations concerned.

4 The identification by the Bureau of administrations involved in a coordination process and the assessment of the probability of harmful interference are based on the technical characteristics notified by administrations. The extent to which a comment intended to reduce the service area of a space station may affect the application of Articles **9** and **11** should be considered on the basis of a distinction to be made between the "coverage area" and the "service area". The coverage area results from limitations imposed by the design of the space station, and a certain degree of overlapping of territories of other countries not intending to participate in the system may be unavoidable. The Board understands that, in designing any space station, the administration concerned applies No. **15.5**, which stipulates that "radiation in and reception from unnecessary directions shall be minimized by taking the maximum practical advantage of the properties of directional antennas whenever the nature of the service permits". If an Administration B, not participating in a given satellite network, considers that the network was not designed to minimize the overlapping which resulted in an unnecessary coverage of its territory, the Bureau can only transmit such comment to Administration A without any action from its side.

5 In relation to the sovereignty of the Administration B to authorize earth stations to be installed on its territory, the Bureau assumes that, in accordance with Resolution **1 (Rev.WRC-97)**, an agreement existed between the two administrations. Administration B is entitled to react and indicate to the Bureau that such an agreement does not exist; however, the Bureau has no authority to modify a characteristic notified by Administration A without its agreement. If the latter refuses to modify the service area, the Bureau can only note this situation. (The licensing authority, irrespective of the application of the procedures of Article **9**, remains under the responsibility of Administration B. See also comment under the Rules of Procedure concerning Resolution **1 (Rev.WRC-97)**.)

6 In conclusion, when Administration B makes comments intending to exclude its territory from the service area of the space station of Administration A, the Bureau:

– shall consider such comments receivable and that it is a matter to be resolved between the administrations concerned;

– shall inform Administration A of the comments received requesting consultations between the administrations concerned (Administrations A and B) and will modify the service area only if Administration A agrees;

– shall enter a remark to indicate this situation when publishing a Special Section;

– shall consider, unless it receives a subsequent notification to the contrary, that there is no agreement between Administrations A and B under Resolution **1 (Rev.WRC-97)** for the use of the territory of Administration B by earth stations associated with the satellite network in question.

9.50.2

The agreement referred to in this provision is considered as a bilateral agreement not involving the Bureau or any other administration.

9.52

1 The provision No. **9.52** states that in the case of a disagreement concerning coordination, the responding administration (Administration B) informs the administration requesting the coordination (Administration A) of the reasons for its disagreement and in particular includes in these reasons those "assignments upon which that disagreement is based". It further states that a copy of these comments shall also be sent to the Bureau. The Board noted the requirement for mandatory electronic filing and the Rules concerning the receivability of forms of notice, which require comments to be submitted to the Bureau in electronic format compatible with the BR electronic notice form capture software SpaceCom. As a consequence, when submitting its disagreement to the BR using SpaceCom, Administration B must also inform Administration A, within the 4 month regulatory period, of its disagreement, giving the reasons therefore and identifying those "assignments upon which that disagreement is based". In addition, Administration B must also send a copy of these comments to the Bureau until such time that SpaceCom enables their inclusion in the electronic notice.

2 Where this information relates to terrestrial stations or earth stations operating in the opposite direction of transmission within the coordination area of an earth station, only that information relating to existing radiocommunication stations or those to be brought into use within the next three months for terrestrial stations, or three years for earth stations, shall be treated as notifications under No. **11.2** or **11.9.** Provision No. **9.52** does not specify what action the Bureau will take with respect to the information relating to the other type of stations which are not to be considered as notifications but with respect to which the responding administration also stated its disagreement. The Bureau will not consider them as a notification under No. **11.2** or **11.9** and will not publish them, considering that it is a bilateral matter which does not need to be brought to the knowledge of all administrations.

3 The information submitted to the Bureau by Administration B which, according to No. **9.52**, shall be treated as notifications under No. **11.2** or **11.9** could only be so considered, if it contains complete data as required by Appendix **4**; otherwise the notice(s) will be returned to Administration B as incomplete. It is also understood that these notices have to be in conformity with No. **11.31**; otherwise the notice(s) will be either returned to Administration B, or shall be recorded in the Master Register for information purposes only, if the administration indicated that the assignment(s) will be operated in accordance with No. **4.4**. Furthermore, the relevant frequency assignments of Administration B will be examined under No. **11.32** (with respect to its conformity with the procedures relating to coordination) and may be eventually returned to the administration, under No. **11.37**, if the Bureau finds that the procedures for obtaining coordination were not successfully applied with all concerned administrations, under No. **9.27** with respect to their assignments recorded in the Master Register. See also the Rules of Procedure relating to No. **9.29**.

4 This provision requires the responding Administration B to inform the requesting Administration A of its disagreement within four months. It is to be noted that if Administration B is not in a position, for any reason, to respond to the requesting Administration A, Administration B can send its disagreement directly to the Bureau accompanied by a statement reflecting the situation. The Board decided that disagreements addressed directly to the Bureau are valid in the meaning of No. **9.52**, and the Bureau shall communicate the disagreement to Administration A.

5 Case of administrations having responded

An Administration B may, when it accepts the proposed use, stipulate conditions of use. If such conditions are accepted by the administration requesting the agreement, the Bureau will take this as an agreement.

5.1 When an administration has responded in application of No. **9.52** within four months and requested the assistance of the Bureau, the latter will act according to Article **13**.

5.2 When an Administration B has responded, in application of No. **9.52**, more than four months after the date of publication of the relevant Special Section or the date of dispatch of the coordination data under No. **9.29**, and the Bureau has been informed of a continuing disagreement between the two administrations, the Bureau has to literally apply No. **9.52C**; it will consider Administration B as not having responded in due time. Therefore, despite the comments expressed by Administration B, Administration A will be considered to have successfully completed the procedure.

5.3 When an Administration B has responded, in application of No. **9.52**, more than four months after the date of publication of the Special Section in application of No. **9.38** or the dispatch of the coordination data under No. **9.29**, and an agreement is reached between the two administrations, the Bureau will take this situation into account.

9.52C

1 Case of administrations not responding

With respect to an administration not responding, an administration having applied the procedure shall be regarded as having successfully completed the procedure of this Article for assignments for which there was no response.

2 Publication of Special Sections containing the status of the coordination procedures under Nos. 9.11 to 9.14 and 9.21

2.1 Any comment which does not explicitly express objection to the request for coordination is not considered as a disagreement under No. **9.52**. In case of doubt concerning the nature of comments, the administration concerned should be consulted.

2.2 The appropriate Special Section shall include the following information:

a) the names of administrations whose disagreement to the request for coordination were received within the regulatory deadline;

b) a Note, which reads:

> "Pursuant to No. **9.52C**, all administrations other than those listed above shall be regarded as unaffected, and in the case of Nos. **9.11** to **9.14** the provision of Nos. **9.48** and **9.49** shall apply."

2.3 See also § 2.4 *a)* of the Rules of Procedure relating to No. **9.11A.**

9.53

See comments under the Rules of Procedure concerning No. **9.6** (§ 1 *c)*).

9.58

This provision refers to changes in the characteristics which have been decided during the coordination procedure of the assignment of the network. For processing of the modification, the Bureau will apply § 2 of the Rules concerning No. **9.27**. When publishing the modified characteristics in a modification to the Special Section containing the original coordination request, the Bureau will indicate the nature of the modification as specified in No. **9.58**.

9.60

In application of No. **9.11A**, when the information on a station in the fixed service upon which an administration's disagreement is based cannot be provided as referred to under No. **9.52**, the reference parameters contained in Annex 1 to Appendix **5** can be used to determine the need for coordination.

9.62 (MOD RRB14/66)

1 The Board concluded that when the Bureau acts under No. **9.62** following a request for assistance from an administration under No. **9.60** and in the absence of a response from the concerned administration within thirty days of the Bureau's telefax under No. **9.61**, the Bureau shall immediately send a reminder providing an additional fifteen day period for the response.

2 If the administration fails to inform the Bureau of its agreement or its disagreement together with information concerning its own assignments on which its disagreement is based within fifteen days after the reminder, the provisions of Nos. **9.48** and **9.49** shall apply. Subsequently, the Bureau shall communicate to the concerned administration the application of Nos. **9.48** and **9.49** and provide a copy of that communication to the administration requesting for assistance.

3 Consequently, with respect to the administration not responding, the administration having applied the procedure shall be regarded as having successfully completed the procedure of this Article with respect to the assignments for which there was no response.

4 The Bureau shall apply No. **9.61** only if an administration with which coordination is sought fails to give its agreement or its disagreement together with information concerning its own assignments on which its disagreement is based. This information may be the reference to the previous publications including concerned assignments. In case of requests for assistance due to other difficulties in coordination, No. **13.1** shall apply.

9.63

In the absence of reply to provide the required information (to enable the Bureau to carry out the compatibility analysis), the Bureau shall use the information available to it.

9.65

See the Rules of Procedure under No. **9.6** (§ 2), Nos. **11.32A** and **11.33**.

Rules concerning

ARTICLE 11 of the RR

(ADD RRB13/62)

Consolidation of frequency assignments of different GSO networks submitted by an administration at the same orbital position into frequency assignments of a single satellite network

1 Introduction

The Board noted the request of WRC-12 for a detailed description of the Radiocommunication Bureau's actions with respect to consolidating frequency assignments of different geostationary-satellite orbit (GSO) networks submitted by an administration at the same orbital position, into frequency assignments of a single satellite network.

In this respect, the Board understands that the consolidation of frequency assignments of GSO satellite networks shall only be possible for assignments recorded in the MIFR, associated with satellite networks at exactly the same orbital position, upon request by the administration (or the administration acting on behalf of a group of named administrations) that notified the assignments. The following principles shall apply.

2 Structure of notice

The consolidation of recorded frequency assignments of several satellite networks into one network will consist in aggregating all alphanumerical data related to frequency assignments of the involved GSO satellite networks contained in the Space Network Systems database (SNS) of the Radiocommunication Bureau and the associated graphical data contained in the Graphical Interference Management Software (GIMS) reference database.

2.1 Identity of the satellite network (Appendix 4, Annex 2, A1)

Only satellite networks with identical information related to the notifying administration shall be qualified for consolidation:

– A.1.f.1 Notifying administration

– A.1.f.2 Group of administrations

– A.1.f.3 Intergovernmental satellite organization

2.2 Orbital information (Appendix 4, Annex 2, A4)

Satellite networks to be consolidated shall have an identical orbital position (A.4.a.1).

In case of different values for the longitudinal tolerance (A.4.a.2.a.b) and/or inclination excursion (A.4.a.2.c), the smallest values shall be used for a consolidated network. It is understood that the operation of the consolidated satellite networks would be within the smaller longitudinal tolerance and/or inclination excursion.

2.3 Antenna beam and group of frequency assignment characteristics (Appendix 4, Annex 2, B and C)

Satellite antenna beam designation and associated individual characteristics (gains and gain contour diagrams, antenna Radiation patterns and Antenna gain diagrams in the direction of part of the GSO not obstructed by the Earth, service area) will be kept unchanged as separate beams in the single notice of the consolidated satellite networks, except if otherwise requested by the notifying administration.

The characteristics of each group of frequency assignments for a satellite antenna beam, including the date of receipt of the complete information under No. **9.34** and any remarks in the MIFR shall be kept unchanged and separate, regardless of its characteristics.

Specific study will be undertaken on a case-by case-basis for consolidation of satellite network notices which include beam-strapping tables and beam naming when the same beam name appears in more than one of the networks being consolidated.

2.4 Identifier of the notice and groups

Only one identifier for the consolidated notice (Notice ID) shall be retained; the notice IDs of the other involved networks recorded in the MIFR will be removed from the system. The unique original identifier of the groups of frequency assignments (Group ID) will be retained, including the status of coordination.

3 BR IFIC (Space Services) and Annex to the BR IFIC

3.1 Part I-S

The information on the consolidated network including references to the involved satellite networks will be published in Part I-S of the BR IFIC (Space Services) and be distributed with the respective databases (SRS, SPS, AP30B, GIMS, SNL) in the Space BR_IFIC DVD.

3.2 Special Sections

The special sections (API/A, CR/C, CR/D, AP30/E, AP30A/E, AP30-30A/E/, AP30B/A6B…) of the different satellite networks referred to in the consolidated satellite network recorded in the MIFR will not require a new publication. Information on the associated special sections and Part-IS of the consolidated satellite networks will be indicated under Appendix 4 item A.13 (Reference to the published special sections of the BR IFIC).

11.13

1 This provision stipulates that no notification shall be made of the frequencies that are prescribed for common use by stations of a given service. According to this provision the Bureau established a list of the frequencies that enter into this category. This list is regularly updated and published in the Preface to the International Frequency List (IFL), in frequency order (Chapter VI of the Preface). The common frequencies appear in the Master International Frequency Register (Master Register) and in the IFL.

2 A summary of the frequencies/frequency bands that are prescribed for common use, is given below:

– GMDSS frequencies for distress and safety calling using DSC techniques (2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz, 16 804.5 kHz and 156.525 MHz);

– GMDSS frequencies for distress and safety traffic by NBDP telegraphy (2 174.5, 4 177.5, 6 268, 8 376.5, 12 520 and 16 695 kHz);

– GMDSS frequencies for distress and safety traffic by radiotelephony (2 182 kHz, 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz, 16 420 kHz and 156.8 MHz);

– International frequencies for search and rescue operations (2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz, 10 003 kHz, 14 993 kHz, 19 993 kHz, 121.5 MHz, 123.1 MHz, 156.3 MHz, 156.8 MHz, 161.975 MHz, 162.025 MHz and 243 MHz);

– International frequencies for digital selective calling, for purposes other than distress and safety (455.5, 458.5, 2 177, 2 189.5, 4 208, 4 208.5, 4 209, 4 219.5, 4 220, 4 220.5, 6 312.5, 6 313, 6 313.5, 6 331, 6 331.5, 6 332, 8 415, 8 415.5, 8 416, 8 436.5, 8 437, 8 437.5, 12 577.5, 12 578, 12 578.5, 12 657, 12 657.5, 12 658, 16 805, 16 805.5, 16 806, 16 903, 16 903.5, 16 904, 18 898.5, 18 899, 18 899.5, 19 703.5, 19 704, 19 704.5, 22 374.5, 22 375, 22 375.5, 22 444, 22 444.5, 22 445, 25 208.5, 25 209, 25 209.5, 26 121, 26 121.5 and 26 122 kHz);

– International frequencies for selective calling using the sequential single-frequency code system (2 170.5, 4 125, 4 417, 6 516, 8 779, 13 137, 17 302, 19 770, 22 756 and 26 172 kHz);

– International frequencies for radiotelephone calling (4 125, 4 417, 6 215, 6 516, 8 255, 8 779, 12 290, 12 359, 13 137, 16 420, 16 537, 17 302, 18 795, 19 770, 22 060, 22 756, 25 097 and 26 172 kHz);

– International ship-to-shore working or intership frequencies (2 045, 2 048, 2 635 and 2 638 kHz);

– 410 kHz, worldwide frequency for radio direction-finding in the maritime radio-navigation services;

– 75 MHz, worldwide frequency assigned to aeronautical marker beacons.

3 If these frequencies are used by other services and/or for purposes other than those specified in the Radio Regulations, they should be notified under the relevant provisions of Article **11** and, in some cases, under the provisions of No. **4.4**.

11.14

1 This provision stipulates, *inter alia,* that frequency assignments to ship stations and to mobile stations of other services shall not be notified under Article **11**. On the other hand, the provisions of No. **11.2** stipulate the conditions under which receiving stations are to be notified to the Bureau. Similarly, the provisions of No. **11.9** stipulate the conditions under which a land station for reception from mobile stations is to be notified to the Bureau. In combining the conditions of all these provisions, the Board concluded that the following categories are not to be notified to the Bureau:

– Worldwide frequencies for use by ship and coast SSB radiotelephone stations by simplex (single-frequency) operation and for intership cross-band (two-frequency) operation (frequencies indicated in Part B, Section I, Sub-Section B of Appendix **17**);

– Worldwide working frequencies for ship stations equipped for wideband telegraphy, facsimile and special transmission systems (frequencies indicated in Part A of Appendix **17**);

– Worldwide working frequencies for ship stations equipped for NBDP telegraphy and data transmission systems on a non-paired basis (frequencies indicated in Part B, Section III of Appendix **17**);

– Ship calling frequencies using A1A Morse telegraphy (frequencies indicated in Part B, Section IV of Appendix **17**);

– Ship working frequencies using A1A Morse telegraphy (frequencies indicated in Part B, Section V of Appendix **17**).

2 If the frequencies referred to in § 1 above are used by other services and/or for purposes other than those specified in the Radio Regulations, they should be notified under the relevant provisions of Article **11** and in some cases under the provisions of No. **4.4**.

3 Bearing in mind that all communications in the aeronautical mobile (R) and (OR) services in the HF exclusive bands are made in a single frequency simplex mode of operation, the use of the relevant frequency is adequately covered through the notification of the transmitting aeronautical station and the notification of the associated receiving station (for reception of the transmissions from aircraft stations) is not necessary. Therefore, the Board instructed the Bureau not to accept any frequency assignment notice related to a receiving aeronautical station in the bands governed by Appendices **26** and **27**.

11.17

This provision and provisions of Nos. **11.18** to **11.21B** identify assignments to terrestrial stations to be notified individually. All other assignments[1, 2, 3] can be notified either as a typical station or as individual stations, as the administration concerned considers appropriate. The frequency assignments which shall be notified individually, under the procedure of Article **11**, are the following:

1 Assignments to stations covered by the Allotment Plans of Appendices **25**, **26** and **27** (No. **11.18**) and by any Frequency Assignment Plan.

2 Assignments to stations of the broadcasting service in any band (No. **11.19**).

3 Assignments to stations of all terrestrial services which are within the coordination area of an earth station (No. **11.20**) if the notified bandwidth of the terrestrial station is situated wholly or partially within a frequency band which is allocated with equal rights to terrestrial and space services where coordination is required under Appendix **5**, Table 5-1.

According to No. **11.20**, no notification of a typical terrestrial station is receivable if the terrestrial station is within the coordination area of an earth station. In view of the current difficulties of the Bureau to ascertain, at the time of the receipt of the notice, whether a terrestrial station is situated within the coordination area of an existing earth station or one for which the coordination has been effected or initiated, the Board instructed the Bureau to encourage administrations to submit individual notices to terrestrial stations in every case where the notified bandwidth of the terrestrial station is situated wholly or partially in any of the bands shared between terrestrial and space services with equal rights if the allocation to the space service comprises the space-to-Earth direction. The Bureau may also accept a notification to a typical station in these bands, if the notifying administration so wishes, under the understanding that the subject notice form may be returned to the notifying administration at a later stage, if the Bureau's examinations confirm that the notified geographical area of operation of the typical terrestrial station overlaps the coordination area of an earth station. Such a notice, when published in Part 1 of the BR IFIC, shall bear a special symbol making reference to this Rule of Procedure.

4 Assignments to any terrestrial stations in bands shared with space services with equal rights which exceed the limits of the terrestrial station parameters specified in Tables 8a, 8b, 8c and 8d of Appendix **7** and in No. **21.3** (No. **11.21**).

---

1 Frequencies for common use listed in Chapter VI of the Preface to the IFL shall not be notified.

2 Frequency assignments to stations in the amateur service shall not be notified (No. **11.14**).

3 Frequency assignments to broadcasting stations in the high frequency bands allocated to the broadcasting service between 5 900 kHz and 26 100 kHz which are subject to the procedure of Article **12** shall not be notified under Article **11** (see No. **11.14**).

The Board concluded that the first part of this provision is intended to afford appropriate protection to receiving earth stations when the terrestrial stations are using a high e.i.r.p. Given the variety of conditions specified in the referred Tables of Appendix **7**, the Board decided that administrations shall submit individual notice whenever the e.i.r.p. exceeds the following limits:

50 dBW (for analogue modulation) and 37 dBW (for digital modulation), in any of the frequency bands below 3 GHz that are mentioned in Tables 8a and 8b;

55 dBW (for analogue modulation)[4] and 42 dBW (for digital modulation), in any of the frequency bands between 3 GHz and 15 GHz that are mentioned in Tables 8b and 8c;

55 dBW (for analogue modulation)[4] and 40 dBW (for digital modulation), in any of the frequency bands above 15 GHz that are mentioned in Tables 8c and 8d.

5 Assignments to terrestrial stations in the frequency bands listed in Table **21-2** (No. **11.21A**).

The Board concluded that this provision is intended to protect the GSO. It should be applied to all terrestrial services in the bands referred to above, irrespective of their category of allocation.

6 Assignments to terrestrial stations which are governed by the procedure for seeking agreement under No. **9.21** (No. **11.21B**).

11.28

Comparison of data with those submitted under Article 9

Number **11.28** does not refer to the need to compare the notified characteristics with those published in the Special Sections for advance publication, for coordination, and for results/status of the coordination. A frequency notice submitted under No. **11.2** or **11.9** whose characteristics differ from those published in a Special Section necessarily requires consideration by the Bureau for appropriate actions. The following actions shall be taken:

1) The date of bringing into use of a space station shall be compared with the date of receipt of the supporting advance publication. In the case that this period exceeds seven years, the notice is returned to the notifying administration with a recommendation to restart the Article **9** procedure.

2) When the notified characteristics are within the limits of those published in the Special Section relating to advance publication but are different from those published in the Special Section relating to coordination, this difference is assumed to have resulted from the coordination.

[4] The e.i.r.p. given in Tables 8c and 8d of Appendix **7** is derived from a total e.i.r.p. of 55 dBW.

3) For practical reasons, the Bureau could not systematically undertake the comparison of coordination information contained in the notice form submitted under No. **11.2** or **11.9** and that from the voluminous correspondence from the coordination phase. The Board thus decided that the No. **11.32** examinations of the Bureau shall be based on the coordination information available from the notice forms (Boxes A5/A6). This information being the most up to date for the case under examination, the Bureau shall consider the notified data of the network submitted in the notice form as coordinated with those countries mentioned in Boxes A5/A6.

4) When the notified characteristics are not within the limits of those published in the Special Section relating to the advance publication the comments made under the Rules of Procedure concerning No. **9.2** apply.

11.31

1 Provision No. **11.31.2** requires that the "other provisions" mentioned in No. **11.31** should be identified and included in the Rules of Procedure. This chapter intends to answer the above problem.

The regulatory examination under No. **11.31** includes the following[5]:

– conformity with the Table of Frequency Allocations, including its footnotes and any Resolution or Recommendation which is referred to in such a footnote;

– the successful application of No. **9.21**, when mention is made of that provision in a footnote (see also Rules of Procedure relating to Nos. **9.21** and **11.37**);

– all "other" mandatory provisions that are contained in Articles **21** to **57**, in Appendices to the Radio Regulations and/or in Resolutions that are relevant to the service in the frequency band in which a station of that service operates.

2 The list of these "other provisions", referred to in No. **11.31.2**, with respect to which the notices to stations in terrestrial (§ 2.1 to 2.5.2) or space services (§ 2.6 to 2.6.6) are examined, is given below:

2.1 *Broadcasting service:* Those contained in No. **23.7** concerning the power limit (50 kW) of the broadcasting transmitters operating in the Tropical bands in the frequency bands listed in No. **23.6**.

2.2 *Fixed service:* Those of No. **24.2** which stipulate that F3E and G3E emissions are prohibited in the fixed service below 30 MHz.

[5] With respect to the application of this provision to assignments of the BSS submitted under Resolution **33 (Rev.WRC-03)** see comments under Rules of Procedure concerning No. **23.13**.

2.3 *Aeronautical mobile service:* There are mandatory provisions only for the frequency bands that are allocated exclusively to the aeronautical mobile service. These provisions (obligatory channelling arrangement, permitted classes of emission, power limits) are contained in Appendices **26** and **27**. The provisions of No. **43.4** also falls into this category of mandatory regulatory provisions, i.e. the prohibition of using the exclusive frequency allocations to the aeronautical mobile service for any kind of public correspondence.

2.4 *Maritime mobile service:* Most of them are related to the frequency bands that are allocated exclusively to the maritime mobile service (obligatory channelling arrangements, permitted classes of emission, power limits, etc.); however many of them are also applicable to the non-exclusive allocations to the maritime mobile service. A summary of the provisions that are applicable to the frequency assignments subject to notification is given in the Table below:

(MOD RRB13/62)

	Provision No.
Power limits	**52.104** **52.117**, **52.127** (Region 1 only), **52.143**, **52.144**, **52.172** **52.184**-**52.186**, **52.188**, **52.202** (Region 1 only) **52.219**, **52.220**, **52.227, 52.265, 52.266**
Class of emission	**52.2**, **52.3** **52.101**, **52.177**, **52.183**, **52.188**, **52.198**, **52.217**
Mandatory sub-division	**52.10** (Region 1 only), **52.13** Appendix **17**

2.5 The list of these "other provisions", referred to in No. **11.31.2**, with respect to which notices to stations in terrestrial services[6] in the bands that are shared with equal rights with space services are examined, is given below:

2.5.1 conformity with the limits concerning the maximum equivalent isotropically radiated power (e.i.r.p.), in the context of services and frequency bands indicated in Table **21-2** (Nos. **21.3**, **21.4**, **21.5A** and **21.6**);

2.5.2 conformity with the limits concerning the power delivered by a transmitter to the antenna of a station in the fixed or mobile services (13 dBW in frequency bands between 1 GHz and 10 GHz, 10 dBW in frequency bands above 10 GHz), in the context of services and frequency bands indicated in Table **21-2** (Nos. **21.5** and **21.6**).

[6] In bands shared by terrestrial and space radiocommunication services, the administration may use passive repeaters in the fixed service (radio-relay systems). While generally the passive repeater is situated close to the transmitting or receiving station, it usually involves a major change in the direction of the maximum radiation which may further affect the orbit; for this reason, the Board decided that administrations shall be requested to notify both parts of the link as separate stations, i.e., transmitting stations to passive repeater and passive repeater to receiving stations; and that each of the notices, containing information in accordance with Appendix **4**, is treated as a separate assignment representing a separate station.

2.6 The list of these "other provisions", referred to in No. **11.31.2**, applicable to space services, is given below so far as Articles **21** and **22** are concerned:

2.6.1 conformity with the power limits for earth stations as stipulated in provisions Nos. **21.8**, **21.10** and **21.12**, **21.13**, **21.13A** account being taken of Nos. **21.9** and **21.11**[7], and in provisions **22.26** to **22.28** or **22.32** (as appropriate) under the conditions specified in **22.30**, **22.31** and **22.34** to **22.39**, where the earth stations are subject to those power limitations (see also § A.16 of Appendix **4**);

2.6.2 conformity with the minimum angle of elevation of earth stations as stipulated in provisions Nos. **21.14**[8] and **21.15**;

2.6.3 conformity with the limits of power flux-density from space stations produced at the Earth's surface as indicated in the Table **21-4** (No. **21.16**), as well as with the $epfd_{\downarrow}$ limits in Tables **22-1A** to **22-1E** (No. **22.5C**), taking into account, as appropriate, the provisions of Nos. **21.17** and **22.5CA**;

2.6.4 conformity with the limits of power flux-density from space stations produced at the GSO as indicated in Nos. **22.5** and **22.5A** as well as with $epfd_{is}$ limits in Table **22-3** (No. **22.5F**);

2.6.5 conformity with limit of equivalent power flux-density (epfd) from earth stations produced at the GSO ($epfd_{\uparrow}$) as indicated in the Table **22-2** (No. **22.5D**);

2.6.6 conformity with the limit specified in Nos. **22.8**, **22.13**, **22.17** and **22.19**.

3 Other provisions of Articles **21** and **22** will not be taken into account in the Regulatory examination under No. **11.31** and the Board understands that these provisions are to be applied between administrations.

4 (Not used)

5 Conformity with the Table of Frequency Allocations

The examination of conformity with the Table of Frequency Allocations consists of determining whether the assigned frequency and/or the necessary bandwidth of the emission is within the frequency band allocated to the service in which the station in question operates.

---

[7] See Rules of Procedure relating to No. **21.11**.

[8] See Rules of Procedure relating to No. **21.14.**

Another element is to identify the category of the service according to the Table of Frequency Allocations. The following rules are applied in this connection:

5.1 *Out-of band emissions:* In the case where the assigned frequency is in a band which is not allocated to the service in which the station operates the notice receives an unfavourable regulatory Finding. If the assigned frequency is on the edge of a band which is not allocated to the service the Finding is also unfavourable.

5.2 *Overlapping emissions:* In the case where the assigned frequency is in the band which is allocated to the service, but the necessary bandwidth overlaps the immediately adjoining band which is not allocated to the service, the notice receives an unfavourable regulatory Finding.

5.3 *Receiving point of a terrestrial service is in a region where the service is not allocated:* In the case of circuit whose transmitting point is in a country, sub-Region or Region where the frequency is allocated to the service, but whose receiving point is not, an unfavourable regulatory Finding is issued.

5.4 The relationship between the notifying administration and the territory in which the station is located is covered by Resolution **1 (Rev.WRC-97)** (see also comments under the Rules of Procedure concerning No. **9.3** and Resolution **1 (Rev.WRC-97)**). The notification of assignments to space stations raises the following questions:

– Should there be any relation between the territory of the notifying administration and the orbital position of a space station in the case of worldwide allocations?

– Should there be any such relation in the case of Regional allocations or allocations to a group of countries or to individual countries?

In reply to these questions the Board reached the following conclusions:

a) In the case of worldwide allocations without a specific restriction in a footnote, any administration may notify any orbital position and any service area in any part of the Earth which is visible from the space station.

b) When an allocation is made with territorial restrictions, such as for national use, the service area must then be limited to that territory.

c) In the case of a Regional allocation, as the limits separating the three Regions do not refer to the geostationary-satellite orbit, the orbital position is not taken into consideration when determining if the Regional allocation is respected; only the service area is used to formulate a Finding; this Finding is favourable if the service area is entirely located in the Region to which the allocation is made and unfavourable otherwise. When there is no specific restriction in a footnote, any administration, pertaining or not to the Region to which the allocation is made, may notify any orbital position and any service area within the Region to which the allocation is made.

d) The *c)* above applies equally to an allocation to a sub-Region or to a country.

e) As indicated in *c)* and *d)* above, the service area notified by an administration is not necessarily the territory of the notifying administration. When the service area notified covers totally or partly the territory of another administration, it is assumed (unless advised to the contrary by an administration not accepting such practice) that an

agreement exists between the administrations concerned. If, following the publication of an assignment in the BR IFIC, an administration objects to the notified service area, the Bureau informs the notifying administration of the comments received and will modify the service area only if the notifying administration so requests.

f) A space station has a "coverage area" which generally encompasses the "service area". Article **1** does not contain a definition for these terms; however, the definitions given in Annex 5 to Appendix **30** may be used. Generally the coverage area results in an unavoidable transmission over the territory of other countries and the comments made in *e)* above do not apply to such unavoidable overlap.

5.5 *Categories of allocation:* In the case when the assigned bandwidth overlaps two frequency bands that are both allocated to the service in question, with different categories of allocation, the favourable regulatory Finding is accompanied by the indication of the status derived from the lowest of the two categories of allocation.

5.6 *Tropical broadcasting bands:* The frequency bands listed in No. **23.6** are allocated on a shared basis to the tropical broadcasting, to fixed and mobile services (see also No. **5.113**). In the Tropical Zone (No. **5.16-5.21**) the broadcasting service has priority over the other services in these frequency bands and the frequency assignments to services other than the broadcasting service are indicated so as to show their lower status with respect to the frequency assignments to stations in the broadcasting service, while retaining their status with respect to the non-broadcasting assignments from both inside and outside the Tropical Zone (Symbol V in Column 13B2).

6 The No. **11.31** examination relative to the successful application of No. **9.21** shall be made on the basis of the information on the status of the coordination agreement available to the Bureau in the Form of Notice.

7 The examination under Articles **21** and **22** may result in cases where the limits stipulated in these Articles are exceeded. When the agreement of other administrations is foreseen, the Bureau will formulate a favourable Finding under No. **11.31** only if it is informed that such agreement exists. This agreement is treated by the Bureau separately from the coordination agreement.

11.32

1 Examination of a frequency assignment to a space station

The literal application of this provision would lead to the examination of the notified assignment with any station identified in application of No. **9.27** while this examination or a major part of it was already done during the application of the coordination procedure. The Board adopted a practical approach which consists of the following:

a) Calculations with respect to networks of an administration indicated in the notice as having given its agreement to the coordination Nos. **9.7** or **9.7B** are not carried out, assuming that any difference that may exist between the notified characteristics and those published in the relevant Special Section under Nos. **9.7** or **9.7B** is coordinated with and accepted by this administration.

b) If all administrations identified in the relevant Special Sections mentioned above are not included in Boxes A5/A6 without any reference to § 6 of Appendix **5** or No. **11.32A**, the notice shall be sent back to the administration with an unfavourable Finding with respect to No. **11.32**. For practical reasons, when an unfavourable Finding with respect to No. **11.32** is given at this stage, the examination under No. **11.31** shall not be performed.

(See Circular Letter No. 104 of 10 August 1998 and Rules of Procedure under No. **9.52C**.)

c) In order to identify other administrations that may be affected, the notified characteristics are compared with those published in the Special Section mentioned above and, if they are identical or covered by those published in these Special Sections, the result of calculations/examination already made for these Special Sections is used.

d) If the notified characteristics are different from those published, calculations are made on the basis of Appendix **5** and, if additional administrations (other than those listed in corresponding Special Sections in Boxes A5/A6) which either receive more interference or cause more interference due to the modified characteristics than that previously received or caused are identified, an unfavourable Finding shall be given and the notice form shall be returned to the notifying administration. The notifying administration would be requested to publish a modification to the Special Section in question and initiate coordination with administrations identified in that modified Special Section. If there is no additional administration which would receive more interference or cause more interference due to the modified characteristics than that previously received or caused is identified, a favourable Finding shall be given. See also the Rules of Procedure relating to No. **9.27**.

2 Examination of a frequency assignment to an earth station with respect to the application of Nos. 9.7, 9.12, 9.12A and 9.13

a) This examination would normally involve the application of Table 5-1 of Appendix **5** with respect to the space network to the space network coordination to each frequency assignment of each earth station, the comparison of the results so obtained with the values corresponding to the already published or notified earth stations, and the identification of the administrations affected.

b) It was noted that in practice, when coordinating their satellite networks, administrations usually take account of the earth stations whether their characteristics were published or not. WARC Orb-88 considered the complexity of the procedures of former Articles 11 (now **9**) and 13 (now **11**), mainly with respect to their application to earth stations and decided to adopt a network coordination approach. In view of the above, the Board decided that the following simplified procedure should be applied.

2.1 Examination of an assignment to an earth station received for the first time

The examination of frequency assignments to earth stations with respect to the application of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall be carried out by verifying the status of the corresponding assignments to the associated space station (i.e. the satellite network).

2.1.1 Case where the space station's assignments are recorded in the Master Register

a) In the case of a space station recorded with a favourable No. **11.32** Finding (successfully coordinated or not requiring coordination), the assignment to the associated earth station shall be assumed to have been coordinated and shall be given a favourable No. **11.32** Finding with the following indication in Boxes A5/A6 of Part II-S of the BR IFIC:

– Z/**9.7**, **9.12**, **9.12A** and **9.13** as the case may be/--- (see Preface) followed by the names of administrations appearing in Boxes A5/A6 under the symbol **9.7**, **9.12**, **9.12A** and **9.13** as the case may be/--- of the associated space station (if no administration is listed because of application of § 6 of Appendix **5**, only Z/**9.7**, **9.12**, **9.12A** and **9.13** as the case may be will be indicated); and

– numbers **9.7**, **9.12**, **9.12A** and **9.13** as the case may be/--- followed by the names of administrations indicated in the Form of Notice of the earth station, if appropriate.

b) If, after the publication of such an assignment to an earth station in Part II of the BR IFIC, any administration objects to the Bureau's action described in *a)* above the Bureau shall examine the already recorded assignment to the earth station with respect to Nos. **9.7**, **9.12**, **9.12A** and **9.13** by applying the criteria and method prescribed in Appendix **5**. As a result of this examination, the Bureau will either review or retain the Finding initially reached on the assignment in question and, in either case, will communicate its conclusions to the administration which had objected to the recording.

c) The approach of *a)* and *b)* above was extended to the case of a space station recorded with a favourable No. **11.32A** Finding (examination of the probability of harmful interference). The assignment of the associated earth station shall be given a favourable No. **11.32** Finding with respect to the application of Nos. **9.7**, **9.12**, **9.12A** and **9.13** with the appropriate indications, in Boxes A5/A6, as described in *a)* above.

d) The approach of *a)* and *b)* above was likewise extended to the case of a space station recorded under No. **11.41** (unfavourable No. **11.32A** Finding). The assignment of the earth station shall be given a favourable No. **11.32** Finding with respect to the application of Nos. **9.7**, **9.12**, **9.12A** and **9.13** with the appropriate indications, in Boxes A5/A6, as described in *a)* above, and Z/**11.41** followed by the names of the relevant administrations appearing in Boxes A5/A6 of the associated space station under the symbol **11.41**.

e) In the case of an associated space station recorded with an unfavourable Finding under No. **11.36** (operating in accordance with No. **4.4**), the earth station will be given a regulatory (No. **11.31**) Finding and, if applicable, a coordination conformity Finding, independent from the unfavourable regulatory Finding of the space station. The coordination conformity Finding shall nevertheless only concern its conformity with the coordination procedure under Nos. **9.15**, **9.17**, **9.17A**, and **9.19**. When recorded, a symbol describing the situation will also be added to the assignment to mean that the earth station has this status only with respect to coordination with terrestrial services; and with respect to earth stations operating in the opposite direction of transmission; and has no recognized status in the space network coordination context (Nos. **9.7**, **9.12**, **9.12A** and **9.13**).

2.1.2 Case where the space station's assignments are not recorded in the Master Register

This category may include the following cases:

a) a space station for which the procedure of Section II of Article **9** is applicable and not yet communicated to the Bureau under Nos. **9.30** and **9.32**;

b) a space station in the process of coordination (the coordination procedure not yet completed and the space station not yet notified under No. **11.15**);

c) a space station successfully completed the procedure of Article **9** but not yet notified to the Bureau under No. **11.15**;

d) a space station notified (No. **11.15**) but returned to the administration with an unfavourable Finding Nos. **11.31** or **11.32** and **11.32A**; and

e) a space station already notified (No. **11.15**) but not yet recorded (being processed by the Bureau).

2.1.2.1 Starting from the principle that the leading element of a space network is the space station and that it would be misleading to record in the Master Register earth stations for which a space station (network) is not recorded, the Board decided that an earth station cannot be recorded in the Master Register before its associated space station. Consequently the earth stations of categories of § 2.1.2 *a)* to *d)* above will be given an unfavourable No. **11.32** Finding.

2.1.2.2 The earth station notices of category of § 2.1.2 *e)* above shall be processed by the Bureau together with the associated space station and the No. **11.32** Finding with respect to the application of Nos. **9.7**, **9.12**, **9.12A** and **9.13** will be given in accordance with the Finding of the space station either in application of § 2.1.1 *a)* (Favourable Finding) or 2.1.2.1 (Unfavourable Finding).

2.1.3 Earth stations outside the service area of the associated space station

Earth stations outside the service area of the associated space station shall be given an unfavourable No. **11.32** Finding with respect to the application of Nos. **9.7**, **9.12**, **9.12A** and **9.13** as appropriate, assuming that the coordination of the associated space station could not have taken account of earth stations outside the service area.

2.2 Examination of a modification of a recorded assignment to an earth station

The modification of an assignment to an earth station may concern:

– the modification of the orbital position of the associated space station; or

– the replacement of the associated space station with another one; or

– the modification of any other characteristic(s).

2.2.1 Modification of the orbital position of the associated space station

The modification of the orbital position of the associated space station may affect other satellite networks and may have led the administration responsible for the space station to re-apply the coordination procedure. The Bureau assumes that the concerned earth stations were taken into account in the coordination of the modification of the associated space station and consequently will apply the rules indicated in § 2.1 above.

2.2.2 Replacement of the associated space station

The Board considers that the replacement of the associated space station results in the earth station participating in a different network. Consequently, the notification of the modification will be considered as a first notification, the notice will be modified, and the administration will be informed accordingly. The examination under No. **11.32** with respect to application of Nos. **9.7**, **9.12**, **9.12A** and **9.13**, as appropriate will be carried out as indicated in § 2.1 above.

2.2.3 Modification of other characteristics

The Board assumes that the modified characteristics of concerned earth stations were also taken into account in the coordination of the associated space station and consequently will apply the Rules indicated in § 2.1 above.

2.3 Cancellation of the space station’s assignment

If the space station’s assignment is cancelled by the notifying administration, the Bureau shall review the earth station(s) associated with that space station and in accordance with No. **13.13** suggest to the notifying administration to either cancel or suitably modify the basic characteristics of the entry.

3 Examination of a frequency assignment to an earth station with respect to the application of Nos. 9.15, 9.17, 9.17A and 9.19

See comments under the Rules of Procedure concerning No. **9.27** (§ 3.1 and 3.2).

4 Examination of frequency assignment notices to stations in terrestrial services in the bands shared with equal rights with space services

4.1 In its examinations of a frequency assignment notice for a station of a terrestrial service, in the bands shared with equal rights with space services, from the point of view of its conformity with the procedures relating to coordination with respect to earth stations of other administrations, the Bureau takes into account those earth stations which are recorded in the Master Register. To this effect, the Bureau uses the coordination contour associated to the respective earth station and calculated in accordance with the calculation method and parameters being in force at the time of notification of the earth station.

If, within a period of three years following the date of notification[9] of the terrestrial station, the Bureau receives a comment from another administration, indicating that the concerned assignment was included in a coordination procedure initiated by this later administration pursuant to No. **9.29** in respect to its earth station(s) coordination under No. **9.15** or **9.17**, and was not agreed to, or was agreed with different technical characteristics, the Bureau will review the situation in accordance with the relevant provisions of Article **14** and will proceed accordingly.

5 Examination of frequency assignment notices to earth stations operating in the opposite direction of transmission

5.1 In its examinations of a frequency assignment notice to an earth station operating in the opposite direction of transmission, from the point of view of its conformity with the procedures relating to coordination with respect to earth stations of other administrations, the Bureau takes into account those earth stations which are recorded in the Master Register.

If, within a period of three years following the date of notification[9] of the earth station operating in the opposite direction of transmission, the Bureau receives a comment from another administration, indicating that the concerned assignment was included in a coordination procedure initiated by this later administration pursuant to No. **9.29** in respect to its earth station(s) coordination under No. **9.17A**, and was not agreed to, or was agreed with different technical characteristics, the Bureau will review the situation in accordance with the relevant provisions of Article **14** and will proceed accordingly.

---

9 In cases where the Bureau is not in a position to publish notification data under No. **11.28** within three years following the date of notification, a comment received three months after the date of publication shall be taken into account by the Bureau.

6 Examination of frequency assignments to an inter-satellite link of a geostationary space station communicating with a non-geostationary space station

6.1 The Board noted the specific nature of inter-satellite links where one end of the link is on a GSO space station and the other on a non-GSO space station. Under Article **9** (No. **9.7**) there is a requirement to effect coordination for frequency assignments of GSO networks, but there is no similar requirement for assignments of non-GSO networks. It is thus unclear whether coordination under Section II of Article **9** applies:

a) to both ends of the inter-satellite link, i.e. to the GSO as well as to the non-GSO station of the link, thus rendering the entire link coordinated (as is the case in all other forms of coordination); or

b) only to the GSO station of the inter-satellite link, leaving the other end uncoordinated; or

c) to none of the stations of the inter-satellite link, leaving the entire inter-satellite link uncoordinated (as is the case when coordination does not apply, e.g. non-GSO networks).

6.2 In view of the above, the Board decided that, until WRC clarifies this matter, assignments in inter-satellite links between GSO and non-GSO space stations shall be treated as follows:

6.2.1 The general description of the inter-satellite link shall be send to the Bureau for advance publication in accordance with Sub-Section IA of Article **9**.

6.2.2 Provisionally, these assignments shall not be considered as being subject to the coordination procedure under Section II of Article **9**.

6.2.3 At notification stage, no finding shall be given under **11.32** (Column 13A2) and symbol “K” will be inserted in Column 13B2 with the following meaning:

“K”: this frequency assignment to an inter-satellite link of a geostationary space station communicating with a non-geostationary space station is not taken into account by the Bureau in its examination under No. **11.32**.

6.3 For cases for which the API has already been published in accordance with Sub-Section IB of Article **9**, the responsible administration may:

a) submit the appropriate Appendix **4** data and request a new publication of the API under Sub-Section IA of Article **9**, or

b) request the publication of the detailed information relating to the inter-satellite link in a CR/C special section, in which case the Bureau shall not give findings under No. **9.35** nor establish coordination requirements under No. **9.36**,

to be followed by notification stage as in § 6.2.3 above.

6.4 Cases already recorded in the Master Register by the Bureau shall not be reviewed under this Rule.

6.5 This Rule applies to links between GSO and non-GSO satellites in all frequency bands allocated to inter-satellite service as well as to other space services in the space-to-space direction, with the exception of cases where the need for coordination is explicitly stipulated in the Radio Regulations. In particular, this Rule does not apply to cases in which the need for coordination under No. **9.11A**, **9.12A** or **9.13**, as the case may be, is mentioned in a footnote to the Table of Frequency Allocations (see also the Rule of Procedure relating to No. **9.11A**).

11.32A

The calculation method to assess the probability of harmful interference and the criteria for the formulation of the Findings of the Bureau for the coordination under No. **9.7** are contained in the Rules of Procedure B3.

11.34

1 Bands governed by Appendix 25

1.1 With regard to these examinations of conformity with the allotment Plan of Appendix **25**, the Board took into consideration the following elements:

1.1.1 The "original" Plan, produced at the MWARC-74, contains only an indication of the allotment areas on the given channel. The conformity of the relevant assignments with the allotments was checked using that information and the other general mandatory provisions of the Radio Regulations concerning the channelling arrangement, the class of emission and the transmitter power.

1.1.2 The updates of the Plan, through the application of the procedure of the former Article 16 of the Radio Regulations (edition of 1990, revised in 1994) and Section I of Appendix **25**, contain more data, notably information of the transmitter power, characteristics of the antenna, hours of operation and service area as a result of the coordination with the administrations concerned. Consequently, the characteristics of the notified assignments have to correspond to the characteristics resulting from the coordination.

1.1.3 For the purpose of the implementation of Resolution **325 (Mob-87)***, the ex-IFRB asked for (and obtained) more precise data concerning the intended use of the new channels, which were made available by WARC Mob-87. However, many administrations indicated that the subject information had to be considered as a working assumption, since the definitive characteristics would depend on the established allotment arrangement (number of allotments per channel, characteristics of the other allotments and the actual use of the allotments by other administrations). Consequently, the characteristics of the allotments entered in the new channels of the Appendix **25** Plan, as indicated in ex-IFRB Circular-letter No. 860 of 22 March 1991, are considered as working assumptions only and not as compulsory conditions.

* *Note by the Secretariat*: This Resolution was suppressed by WRC-95.

1.1.4 However, the inclusion of the new allotments in the former channels of the Appendix **25** Plan, pursuant to Resolution **325 (Mob-87)***, has been performed on the insistence of the administration concerned and the search for the least affected channel has been effected on the basis of very firm characteristics of the relevant requirement (power, hours of operation, peak hours of operation, service area, traffic information). If the characteristics had been different, the least affected channel would have been different.

1.2 In view of the above, the Board decided to adopt the following rules concerning the examination of the frequency assignments notices, under No. **11.34**, from the point of view of their conformity with the corresponding allotments of the Appendix **25** Plan:

1.2.1 The characteristics of the frequency assignment notices, which correspond to the allotments of the "original" Appendix **25** Plan (as adopted by the MWARC-74), or to the allotments entered in the new channels of the Appendix **25** Plan pursuant to Resolution **325 (Mob-87)***, which were made available by WARC Mob-87, will be checked only with respect to the general conditions concerning the use of the channels for duplex radiotelephony (conformity with the channelling arrangement of Section I, Sub-Section A, of Part B of Appendix **17**: conformity with Nos. **52.177**, **52.217**, **52.219** and **52.220**) and, where applicable, with respect to the conditions contained in the Appendix **25** Plan concerning the location of the transmitting coast station;

1.2.2 The characteristics of the frequency assignment notices, which correspond to the allotments entered in the Appendix **25** Plan pursuant to the application of the procedures of the former Article 16 of the Radio Regulations, or the procedure of Section I of Appendix **25**, as well as those entered in the former channels of the Appendix **25** Plan in accordance with § 5 of the Annex to Resolution **325 (Mob-87)*** (determination for the least affected channel pursuant to the insistence of the administration), will be checked with respect to their conformity with all conditions stipulated against the relevant allotment in the Appendix **25** Plan (i.e. location of the transmitting coast station vis-à-vis the allotment area, power limit, hours of operation).

1.2.3 The non-conformity with the relevant characteristics of the Appendix **25** Plan will result in an unfavourable Finding under No. **11.34** and the modification of these characteristics will be subject to the application of the procedure of Section I of Appendix **25** to the Radio Regulations.

2 Bands governed by Regional allotment or assignment Plans

2.1 The following action shall be taken by the Bureau when the examination of a notice shows that it is not in conformity with a Plan annexed to a Regional Agreement:

2.1.1 The frequency assignments in the bands governed by Regional Agreements that are referred to explicitly in the Table of Frequency Allocations shall be treated in the following manner:

2.1.1.1 the frequency assignment notices submitted without reference to No. **4.4** shall be returned to the notifying administration;

---

* *Note by the Secretariat*: This Resolution was suppressed by WRC-95.

2.1.1.2 the frequency assignment notices submitted under the provisions of No. **4.4** shall be recorded with an unfavourable Finding regarding No. **11.31** and under the conditions of No. **4.4**.

2.2 The frequency assignments in the bands governed by Regional Agreements that are not referred to explicitly in the Table of Frequency Allocations shall be treated in the following manner:

2.2.1 For the Agreements that allow the possibility of bringing into use assignments that are not in accordance with the relevant Plan (i.e. GE75, RJ81, GE85-MM-R1, GE85-EMA and GE06): the assignment shall be examined according to the conditions specified in the Agreements and if the conditions are fulfilled, the assignment shall be recorded accordingly. If the conditions are not fulfilled the assignments shall be treated in accordance with § 2.2.2 below, with the exception of the submissions governed by the GE06 Agreement.

2.2.2 For the Agreements that contain no indication as to bringing into use assignments that are not in accordance with the relevant Plan (i.e. in the bands governed by the Regional Agreements ST61, GE84 and GE89) the notice shall be returned to the administration with a suggestion to apply the necessary procedure or make the necessary modifications to the notice, in order to be in conformity with the Plan. However, if the administration insists on reconsideration of the notice, the assignment shall be recorded with a favourable Finding under No. **11.31** together with the name(s) of the administration(s) whose Plan assignments are likely to be affected, indicating that with respect to this (these) administration(s) the recorded assignment will be operated under the conditions of not causing harmful interference to, and not claiming protection from harmful interference caused by, a station operating in conformity with the Plan.

2.2.3 The submissions governed by the GE06 Agreement, which are not in accordance with the broadcasting Plans or the List of assignments to other primary terrestrial services, shall be treated in accordance with the applicable procedures, as stipulated in Article 5 of the GE06 Agreement.

11.36

See comments under the Rules of Procedure relating to No. **4.4** concerning frequency bands which are prohibited from any other use than that indicated in the Radio Regulations.

11.37

An assignment can be recorded in the Master Register with reference to No. **4.4** only in the case of an unfavourable Finding with respect to No. **11.31** e.g. non-conformity with the Table of Frequency Allocations (see No. **11.36**). This implies that No. **4.4** is also applicable to non-conformity with the coordination requirement under No. **9.21** when this provision is referred to in a footnote of the Table (see No. **11.31.1**). A consequence of the above is that an assignment which is in conformity with the Table of Frequency Allocations but for which the relevant coordination procedure (e.g. Nos. **9.7** to **9.19**) has not been completed cannot be

recorded under No. **4.4**. There are other provisions (e.g. Nos. **11.32A**, **11.33** and **11.41**) which may lead, in given circumstances, to recording when the coordination has not been successfully effected.

11.41 and 11.41.2 (ADD RRB13/64)

The provisions of No. **11.41.2** require the notifying administration, when submitting notices in application of No. **11.41,** to indicate to the Bureau that efforts have been made to effect coordination with those administrations whose assignments were the basis of the unfavourable findings under No. **11.38**, without success. In the absence of such an indication, a resubmission under No. **11.41** after a notice is returned under No. **11.38** shall be considered as not receivable and returned to the administration.

11.43A

1 Modification of a space network may take place during the coordination process; this case is covered in the comments under the Rules of Procedure concerning Nos. **9.27** (§ 3), **9.58**, **11.28** and **11.32**.

2 With respect to applicable procedures for cases of modifications to assignments to satellite networks which are recorded in the Master Register, WARC Orb-88 decided that, in the case of geostationary satellite networks, any modification to the basic characteristics of an assignment, in the application of No. **11.43A** (former RR No. **1548**), should be subject only to the coordination procedure (Section II of Article **9**). On the basis of this decision, the Bureau does not require an administration to recommence the advance publication procedure, for a modification of a frequency assignment recorded in the Master Register, unless the modification concerns a change of orbital location by more than $\pm 6°$ (see also the Rule under No. **9.2**). If the modification concerns the notification of assignment(s) in frequency band(s) not covered by other assignment(s) already recorded in the Master Register, No. **11.43A** does not apply and it will be processed under No. **11.2** or **11.9**, as appropriate.

The purpose of the examination under No. **11.43A** is to determine whether the coordination requirements remained unchanged or, where appropriate, whether the probability of harmful interference has not increased (see also the Rules of Procedure concerning Nos. **11.28** and **11.32**). In these cases, the provisions of No. **11.43B** apply with the effect of maintaining unchanged the status (Findings) and the date of receipt of the assignment. If, due to the modifications, new coordination requirements are identified by comparing the level of interference (such as $\Delta T/T$) resulted from consideration of the initial characteristics and that of modified characteristics, then an unfavourable Finding shall be given and the Form of Notice shall be returned to the notifying administration. The notifying administration should be requested to apply Section II of Article **9**. Findings with respect to No. **11.32** are determined on the basis of the coordination agreements effected to meet the new coordination requirements. In the case, where the provisions of Nos. **11.32A** and **11.33** are applicable and the examinations show an increase in the probability of harmful interference compared with that which resulted from the initial examination, then the Finding is unfavourable and the notice shall be returned in accordance with provision No. **11.38**. See also the Rules of Procedure under No. **11.43B**.

3 The reference in Nos. **11.44, 11.44.1, 11.47** and **11.48** to the seven year regulatory period should be considered as five years from the date of receipt by the Bureau of the notification of the modification referred to in No. **11.43A**. (See also the comments made under the Rules of Procedure concerning No**. 11.44B**). (ADD RRB12/61)

4 Modification of an earth station by changing the associated space station or the associated beam so far as No. **11.32** is concerned is covered in the comments under the Rules of Procedure concerning No. **11.32** in § 2.2.2 and 2.2.3. (MOD RRB12/61)

5 When the modification of a frequency assignment to an earth station is examined in application of Nos. **9.15**, **9.17** and **9.17A**, the coordination distance is calculated in each azimuth and the coordination under Nos. **9.15**, **9.17** and **9.17A** is required only with those countries on whose territory the coordination distance is increased owing to the modification (see comments under the Rules of Procedure concerning No. **9.27** (§ 3.1 and 3.2)). (MOD RRB12/61)

6 When the modification of a frequency assignment is examined in application of No. **9.19**, the power flux-density of the transmitting station (terrestrial station or FSS earth station) with modified characteristics is calculated at the edge of the BSS service area and the coordination under No. **9.19** is required only with those countries where the power flux-density limit at the edge of the BSS service area is increased as the result of modification of characteristics of the transmitting station and is above the permissible level (see comments under the Rules of Procedure concerning No. **9.27** (§ 3.1 and 3.2)). (MOD RRB12/61)

11.43B

1 This provision specifies that a change in the characteristics shall be examined when appropriate with respect to Nos. **11.32** to **11.34**, as appropriate.

1.1 In the case of the examination of space networks under No. **11.32** or **11.32A**, the comments under No. **11.43A** indicate the cases which should not be considered as modifications but as first notifications (with new date of receipt). These examinations should be carried out by checking the application of § 6 *a)* to 6 *c)* of Appendix **5**. In cases where there is no calculation method and/or criteria to check the application of these provisions (e.g. coordination requirement for Nos. **9.12** and **9.13**), the Bureau shall treat these modifications as new notifications of assignments. Number **11.43B** refers to an increase in the probability of harmful interference. The probability of harmful interference (C/I) is calculated in the examination of Nos. **11.32A** and **11.33** only. The examination of No. **11.32** is made using the threshold/condition specified in Appendix **5**.

1.2 It should be noted that in the examination under No. **11.32A**, assignments published under No. **9.38** or **9.58** but not yet notified are also taken into account. Therefore, for practical reasons, in application of this provision, these assignments shall be also taken into account in addition to assignments already recorded in the Master Register.

2 This provision makes reference to the "original date of entry in the Master Register". The Board considers this date to be the date of receipt of the original notice. However, with respect to the notices received prior to 1 January 1999, the Board considers this date equivalent to the date recorded in Column 2A, 2B, or 2D, as appropriate.

11.43C

The Board concluded that the resubmitted assignments will be recorded only if the Finding with respect to No. **11.31** remained favourable.

11.44 (MOD RRB12/61)

1 The information concerning the date of bringing into use is to be provided in the following occasions:

– in AP4 notice forms when submitted under No. **11.15**; and
– in the confirmation of the date of bringing into use under Nos. **11.44.2**, **11.47** and **11.44B**.

It should be noted that the information concerning the date of bringing into use shall be provided for each assignment or group of assignments. (See also the Rules of Procedure concerning No.**11.44B**).

2 The Board considered possible means to ensure that information regarding the bringing into use of frequency assignments to a satellite network under Nos. **11.44**/**11.44B** corresponds to the deployed space station of the geostationary satellite orbit, with the capability of transmitting or receiving in the assigned frequencies . The Board concluded that whenever it appears from reliable information available that an assignment has not been brought into use in accordance with Nos. **11.44**/**11.44B**, the provisions of No. **13.6** shall apply. (ADD RRB13/64)

11.44B (ADD RRB12/61)

1 This provision concerns the bringing into use of a frequency assignment to a space station in the geostationary-satellite orbit. In order to consider such a frequency assignment as having been brought into use, the notifying administration has to inform the Bureau within thirty days from the end of the ninety-day period during which a space station in the geostationary satellite orbit with the capability of transmitting or receiving that frequency assignments has been deployed and maintained continuously at the notified orbital location.

2 The Board carefully studied the relationship between the various provisions related to bringing into use of frequency assignments for a GSO satellite network under Nos.**11.43A, 11.44, 11.44.2**, **11.44B** and **11.47** and concluded that the Bureau will apply the following procedure.

3 No. **11.44** establishes the seven-year time limit for bringing frequency assignments to a space station into use and states that the Bureau shall cancel those frequency assignments which are not brought into use within the required seven-year regulatory period. A frequency assignment to a space station in the geostationary-satellite orbit shall be considered as having been brought into use under No.**11.44B** only when the notifying administration informs the Bureau within thirty day from the end of the ninety-day period specified in that provision. The Bureau will record the date of the commencement of the ninety-day period defined in No. **11.44B** as the notified date of bringing into use (see No. **11.44.2**). The confirmation of the bringing into use of an assignment not yet recorded in the MIFR will be published in PART II-S of the BR IFIC and/or posted on the BR web page maintained for that purpose, as appropriate. In the absence of the confirmation information under No.**11.44B** at the end of the one hundred and twenty-day period after the end of the period provided under No.**11.44** (i.e., ninety days after the seven-year time limit plus thirty days)**,** the Bureau shall cancel the assignments provisionally recorded in the MIFR under No.**11.44** and/or delete the relevant special sections under No.**11.48**, as appropriate.

4 Frequency assignments for which an administration has submitted notification information for recording in the MIFR without submitting the mandatory information required under provision No.**11.44B**, will be recorded provisionally in the MIFR. Thereafter, at the end of the period provided under No. **11.44**, the Bureau shall act in accordance with the provisions of No.**11.47** and/or No.**11.44B**.

11.47

The reference in No. **11.47** to No. **11.44** and its regulatory period should be considered as five years from the date of receipt of a notice of a change referred to in No. **11.43A**. (See also the comments made under the Rules of Procedure concerning No. **11.43A** and No**. 11.44B**) (MOD RRB12/61)

11.49 and 11.49.1

1 Suspended assignments

1.1 Under the provisions of No. **11.49**, as revised by WRC-12, the Board understands that an administration may inform the Bureau of the suspension of the use of a frequency assignment to a space station for a period not exceeding three years and that during this period the frequency assignment shall still continue to enjoy the protection acquired by virtue of the coordination agreements already obtained. The suspension period of up to three years shall apply to requests for suspension of frequency assignments of a space station received by the Bureau on or after 01.01.2013. (MOD RRB12/61)

1.2 The Board decided that the procedure described below shall apply. The procedure will only be valid for suspended assignments which are not modified before being brought back into use.

2 Recording of a suspension of use

2.1 When the Bureau is informed, either under No. **11.49** or in response to an inquiry under No. **13.6**, that the use of a frequency assignment to a space station recorded in the Master Register is suspended, this information is published in the relevant Part of the BR IFIC and posted on the BR web page maintained for that purpose (in order to inform all administrations) and the entry in the Master Register will be amended to include the expected date of resumption of use indicated by the notifying administration. Whenever the use of a recorded frequency assignment to a space station is suspended for more than six months, the notifying Administration has the responsibility to inform the Bureau, as soon as possible, but no later than six months from the start date of the suspension. When it is determined, via an inquiry from the Bureau under No. **13.6,** that an assignment has not been in use for more than 6 months, the issue shall be addressed under the procedures for No. **13.6** with the understanding that an untimely notice may not be relied upon to extend the suspension period beyond the period provided for in No. **11.49**, and without prejudice to whatever actions the Board may otherwise deem appropriate under No. **13.6**.

2.2 Frequency assignments to space stations whose suspension is notified for a period of not more than three years will continue to be taken into account for the purposes of the examination of other assignments in accordance with Nos. **9.36**, **11.31.1**, **11.32**, **11.32A** and **11.33** until the time that the consultation concerning their resumption of use is completed (see § 2.4 below).

2.3 Frequency assignments to space stations whose suspension is notified for a period of more than three years will not be taken into account for the purpose of examinations of other assignments under Nos. **9.36**, **11.31.1**, **11.32** and **11.32A**, and **11.33** as of the date of such notification or after confirmation from the administration of the period of suspension exceeding three years and shall be cancelled.

2.4 *Consultation concerning resumption of use of an assignment*

At the expiry of the period of suspension of the use of a frequency assignment, the notifying administration is consulted as to the date of resumption of use. According to the results of the consultation, the Bureau will apply the following procedures:

2.4.1 When the administration informs that the use has been resumed at the originally indicated date (not later than three years after the date of suspension) or before, this information is published in PART II-S of the BR IFIC and/or posted on the webpage as appropriate. Where the resumption of frequency assignments pertains to a GSO satellite network, the Bureau will publish the resumption in PART II-S of the BR IFIC only when the notifying administration confirms the deployment and maintenance of the GSO satellite network in accordance with the provision No.**11.49.1**.

2.4.2 When the administration notifies that the use will be resumed at a date later than three years after the date of suspension, these assignments shall be cancelled according to the provision No. **11.49**. For those assignments for which the use would be resumed later than the 3-year period, the administration responsible for the assignment shall apply again the relevant procedure of Article **9**. (MOD RRB12/61)

11.50 (ADD RRB14/67)

This provision instructs the Bureau to periodically review the Master Register (MIFR) with the aim of maintaining or improving its accuracy, with particular emphasis on the review of the findings so as to adjust them to the changing allocation situation after each World Radiocommunication Conference. Concerning the latter part of this provision "…with particular emphasis on…", given a large variety of possible changes in allocation situations and the considerable number of fields used for storing finding information in the MIFR, the Board concluded that the most appropriate way of providing instructions to the Bureau concerning the review of findings would be to determine the main elements for such a review. The Board therefore decided that, in reviewing the findings under No. **11.50**, the following main principles shall be applied, unless otherwise decided by the Conference:

1. When new or modified regulatory provisions enter into force, the findings of the recorded assignments concerned shall be revised and updated by the Bureau with a view to reflecting their compliance with the modified regulatory provisions/allocations.

2. Prior to any action, the Bureau shall contact each notifying administration concerned about the review of findings of the assignments concerned and provide information concerning the possible courses of action, which shall be based on the principles specified in items 3 to 6 below. If no reply is received before the deadline established by the Bureau (normally 30 days from the date of the Bureau's communication), the Bureau shall send a reminder. If no reply is received within 30 days after the date of the reminder, the Bureau shall implement the proposed course of action.

3. When a change to Article **5** results in abrogation of an allocation to a radiocommunication service, the recorded assignment concerned should be suppressed from the Master Register. If the notifying administration requests to retain the assignment and states that it will be operated in accordance with No. **4.4**, the assignment shall be kept in the MIFR for information purposes under the conditions of No. **8.5**.

4. When a change to Article **5** results in downgrading of the category of allocation and the downgraded allocation is not subject to any additional conditions, or when the recorded assignment meets all the additional conditions to which the downgraded allocation is subject, the status of the recorded assignment concerned shall be downgraded accordingly and the assignment shall be retained in the Master Register, unless the notifying administration requests its suppression.

When the downgraded allocation is subject to additional conditions and the conditions related to the regulatory examination under No. **11.31** (e.g. power limits, restrictions to national operation, requirements for agreement under No. **9.21**, separation distances, etc.) are not met, the Bureau shall propose the deletion of the assignment to the notifying administration, or that its characteristics be modified to comply with the new conditions. If the administration requests to retain the assignment with its characteristics unchanged and states that it will be operated in accordance with No. **4.4**, the assignment shall be kept in the MIFR for information purposes under the conditions of No. **8.5**.

Concerning the application of the relevant coordination procedures, the Bureau shall propose to the notifying administration to suppress or to resubmit the assignment for the application of these procedures. Concerning examination under No. **11.32**, the recorded assignment, with its characteristics unchanged, shall be considered as having successfully completed, as of the date of its original recording in the MIFR, the applicable coordination procedures in respect of the services allocated with equal rights.

5. When a change to Article **5** results in the allocation to a new service or upgrade of the category of an existing service, the Bureau shall draw the notifying administration's attention to the recorded assignment concerned, which previously had a lower status or was recorded under the conditions of No. **4.4**, and propose to the administration that it submit a new assignment to replace the previous one. The relevant coordination procedures shall apply to the newly submitted assignment and no particular priority shall be given to it in this process. The status of the assignment should be upgraded only if all relevant provisions of the Radio Regulations have been applied.

6. When a change to Article **5** results in the modification of the conditions of an allocation without modification of the category of allocation (e.g. additional regulatory/technical restrictions or new/modified coordination procedures), then the original findings of the recorded assignment concerned may be kept only subject to conformity with the new conditions. In such a case, the Bureau shall ask the notifying administration whether the characteristics of the assignment will be modified to comply with the new conditions. If the notifying administration does not respond to the Bureau's inquiry (see item 2 above) or if the conditions are not met, the Bureau shall propose the deletion of the assignment to the notifying administration. If the administration requests to retain the assignment with its characteristics unchanged and states that it will be operated in accordance with No. **4.4**, the assignment shall be kept in the MIFR for information purposes under the conditions of No. **8.5**.

Concerning examination of frequency assignments with respect to their conformity with a world or regional plan under No. **11.34**, when the conditions of the applicable plan are changed, the original findings of the recorded assignment may be kept only subject to conformity with the new conditions. If the conditions are not met, the corresponding assignment may be retained in the MIFR with unfavourable finding under No. **11.34**.

7. The Board noted that Article **5** contains a number of provisions under which an allocation to a radiocommunication service is subject to obtaining the agreement of the administrations concerned, e.g. Nos. **5.175**, **5.188**, etc., without referring to No. **9.21**. Obtaining such agreement is not regulated by either the procedures of Article **9** or the Rules of Procedure and is to be resolved directly between the administrations concerned. Furthermore, when examining the relevant frequency assignment notices, the Bureau does not verify such agreements. In the above context, the Board decided that in the case of a review of findings of the relevant assignments, the Bureau shall not take into account the presence or absence of agreements of other administrations when formulating new findings.

8. After completion of the review of findings, the frequency assignments concerned together with the modified findings shall be published in relevant Parts of the BR IFIC, and an Information Note shall be included in the BR IFIC, drawing the attention of administrations to the review of findings and explaining the reasons for and content of the review.

_____

Rules concerning

ARTICLE 12 of the RR

12.9

Technical analysis

The technical analysis is composed of propagation calculation and compatibility analysis. For both modules, the calculation of antenna patterns shall be made using the current Recommendation ITU-R BS.705, the propagation shall be calculated according to Recommendation ITU-R P.533 and the reliability according to Recommendation ITU-R P.842. If any of these Recommendations is modified, the Bureau shall inform all administrations when the modification is implemented.

The test points referred to in the propagation and compatibility analysis are those agreed to at WARC HFBC-87.

The propagation calculation shall be made for all bands where Article **12** applies and at all test points within the required service area. It will be calculated at the centre frequency of the broadcasting band concerned. There will be one calculation for each hour entirely or partially used, and this calculation will be made for the hour H+30 min. For example, an operation time 02H15 to 04H05 will lead to calculations at 02H30, 03H30 and 04H30.

Results will be given for each hour, either:

– as the basic service reliability in the requested service area;

– or as the basic circuit reliability for each test point within the required service area;

– or as the power at the receiver for each test point within the required service area;

– or as the field strength received by the reference receiving antenna.

The compatibility analysis shall be made at all test points within the required service area. It may be based either on pre-calculated values of power received at the 911 test points, or values to be calculated on the user's computer. The hours for which calculations are made are determined in the same way as for the propagation calculation.

The compatibility analysis shows the overall service reliability for all test points within the required service area and the overall area reliability for these test points. The highest interferers at each test point will also be indicated.

For these calculations, the reliability values relate to the use of a single frequency. In the case of analogue DSB emissions the RF signal-to-noise ratio will be 34 dB and the RF protection ratios will be taken from Annex 4 to Recommendation ITU-R BS.560 (17 dB for co-channel). In the case of digital emissions, the desired RF signal-to-noise ratios are provided in the most recent version of Recommendation ITU-R BS.1615 and the RF protection ratios are given in Section 1 of the Annex to Resolution **543 (WRC-03)**.

The user may decide to choose other values for signal-to-noise ratio and co-channel RF protection ratio, and not to consider adjacent channel interference with frequency differences greater than a given value.

_____

Rules concerning

ARTICLE 13 of the RR

In reviewing Sections III and IV of Article **13**, the Board noted that modifications were introduced by WRC-97 and WRC-03 particularly in relation to the process of considering proposed changes or additions to the Rules of Procedure and the opportunity available to administrations to comment on such proposals.

Nos. **13.12A**, **13.14** and **13.15** in Section III establish procedures for changes to the Rules of Procedure and a sequence for Board consideration, publication, comment by administrations and possible further review or special study. On the other hand, No. **13.17** in Section IV also refers to preparation of draft modifications or additions to the Rules of Procedure.

The Board has concluded that there is a lack of clarity in the procedures to be followed for modifications or additions to the Rules of Procedure.

Accordingly, the Board decided that the following procedures should be followed with respect to the application of Nos. **13.14**, **13.15** and **13.17**:

a) Proposals for changes or additions to the Rules of Procedure can emerge from administrations, from the Bureau, or from the Board itself. Irrespective of the source of proposals, the Board regards No. **13.17** as requiring that the Bureau should prepare draft modifications or additions to the Rules of Procedure arising from such proposals. In accordance with No. **13.12A** *c)*, such drafts shall be available to administrations at least ten weeks prior to the start of the Board meeting.

b) The Bureau, in accordance with No. **13.14**, shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure, as well as the comments received in response to the procedure in *a)* above.

c) Any need pursuant to No. **13.15**, for a special study in relation to the Rules of Procedure submitted by an administration or identified by the Board or the Bureau, or the need for any new Rules or modification or addition to the existing Rules of Procedure shall be handled in accordance with the procedure in *a)* and *b)* above.

See also Rules of Procedure in Part C (Rules concerning working methods of the RRB).

_____

Rules concerning

ARTICLE 21 of the RR

Table 21-2 (ADD RRB13/64)

Table **21-2** specifies the frequency bands that are shared with equal rights between space services, on the one hand, and the fixed and mobile service, on the other hand, where the terrestrial station is subject to power limits specified in provision Nos. **21.2** to **21.5A.** These power limits are verified during processing frequency assignments by the Bureau under "other provisions" mentioned in No.**11.31** that are mandatory for verification during regulatory examination**.**

WRC-12 allocated the frequency band 24.75-25.25 GHz to the fixed-satellite service in the Earth-to-space direction in Region 1. As a result, this band is shared with equal rights between the fixed-satellite service (Earth-to-space) and the fixed service; however, this situation is not reflected in Table **21-2**. Recognizing the need for a consistent approach in protection of the fixed-satellite service in Regions 1 and 3, the Board decided that the power limits specified in Nos. **21.3** and **21.5** shall apply to the frequency assignments of the fixed service in the band 24.75-25.25 GHz in Region 1.

21.11

1 When the agreement of an administration concerned is not obtained, the assignment is not in conformity with the Radio Regulations. In order to identify the administrations concerned, the Bureau shall calculate a nominal contour based in all azimuths on the limits specified under No. **21.8** and compare it with the appropriate contour resulting from the notified e.i.r.p. and the antenna diagram. In any azimuth where the second contour exceeds the first one, an agreement under this provision is required with any administration having a territory which lies within the contour. The communication to the Bureau of the agreement of this administration is required for the formulation of a favourable Finding under No. **11.31**.

2 In accordance with this provision, any frequency assignment having an e.i.r.p. that exceeds the limits by more than 10 dB will receive an unfavourable Finding under No. **11.31**.

21.14

Elevation angles lower than 3° would create a high value of the e.i.r.p. towards the horizon. The Board concluded that this provision is to be used together with Section III of Article **21**. This means the following:

Irrespective of the e.i.r.p. of the earth station, an elevation angle lower than 3° is subject to the agreement of the administrations concerned. In the case of receiving earth stations, to identify the administrations concerned, a nominal coordination contour is drawn at a 3° elevation angle and compared with the contour for the notified elevation angle. In any azimuth where the second contour exceeds the first one, an agreement under this provision is required with any administration having a territory which lies within the coordination area. The Bureau shall formulate a favourable Finding under No. **11.31** only when it is informed of the formal agreement of these administrations.

21.16

Application of power flux-density (PFD) limits to steerable beams

1 Use of steerable beams is becoming widespread. PFD values produced by assignments in steerable beams often exceed the applicable hard PFD limits for some or all positions of those beams. In these cases, administrations tend to state that PFD limits will be met and sometimes provide appropriate technical description as to how it would be done.

2 For the purpose of transparency and to set an upper limit on the acceptable extent of the PFD control and avoid subjectivity in the evaluation of the PFD control method, the Board concluded that until the time that a relevant ITU-R Recommendation is available, the following Rule will apply on a provisional basis.

3 In cases where frequency assignments in steerable beams of a satellite network, except the frequency assignments under the Appendix **30B**, exceed the applicable hard PFD limits, the Bureau will establish a favourable Finding only if: (MOD RRB12/60)

a) there is at least one position of the steerable beam where the applicable PFD limits are met without any reduction of the notified power density; and

b) the administration states that the applicable PFD limits will be met by applying a method, the description of which should be submitted to the Bureau. One possible example of such a method is described in the Annex to this Rule.

ANNEX 1

Method to be applied to meet the regulatory PFD limits when steerable beams are used

Where steerable beams are used in satellite networks, operational measures may be needed to adjust space station transmit power density so that the applicable regulatory PFD limits for specific beam positions are met. In such cases, administrations may apply the following method for each specific steerable beam position and for each assignment in such beam:

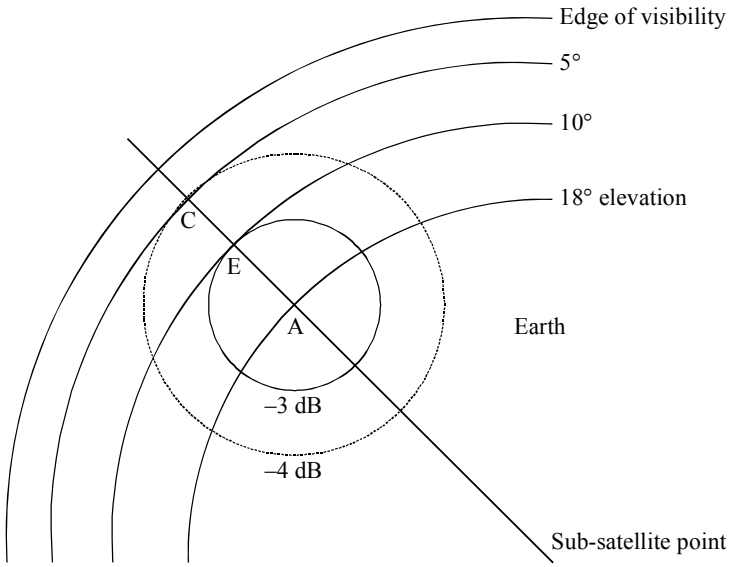
Step 1: For a specific beam position, produce a plot of beam gain contours on a map of the Earth that shows equal elevation lines.

Step 2: Using the notified power density of the particular assignment, determine if PFD produced at beam peak or any other point on the Earth exceeds the applicable PFD limits. If so, determine the maximum amount of PFD excess (i.e. find the point with largest excess over the limit).

Step 3: Adjust, i.e. reduce, the operational power density of the assignment by at least the maximum amount determined in Step 2 above, so that PFD produced on any point on the Earth meets the applicable PFD limit.

For non-GSO satellites in elliptical orbits, its distance towards points on the Earth also changes as the satellite travels along the orbit. To find the maximum amount of PFD excess in this case, Steps 1 and 2 above need to be repeated for various orbital positions of the satellite.

The application of this method is illustrated in the following example. Assume that the steerable beam is positioned as shown in the figure below.



RP/A1-03

The beam peak is at point A and its elevation angle can be computed using geometrical methods. The –3 dB contour touches the 10° elevation line at point B, and the –4 dB contour touches the 5° elevation line at point C. For these points, PFD values, the applicable PFD limits and the excess over the limits (if any) are given in the Table below. Values are for frequencies above 15 GHz and the reference bandwidth is 1 MHz. The data in the Table show that at this particular steerable beam position it is necessary to reduce the notified power density by 2 dB to meet the regulatory PFD limit.

Beam name: **AAR** Emission: **11M7G7W--** Notified power density: **–55.7 dB(W/Hz)**

	Point A	**Point B**	**Point C**
Notified power density per Hz (dB(W/Hz))		–55.7	
Notified power density per 1 MHz (dB(W/MHz))		4.3	
Antenna gain towards a point (dBi)	50.0	47.0	46.0
e.i.r.p. towards a point (dB(W/1 MHz))	54.3	51.3	50.3
Path length (km)	39 532	40 584	41 125
Spreading loss (dB)	162.9	163.2	163.3
PFD produced at a point (dB(W/(m^2 · 1 MHz)))	–108.6	–111.9	–113.0
21.16 PFD limit at a point (dB(W/(m^2 · 1 MHz)))	–108.5	–112.5	–115.0
Excess over the PFD limit (dB)	–	0.6	2.0
Required reduction of power density to meet the limit (dB)		2.0	
Maximum power density to be used at this beam position (dB(W/Hz))		–57.7	

Rules concerning

ARTICLE 22 of the RR

22.10

The Board considers that this provision means that it is for the administration concerned to decide if it can or cannot comply with the limit specified in No. **22.8**. So far as the conformity examination of the Bureau with respect to No. **22.10** is concerned, the Bureau shall formulate a favourable Finding under No. **11.31** when examining the validity of the longitudinal tolerance only in the following cases:

a) if the tolerance is within ±0.1°, or

b) if the administration indicates that its space station has the capability to be maintained within ±0.1°, if necessary.

22.14

The comments under the Rules of Procedure concerning No. **22.10** apply, replacing ±0.1° by ±0.5°.

22.19

In the case of pointing accuracy there is no mandatory value to be respected. The administration has to indicate that its space station has the capability of being maintained within the limits indicated in this provision. In the absence of a statement to this effect, the Bureau shall formulate an unfavourable Finding under No. **11.31**.

_____

Rules concerning

ARTICLE 23 of the RR

23.13B and 23.13C

1 In case of a disagreement by an administration on the inclusion of its territory in the service area of a broadcasting-satellite service (except sound broadcasting) network, the Bureau shall modify the service area by excluding the territory of the objecting administration, and for submissions under Article 4 of Appendix **30** the test points situated on that territory, from the service area of the proposed BSS space station. The exclusion of the territory of the objecting administrations from the service area shall be reflected in the Bureau's Space Network System (SNS). In these cases, the reception of the emission of the BSS space station is not entitled to protection within the territory excluded from the service area.

2 If, as a consequence of the above, the notifying administration requests the Bureau to move test points to ensure that the rest of the service area is not adversely affected, the Bureau shall implement the requested changes and update the Reference Situation of the subject network. Nevertheless, the Bureau does not need to review the coordination requirements of subsequent networks that have already been published as a result of the above-mentioned update.

_____

Rules concerning

APPENDIX 4 to the RR

An. 1

ITEM 3A1

When submitting a notice within the procedure of Article **11**, the administrations are required to provide information on the call sign or other identification used, as requested by Nos. **19.7** to **19.9** and **19.29**. Bearing in mind the variety of special arrangements concluded between administrations concerning notification of frequency assignments, the Board instructed the Bureau not to perform systematic control of the call signs referred to in No. **19.29** during the validation and examination of the notice. Nevertheless, if non-conformity of the call sign with the international call series is identified, the notifying administration is to be informed thereof.

An. 2

A.18 *a)*

The Board noted that the description of Annex 2 of Appendix **4**, § A.18 *a)* corresponds to the commitment required from an administration in the case of the possible communication of aircraft earth stations in the secondary aeronautical mobile-satellite service with space stations in the fixed-satellite service, in accordance with No. **5.504A**. The Board further noted that this data element is mandatory in the case of submission of notification or coordination of a geostationary or a non-geostationary satellite network.

However, this data element is also required to check under No. **11.31** the compliance with respect to No. **5.504A** of the notification of an aircraft earth station in the secondary aeronautical mobile-satellite service communicating with a space station in the fixed-satellite service. This requirement was probably omitted by inadvertence at WRC-03.

To correct this inconsistency, the Board decided that the Administrations will be requested to provide, in addition to the relevant characteristics listed in Appendix **4**, the data element described in § A.18 *a)* of Annex 2 of Appendix **4**, when submitting the notification information of an aircraft earth station in the secondary aeronautical mobile-satellite service communicating with a space station in the fixed-satellite service in accordance with No. **5.504A**. The Bureau will then subsequently take account of this data element § A.18 *a)* in its completeness check of the submitted data.

B.4 *a)*

When submitting a notice within the applicable procedures of Articles **9** or **11**, in order to better describe the power flux-density pattern on the surface of the Earth resulting from the emission of a space station abroad a non-GSO satellite in circular orbit, the following optional information can be provided together with the other data contained in Appendix **4**:

Appendix 4, Annex 2A, § B.4 *a)* (non-GSO space station antenna characteristics)

1 In addition to the information currently contained in Appendix **4** to be provided under this item, if appropriate, indicate:

1.1 in the case of a transmitting space station aboard a non-GSO satellite in a circular orbit that is intended to communicate with earth stations via a transmitting antenna pointing in a direction that is fixed with respect to the satellite, the maximum isotropic gain (dBi) and the gain contours plotted 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 within the limit of visibility of the Earth from the given non-GSO satellite;

1.2 in the case of a space station aboard a non-GSO satellite in a circular orbit where a steerable beam is used, data on the antenna radiation characteristics as follows:

– if the effective boresight area (see No. **1.175**) is identical with the global or nearly global service area, provide only the maximum isotropic antenna gain (dBi) that is then applicable to all points on the surface of the Earth;

– if the effective boresight area (see No. **1.175**) is less than the global or nearly global service area, provide the maximum isotropic gain and the effective gain contours (see No. **1.176**) as defined above.

2 The additional information detailed in § 1.1 and 1.2 above is considered as optional. When examining such a case, the Bureau shall use the more detailed information to calculate power flux-density values if it is provided; if it is not the calculation shall be made as at present and be based on the maximum e.i.r.p. transmitted.

Rules concerning

APPENDIX 5 to the RR

1

See Rules of Procedure relating to Nos. **9.27**, **9.29**, **9.31** and **11.32**.

Table 5-1

On reading the descriptions contained in the first and second columns of this Table the Board concluded that these columns contain descriptions which are of an explanatory nature, and thus should only be used for the purpose of information. The appropriate regulatory texts are those contained in the provisions of Article **9** corresponding to the reference made in the first column of the Table.

_____

Rules concerning

APPENDIX 7 to the RR

1 Cases have arisen in practice where the coordination contour around an earth station exceeds several hundreds of kilometres and overlaps only a very small part of the territory of an administration (less than a few tens of kilometres). Considering that several conservative assumptions are used in calculating the coordination distance, the Board decided that when the overlapping is less than 5% of the coordination distance, no coordination is required.

2 The examination with respect to the application of Nos. **9.15**, **9.17** and **9.17A** involves the application of the calculation method of Appendix **7**, using the system parameter values specified in its Tables 7 to 9. In view of the fact that these Tables contain multiple sets of parameters in several places (e.g. for analogue and digital modulation), which result in different coordination contours, and in order to ensure completeness in the relevant checks of the conformity with the coordination requirements, the Board decided to instruct the Bureau to use the set of parameters which produces the largest coordination area in a given frequency band whenever multiple sets of parameters are indicated in these Tables. In addition, as the system parameter tables have incomplete information in some of the columns, the Board instructed the Bureau to apply the following approach in this regard:

– to use the parameters in Table 7 for determining the coordination area for a transmitting earth station in a service not mentioned in that Table, but allocated with equal rights, based on the fact that all parameters related to the earth station needed for the calculation can be found in the notice form;

– to use the parameters in Table 8 for determining the coordination area for a receiving earth station in respect to a terrestrial service not mentioned in that Table, but allocated with equal rights, under the assumption that the concerned terrestrial service has the same potential of interference as the other terrestrial services listed in the Table (see also § 4 of Rules of Procedure under No. **11.17**).

Rules concerning

APPENDIX 27 to the RR

27/15

This provision specifies that the use of channels derived from the frequencies indicated in No. **27**/18 for the various classes of emission other than J3E and H2B will be subject to special arrangements by the administrations concerned and affected. In this connection, and having in mind the spirit of Resolution **713 (WRC-95)**, the Board considers as a valid "special arrangement by the administrations concerned" any formal action by the International Civil Aviation Organization (ICAO) which results in Standards and Recommended Practices (SARPs), which are approved by the ICAO in accordance with its procedures and which are communicated to the ITU accordingly.

27/18

1 The list of carrier (reference) frequencies, referred to in this provision contains five frequencies (21 925 kHz, 21 928 kHz, 21 931 kHz, 21 934 kHz and 21 937 kHz), which are not allotted to any of the allotment areas defined in Appendix **27**. The Board considers that these frequencies are available to any administration, for such use as it may consider appropriate, provided that it is in accordance with the definition of the Aeronautical Mobile (R) Service, as given in No. **1.33**.

2 In the examinations referred to in No. **11.34**, the Bureau will examine the relevant notices, related to any of these frequencies, only with respect to their conformity with the technical principles of Appendix **27** (channelling arrangement, bandwidth, class of emission, power). When these examinations lead to a favourable finding, the assignment shall be recorded in the Master Register. When the finding is unfavourable, the notice shall be returned to the notifying administration, with an indication of the appropriate action.

27/19

This provision specifies the role of the ICAO in performing voluntary coordination ("should") in the operational use of the frequencies. The Board considers such a coordination as an internal ICAO activity, intended to conclude operational agreements between the international operators (e.g., time sharing arrangement). Therefore, the Bureau will not take into account such agreements between operators, unless they are communicated to the Bureau by their national telecommunication administrations.

27/58

This provision lists the permissible classes of emission on the channels of Appendix **27**, and stipulates, amongst other emissions, the possibility of using "other transmissions such as automatic data transmission, single sideband, suppressed carrier". The class of emission listed against this latter description is JXX (former designation A9J). In this respect, the Board considers that any single sideband (SSB) (suppressed carrier) class of emission is authorized on the channels of Appendix **27** (e.g., J2B, J2D, J7B, J7D, J9B, J9D, etc.), provided that the following conditions are satisfied:

– the reference frequency of the concerned transmission coincides with a reference frequency indicated in the list of carrier (reference) frequencies (No. **27**/18),

– the occupied bandwidth of other authorized emissions does not exceed the upper limit of J3E emissions (No. **27**/12), i.e., 2 800 Hz,

– the assigned frequency is at a value 1 400 Hz above the carrier (reference) frequency (No. **27**/75).

Rules concerning

APPENDIX 30 to the RR

(Rules are arranged by paragraph numbers of Appendix **30**)

Art. 3

Execution of the provisions and associated Plans

3.1

For the footnote of § 3.1 see comments made under the Rules of Procedure concerning No. **5.492**.

Art. 4

Procedures for modifications to the Region 2 Plan or for additional uses in Regions 1 and 3

4.1.1 *a)* and 4.1.1 *b)*

1 In determining those administrations of Regions 1 and 3 that may be affected, the proposed new or modified assignment to the List is examined with respect to the Regions 1 and 3 Plan and List as they exist at the date of receipt of the proposed new or modified assignment to the List, including the other proposed new or modified assignments to the List received before that date (whether the procedure of Article 4 is complete or not). The examination consists of ensuring that the limits of Section 1 of Annex 1 of Appendix **30** are not exceeded. Account is also taken of any time-limited new or modified assignments to the List in accordance with § 4.1.13.

2 Following the introduction by the 1983 Conference of the grouping concept for Region 2 (Articles 9 and 10 of Appendices **30A** and **30** respectively) and further to the decision of WARC Orb-88 to apply the grouping concept to the Regions 1 and 3 feeder-link Plans (Article 9A of Appendix **30A**), the ex-IFRB decided to extend this concept to the 1977 Conference BSS Plan. WRC-2000 endorsed this decision and decided to include the same grouping concept definition in Articles 11 and 9A of Appendices **30** and **30A** respectively.

3 The Board's understanding of the group concept is that in the interference calculation to assignments that are part of the group, only the interference contribution from assignments that are not part of the same group are to be considered. On the other hand, for the interference calculation from assignments belonging to a group into assignments that are not part of the same group, only the worst interference contribution from that group is to be taken into consideration.

4 According to *resolves* 5 of Resolution **548 (WRC-03)***, in the processing of Regions 1 and 3 Article 4 submissions received after 2 June 2000 for identification of affected administrations, each network in a group shall be examined separately without taking into account the interference contribution from the other networks in the group. This means that the concept of calculating the worst interference contribution from the assignments that are part of a group to assignments that are not part of the same group, as indicated in Article 11 (column 14) of Appendix **30**, is not applicable to the grouped networks for the identification of affected administrations in accordance with § 4.1.5 of that Appendix. In applying § 4.1.11, the application of this method to networks received before 3 June 2000 shall not result in additional coordination requirements for those networks.

5 In order to implement this separate examination and calculate the interference effect of an Article 4 network under examination independent of other networks in the group in accordance with *resolves* 5 of Resolution **548 (WRC-03)***, the Board concluded that the following method should be used.

Identification of affected administrations should be carried out without taking into account the interference contribution from the Plan and the List assignments grouped with assignments of an Article 4 network under examination based on the reference situation established without taking into account the interference contribution from those grouped assignments.

In addition, it is understood that this separate examination is not applicable in the case of other examinations, such as e.g. under Sections 4 and 6 of Annex 1 to Appendix **30**, which do not use the grouping concept, for identifying affected administrations under § 4.1.5 of Article 4 of Appendix **30**.

6 For the Regions 1 and 3 Plan and List, in accordance with *resolves* 1 of Resolution **548 (WRC-03)*** and the decision of the Plenary of WRC-03, the Board concluded that grouping of networks separated by more than 0.4° in the geostationary arc is not permitted in the List except for application of § 4.1.27. However, grouping of networks separated by more than 0.4° may be used before the inclusion of the assignments in the List to modify the orbital position of a network.

For the Region 2 Plan, with respect to § 4.2.3 *c)*, the Board did not find any regulatory basis to extend the use of groupings involving multiple orbital positions (except for the case of 0.4° orbital separation which was allowed for clusters within the Region 2 Plan and its subsequent modifications).

---

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

In the case of a request for replacement of an assignment/entry in the Region 2 Plan of an administration, the implementation of § 2.2 of the Rules of Procedure relating to § 4.2.6 of Appendix **30** requires the processing of the modified assignment requested by that administration under Article 4 of that Appendix based on the following conditions:

– no interference effect from the initial assignment of the requesting administration is considered in the overall equivalent protection margin calculations of the modified assignment requested by that administration, and vice versa; and

– no aggregate interference effect from the subject initial assignment and the modified assignment of the requesting administration is considered in the overall equivalent protection margin calculations of other assignments, but only the worst interference effect from the two is to be considered.

The above-mentioned conditions apply only during the time-period afforded for the processing of the modified assignment under Article 4 of that Appendix. After that time-period, either the subject initial assignment or the modified assignment of the requesting administration will remain in the Plan, depending on the successful application or otherwise of the Article 4 procedure for this modified assignment.

4.1.1 *c)*

In determining those administrations of Region 2 that might be affected, the proposed new or modified assignment to the Regions 1 and 3 List is examined with respect to the Region 2 Plan as it exists at the date of receipt of the proposed new or modified assignment including the proposed modifications of the Region 2 Plan received before that date (whether the procedure of Article 4 is complete or not). The examination will consider only those administrations having assignments whose necessary[1] bandwidth overlaps the necessary[1] bandwidth of the proposed new or modified assignment to the Regions 1 and 3 List. The Region 2 administration is identified as having services which are considered to be affected when the power flux-density at any test point which lies within the service area of the Region 2 assignment under examination exceeds the limits specified in Section 3 of Annex 1 to Appendix **30**.

4.1.1 *d)*

1 This paragraph is understood by the Board as being intended to protect terrestrial services in any territory or part of a territory in the three Regions where this territory or part of a territory is not covered by a broadcasting-satellite assignment in a given necessary[1] bandwidth. Therefore the proposed new or modified assignment to the Regions 1 and 3 List should take account of terrestrial stations in all Regions.

[1] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

2 For terrestrial stations in all Regions the limit for the power flux-density not to be exceeded by the proposed new or modified assignment to the Regions 1 and 3 List is that specified in Section 4 of Annex 1 to Appendix **30**. The agreement of an administration is required when a pfd excess exists over some part of its territory, unless the necessary[1] bandwidth of the examined assignment is completely within the necessary[1] bandwidth(s) of one or more assignments[2] of the potentially affected administration in the Region 2 Plan or in the Regions 1 and 3 Plan or List and the area of pfd excess is inside the service area(s) of those assignments. In the absence of a defined service area contour, the area on the surface of the Earth within the –3 dB contour shall be considered as the service area of those assignments in this examination.

3 The Bureau, in applying Section 4 of Annex 1 shall, where applicable, compare the power flux-density values resulting from the proposed new or modified assignments to the Regions 1 and 3 List with those values in the Regions 1 and 3 Plan or List as appropriate. If it is not possible to do so, the Bureau should use the absolute limit expressed in Section 4 of Annex 1 to that Appendix.

4.1.1 *e)*

1 This examination shall consider only those administrations having assignments to FSS space stations whose necessary[3] bandwidth overlaps the necessary[3] bandwidth of the proposed new or modified assignment to the Regions 1 and 3 List.

2 Under this paragraph an assignment recorded in the Master Register shall be understood as defined in § 1 *a)*, 1 *b)*, 1 *c)* and 1 *cbis)* of Appendix **5**.

3 In the case of inclusion of a new assignment in the Regions 1 and 3 List, different from the frequency assignments in the Plan or List for Regions 1 and 3 as established by WRC-2000, the limit prescribed in § 3 or Note 1 of Section 6 of Annex 1, as appropriate, shall be applied.

4 The Bureau, in applying Section 6 of Annex 1 shall, where applicable, compare the power flux-density values resulting from the proposed new or modified assignments to the Regions 1 and 3 List with those values in the Regions 1 and 3 Plan or List as appropriate. If it is not possible to do so, the Bureau should use the absolute limit expressed in Section 6 of Annex 1 to that Appendix.

---

[2] Assignments to satellite networks of international organizations should not be considered as being national assignments of administrations which notify them on behalf of international satellite organizations.

[3] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

4.1.3

1 In the event that the Bureau cancels a frequency assignment in application of § 5.3.2 of Article 5 of this Appendix, the corresponding assignment, which has been submitted either under § 4.2.6 (except in the case of a request for replacement of an assignment in the Region 2 Plan) and entered in the Region 2 Plan, or under § 4.1.3 and entered in the Regions 1 and 3 List, shall also be removed from the Plan or the List according to the case. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

2 See also Rules of Procedure concerning Receivability of the Forms of Notice.

4.1.7

Any request by an administration to be included in the list of administrations to be published shall be based only on technical reasons to be verified using Annex 1 as well as other relevant Annexes. If this indicates that the requesting administration should have been included in the list, the Bureau will include it; otherwise the requesting administration will be informed that its name will not be published, it being left to the notifying administration to consider if it is appropriate to take the request into account.

4.1.7*bis*

The agreement referred to in § 4.1.7*bis* is the agreement of the administrations identified under § 4.1.1 and of those under § 4.1.7 which have been confirmed by the Bureau using the appropriate criteria.

4.1.8

An administration which has only requested additional information in accordance with § 4.1.8 or § 4.2.12 will not be considered by the Bureau to have submitted comments in accordance with § 4.1.10 or § 4.2.14 respectively.

4.1.11

See also comments under § 4.1.3 and 4.2.6 and Rules relating to the Receivability of the Forms of Notice.

4.1.15

The second part of these paragraphs applies only to those assignments for which the procedure of Article 4 has been successfully applied, i.e., all administrations identified by the Bureau in application of § 4.1.5 or 4.2.8 and § 4.1.7 or 4.2.10 have either given their agreement or failed to comment on the proposed new or modified assignment to the Regions 1 and 3 List or on the proposed modification to the Region 2 Plan.

The Bureau shall update the reference situation of the Regions 1 and 3 Plan and List or of the Region 2 Plan entries and of those networks which are the subject of requests for new or modified assignment to the Regions 1 and 3 List or for Region 2 Plan modifications which are still at the stage of application of Article 4. Nevertheless, the Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned update.

4.1.23

If the assignments in question were deleted from the Regions 1 and 3 List or the Region 2 Plan, the Bureau shall update the reference situation of the assignments in the Regions 1 and 3 Plan and List, or in the Region 2 Plan and of the assignments under Article 4 procedure and inform all administrations of the action taken together with Special Sections published as a result of cancellation of frequency assignments from the Regions 1 and 3 List or the Region 2 Plan. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

4.2.1 *a)*

This paragraph refers to the modification in the sense of a change to "the characteristics of any of its frequency assignments to a space station in the broadcasting-satellite service (BSS) which are shown in the Region 2 Plan". The Plan as it appears in Article 10 of Appendix **30** contains only eight characteristics, while Annex 2 contains a greater number of characteristics which were used by the RARC-SAT-R2 (Geneva, 1983) Conference to establish the Plan. Among these characteristics only one, the energy dispersal (former Annex 2, § 14 *h)*, now item C.9 *b)* 8) of Annexes 2A and 2B of Appendix **4**), is referred to in the footnote of § 4.2.1. The Board considers that modifications of characteristics other than those listed in Article 10 of Appendix **30** may be considered as modifications to the Plan. These other characteristics are listed in the Rules of Procedure relating to § 5.2.1 *b)* of Article 5 of Appendix **30**.

See also the last paragraph of Rules of Procedure relating to § 4.2.3 *d)* and 4.2.3 *e)*.

See also Rules of Procedure relating to § 4.2.6.

4.2.1 *b)*

See Rules of Procedure relating to § 4.2.1 *a)* above.

See also Rules of Procedure relating to § 4.2.6.

4.2.1 *c)*

When an administration cancels an assignment from the Region 2 Plan under this paragraph, or when the Bureau, in applying § 4.2.6 deletes an assignment from the Plan, the reference situation of the Plan assignments and those in the process of modification would be updated. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

4.2.3 *a)*
and 4.2.3 *b)*

In determining the administrations of Region 1 that might be affected, the proposed modification of the Region 2 Plan is examined with respect to the Regions 1 and 3 Plan and List as it exists at the date of receipt of the proposed modification including all proposed new or modified assignments to the Regions 1 and 3 List received before that date (whether the procedure of Article 4 is complete or not). The examination will identify only those administrations having assignments whose necessary[4] bandwidth overlaps the necessary[4] bandwidth of the proposed modification of the Region 2 Plan. An administration of Region 1 is identified as having services which might be affected when the power flux-density at any test point which lies within the service area of the Region 1 assignment under examination exceeds the limits specified in § 3 of Annex 1 to Appendix **30**.

4.2.3 *c)*

1 In determining those administrations of Region 2 that may be affected, the proposed modification is examined with respect to the Region 2 Plan as it exists at the date of receipt of the request for modification including the proposed modifications received before that date (whether the procedure of Article 4 is complete or not). The examination consists of ensuring that the limits of § 2 of Annex 1 of Appendix **30** are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.2.17.

2 According to Resolution **42 (Rev.WRC-03)***, the Board decided that, when applying this paragraph, the Bureau shall not take account of the interim systems.

3 For considerations related to application of the Group concept see Rules of Procedure related to § 4.1.1 *a)* and 4.1.1 *b)*.

---

[4] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

4.2.3 *d)*

1 As indicated in the Rules of Procedure relating to § 4.1.1 *d)*, a modification to the Region 2 Plan should take account of terrestrial stations in all Regions.

2 For terrestrial stations in all Regions, the limit for the power flux-density not to be exceeded by the proposed modification to the Region 2 Plan is specified in § 4 of Annex 1 to Appendix **30**. The agreement of an administration is required when a power flux-density excess exists over some part of its territory, unless the necessary[5] bandwidth of the examined assignment is completely within the necessary[5] bandwidth(s) of one or more assignments[6] of the potentially affected administration in the Region 2 Plan or in the Regions 1 and 3 Plan or List and the area of power flux-density excess is inside the service area(s) of those assignments. In the absence of a defined service area contour, the area on the surface of the Earth within the –3 dB contour shall be considered as the service area of those assignments in this examination.

3 The Bureau, in applying § 4 of Annex 1 shall, where applicable, compare the power flux-density values resulting from the proposed modification to the Region 2 Plan with those values in the Region 2 Plan. If it is not possible to do so, the Bureau should use the absolute limit expressed in § 4 of Annex 1 to that Appendix.

4.2.3 *e)*

1 This examination shall consider only those administrations having assignments to FSS space stations whose necessary[5] bandwidth overlaps the necessary[5] bandwidth of the proposed modification to the Region 2 Plan.

2 Under this paragraph, an assignment recorded in the Master Register shall be understood as defined in § 1 *a)*, 1 *b),* 1 *c)* and 1 *cbis)* of Appendix **5**.

3 In the case of inclusion of a new assignment to the Region 2 Plan, different from the frequency assignments in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference, the limits prescribed in § 3 of Section 6 and in the second indent of Section 7 of Annex 1 shall be applied.

4 The Bureau, in applying Sections 6 and 7 of Annex 1 shall, where applicable, compare the power flux-density and $\Delta T/T$ values, respectively, resulting from the proposed modification to the Region 2 Plan with those values in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference. If it is not possible to do so, the Bureau should use the absolute limit expressed in § 6 and 7 of Annex 1 to that Appendix.

---

[5] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

[6] Assignments to satellite networks of international organizations should not be considered as being national assignments of administrations which notify them on behalf of international organizations.

4.2.3 *f)*

1 Until there is a Plan for Region 3 for the band 12.5-12.7 GHz, this examination shall consider only those administrations of Region 3 having broadcasting-satellite service assignments whose necessary[7] bandwidth overlaps the necessary[7] bandwidth of the proposed modification to the Region 2 Plan.

2 Under this paragraph, an assignment recorded in the Master Register shall be understood as defined in § 1 *a)*, 1 *b),* 1 *c)* and 1 *cbis)* of Appendix **5**.

4.2.6

See Rules of Procedure relating to § 4.1.3.

4.2.10

See Rules of Procedure relating to § 4.1.7.

4.2.11

The agreement referred to in § 4.2.11 is the agreement of the administrations identified under § 4.2.3 and of those under § 4.2.10 which have been confirmed by the Bureau using the appropriate criteria.

4.2.12

See Rules of Procedure relating to § 4.1.8.

4.2.15

See Rules of Procedure relating to § 4.1.11.

4.2.19

See Rules of Procedure relating to § 4.1.15.

4.2.24

See Rules of Procedure relating to § 4.1.23.

---

[7] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

Art. 5

Notification, examination and recording

5.2.1 *b)*

1 The Board has considered the question whether the examination with respect to conformity with the Plan[8] means only the columns of Articles 10 and 11 of Appendix **30**, as updated or whether it also includes an examination with respect to the technical criteria given in Annex 5 to Appendix **30** which were used for the establishment of the Plans. The Board concluded that some of the technical criteria contained in Annex 5 need to be taken into account in this examination. Therefore, the examination from the viewpoint of conformity with the Plan is carried out in two steps:

a) to ensure that the characteristics notified are those specified in the columns of the Plan concerned as updated (see § 3.1 of Article 3). If the characteristics are different then the examination under § 5.2.1 *d)* is carried out. For the items below, any characteristics for which the procedure of Article 4 has been successfully applied could be notified;

b) to ensure that the protection criteria resulting from the Region 2 Plan[8], or from the Regions 1 and 3 Plan and List, as appropriate, are not exceeded. To this effect, the following characteristics are examined:

- beam identification (as indicated in Columns 1 and 2 of Articles 10 and 11, respectively of Appendix **30**);
- nominal orbital position (as indicated in Columns 2 and 3 of Articles 10 and 11, respectively of Appendix **30**);
- channel number/frequency (as indicated in Column 3 of Article 10 and in column 5 of the Table entitled "Minimum equivalent protection margin of assignments in the Regions 1 and 3 Plan (sorted by orbital position)" of Article 11 of Appendix **30**);
- boresight coordinates (as indicated in Column 4 of Articles 10 and 11 of Appendix **30**);
- in the case of an elliptical beam:
  - antenna beamwidth (as indicated in Column 5 of Articles 10 and 11 of Appendix **30**),
  - ellipse orientation (as indicated in Columns 6 and 5 of Articles 10 and 11, respectively of Appendix **30**),
  - antenna rotational accuracy (same as or better than that of § 3.14 of Annex 5 to Appendix **30**);

[8] Anytime the "Plan" is referred to, this means the current version of the Plan as updated on the date of the Bureau's examination in the case of the Region 2 Plan, and, in the case of the Regions 1 and 3 Plan, the current version of the Plan as may be updated pursuant to the possible application of § 4.1.26 or 4.1.27 of Appendix **30**.

– polarization (as indicated in Columns 7 and 10 of Articles 10 and 11, respectively of Appendix **30**);

– power plus co-polar antenna gain (as indicated in Columns 8 and 11 of Articles 10 and 11, respectively of Appendix **30**), and in the case of shaped beam the cross-polar antenna gain (as indicated in Column 8 of Article 11 of Appendix **30**);

– service area (test points shall be located within the service area);

– class of emission and bandwidth (as indicated in Column 12 of Article 11 of Appendix **30** in the case of the Regions 1 and 3 Plan, or otherwise as indicated in § 3.1 and 3.8 of Annex 5 to Appendix **30**);

– antenna characteristics (same as or better than those indicated in Columns 6 or 7 as appropriate of Article 11 of Appendix **30** in the case of the Regions 1 and 3 Plan, or otherwise same as or better than Fig. 9 or 10 as appropriate of Annex 5 to Appendix **30**);

– antenna pointing accuracy (same as or better than that referred to in § 3.14 of Annex 5 to Appendix **30**);

– station keeping tolerance (same as or better than that mentioned in § 3.11 of Annex 5 to Appendix **30**);

– modulation characteristics (same as in Column 12 of Article 11 of Appendix **30** in the case of the Regions 1 and 3 Plan, or otherwise as indicated in § 3.1 of Annex 5 to Appendix **30**);

– energy dispersal (same as § 3.18 of Annex 5 to Appendix **30**);

– the power flux-density identified in Note 10 of the Region 2 Plan or in Note 5 of the Regions 1 and 3 Plan, to determine whether the limits are met or whether there is an agreement with the affected administrations.

2 The Board has considered the question whether the examination with respect to conformity with the Regions 1 and 3 List means only the columns of the Tables in Part I of Annex 2 to Resolution **542 (WRC-2000)**[*], as updated, or whether it also includes an examination with respect to the technical characteristics published by the Bureau for each network of the List in the corresponding Part B Special Section of the Weekly Circular or the IFIC. The Board concluded that all technical characteristics published in the Part B Special Section for a given network need to be taken into account in this examination. Therefore, the examination from the viewpoint of conformity with the List is carried out in two steps:

a) to ensure that the characteristics notified are those specified in the columns of the List, as updated, and those specified in the Part B Special Section of a given network. If the characteristics are different then the examination under § 5.2.1 *d)* is carried out;

[*] *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

b) to ensure that the protection criteria resulting from the Regions 1 and 3 Plan and List are not exceeded. To this effect, the characteristics specified in the columns of the List, as updated, and those specified in the Part B Special Section of a given network are examined.

5.2.1 *d)*

1 If an administration notifies any assignment with characteristics different from those listed in the Rules of Procedure related to § 5.2.1 *b)* of Article 5 of Appendix **30**, and those allowed in § 5.2.1 *d)* of the same Article, a calculation is undertaken by the Bureau to determine if the proposed new characteristics would increase the interference level caused to other assignments in the appropriate Regional Plan, in the Regions 1 and 3 List, in the same service or in another service sharing the same frequency bands.

1.1 With respect to the compatibility of the proposed new characteristics with other assignments of the same Regional Plan and List, as appropriate, the increase of the interference will be checked by comparing the equivalent protection margin/overall equivalent protection margin values of these other assignments, which result from the use of the proposed new characteristics of the network in question on the one hand, and those obtained with the previous[9] characteristics of the network in question, on the other hand. These equivalent protection margin/overall equivalent protection margin calculations are performed under the same technical assumptions and conditions, taking into account the orbital separation limit of ±9° for assignments in the Regions 1 and 3 Plan and List. A more detailed analysis of the interference situation could also be required by using single entry *C*/*I* values in order to identify the assignments of the network in question which are causing the increase of the interference.

In addition, in the case of Regions 1 and 3, the notified assignments with new characteristics for the network in question are examined with respect to their compliance with the power flux-density hard-limit defined in § 1 of Annex 1 to Appendix **30**, or, as the case may be, with respect to their compliance with the power flux-density level of the corresponding assignments in the Plan or in the List if those assignments were adopted by WRC-2000 with power flux-density level(s) higher than the above-mentioned power flux-density hard-limit.

1.2 With respect to the compatibility with other inter-regional assignments in the same service or assignments in another service sharing the same frequency bands, as appropriate, the increase of the interference will be checked by calculating the power flux-density value, produced by the proposed new characteristics at any test-point or within the service area of the other assignments or by calculating the $\Delta T/T$ value in accordance with the method given in Case II of Appendix **8**, and by comparing the resulting power flux-density or $\Delta T/T$ values, according to the case, with those obtained with the previous[9] characteristics of the subject assignment.

9 As appearing in the appropriate Plan or List, according to the case.

1.3 Should the results of the calculations described in § 1.1 and 1.2 above indicate that the proposed new characteristics increase the interference to other assignments/services, the Bureau would reach an unfavourable finding with respect to § 5.2.1 *d)* of Article 5 of Appendix **30** and proceed accordingly.

2 With respect to the fifth indent of § 5.2.1 *d)*, in the case of administrations of Region 2 the orbital position shall be examined to ensure compliance with the cluster concept (§ B of Annex 7 to Appendix **30** and § 4.13.1 of Annex 3 to Appendix **30A)** as follows:

– if the orbital position is identical with that shown in the Plan, no further agreements are necessary;

– however, if the orbital position is different from that contained in the Plan but it is in the same cluster, then only the agreement of administrations having assignments in the same cluster is necessary. The clusters are listed in the Attachment 1 to the present Rules of Procedure concerning Appendix **30**. Appendices **30** and **30A** do not contain any paragraph indicating the procedure to be followed for this agreement. The task of the Bureau in this respect is to ensure that the agreement of the administrations concerned is indicated in the notice; otherwise it considers the assignment to be not in conformity with the Plan.

3 See comments under No. **5.492**.

5.2.2.1

This paragraph implicitly relates to the cases where the Bureau reaches a favourable Finding with respect to § 5.2.1 *a)* and § 5.2.1 *c)* and an unfavourable Finding with respect to § 5.2.1 *b)* but a favourable Finding with respect to § 5.2.1 *d)*. In this event, the frequency assignment shall be recorded in the Master Register.

5.2.2.2

Part of this paragraph deals with interim systems which are submitted in application of Resolution **42 (Rev.WRC-03)*** for Region 2.

In case of Regions 1 and 3, should the Bureau reach a favourable Finding with respect to § 5.2.1 *a)* and 5.2.1 *c)* but an unfavourable Finding with respect to § 5.2.1 *b)* and 5.2.1 *d)*, the assignments in question shall be returned immediately by airmail to the notifying administration with the reasons of the Bureau for this Finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

An. 1

Limits for determining whether a service of an administration is affected by proposed modifications to the Region 2 Plan or by proposed new or modified assignments to the Regions 1 and 3 List

1

a) *Test points*

1 In examining a proposed modification, all test points communicated to the Bureau by administrations are used. These test points are periodically published by the Bureau together with the updated reference situation of the Plan(s) and List(s).

b) *Implementation of the power flux-density limit referred to in the first paragraph of Section 1 of Annex 1 to Appendix **30***

The power flux-density limit of –103.6 dB(W/(m^2 · 27 MHz)) which is indicated in the first paragraph of Section 1 of Annex 1 to Appendix **30** was established in order to protect BSS assignments from interference that may be caused by BSS networks located outside an arc of ±9° around a wanted BSS network, under worst-case station-keeping conditions. Therefore, this power flux-density limit was intended to be considered as a hard-limit that shall not be exceeded. (MOD RRB12/60)

c) *Implementation of the power flux-density masks and equivalent protection margin criterion referred to in sub-paragraphs a) and b) of Section 1 of Annex 1 to Appendix **30***

1 In accordance with sub-paragraphs *a)* and *b)* of Section 1 of Annex 1 to Appendix **30**, an administration, which has assignment(s) in the Plan, in the List or assignment(s) for which the procedure of Article 4 of Appendix **30** has already been initiated, is considered as affected by a proposed new or modified assignment in the List if all the following conditions are met:

– the orbital spacing between both assignments is less than 9°, under worst-case station-keeping conditions; and

– there is a frequency overlap between the bandwidths assigned to each assignment; and

– under assumed free-space propagation conditions, the power flux-density value derived from the appropriate power flux-density mask given in § *a)* of Section 1 of Annex 1 to Appendix **30** is exceeded at least at one of the test-points[10] of the wanted assignment; and

– the reference equivalent protection margin of at least one of the test-points[10] of that wanted assignment falls more than 0.45 dB below 0 dB, or if already negative, more than 0.45 dB below that reference equivalent protection margin value.

d) *Reference protection margin*[11]

1 The reference equivalent protection margin values of:

– the assignments in the downlink or feeder-link Plans;

– the assignments in the downlink or feeder-link Lists;

– the assignments for which the procedure of Article 4 of Appendices **30** or **30A** has been initiated,

include the potential interference effects of the other assignments of the corresponding Plan and List, as established at WRC-2000, and those of the other assignments entered in the corresponding List after a successful application of the Article 4 procedure.

[10] In the case of a wanted assignment in the Plan, the test-points referred to in this paragraph are those defined in that Plan. In the case of a wanted assignment in the List or for which the procedure of Article 4 of Appendices **30/30A** has already been initiated, the test-points referred to in this paragraph are those provided under former Annex 2 to Appendices **30/30A** or under Appendix **4**.

[11] An analysis carried out by the Bureau has shown that the sensitivity to interference, in terms of being identified as affected, by networks received by the Bureau under Article 4 of Appendices **30** and **30A**, caused by subsequent proposed modifications to the Plan, decreases when those networks have a very low equivalent protection margin. In those cases where, because of the above phenomenon they are not identified as affected (the equivalent protection margin reduces by at least 0.45 dB) it is up to the administrations concerned to take necessary action, as appropriate.

2 The reference equivalent protection margin used as the basis for comparing the effect of a proposed new or modified assignment is that periodically published by the Bureau and updated once a new or modified assignment is entered in the corresponding List after a successful application of the Article 4 procedure.

An. 4

Need for coordination of a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service where this service is not subject to a Plan: in Region 2 (11.7-12.2 GHz) with respect to the Plan, the List or proposed new or modified assignments in the List for Regions 1 and 3; in Region 1 (12.5-12.7 GHz) and in Region 3 (12.2-12.7 GHz) with respect to the Plan or proposed modifications to the Plan in Region 2; in Region 3 (12.2-12.5 GHz) with respect to the Plan, List or proposed new or modified assignments in the List for Region 1

(See Article 7)

Clarification on the implementation of Annex 4 to Appendix 30

1 The examination will consider only those administrations having assignments to BSS space stations subject to a Plan whose necessary[12] bandwidth overlaps the necessary[12] bandwidth of the proposed FSS (or BSS not subject to a Plan) assignment.

2 In the absence of available service area contour of the BSS assignment, the methodology described in Annex 4 to Appendix **30** will be applied but instead of verifying the power flux-density compliance over any portion of the service area, it will be verified at each of the BSS test-points associated with the service area of the corresponding BSS assignment.

An. 5

Technical data used in establishing the provisions and associated Plans and the Regions 1 and 3 List, which should be used for their application

3.5.1 and 3.8

These sections govern the channel spacing between the assigned frequencies of two adjacent channels and the necessary bandwidth values for systems in the Plans for Regions 1, 2 and 3. They also state that if different frequency spacing and/or bandwidths are submitted, they will

[12] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

be treated in accordance with applicable ITU-R Recommendations for protection masks when available. "In the absence of such Recommendations, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board."

Noting that Recommendation ITU-R BO.1293-2 provides a method for calculation of interference only between assignments using different channelling and bandwidth in the case of a digital interferer, the Board therefore decided that, as an interim measure, until the applicable ITU-R Recommendations for protection masks/calculation method are available the calculation methods shown in the Table 1 shall be applied when calculating interference between two assignments in the Plans and/or modifications to Plans.

TABLE 1

Wanted assignment	**Interfering assignment**	**Method to be applied**
"Standard"[1] analogue	"Standard" analogue	As defined in Annex 5 to Appendix **30**
"Non-standard" analogue	"Standard" analogue	As described in the Bureau's MSPACE Manual
"Standard" analogue	"Non-standard" analogue	As described in the Bureau's MSPACE Manual
"Non-standard" analogue	"Non-standard" analogue	As described in the Bureau's MSPACE Manual
Digital	"Standard" or "non-standard" analogue	As described in the Bureau's MSPACE Manual
"Standard" or "non-standard" analogue	Digital	As defined in Recommendation ITU-R BO.1293-2 [2]
Digital	Digital	As defined in Recommendation ITU-R BO.1293-2 [2]

[1] Standard analogue assignments are those assignments which use the following parameters:

- *For Regions 1 and 3*: 27 MHz bandwidth, 19.18 MHz channel spacing and the assigned frequencies as specified in Article 11 of Appendix **30**.
- *For Region 2*: 24 MHz bandwidth, 14.58 MHz channel spacing and the assigned frequencies as specified in Article 10 of Appendix **30**.

2 Recommendation ITU-R BO.1293-2 (Annexes 1 and 2) is applied instead of Recommendation ITU-R BO.1293-1, which is referred to in § 3.4 of Annex 5 to Appendix **30** and § 3.3 of Annex 3 to Appendix **30A**.

3.11

Section 3.11 of Annex 5 to Appendix **30** describes the space station keeping accuracy under which the space stations operating in the broadcasting-satellite service must be maintained.

In the absence of applicable ITU-R Recommendations describing how these limitations should be implemented in the compatibility analyses performed by the Bureau, the Radio Regulations Board (RRB) decided that the Bureau should develop the appropriate methodology for the application of this section.

ATTACHMENT 1

Clusters for Region 2

Column No.	Designation
1	Cluster (degrees)
2	Number of beams in the cluster
3	Administration names and orbital position

CLUSTERS FOR REGION 2

1	2	3							
–175.00	8	ALS00003 –175.2	HWA00003 –175.2	HWA01003 –175.2	USAPSA03 –175.2	ALS00003 –174.8	HWA00003 –174.8	USAPSA03 –174.8	HWA01003 –174.8
–166.00	8	ALS00002 –166.2	HWA00002 –166.2	HWA01002 –166.2	USAPSA02 –166.2	ALS00002 –165.8	HWA00002 –165.8	USAPSA02 –165.8	HWA01002 –165.8
–157.00	2	USAWH102 –157.2	USAWH102 –156.8						
–148.00	2	USAWH101 –148.2	USAWH101 –147.8						
–138.00	8	CAN01101 –138.2	CAN01201 –138.2	CAN02101 –138.2	CAN02201 –138.2	CAN01101 –137.8	CAN01201 –137.8	CAN02101 –137.8	CAN02201 –137.8
–136.00	2	MEX02NTE –136.2	MEX02NTE –135.8						
–131.00	1	CTR00201 –130.8							
–129.00	12	CAN01203 –129.2	CAN01303 –129.2	CAN01403 –129.2	CAN02203 –129.2	CAN02303 –129.2	CAN02403 –129.2	CAN01203 –128.8	CAN01303 –128.8
		CAN01403 –128.8	CAN02203 –128.8	CAN02303 –128.8	CAN02403 –128.8				
–127.00	2	MEX02SUR –127.2	MEX02SUR –126.8						
–121.00	1	PNRIFRB2 –121.0							
–119.00	2	USAEH004 –119.2	USAEH004 –118.8						
–116.00	3	BLZ00001 –115.8	CYM00001 –115.8	TCA00001 –115.8					
–115.00	6	BOLAND01 –115.2	CLMAND01 –115.2	EQACAND1 –115.2	EQAGAND1 –115.2	PRUAND02 –115.2	VENAND03 –115.2		
–110.00	4	PTRVIR02 –110.02	USAEH003 –110.2	PTRVIR02 –109.8	USAEH003 –109.8				
–107.50	4	GTMIFRB2 –107.3	HNDIFRB2 –107.3	NCG00003 –107.3	SLVIFRB2 –107.3				
–106.00	5	CHLCONT5 –106.2	CHLPAC02 –106.2	PAQPAC01 –106.2	CHLCONT4 –105.8	CHLCONT6 –105.8			
–104.00	2	VEN02VEN –103.8	VEN11VEN –103.8						

CLUSTERS FOR REGION 2 (*continued*)

1	2	3							
–103.00	1	CLM00001 –103.2							
–102.00	1	B SE911 –101.8							
–101.00	4	PTRVIR01 –101.2	USAEH002 –101.2	PTRVIR01 –100.8	USAEH002 –100.8				
–99.00	1	PRG00002 –99.2							
–96.00	1	BERBERMU –96.2							
–95.00	2	EQAC0001 –94.8	EQAG0001 –94.8						
–94.00	3	ARGINSU4 –94.2	ARGSUR04 –94.2	ARGNORT4 –93.8					
–92.50	7	BRB00001 –92.7	JMC00002 –92.7	CRBBAH01 –92.3	CRBBER01 –92.3	CRBBLZ01 –92.3	CRBEC001 –92.3	CRBJMC01 –92.3	
–91.00	12	CAN01304 –91.2	CAN01404 –91.2	CAN01504 –91.2	CAN02304 –91.2	CAN02404 –91.2	CAN02504 –91.2	CAN01304 –90.8	CAN01404 –90.8
		CAN01504 –90.8	CAN02304 –90.8	CAN02404 –90.8	CAN02504 –90.8				
–89.00	1	CUB00001 –89.2							
–87.00	2	BAHIFRB1 –87.2	BOL00001 –87.2						
–86.00	1	PRU00004 –85.8							
–84.50	3	GUY00201 –84.7	SURINAM2 –84.7	TRD00001 –84.7					
–83.50	2	DOMIFRB2 –83.3	HTI00002 –83.3						
–82.00	12	CAN01405 –82.2	CAN01505 –82.2	CAN01605 –82.2	CAN02405 –82.2	CAN02505 –82.2	CAN02605 –82.2	CAN01405 –81.8	CAN01505 –81.8
		CAN01605 –81.8	CAN02405 –81.8	CAN02505 –81.8	CAN02605 –81.8				
–81.00	4	B SU111 –81.2	B SU211 –81.2	B SU111 –80.8	B SU211 –80.8				

CLUSTERS FOR REGION 2 (*end*)

1	2	3							
–79.50	8	ATGSJN01 –79.7	MSR00001 –79.7	SCN00001 –79.7	VRG00001 –79.7	DMAIFRB1 –79.3	GRD00003 –79.3	LCAIFRB1 –79.3	VCT00001 –79.3
–78.00	2	MEX01NTE –78.2	MEX01NTE –77.8						
–74.00	6	B N0611 –74.2	B N0711 –74.2	B N0811 –74.2	B N0611 –73.8	B N0711 –73.8	B N0811 –73.8		
–72.50	4	CAN01202 –72.7	CAN02202 –72.7	CAN01202 –72.3	CAN02202 –72.3				
–71.50	1	URG00001 –71.7							
–70.50	4	CAN01606 –70.7	CAN02606 –70.7	CAN01606 –70.3	CAN02606 –70.3				
–69.00	1	MEX01SUR –69.2							
–64.00	6	B CE311 –64.2	B CE411 – 64.2	B CE511 –64.2	B CE311 –63.8	B CE411 –63.8	B CE511 –63.8		
–61.50	2	USAEH001 –61.7	USAEH001 –61.3						
–57.00	2	FLKANT01 –57.2	GRD00059 –57.2						
–55.00	3	ARGINSU5 –55.2	ARGSUR05 –55.2	ARGNORT5 –54.8					
–53.00	4	GRLDNK01 –53.2	SPMFRAN3 –53.2	ATNBEAM1 –52.8	GUFMGG02 –52.8				
–45.00	8	B CE312 –45.2	B CE412 –45.2	B SU112 –45.2	B SU212 –45.2	B CE312 –44.8	B CE412 –44.8	B SU112 –44.8	B SU212 –44.8
–42.00	1	GRD00002 –42.2							
–34.00	2	GUY00302 –33.8	JMC00005 –33.8						
–31.00	2	BERBER02 –31.0	FLKFALKS –31.0						

Rules concerning

APPENDIX 30A to the RR

(Rules are arranged by paragraph numbers of Appendix **30A**)

Art. 4

Procedures for modifications to the Region 2 feeder-link Plan or for additional uses in Regions 1 and 3

4.1.1 *a)* and 4.1.1 *b)*

1 In determining those administrations of Regions 1 and 3 that may be affected, the proposed new or modified assignment to the List is examined with respect to the Regions 1 and 3 Plan and List as they exist at the date of receipt of the proposed new or modified assignment to the List, including the other proposed new or modified assignments to the List received before that date (whether the procedure of Article 4 is complete or not). The examination consists of ensuring that the limits of § 4 of Annex 1 of Appendix **30A** are not exceeded. Account is also taken of any time-limited new or modified assignments to the List in accordance with § 4.1.13.

2 Following the introduction by the 1983 Conference of the grouping concept for Region 2 (Articles 9 and 10 of Appendices **S30A** and **S30** respectively) and further to the decision of WARC Orb-88 to apply the grouping concept to the Regions 1 and 3 feeder-link Plan (Article 9A of Appendix **S30A**), the ex-IFRB decided to extend this concept to the 1977 Conference BSS Plan. WRC-2000 endorsed this decision and decided to include the same grouping concept definition in Articles 11 and 9A of Appendices **30** and **30A** respectively.

3 The Board's understanding of the group concept is that in the interference calculation to assignments that are part of the group, only the interference contribution from assignments that are not part of the same group are to be considered. On the other hand, for the interference calculation from assignments belonging to a group into assignments that are not part of the same group, only the worst interference contribution from that group is to be taken into consideration.

4 According to *resolves* 5 of Resolution **548 (WRC-03)***, in the processing of Regions 1 and 3 Article 4 submissions received after 2 June 2000 for identification of affected administrations, each network in a group shall be examined separately without taking into account the interference contribution from the other networks in the group. This means that the concept of calculating the worst interference contribution from the assignments that are part of a group to assignments that are not part of the same group, as indicated in Article 9A

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

(column 15) of Appendix **30A**, is not applicable to the grouped networks for the identification of affected administrations in accordance with § 4.1.5 of that Appendix. In applying § 4.1.11, the application of this method to networks received before 3 June 2000 shall not result in additional coordination requirements for those networks.

5 In order to implement this separate examination and calculate the interference effect of an Article 4 network under examination independent of the other networks in the group in accordance with *resolves* 5 of Resolution **548 (WRC-03)***, the Board concluded that the following method should be used.

Identification of affected administrations should be carried out without taking into account the interference contribution from the Plan and the List assignments grouped with assignments of an Article 4 network under examination based on the reference situation established without taking into account the interference contribution from those grouped assignments.

6 For the Regions 1 and 3 feeder-link Plans and Lists, in accordance with *resolves* 1 of Resolution **548 (WRC-03)*** and the decision of the Plenary of WRC-03, the Board concluded that grouping of networks separated by more than 0.4° in the geostationary arc is not permitted in the List except for application of § 4.1.27. However, grouping of networks separated by more than 0.4° may be used before the inclusion of the assignments in the List to modify the orbital position of a network.

For the Region 2 Plan, with respect to § 4.2.2 *c)*, the Board did not find any regulatory basis to extend the use of groupings involving multiple orbital positions (except for the case of 0.4° orbital separation which was allowed for clusters within the Region 2 Plan and its subsequent modifications).

In case of a request for replacement of an assignment/entry of an administration in the Region 2 Plan, the implementation of § 2.2 of the Rules of Procedure relating to § 4.2.6 of Appendix **30A** requires the processing of the modified assignment requested by that administration under Article 4 of that Appendix based on the following conditions:

– no interference effect from the initial assignment of the requesting administration is considered in the overall equivalent protection margin calculations of the modified assignment requested by that administration, and vice versa; and

– no aggregate interference effect from the subject initial assignment and the modified assignment of the requesting administration is considered in the overall equivalent protection margin calculations of other assignments, but only the worst interference effect from the two is to be considered.

The above-mentioned conditions apply only during the time-period afforded for the processing of the modified assignments under Article 4 of that Appendix. After that time-period, either the subject initial assignment or the modified assignment of the requesting administration will remain in the Plan, depending on the successful application or otherwise of the Article 4 procedure for this modified assignment.

---

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

4.1.1 *c)*

In determining those administrations of Region 2 that may be affected, the proposed new or modified assignment to the 17 GHz Regions 1 and 3 List is examined with respect to the Region 2 Plan as it exists at the date of receipt of the proposed new or modified assignment including the proposed modifications of the Region 2 Plan received before that date (whether the procedure of Article 4 is complete or not). The examination will consider only those administrations having assignments whose necessary[1] bandwidth overlaps the necessary[1] bandwidth of the proposed new or modified assignment to the 17 GHz Regions 1 and 3 List. The Region 2 administration is identified as having services which are considered to be affected when the limits specified in § 5 of Annex 1 to Appendix **30A** are exceeded.

4.1.3

1 In the event that the Bureau cancels a frequency assignment in application of § 5.3.2 of Article 5 of this Appendix, the corresponding assignment, which has been submitted either under § 4.2.6 (except in the case of a request for replacement of an assignment in the Region 2 Plan) and entered in the Region 2 Plan, or under § 4.1.3 and entered in the Regions 1 and 3 List, shall also be removed from the Plan or the List according to the case. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

2 See also Rules of Procedure concerning Receivability of the Forms of Notice.

4.1.7

Any request by an administration to be included in the list of administrations to be published shall be based only on technical reasons to be verified using Annex 1 as well as other relevant Annexes. If this indicates that the requesting administration should have been included in the list, the Bureau will include it; otherwise the requesting administration will be informed that its name will not be published, it being left to the notifying administration to consider if it is appropriate to take the request into account.

4.1.7*bis*

The agreement referred to in § 4.1.7*bis* is the agreement of the administrations identified under § 4.1.1 and of those under § 4.1.7 which have been confirmed by the Bureau using the appropriate criteria.

---

[1] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

4.1.8

An administration which has only requested additional information in accordance with § 4.1.8 or § 4.2.12 will not be considered by the Bureau to have submitted comments in accordance with § 4.1.10 or § 4.2.14 respectively.

4.1.11

See also comments under § 4.1.3 and 4.2.6 and Rules of Procedure relating to the Receivability of the Forms of Notice.

4.1.15

The second part of these paragraphs applies only to those assignments for which the procedure of Article 4 has been successfully applied, i.e., all administrations identified by the Bureau in application of § 4.1.5 or 4.2.8 and § 4.1.7 or 4.2.10 have either given their agreement or failed to comment on the proposed new or modified assignment to the Regions 1 and 3 feeder-link List(s) or on the proposed modification to the Region 2 Plan.

The Bureau shall update the reference situation of the Regions 1 and 3 feeder-link Plan(s) and List(s) or of the Region 2 Plan entries and of those networks which are the subject of requests for new or modified assignment to the Regions 1 and 3 feeder-link List(s) or for Region 2 Plan modifications which are still at the stage of application of Article 4. Nevertheless, the Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned update.

4.1.23

If the assignments in question were deleted from the Regions 1 and 3 feeder-link List(s) or the Region 2 Plan, the Bureau shall update the reference situation of the assignments in the Regions 1 and 3 feeder-link Plan(s) and List(s) or in the Region 2 Plan and of the assignments under Article 4 procedure and inform all administrations of the action taken together with Special Sections published as a result of cancellation of frequency assignments from the Regions 1 and 3 feeder-link List(s) or the Region 2 Plan. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

4.2.1 *a)*

This paragraph refers to the modification in the sense of a change to “the characteristics of any of its frequency assignments in the FSS which are shown in the Region 2 feeder-link Plan”. The Plan as it appears in Article 9 contains only eight characteristics, while Annex 2 contains a greater number of characteristics which were used by the RARC-SAT-R2 (Geneva, 1983) Conference to establish the Plan. The Board considers that modifications of characteristics other than those listed in Article 9 may be considered as modifications to the Plan. These other characteristics are listed in the Rules of Procedure relating to § 5.2.1 *b)* of Article 5.

See also Rules of Procedure relating to § 4.2.6.

4.2.1 *b)*

See Rules of Procedure relating to § 4.2.1 *a)* above.

See also Rules of Procedure relating to § 4.2.6.

4.2.1 *c)*

When an administration cancels an assignment from the Region 2 Plan under this paragraph, or when the Bureau, in applying § 4.2.6 deletes an assignment from the Plan, the reference situation of the Plan assignments and those in the process of modification would be updated. The Bureau does not need to recalculate the affected administration(s) as a result of the above-mentioned cancellation.

4.2.2 *a)*
and 4.2.2 *b)*

In determining the administrations of Regions 1 and 3 that might be affected, the proposed modification of the Region 2 Plan is examined with respect to the 17 GHz Regions 1 and 3 Plan and List as it exists at the date of receipt of the proposed modification including all proposed new or modified assignments to the 17 GHz Regions 1 and 3 List received before that date (whether the procedure of Article 4 is complete or not). The examination will identify only those administrations having assignments whose necessary[2] bandwidth overlaps the necessary[2] bandwidth of the proposed modification of the Region 2 Plan. An administration is identified as having services which may be affected when the limits specified in § 5 of Annex 1 to Appendix **30A** are exceeded.

4.2.2 *c)*

1 In determining those administrations of Region 2 that may be affected, the proposed modification is examined with respect to the Region 2 Plan as it exists at the date of receipt of the request for modification including the proposed modifications received before that date (whether the procedure of Article 4 is complete or not). The examination consists of ensuring that the limits of § 3 of Annex 1 of Appendix **30A** are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.2.17.

2 According to Resolution **42 (Rev.WRC-03)***, the Board decided that, when applying this paragraph, the Bureau shall not take account of the interim systems.

3 For considerations related to application of the Group concept see Rules of Procedure related to § 4.1.1 *a)* and 4.1.1 *b)*.

---

[2] In the absence of a clear indication of the precise frequency of each carrier within the assigned frequency band, the Bureau uses in its analysis the assigned frequency band (i.e. data item C.3 *a)* of Annex 2A of Appendix **4**) instead of the necessary bandwidth (i.e. data item C.7 *a)* of Annex 2A of Appendix **4**).

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

4.2.6

See Rules of Procedure relating to § 4.1.3.

4.2.10

See Rules of Procedure relating to § 4.1.7.

4.2.11

The agreement of the administrations identified under § 4.2.2 and of those under § 4.2.10 which have been confirmed by the Bureau using the appropriate criteria.

4.2.12

See Rules of Procedure relating to § 4.1.8.

4.2.15

See Rules of Procedure relating to § 4.1.11.

4.2.19

See Rules of Procedure relating to § 4.1.15.

4.2.24

See Rules of Procedure relating to § 4.1.23.

Art. 5

Notification, examination and recording

5.2.1 *b)*

1 The Board has considered the question whether the examination with respect to conformity with the Plan[3] means only the columns of Articles 9 and 9A of Appendix **30A**, as updated or whether it also includes an examination with respect to the technical criteria given in Annex 3 to Appendix **30A** which were used for the establishment of the Plans.

[3] Anytime the "Plan" is referred to, this means the current version of the Plan as updated on the date of the Bureau's examination in the case of the Region 2 Plan, and, in the case of the Regions 1 and 3 Plan(s), the current version of the Plan(s) as may be updated pursuant to the possible application of § 4.1.26 or 4.1.27 of Article 4 of Appendix **30A**.

The Board concluded that some of the technical criteria contained in Annex 3 need to be taken into account in this examination. Therefore, the examination from the viewpoint of conformity with the Plan is carried out in two steps:

a) to ensure that the characteristics notified are those specified in the columns of the Plan concerned as updated (see § 3.1 of Article 3). If the characteristics are different then the examination under § 5.2.1 *d)* is carried out. For the items below, any characteristics for which the procedure of Article 4 has been successfully applied could be notified;

b) to ensure that the protection criteria resulting from the Region 2 Plan[3], or from the Regions 1 and 3 Plan(s) and List(s), as appropriate, are not exceeded. To this effect, the following characteristics of the satellite network are examined:

i) For a receiving space station:

- space station beam identification (as indicated in Columns 1 and 2 of Articles 9 and 9A, respectively of Appendix **30A**);
- nominal orbital position (as indicated in Columns 2 and 3 of Articles 9 and 9A, respectively of Appendix **30A**);
- channel number/frequency (as indicated in Column 3 of Article 9 and in Column 5 of the Tables entitled "Minimum equivalent protection margin in the Regions 1 and 3 feeder-link Plan in the frequency band 14.5-14.8 GHz (sorted by orbital position)" and "Minimum equivalent protection margin in the Regions 1 and 3 feeder-link Plan in the frequency band 17.3-18.1 GHz (sorted by orbital position)" of Article 9A of Appendix **30A**);
- boresight coordinates (as indicated in Column 4 of Articles 9 and 9A of Appendix **30A**);
- in the case of elliptical beam:
  - antenna beamwidth (as indicated in Column 5 of Articles 9 and 9A of Appendix **30A**);
  - ellipse orientation (as indicated in Columns 6 and 5 of Articles 9 and 9A, respectively of Appendix **30A**);
  - antenna rotational accuracy (same as or better than § 3.7.4 (Regions 1 and 3) or 4.6.4 (Region 2) of Annex 3 to Appendix **30A**);
- polarization (as indicated in Columns 7 and 10 of Articles 9 and 9A, respectively of Appendix **30A**);
- service area (test points shall be located within the service area);
- class of emission and bandwidth (as indicated in Column 13 of Article 9A in the case of Regions 1 and 3 Plan of Appendix **30A**, or otherwise as indicated in § 3.1 and 3.8 of Annex 5 to Appendix **30**);

– antenna characteristics (same as or better than those indicated in Columns 6 or 7 as appropriate of Article 9A of Appendix **30A** in the case of the Regions 1 and 3 Plan, or otherwise same as or better than § 4.6 of Annex 3 to Appendix **30A**);

– antenna pointing accuracy (same as or better than § 3.7.4 (Regions 1 and 3) or § 4.6.4 (Region 2) of Annex 3 to Appendix **30A**);

– system noise temperature (see Note 7 of Article 9A and § 3.8 of Annex 3 to Appendix **30A** as appropriate for Regions 1 and 3, and § 4.7 of the same Annex for Region 2);

– station keeping tolerance (same as or better than that of § 3.16 of Annex 3 to Appendix **30A**);

– modulation characteristics (same as in Column 13 of Article 9A of Appendix **30A** in the case of the Regions 1 and 3 Plan, or otherwise as indicated in § 3.1 of Annex 5 to Appendix **30**);

– range of automatic gain control (same as § 3.10 of Annex 3 to Appendix **30A** for Regions 1 and 3, and § 4.9 of the same Annex for Region 2).

ii) For an associated transmitting earth station:

– e.i.r.p.: Columns 8 and 11 of Articles 9 and 9A, respectively of Appendix **30A**;

– antenna diameter: § 3.5.1 or 4.4.1 of Annex 3 to Appendix **30A**;

– reference patterns: Fig. 6 or Fig. A of Annex 3 to Appendix **30A** (as indicated in Column 9 of Article 9A of Appendix **30A** for the Regions 1 and 3 Plan);

– transmit power: § 3.6 or 4.5 of Annex 3 to Appendix **30A**;

– the location of the associated earth station to be associated with test points within the service area;

– energy dispersal (same as § 3.18 of Annex 5 to Appendix **30**).

In relation to the transmitting power, the Board noted that according to § 3.11 and 4.10 of Annex 3 to Appendix **30A**, the use of power control shall remain within the limits indicated in those paragraphs.

2 The Board has considered the question whether the examination with respect to conformity with the Regions 1 and 3 Lists means only the columns of the Tables in Part II of Annex 2 to Resolution **542 (WRC-2000)***, as updated, or whether it also includes an examination with respect to the technical characteristics published by the Bureau for each network of the Lists in the corresponding Part B Special Section of the Weekly Circular or the IFIC.

* *Note by the Secretariat*: This Resolution was suppressed by WRC-03.

The Board concluded that all technical characteristics published in the Part B Special Section for a given network need to be taken into account in this examination. Therefore, the examination from the viewpoint of conformity with the Lists is carried out in two steps:

a) to ensure that the characteristics notified are those specified in the columns of the List concerned, as updated, and those specified in the Part B Special Section of a given network. If the characteristics are different then the examination under § 5.2.1 *d)* is carried out;

b) to ensure that the protection criteria resulting from the Regions 1 and 3 Plan and List concerned are not exceeded. To this effect, the characteristics specified in the columns of the List concerned, as updated, and those specified in the Part B Special Section of a given network are examined.

3 See also the Rules of Procedure relating to the scope of application of Article 5 of Appendix **30A**.

5.2.1 *d)*

1 If an administration notifies any assignment with characteristics different from those listed in § 1 *b)* of the Rules of Procedure related to § 5.2.1 *b)* of Article 5 of Appendix **30A**, and those allowed in § 5.2.1 *d)* of the same Article, a calculation is undertaken by the Bureau to determine if the proposed new characteristics would increase the interference level caused to other assignments in the appropriate Regional Plan, in the Regions 1 and 3 List(s), in the same service of an inter-regional Plan or in another service sharing the same frequency bands.

1.1 With respect to the compatibility of the proposed new characteristics with other assignments of the same Regional Plan and List, as appropriate, the increase of the interference will be checked by comparing the equivalent protection margin/overall equivalent protection margin values of these other assignments, which result from the proposed new characteristics on the one hand, and those obtained with the previous[4] characteristics of the network in question on the other hand. These equivalent protection margin/overall equivalent protection margin calculations are performed under the same technical assumptions and conditions taking into account the orbital separation limit of ±9° for assignments in the Regions 1 and 3 Plan and List. A more detailed analysis of the interference situation could also be required by using single entry *C*/*I* values in order to identify the assignments of the network in question which are causing the increase of the interference.

In addition, in the case of Regions 1 and 3, the notified assignments with new characteristics for the network in question are examined with respect to their compliance with the power flux-density hard-limit defined in § 4 of Annex 1 to Appendix **30A**, or, as the case may be, with respect to their compliance with the power flux-density level of the corresponding assignments in the Plan(s) or in the List(s) if those assignments were adopted by WRC-2000 with power flux-density level(s) higher than the above-mentioned power flux-density hard-limit.

4 As appearing in the appropriate Plan or List, according to the case.

1.2 With respect to the compatibility with other inter-regional assignments in the same service or assignments in another service sharing the same frequency bands, as appropriate, the increase of the interference will be checked by calculating the $\Delta T/T$ values, in accordance with the method given in Appendix **8**, produced by the proposed new characteristics, and by comparing the resulting $\Delta T/T$ values, with those obtained with the previous[4] characteristics of the subject assignment.

1.3 Should the results of the calculations described in § 1.1 and 1.2 above indicate that the proposed new characteristics increase the interference to other assignments, the Bureau would reach an unfavourable finding with respect to § 5.2.1 *d)* of Article 5 of Appendix **30A** and proceed accordingly.

2 With respect to the fourth indent of § 5.2.1 *d)*, in the case of administrations of Region 2, the orbital position shall be examined to ensure compliance with the cluster concept (§ B of Annex 7 to Appendix **30** and § 4.13.1 of Annex 3 to Appendix **30A)** as follows:

– if the orbital position is identical with that shown in the Plan, no further agreements are necessary;

– however, if the orbital position is different from that contained in the Plan but it is in the same cluster, then the agreement of administrations having assignments in the same cluster is necessary. The clusters are listed in Attachment 1 to the Rules of Procedure concerning Appendix **30**. Appendices **30** and **30A** do not contain any paragraph indicating the procedure to be followed for the above-mentioned agreement. The task of the Bureau in this respect is to ensure that the agreement of the administrations concerned is indicated in the notice; otherwise it considers the assignment to be not in conformity with Plan.

5.2.2.1

This paragraph implicitly relates to the cases where the Bureau reaches a favourable Finding with respect to § 5.2.1 *a)*, § 5.2.1 *c)* and § 5.2.1 *f)* and an unfavourable Finding with respect to § 5.2.1 *b)* but a favourable Finding with respect to § 5.2.1 *d)*.

However, considering the Rules of Procedure relating to the scope of application of Article 5 of Appendix **30A**, the Board concluded that § 5.2.2.1 relates to the cases where the Bureau reaches a favourable Finding with respect to § 5.2.1 *a)* and § 5.2.1 *c)* and an unfavourable Finding with respect to § 5.2.1 *b)* but a favourable Finding with respect to § 5.2.1 *d)*.

In this event the frequency assignment shall be recorded in the Master Register.

5.2.2.2

Part of this paragraph deals with interim systems which are submitted in application of Resolution **42 (Rev.WRC-03)*** for Region 2.

---

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

In the case of Regions 1 and 3, should the Bureau reach a favourable finding with respect to § 5.2.1 *a)* and 5.2.1 *c)* but an unfavourable finding with respect to § 5.2.1 *b)* and 5.2.1 *d)*, the assignments in question shall be returned immediately by airmail to the notifying administration with the reasons of the Bureau for this finding and with such suggestions as the Bureau may be able to offer with a view to a satisfactory solution of the problem.

Art. 6

Coordination, notification and recording of receiving terrestrial assignments when FSS feeder-links are involved

6.1

1 The paragraphs of Article 6 do not mention interim systems implemented in accordance with Resolution **42 (Rev.WRC-03)***. Such systems may be implemented in the frequency band 17.7-17.8 GHz for Region 2 shared with equal rights with terrestrial services:

Such usage may affect terrestrial stations.

2 This paragraph refers to "a feeder-link earth station located on the territory of another administration and included in the service area of an assignment to a broadcasting-satellite service feeder-link space station which is in conformity with the appropriate regional feeder-link Plan". This earth station is to be considered a typical earth station located at the worst location.

3 In order to evaluate the interference, an Administration A, intending to use terrestrial stations, needs to know the fixed-earth station existing or planned. In order to take them into account administrations may calculate the coordination area as indicated in § 1.4.6 of Appendix **7** around the service area mentioned in § 6.1.

6.2

1 This paragraph refers to the need for an Administration B to communicate the actual location of its feeder-link earth stations without specifying which of these earth stations should be taken into account. As no indication is given, the Board understands that the administration may communicate the locations of earth stations without any limitations.

2 The actual locations of earth stations so communicated to Administration A and to the Bureau will be examined for their conformity with the characteristics listed under comments relating to § 5.2.1 *b)* of this Appendix or those for which the procedure of Article 4 was successfully applied. This examination will lead to the following:

– earth stations which conform to the above characteristics will be entered in the Plan without applying the Article 4 procedure, and Administration A will be informed accordingly;

---

* *Note by the Secretariat*: This Resolution was revised by WRC-12.

– earth stations which do not conform to the characteristics listed under the comments relating to § 5.2.1 *b)* and for which the Article 4 procedure was not applied will be recorded in the Plan once the procedure of Article 4 is successfully applied and in this application of Article 4 the proposed use of the terrestrial service by Administration A shall be taken into account.

3 It is concluded from this paragraph that no transportable earth station can be used in the band 17.7-17.8 GHz in Region 2.

6.5

This paragraph implies that these feeder-link earth stations will not be entered in the Plan. For this reason the Bureau shall in such cases recommend to the administration that it apply the procedure of Article 4 in order to permit its earth stations to be entered in the Plan.

Art. 7

Coordination, notification and recording of FSS assignments when feeder-links to BSS assignments are involved

7.7

The comments under § 6.5 apply.

An. 1

Limits for determining whether a service of an administration is affected by proposed modifications to the Region 2 Plan or by proposed new or modified assignments to the Regions 1 and 3 feeder-link Lists

3

See comments made under the Rules of Procedure concerning § 2 of Annex 1 to Appendix **30**.

4

a) *Test points*

See comments made under the Rules of Procedure concerning § *a)* of Section 1 of Annex 1 to Appendix **30**.

b) *Implementation of the power flux-density limit referred to in the first paragraph of Section 4 of Annex 1 to Appendix **30A***

The power flux-density limit of –76 dB(W/(m^2 · 27 MHz)) which is indicated in the first paragraph of Section 4 of Annex 1 to Appendix **30A** was established in order to protect BSS feeder-link assignments from interference which may be caused by BSS feeder-link networks located outside an arc of ±9° around the wanted BSS feeder-link network, under worst-case station-keeping conditions. Therefore, this power flux-density limit was intended to be considered as a hard-limit that shall not be exceeded. (MOD RRB12/60)

c) *Implementation of the equivalent protection margin degradation criterion referred to in the third paragraph of Section 4 of Annex 1 to Appendix **30A***

1 In accordance with the third paragraph of Section 4 of Annex 1 to Appendix **30A**, an administration, which has assignment(s) in the 14 or 17 GHz Plan, in the 14 or 17 GHz List or assignment(s) for which the procedure of Article 4 of Appendix **30A** has already been initiated, is considered as affected by a proposed new or modified assignment in the 14 or 17 GHz List if all the following conditions are met:

– the orbital spacing between both assignments is less than 9°, under worst-case station-keeping conditions; and

– there is a frequency overlap between the bandwidths assigned to each assignment; and

– the reference equivalent protection margin of at least one of the test-points[5] of that wanted assignment falls more than 0.45 dB below 0 dB, or if already negative, more than 0.45 dB below that reference equivalent protection margin value.

d) *Reference protection margin*

See comments made under § *d)* of the Rules of Procedure relating to § 1 of Annex 1 to Appendix **30**.

[5] In the case of a wanted assignment in the Plan, the test-points referred to in this paragraph are those defined in that Plan. In the case of a wanted assignment in the List or for which the procedure of Article 4 of Appendices **30/30A** has already been initiated, the test-points referred to in this paragraph are those provided under former Annex 2 to Appendices **30/30A** or under Appendix **4**.

An. 3

Technical data used in establishing the provisions and associated Plans and Regions 1 and 3 feeder-link Lists, which should be used for their application

1.7

The footnote to this provision states that "in certain cases (e.g. when channel spacing and/or bandwidth are different from the values given in § 3.5 and 3.8 of Annex 5 to Appendix **30**), equivalent protection margins for the second adjacent channels may be used. Appropriate protection masks included in ITU-R Recommendations should be used if available. Until a relevant ITU-R Recommendation is incorporated in this Annex by reference, the Bureau will use the worst-case approach as adopted by the Radio Regulations Board".

Noting that Recommendation ITU-R BO.1293-2 provides a method for calculation of interference only between assignments using different channelling and bandwidth in the case of a digital interferer, the Board therefore decided that, as an interim measure, until the applicable ITU-R Recommendations for protection masks/calculation method are available the calculation methods shown in Table 1 shall be applied when calculating interference between two assignments in the Plans and/or modifications to Plans.

TABLE 1

Wanted assignment	Interfering assignment	Method to be applied
"Standard"[1] analogue	"Standard" analogue	As defined in Annex 3 to Appendix **30A**
"Non-standard" analogue	"Standard" analogue	As described in the Bureau's MSPACE Manual
"Standard" analogue	"Non-standard" analogue	As described in the Bureau's MSPACE Manual
"Non-standard" analogue	"Non-standard" analogue	As described in the Bureau's MSPACE Manual
Digital	"Standard" or "non-standard" analogue	As described in the Bureau's MSPACE Manual
"Standard" or "non-standard" analogue	Digital	As defined in Recommendation ITU-R BO.1293-2 [2]
Digital	Digital	As defined in Recommendation ITU-R BO.1293-2 [2]

[1] Standard analogue assignments are those assignments which use the following parameters:

- *For Regions 1 and 3*: 27 MHz bandwidth, 19.18 MHz channel spacing and the assigned frequencies as specified in Article 9A of Appendix **30A**;
- *For Region 2*: 24 MHz bandwidth, 14.58 MHz channel spacing and the assigned frequencies as specified in Article 9 of Appendix **30A**.

[2] Recommendation ITU-R BO.1293-2 (Annexes 1 and 2) is applied instead of Recommendation ITU-R BO.1293-1, which is referred to in § 3.4 of Annex 5 to Appendix **30** and § 3.3 of Annex 3 to Appendix **30A**.

3

Power-control

Paragraph 3.11.4 of Annex 3 to Appendix **30A** states that "In the event of modifications to the Plan, the Bureau shall recalculate the value of power control for the assignment subject to modification and insert the appropriate value for assignment in the Plan. A modification to the Plan shall not require the adjustment of the values of permissible power increase of other assignments in the Plan". Therefore, the Board decided that, the Bureau, immediately after the Regions 1 and 3 feeder-link Plan (14 GHz or 17 GHz) is updated and before Part B publication is effected, shall recalculate the power control values and inform about its findings the responsible administration, as appropriate. If the values referred to in the above paragraph need to be adjusted, the responsible administration shall seek all the possible means to solve the matter with the affected administrations.

Rules concerning

APPENDIX 30B to the RR

Art. 4

Execution of the provisions and associated Plan

4.1

Bidirectional allocation of some bands

1 See comments made under the Rules of Procedure concerning No. **5.441**.

Art. 6

Procedures for the conversion of an allotment into an assignment for the introduction of an additional system or for the modification of an assignment in the List

6.3 *a)*

1 The footnotes attached to provisions § 6.3 *a)*, 6.19 *b)*, 7.5 *a)* and 8.8 require that the "other provisions" mentioned in those provisions shall be identified and included in the Rules of Procedure.

The regulatory examinations under § 6.3 *a)*, 6.19 *b)*, 7.5 *a)* and 8.8 include the following:

– conformity with the Table of Frequency Allocations, including its footnotes and any Resolution or Recommendation which is referred to in such a footnote;

– all "other" mandatory provisions that are contained in Articles **21** to **22**, in Articles 3 and 4 of Appendix **30B** to the Radio Regulations and/or in Resolutions that are relevant to the service in the frequency band in which a station of that service operates.

2 The list of "other provisions" that are contained in Articles **21** to **22** with respect to which the notices are examined, is given below:

2.1 conformity with the power limits for earth stations as stipulated in provisions Nos. **21.8** and **21.12**, account being taken of provisions Nos. **21.9** and **21.11**[1], and in provisions Nos. **22.26** to **22.29** under the conditions specified in provisions Nos. **22.30**, **22.31** and **22.37** where the earth stations are subject to those power limitations;

2.2 conformity with the minimum angle of elevation of earth stations as stipulated in provisions No. **21.14**[2];

2.3 conformity with the limits of power flux-density from space stations produced at the Earth's surface as indicated in the Table **21-4** (provision No. **21.16**), taking into account, as appropriate, the provision Nos. **21.17**; however, the Rules of Procedure relating to No. **21.16** concerning the application of power flux-density (PFD) limits to steerable beams do not apply in this case. (MOD RRB12/60)

2.4 conformity with the limit specified in provisions Nos. **22.8** and **22.19**.

2.5 Other provisions of Articles **21** and **22** will not be taken into account in the Regulatory examination under § 6.3 *a)*, 6.19 *b)*, 7.5 *a)* and 8.8 and the Board understands that these provisions are to be applied between administrations as appropriate.

6.5

1 The planning exercise and the interference analysis were made by WARC Orb-88 for the whole band of 300 MHz (6/4 GHz) or 500 MHz (13/11 GHz) on a co-channel basis. It may happen that two administrations conclude agreement on the shared use of the frequency bands. In the compatibility examination by the Bureau, the mutual interference between non-overlapping frequency assignments shall not be taken into consideration in formulating findings.

2 The Board, in reviewing the implementation of the regulatory procedures of Appendix **30B**, noted that there is no provision to prohibit the implementation of non-simultaneous transmissions within the context of that Appendix. The Board further noted that this approach is used within the context of Appendices **30** and **30A** by means of the grouping concept as defined in Articles 9 and 9A of Appendix **30A**, Articles 10 and 11 of Appendix **30** and Rules of Procedure relating to § 4.1.1 *a)* and 4.1.1 *b)* of Appendices **30** and **30A**.

3 In view of the above, the Board decided that the same grouping concept can also be applied within the context of § 6.5 and 6.21. The Board's understanding of the grouping concept is that in the interference calculation to entries (allotments or assignments) that are part of the group, only the interference contribution from entries that are not part of the same group are to be considered. On the other hand, for the interference calculation from entries

---

1 See Rules of Procedure relating to No. **21.11.**

2 See Rules of Procedure relating to No. **21.14.**

belonging to a group into entries that are not part of the same group, only the worst interference contribution from that group is to be taken into consideration.

4 The Board did not find any regulatory basis to extend the use of groupings involving multiple orbital positions. However, grouping of networks in different orbital positions may be used before the inclusion of the assignments in the List to modify the orbital position of a network.

5 Interference between assignments to the "existing systems" as referred to in *considering b)* and *c)* of Resolution **148 (WRC-07)** shall not be taken into consideration in single-entry calculation for consistent implementation of *instructs the Radiocommunication Bureau* 2 of that Resolution.

6 See also *Note by the Secretariat* relating to the "multi-beam networks" as indicated in column 10 of the tables in Article 10 of Appendix **30B**.

(ADD RRB12/60)

6.16

1 When the Bureau receives an objection to being included in a service area of an assignment from an administration in accordance with §6.16 of Appendix **30B**, the Bureau publishes the modified service area for exclusion of its territory from the service area if the assignment has already been included in the List. If the assignment is at the stage of coordination and not yet included in the List (i.e. published in an AP30B/A6A/ -- Special Section only), the Bureau takes that objection into account in the examination under §6.19 a) when the assignment is submitted by the notifying administration under §6.17. The final characteristics of the assignment in the List (i.e. those published in an AP30B/A6B/-- Special Section) shall not include the territory and test points that are within the territory of the objecting administration in the service area.

2 However, an administration can object to the inclusion of its territory in the service area of an assignment of the other administrations not yet entered in the List and explicitly request that the objection should be taken into account in the examination of its own network submitted under §6.17 of Appendix **30B** in order to facilitate inclusion of the assignments of its own network to be included in the List. In this case, the objection should be considered definitive. The Bureau shall then, in accordance with §6.16 of Appendix **30B** , exclude the territory and test points that are within the territory of that objecting administration from the service area of the assignment objected and publish the modified service area in a modification to the corresponding AP30B/A6A/-- Special Section. The modification to the service area and the deletion of test points shall then be taken into account in the subsequent examinations including examinations under §6.21 and 6.22 of Appendix **30B** of the network submitted by the objecting administration under §6.17 of Appendix **30B**.

6.19 *b)*

See Rules of Procedure relating to § 6.3 *a)*.

6.21

See Rules of Procedure relating to § 6.5.

Art. 7

Procedure for the addition of a new allotment to the Plan for a new Member State of the Union

7.3

New allotment to the Plan for a new Member State of the Union

1 Provision § 7.3 of Appendix **30B** requests the Bureau to identify appropriate technical characteristics and associated orbital locations for a prospective national allotment upon receipt of a request from a new Member State.

The Bureau shall apply the procedures described below to find an appropriate orbital position for an allotment in the Appendix **30B** Plan for a new Member State.

2 The Bureau shall ensure that all submitted test-points are located within the national territory of the new Member State. Test-point locations shall be verified using the ITU Digitized World Map. In addition, in the absence of a height above sea level, a value of zero metres shall be assumed by the Bureau.

3 In order to facilitate the implementation of the orbital position selection approach described in § 8 below, the new Member State may provide under § 7.2 *c)* of Article 7 of Appendix **30B** its preferred orbital position(s) and/or its preferred orbital arc(s), bearing in mind that the implementation of these preferences might not be possible due to excesses of interference to or from other allotments or assignments of Appendix **30B**.

4 The Bureau shall establish the required minimum elevation angles associated to each test-point in accordance with § 1.3 of Annex 1 to Appendix **30B**. The service arc shall then be calculated in order to meet the required minimum elevation angles of all test-points.

5 With regard to the generation of the minimum ellipse to cover the national territory of the new Member State, the Bureau shall use a space station antenna beam pointing error of 0.1° for the generation of elliptical beams under Article 7 of Appendix **30B**.

6 With regard to the transmitting and receiving space station antenna maximum gain values, as a function of the major and minor axes of the ellipse, instead of using the definition contained in § 1.7.2 of Annex 1 to Appendix **30B** the Bureau shall use the more precise formula defined in § 3.13.1 of Annex 5 and § 3.7.1 of Annex 3 of Appendices **30** and **30A**, respectively.

7 With regard to the calculation of the maximum power density values, the Bureau shall assume the worst-case conditions in terms of space station antenna pointing error and rotational accuracy for the calculation of the antenna gain in the direction of each test-point, in order to ensure that the objective *C*/*N* ratios defined in § 1.2 of Annex 1 to Appendix **30B** are met for all test points, i.e., assume the minimum gain value of the antenna, taking into account a pointing error of 0.1° and a rotational accuracy of ± 1.0°.

8 With regard to the selection of orbital position, the Bureau shall use an automated approach based on an iterative process as follows:

8.1 Once the service arc is calculated, as mentioned in § 4 above, an iterative process is implemented to identify suitable orbital position(s) within that arc for the allotment to the new Member State in question.

8.2 The Bureau shall assume a minimum orbital position step of 0.1° in this process.

8.3 Each new possible orbital position shall be examined by the Bureau as follows:

– regenerate the elliptical beam parameters;

– recalculate the required power density values;

– using the criteria[3] of Annex 3 and Annex 4 of Appendix **30B**, determine whether the new allotment at that orbital position is compatible with the allotments and the assignments as mentioned in § 7.5 of Article 7.

[3] For a request from a new Member State received before 17 November 2007, a single entry of 25 dB and an aggregate *C*/*I* of 21 dB shall be applied.

9 The Bureau shall identify the most appropriate orbital position(s) with the aim to minimize the *C/I* excesses caused or received from other allotment(s), or assignment(s) of Appendix **30B** and send this information to the requesting administration in accordance with § 7.3 of Article 7.

7.5 *a)*

See Rules of Procedure relating to § 6.3 *a)*.

(ADD RRB12/60)

Art. 8

Procedure for notification and recording in the Master Register of assignments in the Planned bands for the fixed-satellite service

8.8

See Rules of Procedure relating to § 6.3 *a)*.

(ADD RRB12/60)

8.17

In accordance with the decision of WRC-12 recorded in the minutes of the 12th Plenary Meeting, an administration may request, as of 1 January 2013, for suspension of the use of a frequency assignment to a space station for a period not exceeding three years and §8.17 of Appendix **30B** shall be applied as follows:

- Wherever the use of a frequency assignment to a space station recorded in the Master Register is suspended for a period exceeding six months, the notifying administration shall, as soon as possible, but no later than six months from the date on which the use was suspended, inform the Bureau of the date on which such use was suspended. When the recorded assignment is brought back into use, the notifying administration shall so inform the Bureau, as soon as possible. The date on which the recorded assignment is brought back into use shall be no later than three years from the date of suspension.
- If the recorded frequency assignment is not brought back into use within three years from the date of suspension, the Bureau shall cancel the assignment from the Master Register and apply the provisions of §6.33.
- The date of bringing back into use of a frequency assignment to a space station shall be understood as the same as that described in footnote *20bis* to §5.2.10 of Appendix **30** (Rev.WRC-12) and in footnote *24bis* to §5.2.10 of Appendix **30A** (Rev.WRC-12).

An. 3 and An. 4

1 WRC-07 revised Appendix **30B** and introduced power flux-density limits in Annex 3 of Appendix **30B** in order to protect FSS allotments and assignments from interference which may be caused by FSS assignments located outside the orbital arcs defined in Annex 4. Although the reference bandwidth of these limits in Annex 3 is 1 MHz, the maximum power densities which are used for the calculation of power flux-densities are submitted in dB(W/Hz) averaged over the necessary bandwidth (C.8.h) and 4 kHz (C.8.b.2) in accordance with Appendix **4**. The discrepancy between the reference bandwidth for the limits and the averaging bandwidth for submission might lead to the overestimation of interference when a few narrow-band carriers are used, e.g. carriers for tracking, telemetry and telecommand. On the other hand, a narrow-band carrier might cause significant interference to other narrow-band carriers if these carriers are accidentally overlapping with each other.

2 In order to avoid the overestimation of interference from narrow-band carriers into wideband carriers caused by integrating the power of narrow-band carriers from 1 Hz to 1 MHz and to provide a mechanism to resolve unexpected interference between narrow-band carriers, the Board decided on the following course of action.

2.1 In the case when:

a) the maximum power density, in dB(W/Hz), averaged over the worst 1 MHz band, supplied to the input of the antenna taking into account the number of carriers and power level of each carrier to be operated within the averaging bandwidth of 1 MHz;

is lower than;

b) the maximum power density, in dB(W/Hz), averaged over the necessary bandwidth (C.8.h);

2.2 the power density value as described in 2.1 *a*) above shall be provided by a notifying administration together with the relevant Appendix **4** information;

2.3 the Bureau shall use the submitted power density value as described in 2.1 *a)* above for its examination under Annexes 3 and 4 and publish it in the relevant Special Section;

2.4 those operating assignments whose power density value as described in 2.1 *b*) is higher than that in 2.1 *a*) shall not cause harmful interference to, or claim protection from, prior assignments recorded in the MIFR.

Annex 4 (ADD RRB13/64)

Criteria for determining whether an allotment or an assignment is considered to be affected

2.2

1 In order to adequately protect the existing networks in their entire service area, WRC-07 introduced the examination over the service area under § 2.2 of Annex 4 of Appendix **30B**.

2 As indicated in footnote 19 to § 2.2 of Annex 4 of Appendix **30B**, the reference values within the service area are interpolated from the reference values on the test points. The following interpolation formula and condition shall be used to calculate the interpolated values at grid points[4] within the service area:

$$V_{Eg} = \frac{\sum_{h=1}^{Nt} R_{Th} \times (d_{Th})^{-2}}{\sum_{h=1}^{Nt} (d_{Th})^{-2}} \quad (1)$$

where:

Th: test point number h of the wanted downlink service area;

Eg: point number g of the grid of examination points on the wanted downlink service area;

Nt: total number of test points;

d_{Th}: distance between the test point *Th* and the grid point *Eg*;

R_{Th}: single entry *C*/*I* reference value (dB) at the test point *Th*;

V_{Eg}: interpolated single entry *C*/*I* reference value (dB) at the grid point *Eg*.

If the value $(R_{Th} - ((C/N)_{d,Th} - (C/N)_{d,Eg}))$ is lower than R_{Th}, then $(R_{Th} - ((C/N)_{d,Th} - (C/N)_{d,Eg}))$ shall be used in (1) instead of R_{Th},

where：

$(C/N)_{d,Th}$: the downlink *C/N* value at test point *Th*;

$(C/N)_{d,Eg}$: the downlink *C/N* value at grid point *Eg*.

3 If the interpolated value V_{Eg} is higher than $(C/N)_{d,Eg}$ +11.65 dB , $(C/N)_{d,Eg}$ +11.65 dB shall be used as the reference value for grid point *Eg*. Otherwise, the interpolated value is the reference value.

---

[4] The service area is regularly covered by a grid of points so that the average distance between points is set to a value proportional to the area size, with a maximum of 600 km and a minimum of 100 km. To ensure good coverage of irregularly shaped areas, points are also added on the border of the service area.

Rules concerning

RESOLUTION 1 (Rev.WRC-97)

Notification of frequency assignments

1 Terrestrial services

In accordance with this Resolution, the Bureau should, in each case of notification or communication of information:

a) verify that the station is within a territory under the jurisdiction of the notifying administration, and

b) if that is not the case, verify that a special arrangement has been communicated to the Union.

Any action under *a)* above would lead the Bureau to delicate situations when considering the administration having jurisdiction on a given territory. The consideration of *b)* above may lead to impractical situations because administrations may agree on operating a given system without necessarily going through a formal agreement.

Considering that it was not the intention of the Member States to see the Bureau involved in matters relating to disputed territories, the Board decided that Resolution **1 (Rev.WRC-97)** shall be applied as follows:

– Unless advised to the contrary by an administration not accepting such practice, any notification of a frequency assignment to a station located in a territory of an administration other than the notifying administration shall be assumed to be the subject of agreement between the two administrations concerned.

– When, following the publication of a frequency assignment in the BR IFIC or its Special Sections, the administration of the territory on which the station is located objects to it, the notifying administration is requested to communicate any special arrangement to the objecting administration.

– If, following the replies received from the notifying administration, the Bureau is of the opinion that the sovereignty over the territory in question is a matter of dispute between the two administrations and it is informed that the station is actually operated by the notifying administration, the Bureau will record the assignment and will enter a symbol to indicate the situation. Otherwise the notice will be returned to the notifying administration.

2 Space services

2.1 The notification of terrestrial international links contains the indication of the receiving station located in the territory of another administration assuming that there is an agreement about establishing the radio link. In the case of space radiocommunications, the notification and registration procedures of Article **11** of a given frequency assignment are applied separately by the administration operating the transmitting part and by the administration using the receiving part.

2.2 When the Bureau receives from an Administration A a notice for a transmitting space station with a service area covering the territory of an Administration B, it assumes that the latter has given its agreement and the transmission will be protected over its territory.

2.3 Similarly, when an administration notifies a transmitting or a receiving earth station the Bureau assumes that the proposed use will be made with the agreement of the administration responsible of the associated space station and the comments in § 1 above apply.

2.4 As far as the request for exclusion of the territory of a country from the service area of a space station, see comments under the Rules of Procedure concerning No. **9.50**.

3 Requirements for Planning Conferences

3.1 Radio Conferences in the past had to deal with:

– requirements by administrations for stations to be located on a territory under the jurisdiction of another administration; or

– reference points or test points of the requirement of an administration which were located on the territory under the jurisdiction of another administration.

In accordance with the approach described in § 1 and 2 above this information was published in Conference preparatory documents. Following this publication, when objections were received from administrations that considered themselves concerned, the objected test point or requirements were cancelled and the matter was reported to the Conference for decision.

_____

PART A2

Rules concerning the Regional Agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting service in the VHF and UHF bands (Stockholm, 1961) (ST61)

1 Scope of the Agreement

Following the revisions of the ST61 Agreement, carried out in 1985 and 2006, and in accordance with the Table of Frequency Allocations contained in Article **5** of the Radio Regulations (RR) (Edition of 2004), the ST61 Agreement governs, as from 17 June 2006, the use of the following frequency bands by the broadcasting service within the European Broadcasting Area:

– 47-68 MHz (sound broadcasting and television);

– 87.5-100 MHz (television), and

– 162-170 MHz (television).

2 Receivability of notices

In the application of the Regional Agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting service in the VHF and UHF bands (Stockholm, 1961), the Bureau will apply the procedures contained in Articles 4 and 5 of the Agreement and associated technical criteria with respect to the notices received from all administrations having territories in the European Broadcasting Area, as defined in No. **5.14** of the RR, provided that the station concerned is situated within the planning area.

Art. 2

Execution of the Agreement

1

1 In the examination for conformity with the Agreement, a notice is considered to be in conformity with the Agreement either when the notified characteristics are the same as in the Plan or, where they are different, when they do not increase the probability of interference in any azimuth above that resulting from the entry in the Plan.

2 An assignment in the Plan may contain, in addition to the maximum effective radiated power (e.r.p.),

– an azimuth of maximum radiation,

– in some cases, reduced e.r.p. in one or more azimuths or one or more sectors.

3 The notified radiation characteristics are considered to be in conformity with the Plan if the e.r.p. in any azimuth is equal to or lower than the ones derived from the Plan by a combination of maximum e.r.p. and reduced e.r.p. in azimuths or sectors.

4 When an assignment, notified under Article **11** of the RR with an azimuth of maximum radiation different from the one in the Plan, satisfies the condition indicated in § 3 above, its radiation characteristics are considered to be in conformity with the Plan.

5 When a notice is received, for modification under Article 4 of the Agreement or for notification under Article 5, the relevant coordination distances of the Agreement shall be equally applied to analogue and digital systems. An appropriate symbol shall be used to identify the television standard.

_____

PART A3

Rules concerning the Regional Agreement concerning the use by the broadcasting service of frequencies in the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1 (Geneva, 1975) (GE75)

Art. 4

Procedure for modifications to the Plan

3.2.12

If the delay between the publication in Part A and the publication in Part B is too long, other modifications to the Plan are likely to be introduced in the meantime, which could not be taken into account at the time of examination.

When an administration, in application of § 3.2.12 of the Agreement, communicates to the Radiocommunication Bureau the final characteristics of the assignment, after a period of one year from its publication in Part A of a Special Section GE75, the modification shall follow again the full procedure of Article 4. The date at which the communication has been received by the Bureau will be considered as the new date of receipt of the proposed modification. A reminder is sent to the notifying administration two months before the end of the one-year period.

3.3.1

In the application of § 3.3 of Article 4, the agreement of another country is not necessary when the modification of the characteristics of an assignment would not increase the probability of interference at any point on the border of this country, within the coordination distance.

An. 1

Plan for the assignment of frequencies to broadcasting stations in the medium frequency band (other than to stations using low-power channels) in Regions 1 and 3 and in the low frequency bands in Region 1

Explanation of symbols 24 and 33 used in the "Remarks" column

The Board noted that symbols 24 and 33 apply only to assignments in the Plan, but concluded that their texts define relations between Israel on one hand and the countries listed in symbol

33 on the other hand and should therefore apply not only to modifications of the assignments of these countries appearing in the Plan, but also to any new assignments which may be subject to the modification procedure.

The Board therefore decided that any new assignment or any modification to an existing assignment in the Plan communicated to the Bureau by the Administration of Israel or an Administration of one of the following countries:

Algeria, Saudi Arabia, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Libya, Morocco, Qatar, Sudan, Tunisia, Yemen shall be treated as follows:

– For an assignment of Israel, if the country (countries) objecting to the modification is (are) one (or more) of the countries listed above, and it is (they are) the only country (countries) whose objection prevents the completion of the procedure for modification, the comments are communicated to the Administration of Israel and are not taken into account for updating the Plan. The same procedure applies to an assignment of one of the countries listed, if the only objecting Administration is that of Israel.

– In such a case, when the notification is received, the provisions of Article **11** are applied.

An. 2

Technical data used in the preparation of the Plan and to be used in the application of the Agreement

(ADD RRB11/58)

CHAPTER 1

Definitions

Low-power channel (LPC)

Channel used by medium frequency broadcasting stations employing a maximum e.m.r.p. of 1 kW (c.m.f. of 300 V) for analogue modulation or 0.22 kW (c.m.f. of 140 V) for digital modulation.

4.1

Chapter 4 of Annex 2 gives the broadcasting standards applicable to the Agreement. In particular:

4.1 *Class of emission:* The Plan is established for a system with double sideband amplitude modulation with full carrier (A3E).

4.2 *Power:* The power of a transmitter is the carrier power in the absence of modulation.

4.3 *Radiated power:* The radiated power is assumed to be the product of the nominal power of the transmitter and the gain of the antenna (relative to a short vertical antenna) without taking into account any losses[1]. It is expressed either by the cymomotive force (c.m.f. in V or in dB relative to 300 V) or by the effective monopole radiated power (e.m.r.p. in kW or in dB relative to 1 kW).

4.4 *Protection ratios:* In applying the Agreement, the values of the co-channel and adjacent channel protection ratios given below should be used unless otherwise agreed between the administrations concerned. In the case of fluctuating wanted or unwanted signals, the values of the protection ratio apply for at least 50% of the nights of the year at midnight.

However, Resolution 8 of the Regional Administrative Conference (Regions 1 and 3) for drawing up frequency assignment plans for LF and MF broadcasting (Geneva, 1975) states:

"1. that broadcasting stations may provisionally use bandwidth saving modulation methods on condition that interference in the same or adjacent channels concerned does not exceed the interference resulting from the application of double sideband modulation with full carrier (A3E);

2. that any administration which envisages using these methods of emission shall seek the agreement of all affected administrations by following the procedure specified in Article 4 of the Agreement.".

After consideration of the relevant ITU-R studies, the Board decided that an analogue modulated frequency assignment in the Plan may be notified to be recorded in the Master International Frequency Register (MIFR) with digital modulation (transmission system Digital Radio Mondiale[2], robustness mode[3] A or B and spectrum occupancy type 2), provided the radiation is reduced by at least 6.6 dB in all directions, compared to the radiation of the analogue frequency assignment in the Plan. (MOD RRB11/58)

The power of the transmitter to be notified in case of digital modulation shall be the total power within the necessary bandwidth.

The Board further decided that in the application of Article 4 of the Agreement the protection ratios between analogue and digital assignments (transmission system Digital Radio Mondiale, robustness mode A or B and spectrum occupancy type 2) and between digital and digital assignments in Part B Section B7 shall be used. (MOD RRB11/58)

This Rule of Procedure is of a provisional nature until such time that it is confirmed by a competent conference empowered to deal with the subject matter.

---

1 Not reproduced here.

2 The Digital Radio Mondiale system is described in Recommendation ITU-R BS.1514-2

3 The DRM robustness modes and spectrum occupancy types are defined in ETSI Standard ES 201 980 "Digital Radio Mondiale (DRM); System Specification" Version 3.1.1 and further detailed in Recommendation ITU-R BS.1615-1

(ADD RRB11/58)

4.5

4.5 *Minimum Value of Field Strength*

4.5.1 The following minimum values of field strength necessary to overcome natural noise (at 1 MHz) for frequency assignments using analogue modulation in the three zones A, B and C have been adopted:

Zone A: + 60 dB/1µVm

Zone B: + 70 dB/1µVm

Zone C: + 63 dB/1µVm

For frequency assignments using digital modulation the minimum values of field-strength in Part B Section B7 shall be used.

4.8.3

4.8.3 In the application of Article 4 (paragraph 3.3.1) of the Agreement, the table reproduced below will be used:

c.m.f. (V)		**e.m.r.p. (kW)**		**Limiting distance (km)**
Analogue modulation	**Digital modulation**	**Analogue modulation**	**Digital modulation**	
300	140	1.0	0.22	600
260	122	0.75	0.16	500
212	99	0.5	0.11	400
150	70	0.25	0.055	200, 300*
95	44	0.1	0.022	70, 250*
67	31	0.05	0.011	50, 200*

* Values for a propagation path over sea.

NOTE – The corresponding coordination distances for frequency assignments using digital modulation were obtained by reducing the e.m.r.p. by 6.6 dB, which represents the worst-case increase in protection ratios for the cases of assignments using digital modulation interfering with assignments using analogue modulation compared with the cases of assignments using analogue modulation interfering mutually.

(MOD RRB11/58)

In the case of a mixed path (partially land and partially sea), the limiting distance shall be calculated in the following way:

$$\text{Limiting distance} = \frac{(V_l \times D_l) + (V_s \times D_s)}{D_l + D_s}$$

in which:

D_l: total path length over land (km)

D_s: total path length over sea (km)

V_l: limiting distance (km) path over land obtained from the Table in § 4.8.3 of Annex 2 to the Agreement

V_s: limiting distance (km) path over sea obtained from the Table in § 4.8.3 of Annex 2 to the Agreement.

Res. 8

Resolution 8 of the Regional Administrative Conference (Regions 1 and 3) for drawing up frequency assignment plans for LF and HF broadcasting (Geneva, 1975) states:

"1. that broadcasting stations may provisionally use bandwidth saving modulation methods on condition that interference in the same or adjacent channels concerned does not exceed the interference resulting from the application of double sideband modulation with full carrier (A3E);

2. that any administration which envisages using these methods of emission shall seek the agreement of all affected administrations by following the procedure specified in Article 4 of the Agreement.".

After consideration of the relevant ITU-R studies, the Board decided that any frequency assignment for AM broadcasting in the Plan may provisionally be used with digital modulation (transmission types DRM[2] A2 or B2), provided the radiation is reduced by at least 7 dB in all directions, compared to the radiation of the AM modulated frequency assignment in the Plan.

Therefore, when examining the conformity to the GE75 Plan of a notice received under Article **11** of the Radio Regulations, the Bureau shall accept such a notice as being in conformity to the Plan.

This Rule of Procedure is of a provisional nature until such time that it is confirmed by a competent conference empowered to deal with the subject matter.

_____

PART A4

Rules concerning the Regional Agreement for the use of the band 535 to 1605 kHz in Region 2 by the broadcasting service (Rio de Janeiro, 1981) (RJ81)

Art. 3

3.1

For the application of this Agreement Region 2 countries are divided into three groups:

Group A: Countries which signed the Final Acts of the Conference or acceded to the Regional Agreement.

Group B: Countries which are not party to the Agreement but have communicated to the Board the undertaking to observe the provisions of Resolutions 2, 3 and 4. As of today, these countries are BOL, BRB, DMA, GTM, HND, HTI, LCA, SLV and SUR.

Group C: Countries which are not party to the Agreement. These countries are CUB and DOM.

Art. 4

4.2.8 and 4.2.9

1 Paragraphs 4.2.8 and 4.2.9 of the Agreement specify the examination to be made as between a proposed modification and pending modifications. In accordance with § 4.2.9, the examination to determine the effect of a proposed modification on pending modifications, and vice versa, is limited to modifications which have been pending for not more than 180 days counted from the date any such modification was received by the Bureau. As soon as this 180-day period is over, a pending modification is no longer taken into account for mutual protection with respect to a new proposed modification. This means that a request for entry in the Plan of a proposed modification which has been pending for more than 180 days shall necessarily have to be examined for eventual objectionable interference to the assignments which may in the meantime have entered the Plan as a result of successful application of the Article 4 procedure.

2 The Board has therefore decided that when an administration, in application of § 4.2.18 of the Agreement, communicates to the Bureau the final characteristics of the assignment, after 180 days of its publication in Part A of a Special Section RJ81, the modification shall follow again the full procedure of Article 4. The date at which the communication has been received by the Bureau will be considered the new date of receipt of the proposed modification.

3 In counting 180 days from the date of publication in Part A of a Special Section RJ81, instead of from the date of receipt of the proposed modification by the Bureau, the intent is to eliminate the effect of the time lag before the proposed modification is published in accordance with § 4.2.5 of the Agreement.

4.6

1 In accordance with § 4.6 of the Agreement and its sub-paragraphs, when an assignment which has been in the Plan for four years has not been brought into service, the Bureau will consult the administration concerned with regard to the advisability of cancellation of the assignment. Paragraph 4.6.3 describes the procedure followed by the Bureau in the application of the provisions of the Agreement relating to assignments recorded in the Plan but not brought into service.

2 The determination whether an assignment is in operation is made for each entry (day or night) by examining the Master Register and comparing the recorded assignments with the assignment in the Plan, with the following criteria:

– same frequency,

– same country code,

– same operating period and

– location within the tolerances of § 4.2.14 of the Agreement.

If an entry corresponding to the above conditions is found in the Master Register, the entry in the Plan is considered to be in operation. In the other cases, the entry is considered to be not in operation.

4.6.3

1 The four-year period and the allowed extension of one year, mentioned in § 4.6.1 and 4.6.2 of the Agreement, are counted from the date of entry of an assignment in the Plan. In the case of a change in a basic characteristic of a frequency assignment already in the Plan, the date of entry in the Plan is the date shown for the modified characteristics in Part B of the corresponding Special Section RJ81.

2 The request for reinstatement of the assignment, and deletion of the symbol mentioned in § 4.6.3 of the Agreement, shall reach the Bureau not earlier than three months before the intended date of bringing it into service. This is based on the consideration that a request for the removal of the symbol is conditional upon bringing the assignment into service. An analogy with provision of No. **11.24** of the Radio Regulations, therefore, is in order. Any request received earlier than this period shall be kept in abeyance until the above-stated time limit, and the administration concerned shall be informed accordingly.

3 When the three-month condition is satisfied, the assignment concerned shall be examined from the point of view of objectionable interference caused to stations entered in the Plan from the date of suspension of the assignment. The stations “entered in the Plan” comprise the new stations introduced in the Plan, as well as modifications in characteristics of the stations already existing in the Plan.

4 If the examination shows that no objectionable interference will be caused to the stations concerned, the suspended assignment shall be reinstated and the corresponding symbol in the Plan shall be removed. Appropriate publication shall be made in a Special Section RJ81.

5 In view of the fact that the date of bringing it into service is known, the reinstated assignment shall be examined under Article **11** of the Radio Regulations for entry in the Master Register. The administration concerned shall, in accordance with the Radio Regulations, confirm the bringing of the assignment into use. In the absence of this confirmation, the symbol mentioned in § 4.6.3 of the Agreement, shall be reinserted leading to the re-suspension of the assignment.

6 At the time of publication of the Special Section mentioned in § 4 above, the administration shall be requested to notify the assignment in accordance with Article **11** and shall be reminded of the action that will be taken in accordance with § 5 above. The examination under Article **11** (§ 5 above), however, shall be carried out without waiting for the receipt of the notice.

7 When an administration makes known its intention to change the characteristics of a suspended assignment, other than under § 4.6.4 of the Agreement, the request shall be understood as indicating the decision of the administration to abandon the suspended assignment. The proposed modification, therefore, shall be examined as a request for the introduction of a new assignment into the Plan. The corresponding suspended assignment shall be deleted from the Plan forthwith without waiting for the completion or result of the modification procedure.

8 Paragraph 4.6.3 of the Agreement states that the assignment with the symbol (i.e. the suspended assignment) shall be disregarded in the future modifications to the Plan. As a suspended assignment can be reinstated under § 4.6.4 of the Agreement, it cannot be considered as having been removed from the Plan. Therefore, the suspended assignments shall not be disregarded in the transfer of assignments from List B to List A.

9 Section 4.6 of the Agreement does not prescribe any time limit for the maintenance of the suspended assignments in the Plan. However, the indefinite retention in the Plan of the suspended assignments can lead to complication in the establishment of the reference situation against which an interference may be judged objectionable, as well as in the resolution of problems under Resolution 2 of the Conference. The Board has decided that any suspended assignment for which reinstatement, under § 4.6.4 of the Agreement, is not initiated within one year of suspension shall be removed from the Plan.

Res. 2

1 The transfer of an assignment from List B to List A is dependent upon the resolution of incompatibilities which had resulted, initially, in its entry in List B. Resolution 2 of the Regional Administrative MF Broadcasting Conference (Region 2) (Rio de Janeiro, 1981), prescribes the procedure for the resolution of these incompatibilities. Under this procedure, the administrations with assignments in List B shall continue negotiations and find solutions to unresolved incompatibilities as soon as possible.

2 It is possible that when the procedure for modifications to the Plan, Article 4 of the Regional Agreement, has been successfully applied, the characteristics of a List B assignment may be so modified as to justify its transfer to List A. There is, therefore, a need for a procedure that should be applied to any List B assignment whose characteristics have been changed under Article 4 of the Regional Agreement to determine its eligibility for transfer to List A. The Board has established the following procedure for this purpose. This procedure is separate from, and in addition to, that of Resolution 2 of the Conference.

3 In applying the Article 4 procedure to the proposed change in the characteristics of a List B assignment, no aspects relating to its possible transfer to List A shall be considered. Its possible transfer from List B to List A will be considered as soon as the Article 4 procedure is completed.

4 Immediately following the completion of the Article 4 procedure, each assignment (with changed characteristics) shall be examined to assess the effect of changed characteristics with a view to possibly transferring the assignments from List B to List A. This examination may show an increase or a decrease in its nuisance field in relation to the other List B assignment(s) concerned.

5 Increase in the nuisance field

5.1 The Part A of the Special Section RJ81 in which the above change was published would have also contained the names of administrations whose assignments in List B were adversely affected. The fact that the assignment with changed characteristics has been able to enter the Plan indicates that agreement has been reached with, among others, the administrations responsible for the affected List B assignments on the interference caused to them. If the modified assignment was, initially, in List B only because its interference caused being unacceptable, it shall now be transferred to List A if the agreement for all the List B assignments concerned has been obtained through the Article 4 procedure. If, in addition to the unaccepted interference caused, there was also unaccepted interference received, the administration concerned shall be consulted before the assignment is transferred to List A.

6 Decrease in the nuisance field

6.1 The modified assignment shall be examined to determine the improvement to all the List B assignments to which it caused unaccepted interference in the Plan of 1 January 1982. If this examination shows that, with the now modified characteristics, the List B assignments would not have been considered affected on 1 January 1982, the modified assignment shall be transferred to List A after consultation concerning received interference if necessary.

6.2 Where the above examination leads to an unfavourable conclusion, the contribution of interference by the modified assignment shall be examined in the light of the general interference situation of the stations in the Plan of the country with affected List B assignments. The result of this review will determine whether the administrations concerned should be advised by the Bureau to consider accepting the level of incompatibility.

7 Other List B assignments

7.1 When a List B assignment with changed characteristics is transferred to List A, the situation of other related List B assignments shall be examined for the Form B status and the administrations concerned shall be consulted where further transfers appear to be feasible.

7.2 For the purpose of transfers from List B to List A, the reference situation for examining the transfer will be as on 1 January 1982 after the correction procedure in Annex 1 to Resolution 2 of the Conference has been applied. Any interfering field which was earlier masked by a higher interference shall not be taken into account in considering the possible transfer from List B to List A.

8 Publication

8.1 All transfers to List A, under the above procedure, shall be published in the Special Section RJ81.

_____

PART A5

Rules concerning the Regional Agreement relating to the use of the band 87.5-108 MHz for FM sound broadcasting (Geneva, 1984) (GE84)

1 Receivability of notices

In the application of the Regional Agreement relating to the use of the band 87.5-108 MHz for FM sound broadcasting (Geneva, 1984), the Bureau will apply the procedures contained in Articles 4, 5 and 7 of the Agreement and associated technical criteria with respect to the notices received from all administrations having territories in the planning area (all administrations in Region 1, the Islamic Republic of Iran, and Afghanistan), with the exception of the Administration of Iceland, provided that the station concerned is situated within the planning area.

_____

PART A6

Rules concerning the Regional Agreement relating to the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (Geneva, 1989) (GE89)

1 Scope of the Agreement

1.1 Following the revision of the GE89 Agreement, carried out in 2006 by the RRC-06-Rev.GE89, and in accordance with the Table of Frequency Allocations contained in Article **5** of the Radio Regulations (RR) (Edition of 2004), the GE89 Agreement governs, as from 17 June 2006, the use of the frequency band 47–68 MHz, by the television broadcasting service and by other primary terrestrial services which have allocations in this band (see also § 4 hereunder), within the planning area of this Agreement (the African Broadcasting Area as defined in Nos. **5.10** to **5.13** of the RR (Edition of 2004) and the following neighbouring countries: Saudi Arabia, Bahrain, United Arab Emirates, Iran (Islamic Republic of), Iraq, Kuwait, Oman, Qatar, Yemen (including those parts of Yemen that are situated outside of the African Broadcasting Area)).

1.2 The Plan annexed to the GE89 Agreement also contains those frequency assignments to television broadcasting stations, in the bands 230-238 MHz and 246-254 MHz, from the Member States listed in No. **5.252** of the RR, for which the procedure No. **9.21** of the RR was successfully completed.

2 Receivability of notices

In the application of the Regional Agreement relating to the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (Geneva, 1989), the Bureau will apply the procedures contained in Articles 4 and 5 of the Agreement and associated technical criteria with respect to the notices from all administrations having territories in the planning area (i.e. all administrations having territories within the African Broadcasting Area as defined in Nos. **5.10** to **5.13** of the RR and those administrations neighbouring the African Broadcasting Area as listed in § 1.8 of Article 1 of the GE89 Agreement), provided that the station concerned is situated within the planning area.

3 Execution of the Agreement

When a notice is received for a modification under Article 4 of the Agreement, the relevant coordination distances shall equally be applied to analogue and digital systems. An appropriate symbol shall be used to identify the television standard. Calculations requested in application of § 4.3.8 and 4.3.13 of the Agreement shall, where possible, be made using the most recent ITU-R Recommendation.

4 Examination of notices related to the non-planned services in the bands governed by the Regional Agreement GE89

4.1 Section 5.2 of Article 5 of the GE89 Agreement specifies the procedure to be followed for the examination of the notices related to the non-planned primary services in the bands governed by the Agreement. The bands and the services concerned are summarized in the Table below.

TABLE (MOD RRB13/63)

Frequency band (MHz)	Services and countries within the planning area		Provisions	Notes
47-68	**FIXED**:	AFS, AGL, BOT, CME, COD, COG, IRN, LSO, MDG, MLI, MOZ, MWI, NGR, NMB, RRW, SOM, SDN, SSD, SWZ, TCD, TZA, ZMB, ZWE	**5.165 5.167 5.171**	1
	MOBILE (-AER):	AFS, AGL, BOT, CME, COD, COG, LSO, MDG, MLI, MOZ, MWI, NGR, NMB, RRW, SOM, SDN, SSD, SWZ, TCD, TZA, ZMB, ZWE	**5.165 5.171**	1
	MOBILE:	IRN	**5.167**	
230-238	**FIXED**:	from all parties to the Agreement (excepting those referred to in No. **5.252**)		2
	MOBILE:	from all parties to the Agreement (excepting those referred to in No. **5.252**)		2
	AERONAUTICAL RADIONAVIGATION:	ARS, BHR, IRN, OMA, QAT, UAE	**5.247**	3
246-254	**FIXED**:	from all parties to the Agreement (excepting those referred to in No. **5.252**)		2
	MOBILE:	from all parties to the Agreement (excepting those referred to in No. **5.252**)		

NOTE 1 – The additional allocations to countries referred to in No. **5.171** are limited to the band 54-68 MHz.

NOTE 2 – In the frequency bands 230-238 MHz and 246-254 MHz, in the examinations under § 5.2 of the Agreement, account is taken of only those frequency assignments in the broadcasting service which are entered into the Plan following a successful application of the procedure referred to in No. **9.21**, as required by Resolution 1 (GE89) and No. **5.252**.

NOTE 3 – As the additional allocation to countries referred to in No. **5.247** is limited to the band 223-235 MHz, the procedure of § 5.2 of Article 5 of the GE89 Agreement applies in the band 230-235 MHz only.

4.2 The frequency assignment notices related to the aeronautical radionavigation service of Nigeria, whose allocation is governed by No. **5.251**, shall not be subject to the examinations referred to in § 5.2 of Article 5 of the Agreement, since these notices are subject to the application of the procedure of No. **9.21**.

4.3 The frequency assignment notices related to land mobile service from countries referred to in No. **5.164** shall not be subject to the examinations requested by § 5.2 of Article 5 of the Agreement, since their allocation is subject to not causing harmful interference to, or claiming protection from, the broadcasting service. Consequently they will be recorded in the Master Register under the conditions of No. **5.43** vis-à-vis the broadcasting service (Symbol R in Column 13B2).

_____

PART A7

Rules concerning Resolution 1 of the RJ88 Conference and Article 6 of the RJ88 Agreement

1 Application of Resolution 1 (RJ88)

1.1 Under the terms of this Resolution, the ex-IFRB was requested to assess the interference caused to the allotments appearing in the broadcasting Plan by assignments to the fixed and mobile services in the band 1 625-1 705 kHz notified before 1 July 1990, the date of entry into force of the Final Acts of the RJ88 Conference (see § 2 of *resolves to request the IFRB*). The Resolution also requested the ex-IFRB to review the finding of any assignment, recorded in the Master Register, of the fixed or mobile service which is incompatible with the broadcasting Plan and to enter a remark in an appropriate column of the Master Register to indicate that this finding will be reviewed again when a broadcasting station of the allotment which is at the origin of the unfavourable finding is brought into use (see § 3 of *resolves to request the IFRB*).

1.2 In terms of this Resolution and when an assignment of the fixed or mobile service is incompatible and consequently the Finding is unfavourable vis-à-vis an allotment in the broadcasting Plan, the procedure of No. 1255 of the Radio Regulations (edition of 1990, revised in 1994) were to be applied to the assignment concerned of the fixed or mobile service with the provision that the two-month period specified in that procedure shall start from the date of bringing into use of the station of the broadcasting service in conformity with the allotment concerned (see § 4 of *resolves to request the IFRB*).

1.3 The Board noted the provisions of No. **5.89** which refer to the examination of frequency assignments to stations of the fixed and mobile services in the band 1 625-1 705 kHz, requiring to take account of the allotments appearing in the Plan (RJ88).

1.4 Against this background, the Board decided to use the following approach in application of Resolution 1 (RJ88):

1.4.1 in application of § 3 of the Resolution, an incompatibility of an assignment of the fixed or mobile service vis-à-vis an allotment in the Plan was indicated by Symbol H in Column 13B2, and a Symbol X/RS1(RJ88)/---- (symbol of the country whose allotment is likely to be affected) in Column 11;

1.4.2 when an assignment corresponding to the allotment concerned in the broadcasting Plan is brought into use, and if, during the period of two months mentioned in § 4 *b)* of Resolution 1 (RJ88), the Bureau receives information that harmful interference has occurred, the Bureau shall review the Finding of the assignment to the fixed or mobile station. In so doing, it shall replace the earlier finding indicated in § 1.4.1 above by inserting Symbol N in Column 13A2, Symbol Y in Column 13B2 and symbol X/RS1(RJ88) in Column 13B1; the symbols mentioned in § 1.4.1 above will be deleted;

1.4.3 however, if the Bureau does not receive information that harmful interference has occurred during the two-month period, the Finding of the assignment to the fixed or mobile station mentioned in § 1.4.1 above shall be retained.

2 Application of Article 6 of the RJ88 Agreement

2.1 Application of § 1 to 6 of Article 6 do not present any problem and they shall be applied as indicated in Article 6.

2.2 If the administration resubmits the notice in accordance with § 7 of Article 6, the Bureau shall record it provisionally, pending the notification of a broadcasting station in the area of the allotment at the origin of unfavourable Finding.

2.3 The Bureau shall review the recording when it is advised that a broadcasting station is brought into use in the area of the allotment at the origin of the unfavourable Finding.

2.4 If no interference to the broadcasting station is reported during the two-month period the provisional recording shall be maintained without change.

2.5 If interference to the broadcasting station is reported during the two-month period the provisional recording shall be cancelled and the notice shall be returned to the administration.

PART A8

Rules concerning the Regional Agreement concerning the MF maritime mobile and aeronautical radionavigation services (Region 1) (Geneva, 1985) (GE85-MM-R1)

1 Status of the administrations with respect to the Agreement

1.1 In the transitional period between the establishment of the Agreement (13 March 1985) and its entry into force (1 April 1992), and after consultation with the administrations of the Region 1 countries, the Board introduced and used the concept of "parties to the Agreement" for the purposes of the application of the procedures and associated technical criteria set up in Articles 4, 5 and 6 of the GE85-MM-R1 Agreement for the modifications to the Plan and for notifications, examination and recording of frequency assignment notices to stations in the planned (maritime mobile and aeronautical radionavigation) or non-planned (fixed and land mobile) services. "Parties to the GE85-MM-R1 Agreement" were considered to be all administrations having territories in the planning area (i.e. in Region 1) that were not opposed to this concept. Non-parties to the Agreement were those administrations that declared formally that they did not wish to be considered "parties to the Agreement", as well as non-participating administrations without Plan assignments that had not declared formally that they intended to become "parties to the Agreement".

1.2 After the entry into force of the Agreement, and pending further consultation with the administrations concerned, the Board decided to maintain this concept. Therefore, the Bureau will consider parties to the GE85-MM-R1 Agreement all administrations having territories in Region 1, with the exception of the following administrations: AND, BFA, CAF, GNB, LSO, LUX, MLI, MNG, MWI, NGR, RRW, SWZ, TZA, UGA, ZMB and ZWE, which are considered non-parties to the Agreement, until such a time as they accede formally to the Agreement.

2 Treatment of the notices intended for modifications to the Plans governed by the GE85-MM-R1 Agreement

2.1 Modifications to the Plans shall be considered receivable from all administrations which are considered parties to the Agreement (see § 1.2 above).

2.2 The treatment of notices intended for modifications to the frequency assignment Plans shall follow the procedures contained in Article 4 of the Agreement.

2.3 The technical principles to be used in the procedure for the modifications of the frequency assignment Plans shall be those contained in Annexes 3, 4 and 5 to the GE85-MM-R1 Agreement. The computer program used as that used at RARC-MM-R1 shall be used for this purpose, suitably modified to take account of the digitized coastlines.

2.4 The following items will be checked in order to determine conformity with the technical principles of the Agreement:

2.4.1 conformity of the assigned frequency (frequency pair) with the appropriate channelling arrangement (checks shall be performed with respect to Tables 1 to 4 of Annex 3 to the GE85-MM-R1 Agreement);

2.4.2 conformity of the notified class of emission with the permissible class of emission. The following classes of emission, and the following bandwidths are considered receivable:

– *for AL stations*: 100HA1A, 850HA2A and 2K14A2A; however, the limitations set forth in Table 4 of Annex 3 to the Agreement, for some channels, shall also be taken into account;

– *for FC/MS stations in the bands around 500 kHz*: A1A and F1B, and the necessary bandwidths up to 500 Hz.

  The Board considered in this respect that 500 Hz bandwidth represents, for A1A emissions, a speed of 100 words per minute, more than adequate for manual telegraphy. For F1B emissions, this limit covers the standard 304 Hz bandwidth (Recommendations ITU-R M.476-5, ITU-R M.493-9, ITU-R M.625-3 and ITU-R SM.1138);

– *for FC/MS stations in the bands around 2 MHz*: F1B and J3E; the necessary bandwidth for the F1B emissions shall not exceed 500 Hz, and the necessary bandwidth for J3E emission shall not exceed 2 800 Hz (No. **52.177** refers for this later case);

2.4.3 conformity of the notified service range with the established limits at the Conference:

> The administrations shall notify only the required service range, which serves as a basis for determining the power value necessary to ensure the minimum field strength at the edge of the service area. The following service range limits, for coast stations, shall not be exceeded:
>
> – 500 km, for the band 415-526.5 kHz
>
> – 400 km, for the band 1 606.5-2 160 kHz.
>
> The Bureau will use the same values as those established by RARC-MM-R1 on the basis of planning considerations (see Document 63 of RARC-MM-R1). Nevertheless, these values represent, at the same time, technical limitations for use of the ground-wave mode of propagation, since at the above distances the ground-wave component is just 3 dB higher than the sky-wave component.

2.5 For the FC stations in the bands around 500 kHz, only one A1A assignment per coast station shall be accepted; however, the administration concerned shall be informed that it may use A1A emissions on F1B assignments and vice versa:

The Bureau will use the same approach as that used in the establishment of the Plan at RARC-MM-R1, taking account of the Note on page 14 of the Final Acts of RARC-MM-R1, which stipulates that "in the frequency bands between 415 and 526.5 kHz, A1A emissions may be used on F1B assignments and vice versa".

3 Treatment of the frequency assignment notices to transmitting and receiving stations in the bands governed by the GE85-MM-R1 Agreement (for administrations considered parties to the Agreement)

3.1 Treatment of the frequency assignment notices to transmitting and receiving stations in the planned services in the bands covered by frequency assignment plans

3.1.1 The treatment of the frequency assignment notices related to transmitting and receiving stations of the planned services in the frequency bands covered by the frequency assignment Plans (namely, 415-435 kHz, 435-453 kHz, 460.5-495 kHz, 505-526.5 kHz, 1 606.5-1 621 kHz, 1 635-1 800 kHz and 2 060-2 156 kHz), and notified by administrations considered parties to the Agreement, shall follow the procedure contained in Article 5 of the Agreement.

3.1.2 The regulatory examination of these notices shall consist in verifying their conformity with the Table of Frequency Allocations and with the provisions of Nos. **52.10**, **52.177**, **52.183**, **52.184** to **52.186** and **52.202**. The provisions of No. **5.81** and Appendix **13**, § 15 1), Part A2, shall be taken also into account, until 1 February 1999.

3.1.3 The examination for conformity with the Plan shall be based on a check of all the data contained in the appropriate frequency assignment Plan and of the following additional items:

3.1.3.1 Since the FC/MS Plans do not contain any value concerning the necessary bandwidths, the following values will be used when checking the conformity of the notified assignments with the Plans:

– *for A1A and F1B*: 500 Hz.

The Board considered in this respect that 500 Hz bandwidth represents, for A1A emissions, a speed of 100 words per minute, more than adequate for manual telegraphy. For F1B emissions, this limit covers the standard 304 Hz bandwidth (Recommendations ITU-R M.476-5, ITU-R M.493-9, ITU-R M.625-3 and ITU-R SM.1138).

– *for J3E*: 2 800 Hz, in accordance with No. **52.177**.

3.1.3.2 The notified bandwidth for the ALRC assignments shall be checked with respect to the values contained in the Plan.

3.1.4 In accordance with Resolution 3 (MM), the Board carried out a compatibility analysis in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz and 2 045-2 160 kHz, taking account of the non-planned services (see ex-IFRB Circular-letters Nos. 762 and 890 of 20 October 1988 and 19 December 1991, respectively). The results of the compatibility analysis shall be taken into account.

3.2 Treatment of the frequency assignment notices to transmitting and receiving stations of the planned services in the bands covered by frequency allotment Plans

The treatment of the frequency assignment notices related to transmitting and receiving stations of the planned services in the frequency bands covered by the frequency allotment Plans (namely, 456-457 kHz, 459-460 kHz, 1 621-1 625 kHz and 2 156-2 160 kHz), notified by the administrations considered parties to the Agreement, shall be subject to the examination of conformity with the Allotment Plan, as contained in Annex 1 to Resolution 5 (MM), taking into account the following criteria:

– the assigned frequency pairs shall coincide with those of the allotment Plans contained in Annexes to Resolution 5 (MM);

– the geographical coordinates of the transmitting/receiving station shall be situated within the respective country;

– the notified service range shall not exceed the limits of 500 km for the band 435-526.5 kHz, and of 400 km for the band 1 606.5-2 160 kHz (these limits were used in the establishment of the frequency assignment Plans);

– the notified nature of service shall be CP;

– the notified class of emission shall be F1B or J2B, and the notified bandwidth shall not exceed 304 Hz.

3.3 Treatment of the frequency assignment notices to transmitting and receiving stations in the non-planned services

The treatment of the frequency assignment notices to transmitting and receiving stations in the non-planned services, from administrations considered parties to the Agreement, shall follow the procedure contained in Article 6 of the Agreement. In the analysis of the results of the technical examination with respect to notices of the administrations considered parties to the Agreement, only the day-time results will be taken into account (sky-wave shall be disregarded).

_____

PART A9

Rules concerning the Regional Agreement concerning the planning of the maritime radionavigation service (radiobeacons) in the European Maritime Area (Geneva, 1985) (GE85-EMA)

1 Status of the administrations with respect to the Agreement

1.1 In the transitional period between the establishment of the Agreement (13 March 1985) and its entry into force (1 April 1992), and after consultation of the administrations of the countries situated in the European Maritime Area, the Board introduced and used the concept of "parties to the Agreement" for the purposes of the application of the procedures and associated technical criteria set up in Articles 4, 5 and 6 of the GE85-EMA Agreement for the modifications to the Plan and for notifications, examination and recording of frequency assignment notices to stations in the planned (maritime radionavigation) or non-planned (aeronautical radionavigation) services. "Parties to the GE85-EMA Agreement" were considered to be all administrations having territories in the planning area (i.e. in the European Maritime Area) that were not opposed to this concept. Non-parties to the Agreement were those administrations that declared formally that they did not wish to be considered "parties to the Agreement", as well as non-participating administrations without Plan assignments that had not declared formally that they intended to become "parties to the Agreement".

1.2 After the entry into force of the Agreement, and pending further consultation with the administrations concerned, the Board decided to maintain this concept. Therefore, the Bureau will consider parties to the GE85-EMA Agreement all administrations having territories in the European Maritime Area, with the exception of the following administrations: AND, BIH, BLR, CVA, IRQ, ISL, LIE, LUX, MDA, MKD, SMR, SUI and SVN, which are considered non-parties to the Agreement, until such a time as they accede formally to the Agreement.

2 Application of No. S5.73 and of Resolution 602 (Mob-87) in the context of the GE85-EMA Agreement

2.1 Pursuant to the decisions of the Regional Administrative Conference for the planning of the maritime radionavigation service (radiobeacons) in the European Maritime Area, Geneva, 1985 (referred to hereafter as RARC GE85-EMA, Geneva, 1985), and in order to enable the treatment of the notices submitted under Resolution 1 of the Conference, the Board prepared the provisional Rule of Procedure No. H42 concerning the application, by the administrations parties to the Agreement and by the ex-IFRB, of the transitional procedure set forth in Annex to Resolution 1 (EMA), in the period preceding the entry into force of the Agreement (1 April 1992).

2.2 After the publication of Rule No. H42 (see ex-IFRB Circular-letter No. 828 of 5 July 1990) several administrations indicated that they intend to use the maritime radiobeacons in this band for transmission of supplementary navigational data to ships, including differential corrections of other radionavigation systems (e.g. Omega, GPS, Loran-C).

2.3 The Board reviewed the matter having particularly in mind the provisions of No. **S5.73** of the RR, Resolution **602 (Mob-87)**, and Note 2 to Annex 1 of the Agreement. Rule No. H42(Rev.) was published with the ex-IFRB Circular-letter No. 913 of 30 September 1992 on this subject. The proposed approach was not opposed and the Board decided to maintain it (see also Part A1 of the Rules of Procedure concerning the application of No. **5.73**).

3 Treatment of the frequency assignment notices related to radiobeacon stations in the maritime radionavigation service from administrations considered party to the Agreement (Article 5 of the Agreement)

The frequency assignment notices related to assignments to radiobeacon stations of the maritime radionavigation service in the frequency band 283.5-315 kHz, situated within the European Maritime Area, and notified by administrations considered party to the Agreement, shall be subject to the following examinations.

3.1 Regulatory examination (No. 11.31 and related provisions)

The regulatory examination of these notices shall consist in verifying their conformity with the Table of Frequency Allocations, including the check whether the notice is related to a radiobeacon station.

3.2 Examination of conformity with the Agreement

The examination for conformity with the Plan shall be based on a check of all the data contained in the Plan.

As Note 2 in Annex 1 to the GE85-EMA Agreement stipulates that “the technical parameters also provide for composite emission using both A1A and F1B emissions”, the frequency assignment will be considered as being in conformity with the Agreement as long as these two classes of emission (e.g. A1A and F1B) are notified and the notified bandwidth does not exceed 500 Hz. Moreover, and in view of the results of the studies in the Radiocommunication Study Groups in response to Resolution 3 (EMA), the Board decided that the class of emission G1D (i.e. class of emission corresponding to MSK techniques) would be also receivable.

4 Treatment of the notices intended for modification to the Plan governed by the GE85-EMA Agreement (Article 4 of the Agreement)

4.1 Modifications to the Plan shall be considered receivable from those administrations which are considered parties to the Agreement (see § 1.2 above), provided that the subject stations are situated within the European Maritime Area.

4.2 The treatment of notices intended for modifications to the Plan shall follow the following procedures:

4.2.1 The technical principles to be used in the procedure for the modifications of the Plan shall be those contained in Annexes 2 and 3 to the GE85-EMA Agreement. The computer program used at RARC-GE85-EMA shall be used for this purpose, suitably modified to take account of the digitized coastlines;

4.2.2 The following items shall be checked with a view of determining the conformity with the technical principles of the Agreement:

– conformity of the assigned frequency with the channelling arrangement contained in Annex 2 to the GE85-EMA Agreement; however, the Bureau shall not apply the provisions of Note 1 of that Annex;

– conformity of the notified class of emission and bandwidth with the permissible values (A1A, F1B, G1D; up to and including 500 Hz);

– conformity of the notified service range with the limits established at the Conference.

The administrations shall notify only the required service range, which serves as a basis for determining the power value necessary to ensure the minimum field strength at the edge of the service area. The administration which notifies a service range in excess of 280 km shall be requested to reduce it to a value below 280 km, since the propagation criteria, used in the preparation of the Plan, disregard the sky-wave, which, however, occurs at night and may cause bearing errors at long ranges (see Note 1 in Annex 1 to the Final Acts).

4.3 In conducting the examinations for identifying the administrations whose assignments may be affected by a modification to the Plan, the following criteria shall be used:

4.3.1 the relevant Technical Standards contained in Section B4 of the Rules of Procedure with respect to the frequency assignments to stations in the aeronautical radionavigation service, recorded in the Master Register on behalf of parties to the Agreement;

4.3.2 the criteria contained in Annex 3 to the Agreement with respect to the assignments which are in accordance with the Agreement, including those proposed modifications to the Plan for which the Article 4 procedure is in progress.

NOTE 1 – The Technical Standards contained in Section B4 of the Rules of Procedure and the criteria of Annex 3 to the Agreement differ in the following:

– the Technical Standards contained in Section B4 of the Rules of Procedure take account of the sky-wave, while the Annex 3 criteria disregard the sky-wave;

– paragraph 1.4 of Annex 3 and Technical Standard A-3 contained in the Rules of Procedure contain different values concerning the discrimination factors (relative adjacent-channels protection ratios).

5 Treatment of the frequency assignment notices to stations in the aeronautical radionavigation service (Article 6 of the Agreement)

The treatment of the frequency assignment notices related to stations in the aeronautical radionavigation service, from administrations considered party to the Agreement, shall follow the procedure contained in Article 6 of the Agreement. The Technical Standards contained in Section B4 of the Rules of Procedure shall be used in these examinations.

_____

PART A10

Rules concerning the Regional Agreement relating to the planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (Geneva, 2006) (GE06)

1 Receivability of notices

In the application of the Regional Agreement relating to the planning of the digital terrestrial broadcasting service in Region 1 (parts of Region 1 situated to the west of meridian 170° E and to north of parallel 40° S, except the territory of Mongolia) and in the Islamic Republic of Iran, in the frequency bands 174-230 MHz and 470-862 MHz (Geneva, 2006), the Bureau will apply the procedures contained in Articles 4 and 5 of the Agreement and associated technical criteria with respect to the notices from all administrations having territories in the planning area, provided that the station concerned (or the allotment area concerned) is situated within the planning area.

(ADD RRB16/21)

2 Protection of a Plan entry from interference caused by a Plan entry of another Administration and with which the coordination procedure was not triggered in the application of Article 4 of the GE06 Agreement

1) During the RRC-06 Conference, a compatibility analysis for all requirements (allotments and assignments) was carried out in two directions (transmission and reception). When requirements were not compatible with each other in one or both directions, the administrations concerned had to resolve the incompatibility. This ensured that all entries in the Plan, as adopted by RRC-06, were evaluated and agreed as compatible by the concerned administrations.

2) Since then, new or modified assignments/allotments were included in the Plan following the successful application of the procedure of Article 4 of the GE06 Agreement. This procedure however, considers administrations as affected by a proposed modification only when the limits given in Section I of Annex 4 of the Agreement are exceeded. This approach was designed to trigger the need to coordinate with the potentially affected administration(s) in order to ensure that the proposed modification will not affect the ability of other administrations to receive broadcasting emissions on any channel over their territory. Nonetheless, the Agreement does not address the interference that a proposed modification will receive from assignments previously recorded in the Plan.

3) In the application of Article 4 of the GE06 Agreement, the Bureau received a request from an administration to be included in the list of administrations affected by a proposed modification to the Plan because that modification might be affected by that administration's own entries in the plan. However, since the proposed modification did not exceed the limits of Annex 4 of the GE06 Agreement, the Bureau could not accede to this request.

4) This situation highlights that the procedures of the GE06 Agreement do not require, prior to its inclusion in the Plan, to coordinate the protection of a proposed modification to the Plan from the interference that may be caused to it by entries already recorded in the Plan.

5) The Board considered that a general principle of the Radio Regulations is that the status, i.e. the rights for transmission or the rights for protection of new assignments are derived from the successful application of the relevant procedures (See RR No. **8.3**).

6) In the absence of a relevant procedure in the GE06 Agreement to acquire such rights, the Board considered that, unless otherwise agreed between the administrations concerned, an assignment in conformity with the Plan and recorded in the Master Register cannot claim protection from assignments that are in conformity with the Plan, irrespective of whether or not the corresponding Plan entries have any Plan remarks (R2, R3), corresponding to an entry which was recorded in the Plan prior to the entry corresponding to the assignment for which protection is claimed.

7) The Board noted that several provisions of the GE06 Agreement indicate that, after successful application of the procedure, the new entry will have the same status as the other entries in the Plan. Consistent with the above considerations, the Board is of the view that all entries in the plan involve a right for transmission for the corresponding assignments and a right for protection of these assignments against subsequent entries in the plan. Conformity with the plan does not involve the right for protection against previous entries in the plan.

8) The Board also noted that several administrations had communicated to the Bureau proposed modifications to the GE06 Plan on the basis of low power stations located near the border of their territory in a way that does not trigger the limits of Annex 4 of the GE06 Agreement. Consistent with the above considerations, the Board is of the view that the inclusion in the Plan and/or the MIFR of the corresponding assignments does not provide any additional rights to protect these assignments from assignments previously included in the Plan[1] as protection from these assignments cannot be obtained from application of Article 4 if the limits in Annex 4 are not exceeded.

[1] Similarly no protection should be claimed from assignments stemming from those allotments that were previously recorded in the Plan.

9) The Board also noted that this Rule of Procedure does not require any modification to the current practice by the Bureau in processing notices for the application of Articles 4 and 5 of the GE06 Agreement. Similarly this Rule of Procedure does not apply to other primary terrestrial services.

10) This ROP is applicable immediately, irrespective of the date of entry in the Plan/MIFR of the concerned assignments/allotments.

Art. 4

Procedure for modifications to the Plans and procedure for coordination of other primary terrestrial services

4.1.1

1) This provision specifies the various cases envisaged in the procedure for modifications to the Plans. Essentially, the procedure provides a phased approach in the case when an administration wishes to add to the digital Plan an allotment and assignment(s) stemming from that allotment: the administration firstly needs to successfully complete the Plan modification procedure for the allotment and, once the allotment is entered in the digital Plan, the administration could apply the procedure referred to in No. 4.1.1 *c)*. Therefore, the Board concluded that there was no possibility for simultaneous application of the procedure for adding an allotment to the Plan and the procedure of adding assignment(s) stemming from that allotment and instructed the Bureau to act accordingly.

2) In the case of proposed changes to the characteristics of an allotment already included in the Plan, which also comprises one or several assignments stemming from the allotment already included in the Plan, the Bureau will follow the following procedure:

– in the application of No. 4.1.1 *a)*, the Bureau will publish the characteristics of the modified allotment; to this end, the Bureau will include such notes in the concerned Special Section, as may be appropriate, to indicate the applicable situations, notably: (1) that the Plan contains one or more assignments stemming from the original allotment which would be reviewed after the successful completion of the Plan modification procedure in respect of the concerned allotment, and (2) that the administration concerned announced a submission of other assignments stemming from the modified allotment, which would be examined after the successful completion of the Plan modification procedure for the modified allotment and appropriately reflected in another Special Section;

– until the successful completion of the Plan modification procedure for the modified allotment, the Bureau will retain the previous allotment (together with the assignments stemming from that allotment);

– after the successful completion of the Plan modification procedure for the modified allotment, the Bureau will include it in the Plan (as a replacement for the previous allotment) and will examine all the assignments stemming from the previous allotment, if any, with respect to their conformity with the replacement allotment. If the assignments are in conformity with the replacement allotment, they will be maintained in the Plan; otherwise they will be deleted from the Plan and the administration concerned will be informed accordingly. The notifying administration, if it so wishes, may submit other assignment(s) stemming from the modified allotment under provision No. 4.1.1 *c)*; upon receipt of these other assignments stemming from the modified allotment, the Bureau will examine them under No. 4.1.2.7 and will act accordingly.

Art. 5

Notification of frequency assignments

5.1.2

1) This provision deals with the examination by the Bureau of the assignment with respect to No. **11.34** of the Radio Regulations (RR), i.e., its conformity with the Plans and the associated provisions. For the case of an analogue television assignment, sub-paragraph a) applies and it requires that the conditions of Section II of Annex 4 be met. However, Section II of Annex 4 deals only with the examination of conformity with the digital Plan entry. The Board concluded that, by analogy with § 4.2 of Section II of Annex 4 (dealing with digital plan entry comprising one assignment only), the notified frequency assignment to an analogue television assignment will be considered as compliant with the analogue television Plan if it fulfils the conditions specified in § 4.2 of Section II of Annex 4, as adapted to the case of analogue television assignment.

2) In addition, the Board concluded that the analogue television assignments in the bands 174-230 MHz (for Morocco 170-230 MHz) and 470-862 MHz, which were recorded in the Master Register at the time of the establishment of the GE06 analogue Plan with favourable findings under No. **11.34** of the RR, shall retain such favourable findings as long as their characteristics and the characteristics of the equivalent entry in the analogue television plan of the GE06 Agreement remain unchanged.

5.1.2 *e)*

1) If the digital Plan entry bears a remark with respect to assignments in the analogue Plan or to existing assignments to other primary terrestrial services, the finding of the notified frequency assignment referring to this digital Plan entry and being within the scope of provision No. 5.1.2 *e)* shall be favourable if all the necessary agreements have been obtained and if the conditions specified in Section II of Annex 4 are met.

2) If the digital Plan entry bears a remark with respect to entries in the digital Plan, the finding of the notified frequency assignment referring to this digital Plan entry and being within the scope of provision No. 5.1.2 *e)* shall be favourable if the notifying administration states that all conditions associated with the remark are fully met, and the conditions of Section II of Annex 4 are met.

3) For the case of a T-DAB frequency assignment, notified under No. 5.1.2 *e)* of the GE06 Agreement, using a DVB-T single assignment Plan entry in the digital Plan, if the notified frequency assignment uses the same part of the spectrum of the DVB-T Plan assignment more than once, the finding of the notified assignment will be unfavourable and the notice will be returned to the notifying administration.

4) For the case of a T-DAB frequency assignment, notified under No. 5.1.2 *e)* of the GE06 Agreement, using a DVB-T Plan (assignment or allotment) entry, when examining if the conditions in Section II of Annex 4 of the GE06 Agreement are met, the Bureau will augment the notified e.r.p. of the T-DAB assignment by a corresponding correction factor indicated in the table below to take into account the difference in spectral power densities as a result of the different bandwidths of the T-DAB assignment and the DVB-T Plan entry. The values of the correction factor are calculated as the ratio of the digital television broadcasting Plan entry bandwidth and the necessary bandwidth of the notified assignment.

Correction factor to be applied to the e.r.p.
of notified T-DAB assignments

	DVB-T Plan entry channel arrangement	
	7 MHz	8 MHz
Correction factor	6.371 dB	6.950 dB

NOTE − If there is one or more DVB-T Plan entries using system variant of 64-QAM 7/8, located within 1000 km (the limit of the propagation model described in Annex 2 of the Agreement) of the transmitter site of the notified T-DAB assignment, a correction factor of 8.1 dB will be used.

5.1.3

1) This provision deals with notification of a digital broadcasting entry in the Plan with characteristics different from those appearing in the Plan. The definition of the "digital Plan entry", as contained in No. 1.3.18 of Annex 1 to the GE06 Agreement, includes both assignments and allotments. However, and in view of the formulation of No. 5.1 of the GE06 Agreement, the Board concluded that, in the application of No. 5.1.3 of the GE06 Agreement, administrations can notify only frequency assignments.

2) For the examination of the conformity of the frequency assignment in the broadcasting service or in other primary services, notified under No. 5.1.3 of the GE06 Agreement, with the corresponding "digital entry in the Plan", the Bureau would need to ascertain that the notified frequency assignment does not exceed the interference potential of the corresponding digital broadcasting entry in the Plan. Provision No. 5.1.3 indicates only the condition that the peak power density of the notified frequency assignment, in any 4 kHz, shall not exceed the spectral power density in the same 4 kHz of the digital broadcasting entry in the Plan. Item 5.6 of Table 3 of Annex 3 to the GE06 Agreement indicates that this is the spectral power density delivered to the antenna transmission line. The Board understands that the maximum spectral power-density (dB(W/Hz)) (Item 8AC, Annex 1 of Appendix **4** (Rev.WRC-07)) averaged over the worst 4 kHz band is based on the maximum effective radiated power. The Bureau will take into account the spectral power-density of the notified assignment by first calculating the equivalent maximum effective radiated power (e.r.p.) of the notified frequency assignment to which is applied a correction factor that takes into account the difference in spectral power-densities as a result of the different necessary bandwidths of the frequency assignment and the corresponding Plan entry. The equivalent effective radiated power is derived from the necessary bandwidth and the peak spectral power-density of the notified assignment and the bandwidth of the digital broadcasting Plan entry, as given in the equation below:

$$e.r.p._{eq,\ max} = SPD_{max} + 10\log_{10}\left(BW_{NA}\right) + 10\log_{10}\left(\frac{BW_{PE}}{BW_{NA}}\right) \qquad \text{dBW}$$

where:

SPD_{max}: maximum spectral power density (dB(W/Hz)) (Item 8AC, Annex 1 to Appendix **4** (Rev.WRC-07)) averaged over the worst 4 kHz band and based on the maximum effective radiated power

BW_{NA}: notified necessary bandwidth (Hz) (Item 7AB, Annex 1 to Appendix **4** (Rev.WRC-07));

BW_{PE}: bandwidth (Hz) for the relevant system of the digital broadcasting Plan entry. For DVB-T Plan entries the bandwidth is 7.61×10^6 Hz in the case of 8 MHz systems and 6.66×10^6 Hz for 7 MHz systems, and for T-DAB Plan entries, 1.536×10^6 Hz.

In order to ascertain that the field strength produced by the notified frequency assignment(s), in any direction, does not create more interference than the corresponding digital broadcasting Plan entry, the Bureau would need complete characteristics of the notified frequency assignment, such as geographical information (effective antenna heights in 36 azimuths) and transmission information (polarization, e.r.p., including antenna attenuation in the horizontal and vertical planes if, for example, the digital broadcasting Plan entry has a directional antenna pattern). Therefore, when notifying frequency assignments under No. 5.1.3 of the GE06 Agreement, administrations need to supply all the relevant characteristics that are necessary, for the Bureau, to ascertain that the notified frequency assignment is within the envelope of the digital broadcasting Plan entry.

3) If the digital Plan entry bears a remark with respect to assignments in the analogue Plan or to existing assignments to other primary terrestrial services, the finding of the notified frequency assignment referring to this digital Plan entry and being within the scope of provision No. 5.1.3 shall be favourable if all the necessary agreements have been obtained and if the results of all the required examinations are favourable.

If the digital Plan entry bears a remark with respect to entries in the digital Plan, the finding of the notified frequency assignment referring to this digital Plan entry and being within the scope of provision No. 5.1.3 shall be favourable if the notifying administration states that all conditions associated with the remark are fully met and if the results of all the required examinations are favourable.

Art. 12

Entry into force, duration and provisional application of the Agreement

12.6

Footnote 7, associated with this provision, lists the countries for which the transition period for the VHF band (174-230 MHz; for Morocco: 170-230 MHz) shall end on 17 June 2020 at 0001 hours UTC. The same footnote further specifies the option, for the administrations which were not present at RRC-06 and whose names are listed in footnote 7, of selecting another date for the end of the transition period in the VHF band (notably 17 June 2015 at 0001 hours UTC), provided that these administrations communicate such a decision to the Bureau within a 90-day period from the end of RRC-06.

After the end of RRC-06, the Bureau contacted the administrations of the Member States listed in footnote 7 of this provision which were not present at RRC-06 and informed them of the decisions of RRC-06 in this respect. No administration of the Member States concerned informed the Bureau, within the specified period, that it selected 17 June 2015 for the end of the transition period. Therefore, for all countries listed in footnote 7, the transition period for the VHF band shall end on 17 June 2020 at 0001 hours UTC.

Annex 2

Technical elements and criteria used in the development of the Plan and the implementation of the Agreement

Appendix 2.1
Section A2.1.8.1 (ADD RRB13/64)

This Section deals with the mixed path interpolation factor *A* used for calculating the field strength for path crossing multiple propagation zones. The interpolation factor *A* is a function of basic interpolation factor A_0 whose value is determined by reading from the curve in Figure A.2.1-2. This may result in different interpretations of A_0 values. Such situation could lead to different field strength values calculated for path crossing multiple propagation zones and therefore different list of administrations potentially affected by proposed modifications to the Plans. Therefore, the Board concluded that the basic interpolation factor $A_0 (F_s)$ as shown in Fig. A.2.1-2 shall be calculated using the following formula:

$$A_0(F_s) = 1 - (1 - F_s)^{2/3}$$

The application of this formula is consistent with the method adopted by RRC-06 Conference, recommended in Recommendation ITU-R P.1546 and currently used by the Bureau in implementing the GE06 Agreement.

Appendix 3.1
Table A3.1-3

This Table also applies to the geographical areas XGZ and XWB.

Appendix 3.1
Table A3.1-8

This Table also applies to the geographical area AOE, except channels 4 and 5.

Appendix 3.3

Section A.3.3.4 of this Appendix provides information on the protection ratios for analogue television. However, this section does not provide any information on the protection ratios for the case when the analogue television is interfered with by assignments in other primary terrestrial services. Calculations requested in application of § 4.2.4.11 and 4.2.4.12 of the Agreement shall be made by using Recommendation ITU-R SM.851-1, for the cases covered by this Recommendation. For the other cases not covered by that Recommendation, the pertinent ITU-R Recommendations may be used.

Annex 3
Table 3

Data for assignments to stations of other primary terrestrial services

No. 7.1 of this Table specifies that, for the application of Article 4 of the Agreement, the regular hours (UTC) of operation of the frequency assignment (cross-referenced as item 10B in Appendix **4** of the RR) are mandatory if used as a basis to effect coordination with another administration (character "C"). On the other hand, this data item is indicated as mandatory for the application of Article 5 of the Agreement (character "X"). Therefore, for the examinations under § 5.2.2 of the Agreement, where the regular hours of operation are mandatory, the Bureau needs to ascertain that the notified hours of operation are compliant with those resulting from the successful application of the procedure contained in § 4.2 of the Agreement. In view of the above, the Board concluded that the item "regular hours (UTC) of operation of the frequency assignment" would need to be considered as mandatory for all submissions under Article 4 of the Agreement for assignments to stations of other primary terrestrial services.

Annex 4

Section I: Limits and methodology for determining when agreement with another administration is required

2.1

Step 3 of this Section specifies that any assignment in the other primary service is selected for consideration, if it belongs to an administration within the 1 000 km contour, provided that the assignment is contained in the List or the coordination procedure under Article 4 of the GE06 Agreement for its inclusion into the List has already been initiated. The Board concluded that Bureau shall take into account only those eligible frequency assignments in other primary services that have frequency overlap with relevant broadcasting assignment/allotment (i.e., the proposed modification to the Plan).

2.2

This Section specifies the general methodology for constructing the coordination contours for the application of the coordination procedure referred to in § 4.2 of the Agreement. Given the fact that the frequency assignments in the other primary service (OPS) include transmitting and receiving stations, the methodology takes account of the impact of the transmitting station in the OPS to the broadcasting service, as well as the likely impact of the broadcasting service to the receiving stations in the OPS. Therefore, this Section specifies the need for constructing separate coordination contours for the same assignment: for the transmitting stations and for the receiving stations. This Section further specifies that, for identification of affected administrations, the larger of the two contours is to be taken into account.

Given the variety of situations which could be covered by assignments in OPS, there may be situations where the constructed coordination contours for the transmitting stations and for receiving stations of the same assignment are not overlapped or partially overlapped. Therefore, the Board decided that for the cases where the coordination contours for the transmitting stations and for receiving stations of the same assignment are not overlapped or partially overlapped, the combined result of the two coordination contours is to be taken into account for the identification of affected administrations.

5.1.2

This Section indicates Tables A.1.2 to A.1.8 of Appendix 1 to this Section as tables that contain the coordination trigger field-strength values for protection of other primary terrestrial services, applying the procedure of Article 4 of the GE06 Agreement (construction of coordination contours). However, § A.2 to A.4 of Appendix 1 to Section I, which include Tables A.1.2 to A.1.8, do not provide information on the trigger values to be used for protection of other primary terrestrial services from analogue television assignments. Such values are necessary for the application of the procedure of Article 4 of the GE06 Agreement (see § 4.1.2.8 *a)* and 4.1.2.3). Calculations requested in application of § 4.1.2.8 *a)* of the Agreement shall be made using the pertinent ITU-R Recommendations and the indications therein. Recommendations ITU-R F.758-4, ITU-R F.759, and ITU-R SM.851-1 are to be used in this regard. As Recommendation ITU-R F.758-4 does not contain information relating to

analogue systems in the fixed service, and given the indications therein, the Board concluded that version ITU-R F.758-2 shall be used in the case of analogue systems in the fixed service. For cases not covered by any ITU-R Recommendation, the Board concluded that the calculations shall be made using the trigger values for DVB-T in combination with the approach of relative protection ratios for analogue television as described in Recommendation ITU-R SM.851-1.

Therefore, trigger values to be used for protection of other primary terrestrial services from analogue television assignments for cases not covered by any ITU-R Recommendation shall be calculated using the following formula:

$$F_{trigger\ ATV} = F_{trigger\ DVB\text{-}T} - RPR$$

where:

$F_{trigger\ ATV}$: trigger value for analogue television

$F_{trigger\ DVB\text{-}T}$: trigger value for digital television

RPR: relative protection ratio in accordance with Recommendation ITU-R SM.851-1.

5.2.2

1) For carrying out the calculations referred to in this provision, the Bureau will assume that the reference broadcasting station referred to in this provision (with a maximum radiated power of 53 dBW, maximum effective antenna height of 600 m, mixed polarization) operates in DVB-T system with 8 MHz bandwidth in the UHF band and with 7 MHz bandwidth in the VHF band.

2) The maximum coordination distance for aircraft receivers is to be set to 420 km (calculated as a geometrical contour around the service area of the receiving aeronautical station), irrespective of the indications in this provision, given the indications in other relevant provisions (e.g., Nos. 5.1.2 and 5.2.1 in Section I of Annex 4).

3) Given the formulation of § 4.5, which describes the basic assumptions for the construction of the coordination contours for mobile (except aeronautical mobile) stations, the RRB instructed the Bureau to implement the following methodology for the construction of the coordination contour for a receiving station in the mobile (except aeronautical mobile) service intended to operate in a specified service area:

a) Determine the centre of gravity of the specified service area.

b) Determine the 360 points on the boundary of the specified service area ("boundary points") at which the field strength from the reference broadcasting station is evaluated. These boundary points are determined as intersection points of the boundary of the service area and 360 radials centred around the centre of gravity of the specified service area[1]. In case of multiple intersections of a given radial with the service area, the "boundary point" would be the intersection point which is furthest situated from the centre of gravity.

c) Determine the 360 points on the 1 000 km geometrical contour ("initial reference transmitter points") at which the reference broadcasting station is first located. These initial reference transmitter points are determined as intersection points of the 1 000 km geometrical contour around the specified service area and 360 radials centred around the centre of gravity of the specified service area.

d) Determine the coordination distance for each radial as follows:

1) place the reference broadcasting transmitter at the initial reference transmitter point for this radial and calculate the field strength from this location at all boundary points;

2) if the field strength from the reference broadcasting station exceeds or is equal to the trigger field strength at any of the "boundary points", then the initial reference transmitter point determines the coordination distance for this radial;

3) if the field strength from the reference broadcasting station is less than the trigger field strength at all "boundary points", then the reference broadcasting station is moved along the radial in 10 km steps towards the centre of gravity of the service area until the field strength, produced from this new location, exceeds or is equal to the trigger field strength at any of the "boundary points". The location of the reference broadcasting station, from which the reference broadcasting station produces a field strength which exceeds or is equal to the trigger field strength at any of the "boundary points", determines the coordination distance for this radial.

4) In the case of a receiving airborne station in the aeronautical mobile service or in aeronautical radionavigation service, the Bureau will use the same methodology as the one described in § 3 above, by replacing the 1 000 km geometrical contour with 420 km geometrical contour, in accordance with § 2 above.

---

[1] The service area does not extend beyond the national territory of the administration concerned.

PART B

SECTION B1

(Not used)

PART B

SECTION B2

(Not used)

PART B

SECTION B3

Rules concerning methodology for calculation of probability of harmful interference between satellite networks (*C*/*I* ratios) (MOD RRB16/21)

1 Introduction

In application of the provisions of No. **11.32A** when, as a consequence of continuing disagreement (Nos. **9.63** to **9.65**) between two (or a limited number of) administrations, the notifying administration requests the Radiocommunication Bureau, an examination of the probability of harmful interference under No. **11.32A** is carried out. For the calculation method and criteria to be used for the interference assessment as well as the Findings to be formulated with respect to coordination of their networks under No. **9.7**, the Bureau shall proceed as follows.

2 Probability of harmful interference

The Bureau, in performing its mandatory tasks relating to the application of the above-mentioned provisions, shall proceed as follows:

2.1 Recommendation ITU-R S.741-2, shall be used to examine the subject assignments with respect to the provisions of No. **11.32A**.

2.2 The Bureau shall use the mutually agreed criteria provided by the administrations concerned for accepted interference in the format appearing in Table 2 of Recommendation ITU-R S.741-2, or, in the absence of such information, the Bureau shall use the single entry limits defined in Table 2 of § 3.2 below, which is derived from Table 2 of Recommendation ITU-R S.741-2, together with the information submitted in accordance with Appendix **4**.

2.2.1 In the case where this information is provided by the administrations concerned:

a) The probability of harmful interference is considered to be negligible if the *C*/*I* calculation shows that the applicable criteria for a particular examination between two networks concerned are satisfied. The finding in Column 13A3 shall thus be favourable.

b) The probability of harmful interference is considered not to be negligible, if the *C*/*I* calculation shows that the applicable criteria for a particular examination between two networks concerned are not satisfied. The finding in Column 13A3 shall be unfavourable.

2.2.2 In the case where this information is not provided by the administrations concerned:

a) The probability of harmful interference is considered to be negligible if the interference is less than or equal to the single-entry interference limits indicated in Table 2 of § 3.2 below. The finding in Column 13A3 shall be favourable.

b) The probability of harmful interference is considered not to be negligible, if the interference is greater than the single-entry interference limits indicated in Table 2 of § 3.2 below. The finding in Column 13A3 shall be unfavourable.

3 Methodology

To perform the above-mentioned compatibility analysis the following methodology will be used.

The methodology is based on Recommendation ITU-R S.741-2. A set of carrier-to-interference (*C*/*I*) calculations, using power values submitted by notifying administrations in items C.8.a.1/C.8.b.1 (i.e. the maximum value of the peak envelope power/the total peak envelope power) of Appendix **4** for both wanted and interference carrier levels, are performed following the geometrical considerations of Recommendation ITU-R S.740 and an interference adjustment factor is calculated as shown below to take into consideration the frequency offset situations as well as the difference in the bandwidths between the wanted and the interfering carriers. These *C*/*I* values are then compared with the required *C*/*I* values derived from the criteria appearing in Table 2 of § 3.2 below which contains a set of single entry interference criteria to protect different types of carriers. In the case of required *C*/*I* values agreed by administrations and communicated to the Bureau, the calculated *C*/*I* values will be compared with these mutually agreed *C*/*I* values. (MOD RRB16/21)

Thereafter, a set of margins *M* (*C*/*I* calculated – *C*/*I* required) are derived. It should be noted that to evaluate the *C*/*I* required, a set of carrier-to-noise ratio (*C*/*N*) objectives are used (performance) and a *K* value, generally of either 12.2 or 14.0 dB, is added in accordance with the above-mentioned Table 2 of § 3.2 below. It should also be noted that these values correspond to a maximum permissible interference of 6% or 4% of the total noise power *N* of the protected assignments (performance). (MOD RRB16/21)

In order to identify *C*/*I* required to be used for calculations, two scenarios are analyzed:

I. The assessment of interference caused by incumbent networks into the network submitted for the examination under No. **11.32A**:

In this case, to calculate the required *C*/*I* of the examined network, the *C/N* objective of the network (see item C.8.e.1 of Annex 2 of Appendix **4**) submitted by the notifying administration for examination under No. **11.32A** is used.

II. The assessment of interference caused by the network submitted for examination under No. **11.32A** into incumbent networks:

In this case, to calculate the required *C*/*I* of each of the incumbent networks, the lower value between the submitted *C/N* objective (see item C.8.e.1 of Annex 2 of Appendix **4**) and the calculated *C*/*N* (using power values submitted by the notifying administration in items C.8.a.1/C.8.b.1 of Appendix **4**) of the incumbent network is used.

If no *C*/*N* objectives are submitted by notifying administrations (since this was not required in the past), the calculated *C*/*N* values are used. (ADD RRB16/21)

In respect of *C*/*N* ratio calculations used to define single entry protection criteria (*C*/*I* required), Table 2 of Recommendation ITU-R S.741-2 (see below) defines "*C*/*N* " as a "ratio (dB) of carrier to total noise power which includes all internal system noise and interference from other systems". Therefore, and to comply with this definition, an additional margin of 0.46 dB for cases involving wanted analogue TV emissions and 1.87 dB for other wanted emissions will be added to the margins calculated on the basis of the internal system noise values provided by the concerned administrations. Attachment 2 contains the calculation methodology used for deriving the above-mentioned additional margin. (MOD RRB16/21)

3.1 Interfering cases

Table 1 below presents a summary of the different interfering situations to be dealt with when performing *C*/*I* calculations.

TABLE 1

Interference cases

Desired / **Interfering**	**Digital**	**Analogue (TV-FM)**	**Analogue (other than TV-FM)**	**Other**
Digital	Use *C*/*I* plus interference adjustment factor[1] (I)	Use *C*/*I* plus interference adjustment factor[1] (II)	Use *C*/*I* plus interference adjustment factor[1] (III)	Use *C*/*I* plus interference adjustment factor[1] (XI)
Analogue (TV-FM)	Use *C*/*I* plus interference adjustment factor[2] (IV)	*Co-frequency*: use *C*/*I* plus interference adjustment factor[1] (X) *Non co-frequency*: use relative protection ratio mask[3] (V)	Use *C*/*I* plus interference adjustment factor[2] (VI)	Use *C*/*I* plus interference adjustment factor[2] (XII)
Analogue (other than TV-FM)	Use *C*/*I* plus interference adjustment factor[2] (VII)	Use *C*/*I* plus interference adjustment factor[2] (VIII)	Use *C*/*I* plus interference adjustment factor[2] (IX)	Use *C*/*I* plus interference adjustment factor[2] (XIII)
Other	Use *C*/*I* plus interference adjustment factor[2] (XIV)	Use *C*/*I* plus interference adjustment factor[2] (XV)	Use *C*/*I* plus interference adjustment factor[2] (XVI)	Use *C*/*I* plus interference adjustment factor[2] (XVII)

[1] Interference adjustment factor for Cases I, II, III, X and XI is the same (see § 2.1.1 of Attachment 1).

[2] Interference adjustment factor for Cases IV, VI to IX and XII to XVII is the same (see § 3.5 below).

[3] See § 3.1 of Attachment 1.

The selection of an interference case defined in Table 1 above requires the identification of the type of each carrier. Taking into account the information submitted to the Bureau by administrations in accordance with Appendix **4** (i.e. the class of emission as defined in Annex 2 item C.7.a), the Bureau shall use the following carrier type definition:

– Analogue (TV-FM):

When the Class of Emission (item C.7.a of Annex 2 to Appendix **4**) is defined with "F" for the first character and with "F" or "W" for the third character.

– Analogue (other than TV-FM):

When the first character of the Class of Emission is "F" and the third character is anything other than "F" or "W".

– Digital:

When the first character of the Class of Emission is “G”.

– Other:

When the first character of the Class of Emission is anything other than “F” or “G”.

3.2 Margin *M*, *C*/*I*, *C*/*N* algorithms

The algorithms described in Attachment 1 shall be used to evaluate compliance with the mutually accepted interference criteria or with the single entry limits established in Table 2.

Table 2 provided below takes into account the information submitted to the Bureau by administrations in accordance with Appendix **4** and the carrier type definition in § 3.1 above and is a simplification of Table 2 of Recommendation ITU-R S.741-2.

TABLE 2

Single entry interference (SEI) protection criteria (MOD RRB16/21)

Interfering carrier type / **Desired carrier type**	**Analogue (TV-FM) or other**	**Digital**	**Analogue (other than TV-FM)**
Analogue (TV-FM)	C/N_{tot} + 14 (dB)		
Digital	If DeNeBd ≤ InEqBd then C/N_{tot} + 9.4 + 3.5 log (δ) – 6 log (*i*/10) (dB) (i.e. C/N_{tot} + 5.5 + 3.5 log (DeNeBd (MHz))) Otherwise if DeNeBd > InEqBd then C/N_{tot} + 12.2 (dB)	C/N_{tot} + 12.2 (dB)	
Analogue (other than TV-FM)	13.5 + 2 log (δ) – 3 log (*i*/10) (dB) (i.e. 11.4 + 2 log (DeNeBd (MHz)))	C/N_{tot} + 12.2 (dB)	
Other	13.5 + 2 log (δ) – 3 log (*i*/10) (dB) (i.e. 11.4 + 2 log (DeNeBd (MHz)))	C/N_{tot} + 14 (dB)	

where:

C/N_{tot}: ratio (dB) of carrier to total noise power which includes all internal system noise and interference from other systems, related to C/N_i internal as follows:

$$\left(\frac{C}{N_{tot}}\right) = \left(\frac{C}{N_i}\right) - X$$

Where X is the value of additional margin defined in Attachment 2, Sections 3 to 5 and C/N_i is based on internal system noise power and defined in Attachment 1, Section 3.

DeNeBd: necessary bandwidth of desired carrier (Appendix **4**, Annex 2, item C.7.a)

InEqBd: equivalent bandwidth of interfering carrier (equal to total power to power density ratio (see Appendix **4**, Annex 2, items C.8.a.1 and C.8.a.2 respectively))

δ: ratio of desired signal bandwidth to peak-to-peak deviation of the TV carrier caused by the energy dispersal signal (a peak-to-peak deviation of 4 MHz is used in all cases)

i: pre-demodulation interference power in the desired signal bandwidth expressed as a percentage of the total pre-demodulation noise power (a value of 20 is used in all cases).

3.3 Single channel per carrier (SCPC) cases

When dealing with composite interference from a number of narrow-band carriers such as a transponder loaded with SCPC carriers the assumption is made, in the absence of more detailed data from administrations, that the interfering satellite has its transponder fully loaded with SCPC carriers and the individual carriers can be replaced with one wideband carrier which has a total power equal to the sum of the powers of the individual SCPC carriers. The protection ratios given in Recommendation ITU-R S.671 are used to protect SCPC transmissions interfered with by analogue television carriers only modulated with energy dispersal signals.

3.4 Interference between analogue FDM-FM signals (Case (IX) in Table 1 above)

When dealing with FDM-FM carriers, and to find out the resulting margin, the *C*/*I* ratio is calculated and compared with the required *C*/*I*. However a *C*/*N* + *K* type protection criteria is developed based on the equations of Recommendation ITU-R SF.766 which are required to calculate the *B* factor (interference reduction factor). In the absence of detailed information for the calculation of the *B* factor, the interference adjustment factor described in § 3.5 below shall be used.

3.5 Other interference cases

For cases (IV), (VI), (VII), (VIII), IX and (XI) to (XVII) in Table 1 above, the interference adjustment factor mentioned in § 3 above shall be used. In calculating this factor consideration shall be given to the third paragraph of § 3.4 of Annex 1 to Recommendation ITU-R S.741-2.

ATTACHMENT 1

Calculation algorithms (*M*, *C*/*I*, *C*/*N*)

1 Margin algorithm (MOD RRB16/21)

To compute the margins, it is necessary first to determine the required $\left(\frac{C}{I}\right)_m$ value, which is a function of the *C*/*N* and the *K* factor:

$$\left(\frac{C}{I}\right)_m = \left(\frac{C}{N_i}\right) + K - X$$

where:

$\left(\frac{C}{I}\right)_m$: required C/I value (dB)

$\left(\frac{C}{N_i}\right)$: C/N_i objective or calculated value of C/N_i (dB) (see § 3 above and section 3 below).

K: factor used in computing the required C/I (dB). Generally, this will be either 14.0 or 12.2, depending on the modulation characteristics of the desired signals (see Recommendations ITU-R S.483 and ITU-R S.523).

X: Additional margin to comply with the definition of carrier to total noise power which includes all internal system noise and interference from other systems. Attachment 2 contains methodology used for deriving the additional margin. (ADD RRB16/21)

Since $\left(\frac{C}{I}\right)_m$ and $\left(\frac{C}{I}\right)_a$ will vary depending on the geographical location within the service, area both values are computed:

– At the geographical locations of the associated specific earth stations, if any, or,

– In case of associated typical Earth Stations, at the test point located within the service area where the $\left(\frac{C}{I}\right)_a$ value is minimum in accordance with the method given in Attachment 3. (MOD RRB16/21)

The margin is the difference between the calculated C/I value and the required C/I value:

$$M = \left(\frac{C}{I}\right)_a - \left(\frac{C}{I}\right)_m$$

where:

M: margin (dB)

$\left(\frac{C}{I}\right)_a$: adjusted value of C/I, taking into account the interference adjustment factor (dB)

$\left(\frac{C}{I}\right)_m$: is the required C/I value (dB) computed above.

Therefore, substituting, we have:

$$M = \left(\frac{C}{I}\right)_a - \left(\frac{C}{N}\right) - K$$

2 The $\left(\frac{C}{I}\right)_a$ algorithm for interfering situations (MOD RRB16/21)

The basic *C*/*I* is adjusted as follows:

$$\left(\frac{C}{I}\right)_a = \left(\frac{C}{I}\right)_b - I_a$$

where:

$\left(\frac{C}{I}\right)_a$: adjusted value of *C*/*I*, taking into account the interference adjustment factor (dB)

$\left(\frac{C}{I}\right)_b$: basic calculated value of *C*/*I*, before taking into account the interference adjustment factor (dB)

I_a: interference adjustment factor (dB).

2.1 Determination of interference adjustment factor

2.1.1 Interference from noise-like digital carriers (interference adjustment factor 1)

The current version of Recommendation ITU-R S.741-2 covers the case of co-frequency interference from noise-like digital carriers. For non-co-frequency interference, an interference adjustment factor (or bandwidth advantage factor) resulted from the work of ITU-R study groups concerning the methodology to treat cases of frequency offset carriers. This is reflected in the application of a factor *A* defined below (mentioned as I_a in § 2 above).

For the case of frequency offset between carriers, the resultant *C*/*I* can be determined by the following equation:

$$C/I = 10 \log (c/i) - A$$

where A is the bandwidth advantage factor (dB).

The factor *A* is the ratio of the interfering carrier power contained in the desired signal bandwidth to the total interfering carrier power under the assumption that the interfering carrier has uniform power spectral density across its occupied bandwidth.

2.1.2 Interference from noise-like analogue carriers (interference adjustment factor 2)

For these cases, the resultant *C*/*I* can be determined by using the equation in § 2.1.1 above where the factor *A* is the ratio of the interfering carrier power contained in the desired signal bandwidth to the interfering carrier power with the approximation that the power spectral density of the interfering carrier is constant over the bandwidth of the desired carrier and is equal to the maximum value (see the third paragraph of § 3.4 of Annex 1 to Recommendation ITU-R S.741-2).

3 The *C*/*N* algorithm (MOD RRB16/21)

The algorithm for *C*/*N* requires the computation of the value of *N*, as follows:

$$N_i = -228{,}6 + 10\left[\log_{10}(T_R) + 6 + \log_{10}(BW)\right]$$

where:

N_i : value of internal system noise (dBW)

T_R : receiving system noise temperature (K)

BW : bandwidth (MHz).

The value of N_i is determined once for the uplink (if there is an uplink) and once for the downlink (if there is a downlink) for the desired system.

Once N_i is determined, C/N_i will be computed at each uplink test point (if there is an uplink) and each downlink test point (if there is a downlink):

$$\left(\frac{C}{N_i}\right) = C - N_i$$

where:

C : carrier (dBW)

N_i : internal system noise (dBW) computed above.

3.1 Determination of relative protection ratio for Case (V) in Table 1 above (TV-FM) into (TV-FM)

When dealing with a non-co-frequency interfering situation from a TV-FM carrier into another TV-FM carrier, the Radiocommunication Bureau is using the protection ratio masks defined in the Rules of Procedure relating to § 3.5.1 and § 3.8 of Annex 5 to Appendix **30** for the same case of interference. The resulting protection ratio relaxation is applied to the *K* factor of 14.0 dB established by Recommendation ITU-R S.483.

ATTACHMENT 2

Additional margins to be taken into consideration

1 Introduction

To finally assess the interfering effect on a given emission, it is necessary to adjust the resulting margins taking into consideration the definition of *C*/*N* given by Recommendation ITU-R S.741-2 which, for most of the cases, is the performance reference necessary to derive the single entry interference criteria levels for FSS carriers (see Table 2 of Recommendation ITU-R S.741-2).

In the above-mentioned Table *C*/*N* is defined as: "ratio (dB) of carrier to total noise power which includes all internal system noise and interference from other systems".

2 Calculations performed according to No. 1.174

No. **1.174** defines the equivalent satellite link noise temperature as follows:

"The noise temperature referred to the output of the receiving antenna of the *earth station* corresponding to the radio frequency noise power which produces the total observed noise at the output of the *satellite link* excluding the noise due to *interference* coming from *satellite links* using other *satellites* and from terrestrial systems."

The internal system noise temperature values provided by the administrations to derive the internal system noise, *N*, i.e., T_s and T_e are defined in Appendix **8** as follows:

"T_s: the receiving system noise temperature of the space station, referred to the output of the receiving antenna of the space station (K)"

"T_e: the receiving system noise temperature of the earth station, referred to the output of the receiving antenna of the earth station (K)."

The above-mentioned values are combined in accordance with Recommendation ITU-R S.738 to derive T_{min}, lowest *equivalent satellite link noise temperature*, as follows:

$$T_{min} = T_e + \gamma_{min}\, T_s + T_a$$

where:

T_a : other internal noise

γ_{min} : minimum transmission gain of a specific satellite link subject to interference.

Calculation of equivalent satellite link was mandatory before WRC-2000. After the decisions of WRC-2000 RR, Appendix **4** strapping information in Appendix **4**, which is required to conduct overall link calculations became optional. (ADD RRB16/21)

Therefore, and for simplicity T_s and T_e are used separately to conduct uplink and downlink *C/I* calculations respectively for all the cases. (ADD RRB16/21)

3 Noise to be calculated in accordance with Recommendation ITU-R S.741-2 (MOD RRB16/21)

To be in accordance with Recommendation ITU-R S.741-2 it seems necessary to add to the values of *N* calculated by the program on the basis of T_e and T_s mentioned above, the maximum permissible level of aggregate interference caused by other satellite systems as appears in Recommendations ITU-R S.466 (for FDM-FM telephony), ITU-R S.483 (for TV analogue) and ITU-R S.523 (for digital emissions) as well as the contribution of terrestrial emissions sharing the same frequency bands as defined in Recommendations ITU-R SF.356 (into telephone channels employing frequency modulation), and ITU-R SF.558 (into systems employing 8-bit PCM encoded telephony).

4 Calculations of additional margins

4.1 Telephony FDM-FM

4.1.1 Aggregate interference produced by other satellite systems sharing the same frequency band (Recommendation ITU-R S.466) (MOD RRB16/21)

In accordance with Recommendation ITU-R S.466, in frequency bands in which the network does not practice frequency re-use: the aggregate interference noise power should not exceed 2 500 pW0p, psophometrically weighted one minute mean power for more than 20% of any month. This amount corresponds to the 25% of the allowable noise power of 10 000 pW0p established by Recommendation ITU-R S.353 for the same percentage of time.

4.1.2 Maximum allowable values of aggregate interference from radio-relay systems in a telephone channel of a system in the FSS (Recommendation ITU-R SF.356)

In accordance with this Recommendation the interference caused by the aggregate of the transmitters of radio-relay stations should not exceed 1 000 pW0p psophometrically weighted one minute mean power for more than 20% of any month. This amount corresponds to 10% of the allowable noise power of 10 000 pW0p established by Recommendation ITU-R S.353 for the same percentage of time.

4.1.3 Calculation of the additional margin (MOD RRB16/21)

N_{tot}: total link noise including all internal noise and interference from other systems

N_i: link internal noise

X: noise due to interference from other systems

then:

$$N_{tot} = N_i + X$$

where:

$$X = (0.25 + 0.1)\, N_{tot}$$

Therefore:

$$N_{tot} = N_i + 0.35\, N_{tot}$$

$$N_{tot}(1 - 0.35) = N_i$$

$$N_{tot} = 1.53\, N_i$$

Additional margin: $10 * \log(1.53) = 1.87$ dB.

4.2 Digital emissions

4.2.1 Aggregate interference produced by other satellite systems sharing the same frequency band (Recommendation ITU-R S.523) (MOD RRB16/21)

In accordance with Recommendation ITU-R S.523, in frequency bands in which the network does not practice frequency re-use: the aggregate interference power level averaged over any 10 min, should not exceed, for more than 20% of any month, 25% of the total noise power level at the input to the demodulator that would give rise to a bit error ratio of 1 in 10^6 as it is established by Recommendation ITU-R S.522 for the same percentage of time.

4.2.2 Maximum allowable values of aggregate interference from radio-relay systems into systems in the FSS. employing 8-bit PCM encoded telephony (Recommendation ITU-R SF.558)

In accordance with this Recommendation the interference caused by the aggregate of the transmitters of radio-relay stations, averaged over any 10 min, should not exceed, for more than 20% of any month, 10% of the total noise power at the input of the demodulator that would give rise to a bit error ratio of 1 in 10^6 as it is established by Recommendation ITU-R S.522 for the same percentage of time.

4.2.3 Calculation of the additional margin

The same values as in § 4.1.3 above are obtained.

4.3 Analogue TV

4.3.1 Aggregate interference produced by other satellite systems sharing the same frequency band (Recommendation ITU-R S.483) (MOD RRB16/21)

In accordance with Recommendation ITU-R S.483, the aggregate interference noise power should not exceed 10% of the permissible video noise in the hypothetical reference circuit for more than 1% of the month.

4.3.2 Maximum allowable values of aggregate interference from radio-relay systems into FSS analogue video channel

No recommendations have been arrived at yet for interference from transmitters of the fixed service into FSS analogue video channel.

4.3.3 Calculation of the additional margin

$N_{tot} = N_i + 0.1\, N_{tot}$

$N_{tot}(1 - 0.1) = N_i$

$N_{tot} = 1.11\, N_i$

Additional margin: $10 * \log(1.11) = 0.46$ dB.

5 Based on the above a value of 0.46 dB should be added to the margins involving wanted analogue TV emissions and 1.87 dB for other wanted emissions.

(ADD RRB16/21)

ATTACHMENT 3

Finding test-points for *C/I* calculation

1 Introduction

The assessment of probability of harmful interference shall be based on:

– one test-point in downlink within the service area of wanted satellite where the $\left(\frac{C}{I}\right)_a$ value is minimum;

– two test-points in uplink wanted and interfering links producing minimum value of $\left(\frac{C}{I}\right)_a$.

$\left(\frac{C}{I}\right)_a$ has minimum value when wanted signal is at minimum and interference signal is at maximum.

2 Test-point for the downlink *C*/*I* calculation

The position of wanted receiving earth station for which *C*/*I* is calculated is selected using the following criteria:

– Earth station is located within service area of wanted satellite;

– Earth station is visible from interfering satellite;

– The difference between satellite gain of wanted satellite and satellite gain of interfering satellite towards wanted earth station is at minimum.

The minimum gain difference is identified following the procedure below:

– Generating grid-points within wanted satellite service area A_W ;

– Finding wanted satellite gain G_W towards each of the grid-point $a \in A_W$;

– Finding interfering satellite gain G_I towards each of the grid-point $a \in A_W$;

– Finding the grid-point $a_{\min}$ where the difference between satellite gains towards each satellite is at minimum, i.e. $Min\left[G_W(a_{\min}) - G_I(a_{\min})\right]$.

The Bureau developed GIMS gain interpolation library to find the satellite gain for all the grid-points.

Figure A3-1 below gives graphical example of the identified test-point.

3 Test-points for the uplink *C*/*I* calculation

For the uplink calculation, it is necessary to identify locations of two earth stations – one transmitting earth station in the wanted link and another transmitting station in the interfering link.

The position of these earth stations are selected using the following criteria:

– Wanted earth station is located within service area of wanted satellite;

– Interfering earth station is located within service area of interfering satellite;

– Interfering earth station is visible from wanted satellite;

– The difference between wanted satellite gain towards wanted earth station and interfering earth station is at minimum.

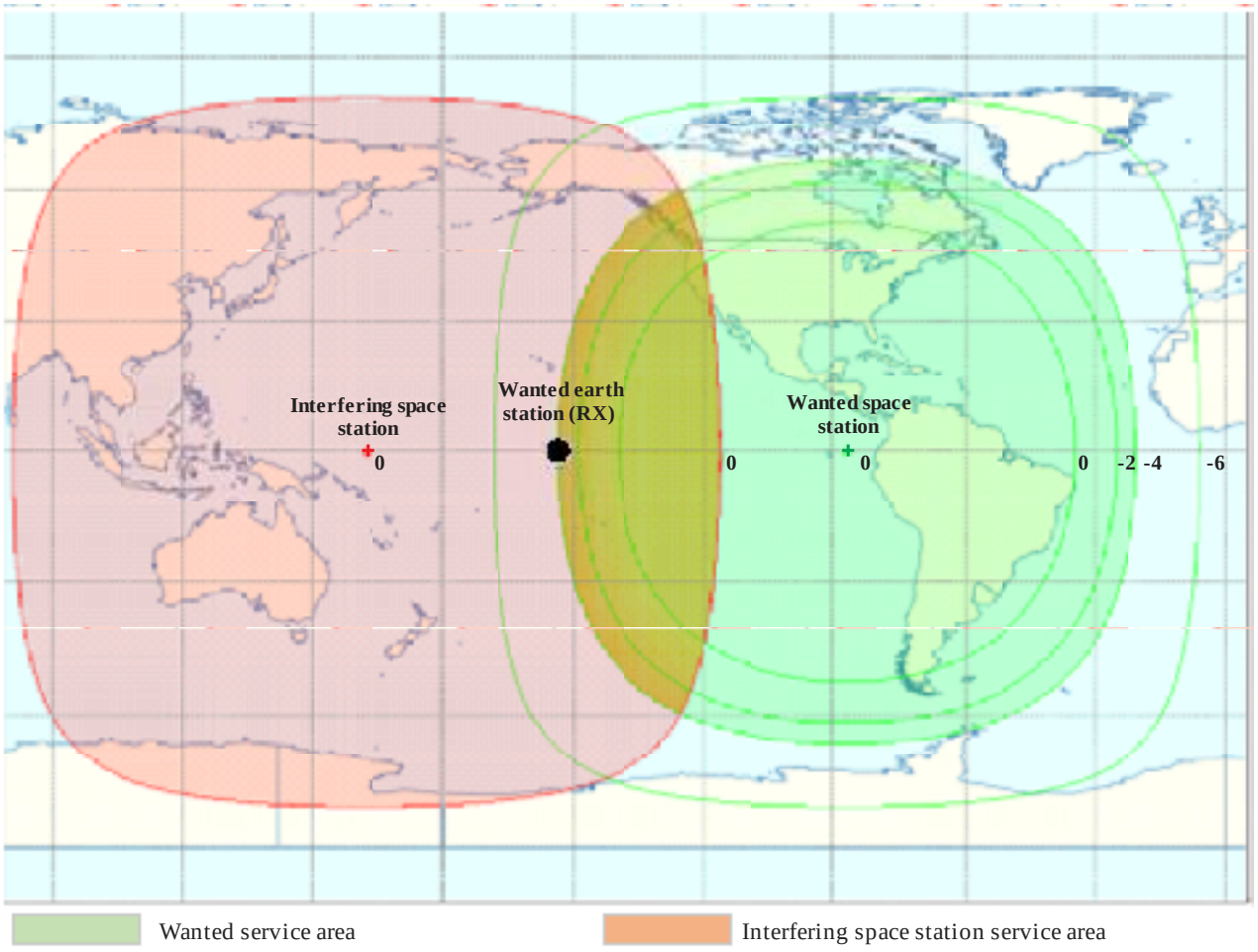
The minimum gain difference is identified following the procedure below:

- Generating grid-points within wanted satellite service area A_W ;
- Generating grid-points within interfering satellite service area A_I ;
- Finding wanted satellite gain G_W towards each of the grid-point in A_W ;
- Selecting test-point $a_W \in A_W$ where wanted satellite gain is at minimum $G_{W_{\min}}$;
- Finding wanted satellite gain G_W towards each of the grid-point in A_I ;
- Selecting test-point $a_I \in A_I$ where wanted satellite gain is at maximum $G_{W_{Max}}$.

Figure A3-2 below gives graphical example of the procedure used.

FIGURE A3-1

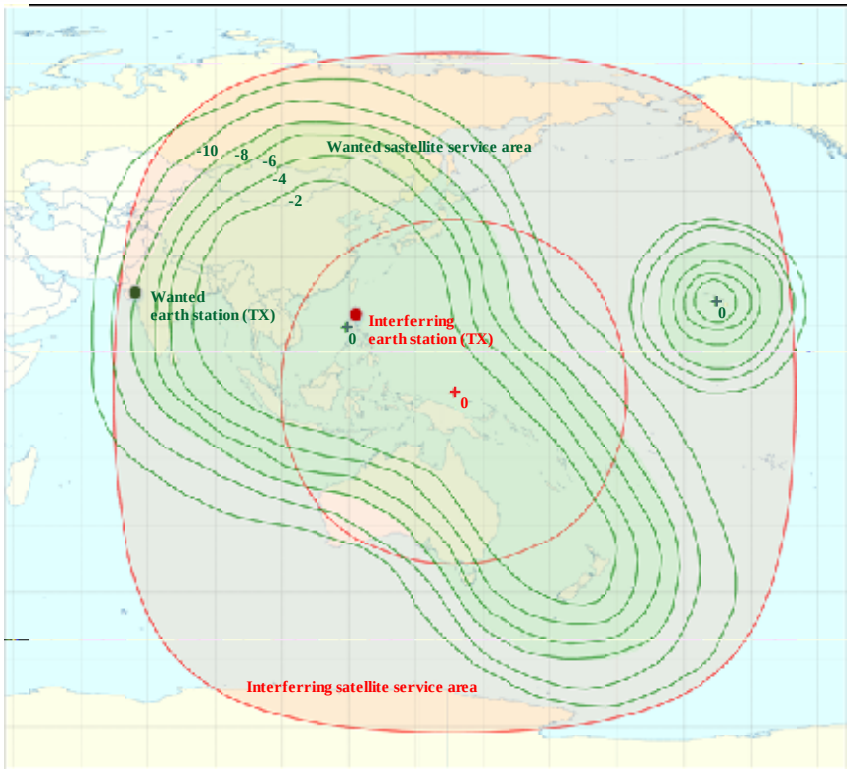
Finding worst-test point on the downlink



RRB-A3-01

FIGURE A3-2

Finding worst-test points on the uplink



RRB-A3-02

PART B

SECTION B4

Rules concerning calculation methodology and technical standards for determining the affected administrations and for assessing the probability of harmful interference in the bands between 9 kHz and 28 000 kHz

Introduction

This Section contains elements of the calculation methodology which is to be used:

– for identification of administrations whose agreement has to be sought in the application of No. **9.21**, in the context of the relevant frequency allocation footnotes, i.e. Nos. **5.61**, **5.87A**, **5.92**[1], **5.93** and **5.123**, in the bands between 9 kHz and 28 000 kHz; (MOD RRB09/51)

– for assessing the probability of harmful interference, in the bands between 9 kHz and 28 000 kHz, as may be required in the application of the provisions of No. **7.6**, or in any other Radiocommunication Bureau's study as may be requested.

1 Technical Standard A-1: Signal/interference protection ratio

1.1 The present Technical Standard contains the signal-to-interference protection ratio values (see Table 1) for application in the technical examinations of notices of frequency assignments in the frequency bands between 9 kHz and 28 000 kHz.

1.2 These protection ratio values are based on results of the studies within Radiocommunication Study Groups (see Recommendations ITU-R F.240-7, ITU-R SM.326-6, ITU-R-F.339-7 and former Recommendation ITU-R SM.669-1). (MOD RRB09/51)

1.3 The signal-to-interference protection ratio (PR) values are expressed in dB, for the main types of transmission (from telegraphy, aural reception to telephony, for connection to the public network) to be protected in the technical examinations in the frequency bands from 9 kHz to 28 000 kHz. These values of protection ratios have been determined from RF steady state protection ratio values by adding allowances for long-term intensity fluctuation and short period fading for a given time percentage corresponding to the performance quality criteria applicable to each type of transmission.

---

[1] For cases under No**. 5.92** the Rules of Procedure of Section B5 also apply. (ADD RRB09/51)

1.4 For the calculation of the signal/interference ratios both the wanted and the interference field strength are considered as median values (exceeded 50% of the time) and on the basis of peak envelope power (p.e.p.; notified power type: *P*X). Types of power other than p.e.p. (notified as *P*Y or *PZ* for, respectively, mean or carrier power) are converted to p.e.p. using conversion factors given in Table 2.

TABLE 1

RF signal-to-interference protection ratios (dB)

Transmission type		**Frequency band (kHz)**		
		9 - 1 606.5	**1 606.5 - 4 000**	**4 000 - 28 000**
Telegraphy, aural reception		8 (3-7)	11 (5-10)	15 (7-14)
Telegraphy, aural reception; Meteo, Press		9 (3-8)	13 (5-12)	17 (7-16)
Telegraphy, automatic reception, without error correction		11 (6-10)	17 (10-16)	26 (13-25)
Telegraphy, automatic reception, with error correction		8 (6-7)	12 (7-11)	14 (8-13)
Photo telegraphy, facsimile		19 (14-18)	24 (16-23)	28 (18-27)
Telephony, *not* for connection to public network (CO)	DSB and SSB full carrier	18 (15-17)	21 (17-20)	24 (19-23)
	SSB, reduced or suppressed carrier, ISB	12 (9-11)	15 (11-14)	18 (13-17)
Telephony, for connection to public network (CP)	DSB and SSB full carrier	31 (26-30)	34 (28-33)	38 (30-37)
	SSB, reduced or suppressed carrier, ISB	25 (20-24)	28 (22-27)	32 (24-31)
Broadcasting (except for HFBC in exclusive bands and MFBC in the band 526.5-1 705 kHz)		38 (33-37)	38 (32-37)	38 (32-37)
Aeronautical mobile service (telegraphy or telephony)		15	15	15
Radiobeacons		15	15	–
Digital transmission, SSB, suppressed carrier (J2D class of emission) (ADD RRB09/51)		9	9	9

1.5 For each transmission type, two time percentages are used: one (e.g. 99% of the time) which is intended to fully satisfy the required performance quality criteria in the fading signal environment when the wanted signal is at its weakest level at the instant when the interference signal is likely to be at its strongest level (the protection ratio values corresponding to this condition are shown in Table 1 outside the parenthesis), and another one (e.g. 75%) which ensures protection during a lesser percentage of time (values in brackets in Table 1).

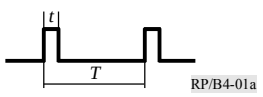
TABLE 2

Conversion factors for different notified power types

Class of emission	Notified power type	Conversion[1, 2]	
		mean to p.e.p.	p.e.p. to mean
N0N	Z	0	0
A1A, A1B, A1C	X	–	–3
A2A, A2B, A2N	Y	+4	–
H2A, H2B, H2N, D2A	Y	+3	–
R2B, J2B	X	–	–3
A3E(BC)	Z	+6	0
A3E, H3E	Y	+4 (3-6)	–
R3E, J3E	X	–	–4 (4-10)
A3C	Y	+4	–
R3C, J3C	X	–	0
A7B, H7B	Y	+4	–
R7C, J7C	X	–	–4 (3-6)
B7B	X	–	–4
B8E	X	–	–4 (3-13)
B8C	X	–	0
AXX	Y	+6	–
BXX, JXX	X	–	–4 (3-10)
B9W	X	–	–4
F, G/1,2,3,7, X/B,C,D,X	Y	0	–
P,L,M,X/any	X	–	10 log (t/T)
K2B	X	–	10 log $(t/T)-5$
K3E	X	–	10 log $(t/T)-4$

1 In the case where in, brackets, more than one figure is given, these figures refer to different modulating signal conditions (e.g. smoothly read text instead of sinusoidal modulating signal at 100% carrier modulation) (see Recommendation ITU-R SM.326-6).

2 In the case of pulse modulation:



RP/B4-01a

2 Technical Standard A-2: Minimum field strength to be protected

2.1 The present Technical Standard contains values for the minimum field strength to be protected (see Tables 1 to 4 and 5A and 5B) for application in the technical examinations of notices of frequency assignments in the frequency bands between 9 kHz and 28 000 kHz.

2.2 The values contained in this Standard are based on Recommendations ITU-R F.339-7 and ITU-R P.372-8[2]. (MOD RRB09/51)

2.3 The aim of calculating the minimum field strength to be protected within the technical examinations is to determine the field strength at the receiving point below which the wanted signal is not worth protecting against interfering signals because the wanted signal-to-noise ratio is smaller than that which could satisfy the required performance quality criteria without interference.

2.4 Technical Standard A-2 contains values for the minimum field strength to be protected (dB relative to 1 μV/m) for the main types of transmissions (from telegraphy, aural reception, to telephony, for connection to the public network and to digital transmissions) in the frequency bands from 9 kHz to 28 000 kHz. These values of the minimum field strength have been determined from the median values (exceeded 50% of time) of the noise level (atmospheric, man-made or galactic) and the steady state ratio, S/N by adding appropriate allowances for 90% of time to take into account the noise level variation, D_u, and the intensity fluctuation of the wanted signal, IF. (MOD RRB09/51)

2.5 The assessment of the minimum field strength to be protected is based on a uniform reference power type: the peak envelope power (p.e.p. notified as *P*X). Types of power other than p.e.p. (notified as *P*Y or *P*Z for, respectively, mean or carrier power) are converted to p.e.p. using conversion factors given in Table 2 of Technical Standard A-1.

2.6 Technical Standard A-2 contains four tables (Tables 1 to 4) giving the noise grades expressed as median of hourly values of the radio noise power in a short vertical antenna relative to the thermal noise, at a frequency of 1 MHz, in terms of latitude and longitude of the receiving point. Separate tables are given for four periods of the year (DC, MR, JN and SE), and in each table the noise grade is given for each of six local time blocks of four consecutive hours (N2, T1, J1, J2, T2, N1). Tables 1 to 4 are superimposed on an outline map of the world.

2.7 Tables 5A and 5B give, for the various types of transmission, the minimum value of the field to be protected (dB relative to 1 μV/m) in terms of the noise grades obtained from Tables 1 to 4, the frequency used and the time of transmission. In working with Tables 1 to 5B, interpolations are usually necessary as a result of restricting the size of these Tables to manageable proportions.

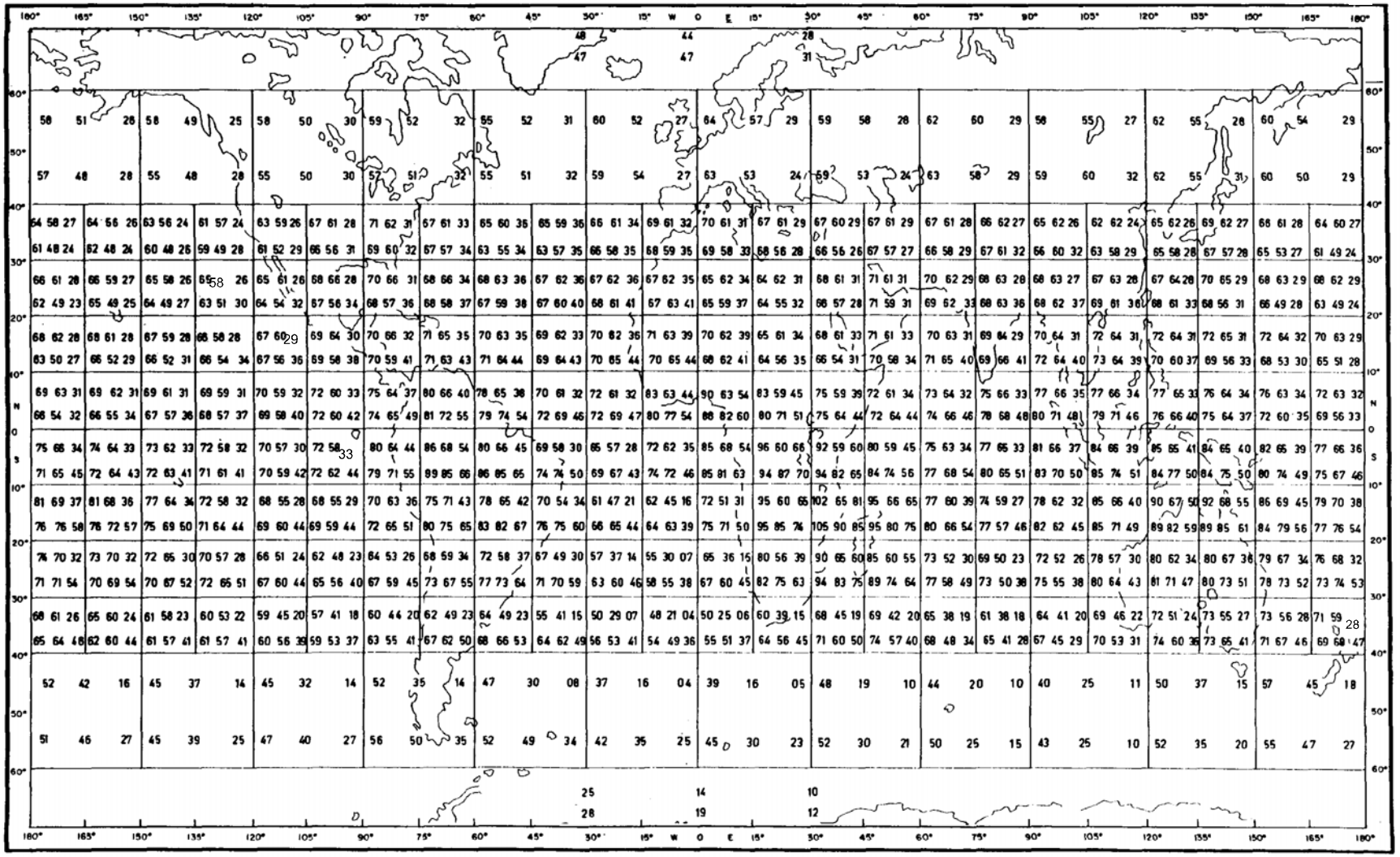
---

[2] This Recommendation replaced ex-CCIR Report 322. (ADD RRB09/51)

NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT

period: DECEMBER - JANUARY - FEBRUARY } DC

(1)
DC

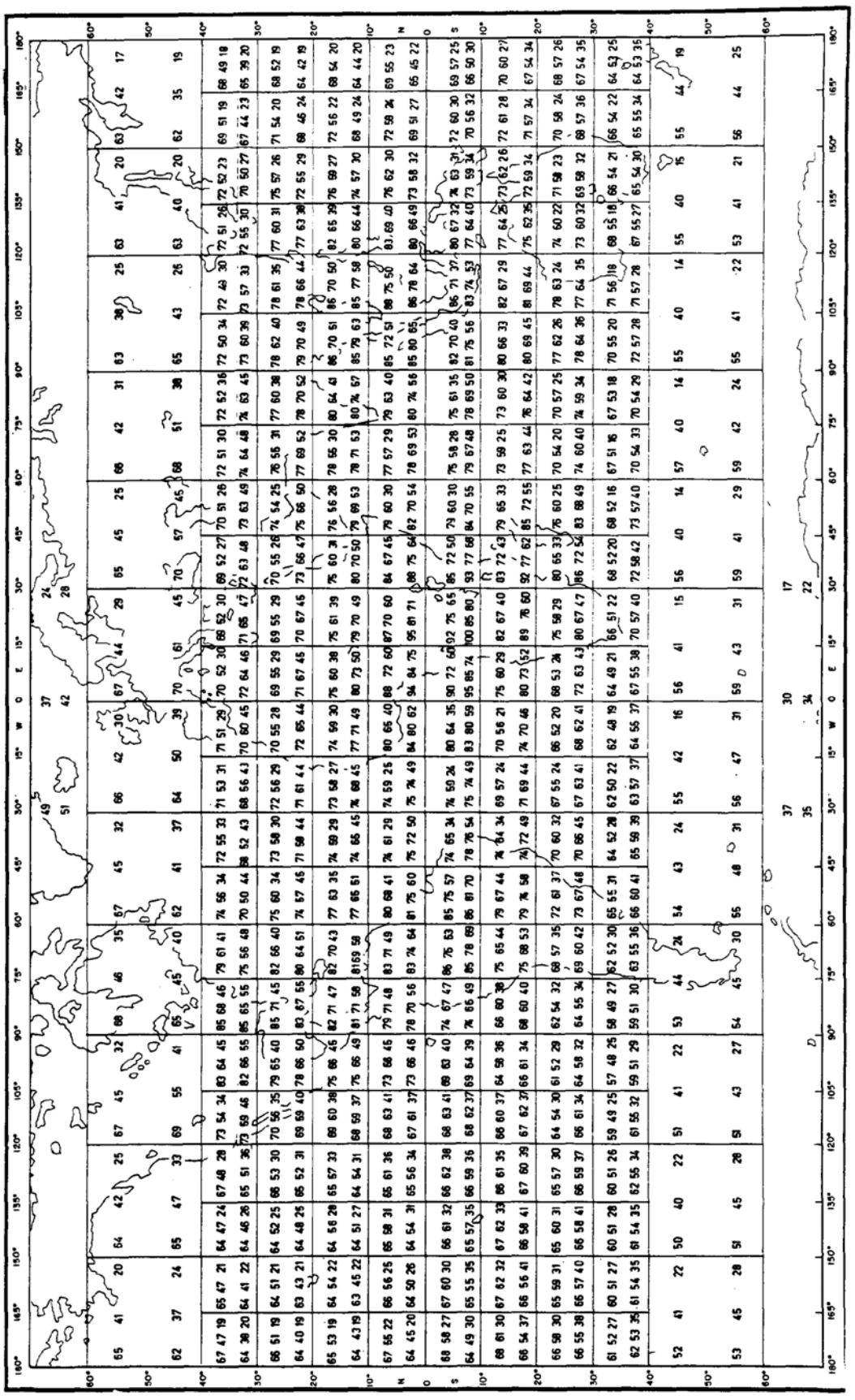


RP/B4-01sc

NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT

period: MARCH - APRIL - MAY } MR

(2) MR

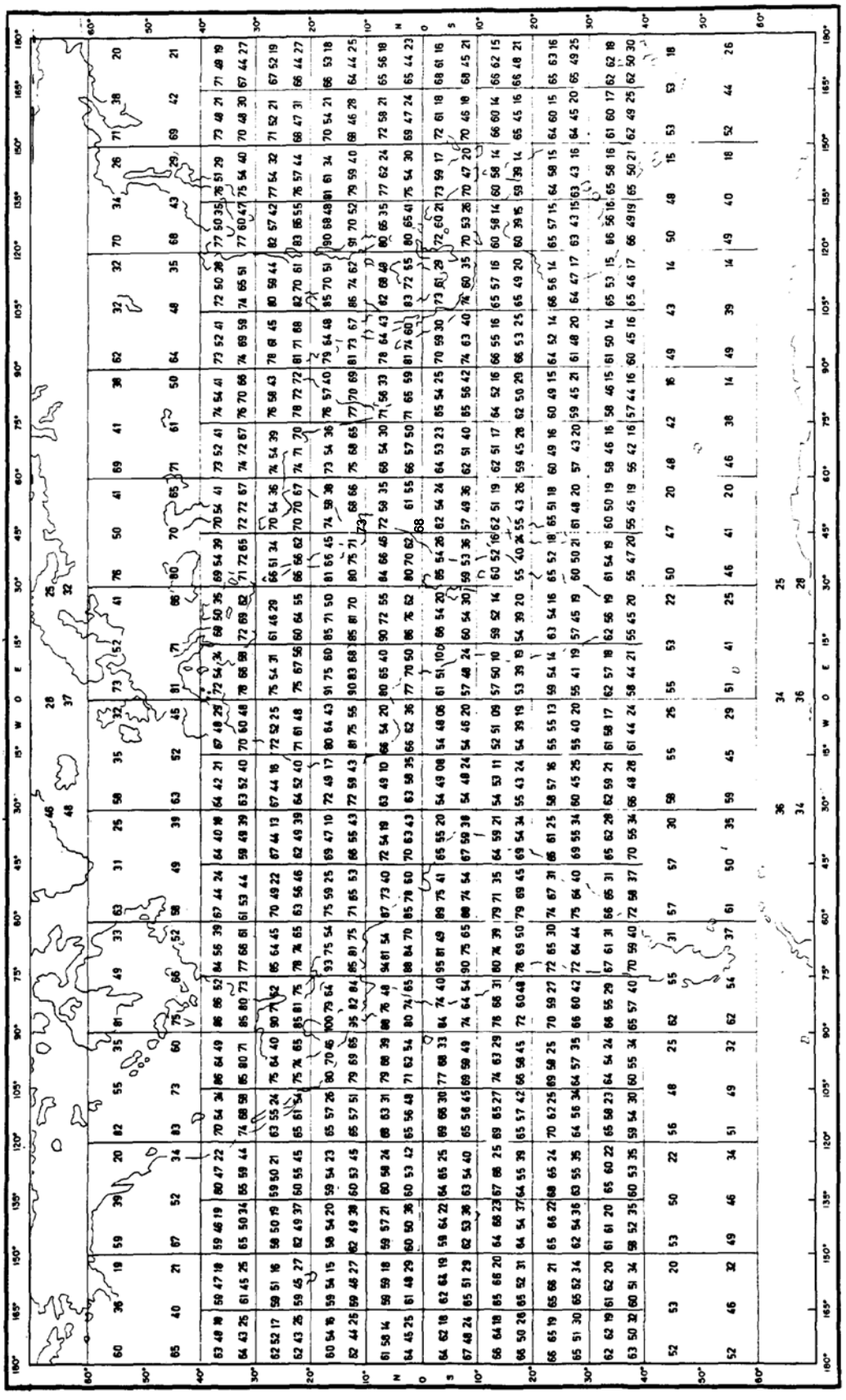


RP/B4-02sc

NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT

period: JUNE - JULY - AUGUST } JN

(3) JN

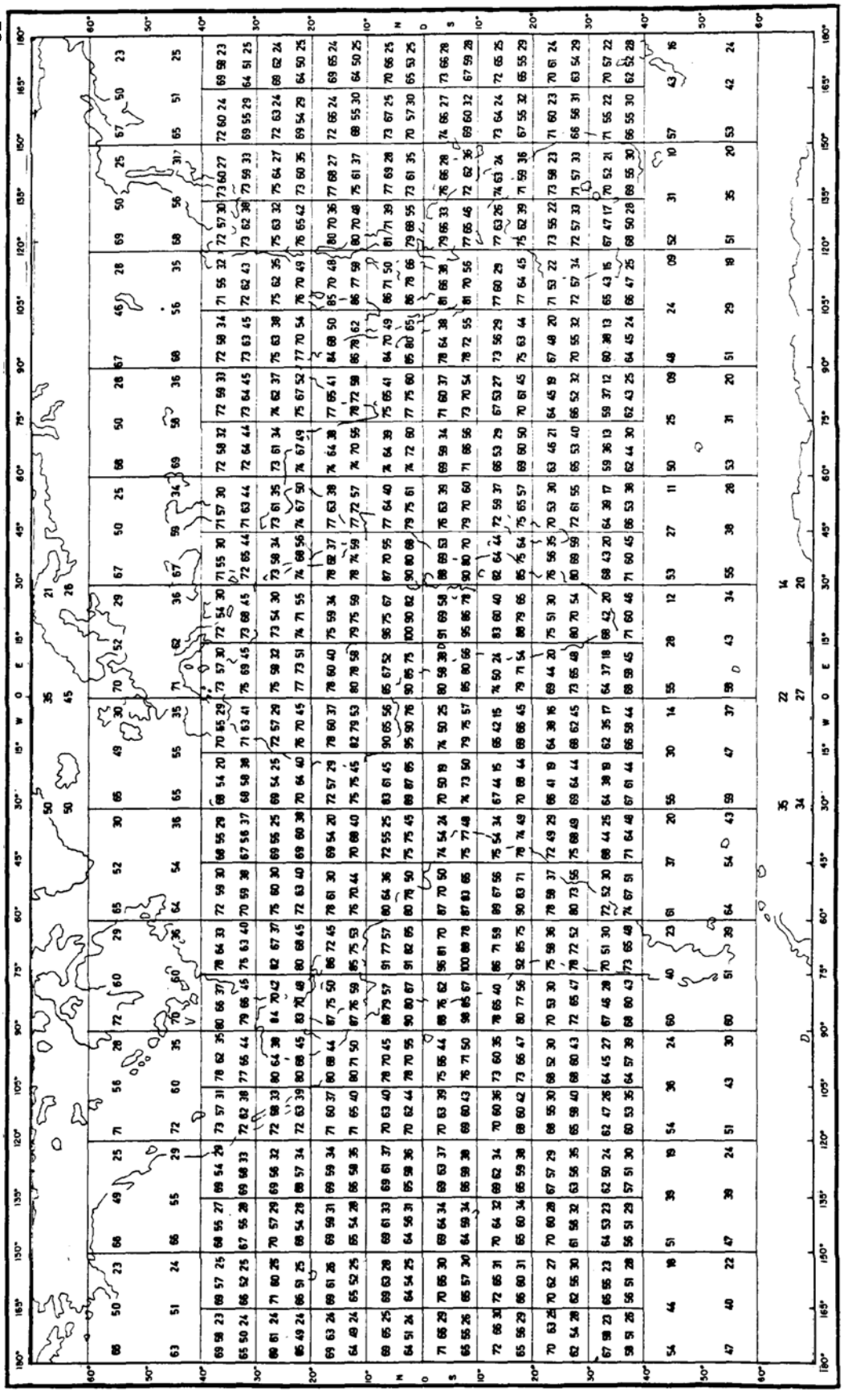


RP/B4-03sc

NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT

period: SEPTEMBER - OCTOBER - NOVEMBER } SE

(4) SE



RP/B4-04sc

Minimum field strength to be protected (dB relative to 1 μV/m) Type of transmission: Telegraphy, aural reception (B > 0.5 kHz)

5A

(MOD RRB09/51)

NOISE GRADE	(kHz)																	
	10			20			50			100			200			500		
	N2	T1	J1	N2	T1	J1	N2	T1	J1	N2	T1	J1	N2	T1	J1	N2	T1	J1
	N1	T2	J2	N1	T2	J2	N1	T2	J2	N1	T2	J2	N1	T2	J2	N1	T2	J2
100	72	72	74	70	72	81	72	72	74	70	72	81	72	72	74	70	72	81
	72	74	77	71	75	81	72	74	77	71	75	81	72	74	77	71	75	81
90	69	69	72	67	69	77	69	69	72	67	69	77	69	69	72	67	69	77
	70	71	74	67	71	77	70	71	74	67	71	77	70	71	74	67	71	77
80	66	66	69	63	65	73	66	66	69	63	65	73	66	66	69	63	65	73
	67	68	71	63	66	72	67	68	71	63	66	72	67	68	71	63	66	72
70	64	63	66	60	61	68	64	63	66	60	61	68	64	63	66	60	61	68
	64	65	68	59	61	68	64	65	68	59	61	68	64	65	68	59	61	68
60	61	60	64	57	57	64	61	60	64	57	57	64	61	60	64	57	57	64
	61	61	66	56	56	63	61	61	66	56	56	63	61	61	66	56	56	63
50	58	57	61	53	53	60	58	57	61	53	53	60	58	57	61	53	53	60
	58	58	63	52	52	59	58	58	63	52	52	59	58	58	63	52	52	59
40	55	55	58	49	50	56	38	39	46	26	28	35	14	16	22	7		
	55	55	60	49	47	55	38	35	43	26	24	32	14	14	20			
30	52	52	56	46	47	52	33	34	40	19	22	27	11	11	13	7		
	52	51	58	45	42	50	32	28	36	20	16	24	11	11	11			
20	50	49	54	43	42	48	28	28	33	15	15	20	11	11	11	7		
	49	48	55	40	37	46	27	20	30	15	15	15	11	11	11			
10	48	46	51	40	39	44	22	23	28	15	15	15	11	11	11	7		
	47	45	53	35	32	42	21	18	21	15	15	15	11	11	11			
0	45	43	48	36	35	40	18	18	22	15	15	15	11	11	11	7		
	44	41	50	31	27	37	18	18	18	15	15	15	11	11	11			

(MHz)															
1			1.5			2			3			4		
N2	T1	J1	N2	T1	J1	N2	T1	J1	N2	T1	J1	N2	T1	J1
N1	T2	J2	N1	T2	J2	N1	T2	J2	N1	T2	J2	N1	T2	J2
52	54	52	47	50	41	44	47	34	38	42	23	34	38	16
51	55	54	47	49	43	42	45	36	36	39	27	32	35	22
42	44	42	38	40	32	35	38	26	31	34	17	28	31	11
41	45	44	37	40	33	34	36	28	30	31	20	27	28	15
32	34	32	28	31	23	27	29	18	24	27	10	22	25	5
31	35	34	28	30	25	26	28	20	23	24	13	21	22	9
22	24	22	19	22	14	18	20	10	17	19	3	16	18	1
21	25	24	19	22	16	18	20	12	16	18	6	15	16	4
12	14	12	10	12	6	10	12	2	10	12	–1	10	12	–1
11	15	14	9	12	7	9	11	4	9	11	0	9	10	–1
4	4	4	3	3	3	2	3	2	3	4	–1	4	5	–1
4	5	4	3	3	3	2	3	2	2	3	–1	4	4	–1
4			3			2			–1			–1		
4			3			2			–1			–1		
4			3			2			–1			–1		
4			3			2			–1			–1		
4			3			2			–1			–1		

Constants to be added to obtain other types of emissions			
Digital transmissions, J2D			–8
Narrow-band TG (B < 0.5 kHz)			–5
Telegraphy aut. (B > 0.5 kHz)			4
Phototelegraphy			16
Telephony	CO	J3E R3E B8E	14
		H3E	20
		A3E	23
	CP	J3E R3E B8E	25
		H3E	31
		A3E	34
Broad-cast	LF/MF		49
	BC Trop.		46

Minimum field strength to be protected (dB relative to 1 µV/m) Type of transmission: Telegraphy, aural reception (B > 0.5 kHz)

5B

(MOD RRB09/51)

NOISE GRADE	(MHz)																	
	4			5			6			7			8			10		
	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	
100	34 32	38 35	16 22	31 30	34 32	12 17	28 28	31 30	11 15	25 26	28 29	11 14	23 24	25 28	11 13	18 21	21 26	
90	28 27	31 28	11 15	26 25	28 26	8 12	23 23	25 25	8 11	21 21	23 24	9 11	18 20	21 23	9 11	14 17	16 22	
80	22 21	25 22	5 9	20 19	23 21	4 8	18 18	21 20	5 8	16 16	18 19	6 9	14 15	16 19	7 9	9 12	13 18	
70	16 15	18 16	1 4	15 14	17 15	1 3	13 13	16 15	2 4	11 12	14 14	3 6	9 11	13 14	4 7	4 8	9 14	
60	10 9	12 10	–1 –1	9 9	12 10	–3 –1	9 9	11 10	–1 1	7 8	10 10	1 3	5 7	9 10	2 4	0 3	5 10	
50	4 4	5 4	–1 –1	4 5	6 5	–3 –3	4 5	6 5	–3 –2	2 4	6 5	–2 –1	8 3	5 6	0 1	–5 –1	1 6	
40	–1			–1 –1	0 –1	–3 –3	–3			–3 –3	1 1	–3 –3	–3 –3	0 2	–3 –3	–5 –5	–3 2	
30	–1			–3			–3			–3			–3			–5 –5	–5 –2	
20	–1			–3			–3			–3			–3			–5		
10	–1			–3			–3			–3			–3			–5		
0	–1			–3			–3			–3			–3			–5		

	12			15			20			30		
J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2	N2 N1	T1 T2	J1 J2
12 14	14 19	17 25	13 15	7 14	11 22	13 15	–3 7	4 17	10 14	–7 –7	–7 0	–3 2
10 12	9 14	12 21	11 13	2 9	6 18	11 13	–7 0	–2 11	8 12	–7		–7 –5
8 10	4 9	8 17	9 11	–4 3	1 13	9 11	–7 –7	–7 5	5 9	–7		
6 8	–1 4	4 13	7 9	–5 –3	–3 9	7 9	–7 –7	–7 –1	2 6	–7		
4 6	–5 –1	0 9	5 7	–5 –5	–5 4	5 7	–7 –7	–7 –6	–2 2	–7		
2 4	–5 –5	–4 5	3 5	–5 –5	–5 0	2 5	–7		–5 –2	–7		
0 2	–5 –5	–5 1	1 3	–5		0 2	–7		–7 –6	–7		
–2 0	–5		0 1	–5		–2 –1	–7			–7		
–4 –2	–5		–2 –1	–5		–4 –4	–7			–7		
–5 –4	–5		–4 –3	–5			–7			–7		
	–5			–5			–7			–7		

Constants to be added to obtain other types of emissions			
Digital transmissions, J2D			–8
Narrow-band TG (B < 0.5 kHz)			–5
Telegraphy aut. (B > 0.5 kHz)			4
Phototelegraphy			16
Telephony	CO	J3E R3E B8E	14
		H3E	20
		A3E	23
	CP	J3E R3E B8E	25
		H3E	31
		A3E	34
Broad-cast	LF/MF		49
	BC Trop.		46

3 Technical Standard A-3: Frequency discrimination

3.1 The present Technical Standard contains values for "receiver discrimination" that are defined as a correction (dB), to be applied to the signal-to-interference ratio and are expressed as a function of the frequency separation between the wanted and unwanted emissions (Δf). The term "receiver discrimination" is equivalent to the definition of "relative RF protection ratio".

3.2 The values contained in this Technical Standard were determined on the basis of:

– the selectivity of typical receivers assumed to be used for different classes of emission, and

– the necessary bandwidth occupied by the interfering stations, together with the energy distribution of the power within and outside the bandwidth.

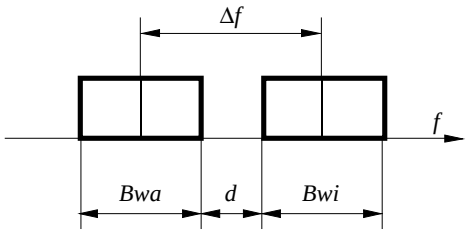
3.3 Data that are used for the establishment of this Standard were extracted from the Recommendations ITU-R SM.328-8 and ITU-R SM.332-4; they are summarized in Table 1.

3.4 The method of calculation of the values of Technical Standard A-3 consisted in considering the energy accepted by the receiver tuned to a frequency of a given frequency separation (Δf) and comparing this energy with the one that the receiver would accept if tuned to the assigned frequency of the emission ($\Delta f = 0$).

3.5 The value of the discrimination, in cases where the wanted emission bandwidth overlaps with the receiver passband, depends on both the transmitted spectrum and the receiver selectivity curve. However, in cases of higher frequency separation (where there is no overlapping) the discrimination is determined mainly by the slope of out-of-band emission.

3.6 The values of the receiver discrimination are given in Table 2 in terms of the frequency discrimination factor, *d*. The frequency discrimination factor *d* represents the difference between the limits of the bandwidths, as indicated in Fig. 1 below.

FIGURE 1



$d = \Delta f - 0.5\ (Bwa + Bwi)$

RP/BB4-01

3.7 In this approach, the likelihood of mutual interference is not considered in cases where the notified bandwidths of the emissions are separated more than 500 Hz (i.e. for $d > 0.5$).

TABLE 1

Assumed characteristics of receivers of wanted emissions and characteristics of interfering emissions

	Receiver of wanted emission		Interfering emission		
Class of emission	**Assumed passband (kHz)**	**Attenuation slope (dB/kHz)**	**Necessary bandwidth (kHz)**	**Level of components at the edge of the necessary bandwidth (dB)**	**Slope of out-of-band spectrum**
A1A (9-1 605 kHz)	0.3, 0.5, 0.75 or 1 kHz, depending on notified bandwidth of wanted emission	120	As notified	–27 at ±5 *B*/2	–57 dB at ±5 *B*, then 12 dB/oct
A1A (1 605-28 000 kHz) (*B*: up to 200 Bd)	1	120	As notified	–27 at ±5 *B*/2	–57 dB at ±5 *B*, then 12 dB/oct
F1B (9-1 605 kHz)	0.3, 0.5, 0.75, 1 or 1.5 kHz, depending on notified bandwidth of wanted emission	120	As notified	–15	13 + 1.8 *m* = 20 dB/oct
F1B (1 605-28 000 kHz) (2*D* = 200 to 400 Hz, *B*: up to 200 Bd, *m* = 2 to 6)	1.5	120	As notified	–15 at 2.6 *D* + 0.55 *B*	13 + 1.8 *m* = 20 dB/oct
A2A, A2B (*F*: up to 1 000 Hz, *B*: up to 50 Bd)	2	120	As notified	–24 at ±(*F* + 5 *B*/2)	12 dB/oct
A1C, A3C, A7B, AXX, F1C, F2B, F7B	2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 or 12 kHz depending on notified bandwidth of wanted emission	120	As notified	–15	20 dB/oct in respect to the outer channel
A3E	6	20	As notified	–23	12 dB/oct
R3E, H3E, J3E	3	100	As notified	–23	12 dB/oct
B8E	6, 9 or 12 kHz depending on notified bandwidth of wanted emission	100	As notified	–23	12 dB/oct

B: telegraphic speed (Bd)
2*D*: difference between mark and space frequencies
m: modulation index 2*D*/*B*
F: modulation frequency.

TABLE 2

Values of the frequency discrimination (dB) for different interfering emissions

d	100HA1A	500HA1A 500HA1B	1K00A1B	(A,H)2(A,B,N)	Other telegraphy	Telephony SSB-CP or ISB-CO/CP (with privacy device)	Telephony DSB-CP (with PD) SSB-CO (without PD)	Telephony DSB-CO (without PD)
−1.0	0	0	0	0	0	0	0	0
−0.9	0	0	0	6	0	0	0	0
−0.8	0	0	0	6	0	0	0	0
−0.7	0	0	0	6	0	0	0	3
−0.6	0	0	0	6	0	0	3	9
−0.5	0	0	0	6	0	3	9	15
−0.4	0	0	3	6	0	9	15	21
−0.3	0	0	9	6	0	13	19	25
−0.2	0	0	14	6	3	17	23	29
−0.1	0	11	18	6	6	19	25	31
0.0	10	17	22	6	10	21	27	33
0.1	20	26	30	17	20	28	34	38
0.2	30	34	37	28	30	37	40	44
0.3	40	43	45	38	40	44	46	49
0.4	50	51	52	49	50	52	53	55
0.5	60	60	60	60	60	60	60	60
> 0.5	> 60	> 60	> 60	> 60	> 60	> 60	> 60	> 60

d: receiver discrimination factor ($d = \Delta f - 0.5\ (Bwa + Bwi)$)
Bwa: passband of the receiver of wanted emission
Bwi: bandwidth of interfering emission
Δf: frequency separation between assigned frequencies.

4 Technical Standard A-5: Propagation and field strength calculations

4.1 The present Technical Standard contains information on the methodology used with respect to the propagation and field strength calculations, for application in the technical examinations of notices of frequency assignments in the frequency bands between 9 kHz and 28 000 kHz.

4.2 Paragraph 4.3 and Tables 1A to 5 of this Technical Standard deal with the field strength calculations in the frequency band between 9 kHz and 3 900 kHz. Paragraph 4.4 deals with the frequency bands between 3 900 kHz and 28 000 kHz.

4.3 Two modes of propagation are considered in the frequency bands between 9 kHz and 3 900 kHz: the ground-wave mode and the sky-wave mode. Values of field strength for these two modes of propagation are contained in Tables 1A and 2 to 5 of this Technical Standard in the form of tables as a function of the distance.

4.3.1 The field strength values contained in Tables 1A and 2 to 5 are expressed as median values (exceeded 50% of the time) (dB relative to 1 μV/m). They relate to a radiated power of 1 kW (30 dBW) from a loss-free halfwave dipole isolated in space that produces a field strength of 222 mV/m at a distance of 1 km from the antenna. Table 1B contains antenna efficiency factors (correction factors) to be applied in conjunction with Table 1A to consider differences between radiated and notified power values.

4.3.2 Field strength values for the ground-wave propagation mode are calculated on the basis of Recommendation ITU-R P.368-7 for the following reference values:

– propagation over sea: $\sigma = 4$ S/m, $\varepsilon_r = 80$;

– propagation over land: $\sigma = 10$ mS/m, $\varepsilon_r = 4$.

4.3.3 In the technical examinations, where the ground-wave propagation mode is involved, only homogeneous paths are considered, with no use of mixed-path methodology.

4.3.4 The tables of field strength values for the sky-wave propagation mode in the frequency bands between 9 kHz and 3 900 kHz contain only the value that corresponds to the strongest mode of propagation. These values have been consolidated from different sources (Recommendations ITU-R P.533-5, ITU-R P.684-1, ITU-R P.1147, ITU-R P.435-7[3], etc.). (MOD RRB09/51)

4.3.5 For the day-time propagation only the ground-wave mode is considered within the same time zone. For the night-time propagation both modes are considered; however, only the greater of the ground-wave and the sky-wave mode is used for subsequent calculations.

---

3 This Recommendation replaced ex-CCIR Report 264-1. (ADD RRB09/51)

4.4 Concerning the calculation of the sky-wave in the bands between 3 900 kHz and 28 000 kHz, the Board noted that the ITU-R recommends the propagation method referred to in Annex 1 to Recommendation ITU-R P.533-5 as it has comparable accuracy to the other more complex methods. The Board also noted that the implementation of that method in the Bureau's calculation methodology for determining the affected administrations in the application of No. **9.21** may require considerable resources, which may not be justifiable having in mind the expected low volume of application of this methodology. Therefore, the Board decided that the following methodology is to be applied:

4.4.1 The monthly median values of the standard MUF (EJF) are calculated in accordance with Recommendation ITU-R P.434-5[4] and Report ITU-R P.2011-1[5], for two reference values (5 and 125) of the relative sunspot number R_{12} and for two selected months of the year (June and December).

4.4.2 The field-strength values are calculated in accordance with the methodology explained in the NBS Circular No. 462[6]. (MOD RRB09/51)

---

4 This Recommendation replaced ex-CCIR Recommendation 434 (New Delhi, 1970). (ADD RRB09/51)

5 This Report replaced ex-CCIR Report 340 (New Delhi, 1970). (ADD RRB09/51)

6 This is the Circular of the USA National Bureau of Standards "Ionospheric Radio Propagation". (ADD RRB09/51)

TABLE 1A

Field strength (dB relative to 1 µV/m) **9-535 kHz**

Distance (km)	Ground wave : sea									Sky wave at night						Ground wave : land									Distance (km)
	Frequency (kHz)																								
	10	30	60	100	150	200	300	400	500	10-100	150	200	300	400	500	10	30	60	100	150	200	300	400	500	
10	87	87	87	87	87	87	87	87	87							87	87	87	87	87	87	87	87	87	10
50	72	72	72	72	72	72	72	72	72							72	72	72	72	72	72	72	72	71	50
100	66	66	66	66	66	66	66	66	66				43	43	43	66	66	66	66	66	66	65	64	62	100
200	60	60	60	60	60	60	60	59	59				44	44	44	60	60	60	60	60	59	57	54	50	200
300	57	56	56	56	56	55	55	54	54				44	44	44	57	56	56	56	55	54	50	47	42	300
400	55	54	53	53	52	51	50	50	49	45	45	44	44	44	43	55	54	53	53	52	50	45	40	35	400
500	52	51	50	50	48	47	47	46	45	44	44	43	43	43	42	52	51	50	50	48	45	40	34	27	500
600	50	49	48	47	45	44	43	42	41	43	43	43	42	42	41	50	49	48	47	45	42	35	27	21	600
700	48	46	45	43	42	41	39	38	37	42	42	42	41	41	40	48	46	45	43	42	39	31	22	15	700
800	46	44	43	41	39	38	37	35	33	41	41	41	40	40	39	46	44	43	41	39	35	27	17	7	800
900	45	42	40	38	37	35	33	31	30	40	40	39	39	38	38	45	42	40	38	36	32	22	12	2	900
1 000	43	40	38	36	33	32	30	28	26	39	39	38	38	37	37	43	40	38	36	33	29	18	7	–4	1 000
1 100	42	38	36	33	31	29	27	25	22	38	37	37	36	36	35	42	38	36	33	30	25	14	2	–10	1 100
1 200	40	37	34	31	29	27	24	21	19	38	36	36	35	35	34	40	37	34	31	27	22	9	–3	–15	1 200
1 300	39	35	32	29	26	24	21	17	15	36	35	35	34	33	33	39	35	32	29	24	19	6	–8	–21	1 300
1 400	38	33	29	26	23	21	17	14	12	36	34	34	33	32	32	38	33	29	27	22	16	–2	–13		1 400
1 500	36	32	27	24	21	18	14	11	8	35	33	33	32	31	30	36	32	27	24	19	13	–2	–18		1 500
1 600	35	29	25	22	18	15	11	7	5	34	32	32	31	30	29	35	29	25	22	16	10	–7	–23		1 600
1 700	34	28	23	19	15	12	8	4	1	33	32	31	30	29	28	34	28	23	20	13	7	–10			1 700
1 800	32	26	20	17	13	10	5	1	–3	32	31	31	29	28	27	32	26	20	18	10	4	–14			1 800
1 900	31	24	19	15	10	7	2	–3	–6	31	30	30	28	27	26	31	24	19	15	8	1	–18			1 900
2 000	29	23	17	12	8	4	–1	–5	–9	31	29	29	27	26	25	29	23	17	13	6	–3	–21			2 000
2 200	27	19	13	7	3	–1	–7	–12	–16	29	28	27	25	24	23	27	19	13	7	0	–8				2 200
2 400	25	16	9	4	–2	–6	–13	–18	–23	28	27	26	24	23	21	25	16	9	4	–5	–14				2 400
2 600	22	13	5	–1	–7	–11	–18	–24		27	26	25	23	21	20	22	13	5	–1	–10	–20				2 600
2 800	20	9	2	–5	–11	16	–24			26	24	23	21	20	18	20	9	2	–5	–15					2 800
3 000	18	7	–3	–10	–17	22				25	23	22	20	18	17	18	7	–3	–10	–21					3 000
3 200	15	4	–5	–14	–21					25	23	21	19	17	15	15	4	–5	–14						3 200
3 400	13	0	–10	–18						24	22	20	18	16	14	13	0	–10	–18						3 400
3 600	10	–3	–13	–23						24	21	20	17	15	13	10	–3	–13	–23						3 600
3 800	9	–5	–16							23	21	19	16	14	12	9	–5	–16							3 800
4 000	7	–9	–20							23	20	18	15	13	11	7	–9	–20							4 000
5 000	–5	–24								23	20	17	14	10	8	–5	–24								5 000
6 000	–15									23	20	17	14	8	6	–15									6 000
7 000										22	19	16	13	8	5										7 000

TABLE 1B

Antenna efficiency (correction factor)

Frequency band (kHz)	**Class of station**	**Correction (dB)**
9-70	Fixed, land and radionavigation land stations:	
	– power above 1 kW	– 10
	– power equal to 1 kW	– 12
	– power below 1 kW	– 15
70-150	Fixed, land and radionavigation land stations:	
	– power above 1 kW	– 7
	– power equal to 1 kW	– 9
	– power below 1 kW	– 12
150-535	Fixed, land and radionavigation land stations (except non-directional beacons):	
	– power above 1 kW	– 2
	– power equal to 1 kW	– 4
	– power below 1 kW	– 7

TABLE 2

Field strength (dB relative to 1 µV/m) **SEA**

Distance (km)	1 605-2 300 kHz							2 300-2 850 kHz							Distance (km)
	Ground wave	Sky wave					Night	Ground wave	Sky wave					Night	
		Noon (low solar activity)							Noon (low solar activity)						
		Latitude							Latitude						
		0°	30°	40°	50°	60°			0°	30°	40°	50°	60°		
10	86							86							10
50	72							72							50
100	65							65							100
200	57							57							200
300	50							50							300
400	43						41	43						43	400
500	38						41	37						43	500
600	32						41	30						43	600
700	27						41	24						43	700
800	22						41	18						43	800
900	16						40	12					1	42	900
1 000	11						39	7				–9	–1	41	1 000
1 100	6				–12	–7	39	2			–13	–10	–3	41	1 100
1 200	0			–15	–13	–8	38	–3	–15	–15	–14	–11	–4	40	1 200
1 300	–5	–17	–17	–16	–14	–9	37	–9	–16	–16	–15	–12	–6	39	1 300
1 400	–10	–18	–18	–17	–15	–10	36	–16	–18	–17	–16	–14	–7	38	1 400
1 500	–15	–20	–20	–19	–16	–12	35		–19	–19	–18	–15	–9	37	1 500
1 600		–21	–21	–20	–17	–13	34		–20	–20	–19	–16	–10	36	1 600

TABLE 2

Field strength (dB relative to 1 μV/m) (*end*) **SEA**

Distance (km)	1 605-2 300 kHz							2 300-2 850 kHz							Distance (km)
	Ground wave	Sky wave						Ground wave	Sky wave						
		Noon (low solar activity)					Night		Noon (low solar activity)					Night	
		Latitude							Latitude						
		0°	30°	40°	50°	60°			0°	30°	40°	50°	60°		
1 700							33							36	1 700
1 800							33							35	1 800
1 900							32							34	1 900
2 000							32							34	2 000
2 200							31							33	2 200
2 400							30							32	2 400
2 600							29							31	2 600
2 800							28							30	2 800
3 000							27							29	3 000
3 200							26							27	3 200
3 400							25							26	3 400
3 600							23							24	3 600
3 800							21							22	3 800
4 000							19							20	4 000
4 500							15							16	4 500
5 000							10							11	5 000

The values for sky-wave field strength have not been included when they are less than the ground-wave, except when they make the interpolation easier.

TABLE 3

Field strength (dB relative to 1 µV/m) **SEA**

Distance (km)	2 850-3 500 kHz							3 500-3 900 kHz								Distance (km)
	Ground wave	Sky wave					Night	Ground wave	Sky wave						Night	
		Noon (low solar activity)							Noon (low solar activity)							
		Latitude							Latitude							
		0°	30°	40°	50°	60°			0°	10°	20°	30°	40°	50°	60°	
10	86							86								10
50	72							72							47	50
100	65							65	27	28	29	30	31	35	40	47	100
200	56							55	24	25	26	27	29	32	37	47	200
300	48						44	47	19	20	21	22	25	29	34	47	300
400	41						44	40	14	15	16	17	21	26	32	47	400
500	35						44	33	5	8	11	14	19	24	30	47	500
600	29						44	26	0	1	6	11	16	21	28	46	600
700	22					12	44	19	–2	–1	1	5	12	17	26	46	700
800	16				–3	10	44	12	–5	–4	–3	–2	8	13	24	45	800
900	10				–5	6	44	6	–8	–6	–5	–4	4	12	21	44	900
1 000	4			–10	–6	2	43	–1	–10	–8	–6	–5	–2	10	18	43	1 000
1 100	–3	–14	–13	–12	–8	0	43	–7				–8	–3	5	16	42	1 100
1 200	–8	–15	–14	–13	–10	–1	42					–9	–5	1	14	42	1 200
1 300	–13	–16	–15	–14	–11	–3	41						–7	–1	11	41	1 300
1 400		–18	–17	–16	–13	–4	40						–9	–3	8	40	1 400
1 500		–19	–19	–18	–14	–6	39							–4	7	39	1 500

TABLE 3

Field strength (dB relative to 1 μV/m) (*end*) **SEA**

Distance (km)	2 850-3 500 kHz							3 500-3 900 kHz								Distance (km)
	Ground wave	Sky wave						Ground wave	Sky wave							
		Noon (low solar activity)					Night		Noon (low solar activity)						Night	
		Latitude							Latitude							
		0°	30°	40°	50°	60°			0°	10°	20°	30°	40°	50°	60°	
1 600		–20	–20	–19	–15	–7	38							–5	5	38	1 600
1 700							38									38	1 700
1 800							37									37	1 800
1 900							36									36	1 900
2 000							35									35	2 000
2 200							34									34	2 200
2 400							33									33	2 400
2 600							32									32	2 600
2 800							31									31	2 800
3 000							30									30	3 000
3 200							28									28	3 200
3 400							27									27	3 400
3 600							25									26	3 600
3 800							23									25	3 800
4 000							21									23	4 000
4 500							16									18	4 500
5 000							11									13	5 000

The values for sky-wave field strength have not been included when they are less than the ground-wave, except when they make the interpolation easier.

TABLE 4

Field strength (dB relative to 1 µV/m) **LAND**

Distance (km)	1 605-2 300 kHz							2 300-2 850 kHz							Distance (km)
	Ground wave	Sky wave						Ground wave	Sky wave						
		Noon (low solar activity)					Night		Noon (low solar activity)					Night	
		Latitude							Latitude						
		0°	30°	40°	50°	60°			0°	30°	40°	50°	60°		
10	78							75							10
50	48						46	45						46	50
100	34					30	43	21			25	27	31	44	100
200	17			10	15	21	41	13	12	13	16	20	25	43	200
300	5	2	3	4	8	16	41	–1	6	7	10	14	22	43	300
400	–8	–4	–3	–2	2	10	41	–15	–1	0	2	9	16	43	400
500		–7	–6	–5	–1	6	41		–5	–4	–2	5	12	43	500
600		–9	–9	–8	–4	2	41		–8	–7	–5	0	8	43	600
700		–11	–11	–10	–6	–1	41		–10	–9	–7	–3	6	43	700
800		–12	–12	–11	–9	–3	41		–11	–10	–9	–6	4	43	800
900		–13	–13	–12	–10	–4	40		–12	–11	–10	–8	1	42	900
1 000		–14	–14	–13	–11	–5	39		–13	–12	–11	–9	–1	41	1 000
1 100		–15	–15	–14	–12	–7	39		–14	–14	–13	–10	–3	41	1 100
1 200		–16	–16	–15	–13	–8	38		–15	–15	–14	–11	–4	40	1 200
1 300		–17	–17	–16	–14	–9	37		–16	–16	–15	–12	–6	39	1 300
1 400		–18	–18	–17	–15	–10	36		–18	–17	–16	–14	–7	38	1 400
1 500		–20	–20	–19	–16	–12	35		–19	–19	–18	–15	–9	37	1 500
1 600		–21	–21	–20	–17	–13	34		–20	–20	–19	–16	–10	36	1 600

TABLE 4

Field strength (dB relative to 1 μV/m) (*end*) **LAND**

Distance (km)	1 605-2 300 kHz							2 300-2 850 kHz							Distance (km)
	Ground wave	Sky wave						Ground wave	Sky wave						
		Noon (low solar activity)					Night		Noon (low solar activity)					Night	
		Latitude							Latitude						
		0°	30°	40°	50°	60°			0°	30°	40°	50°	60°		
1 700							33							36	1 700
1 800							33							35	1 800
1 900							32							34	1 900
2 000							32							34	2 000
2 200							31							33	2 200
2 400							30							32	2 400
2 600							29							31	2 600
2 800							28							30	2 800
3 000							27							29	3 000
3 200							26							27	3 200
3 400							25							26	3 400
3 600							23							24	3 600
3 800							21							22	3 800
4 000							19							20	4 000
4 500							15							16	4 500
5 000							10							11	5 000

The values for sky-wave field strength have not been included when they are less than the ground-wave, except when they make the interpolation easier.

TABLE 5

Field strength (dB relative to 1 µV/m) **LAND**

Distance (km)	2 850-3 500 kHz							3 500-3 900 kHz								Distance (km)
	Ground wave	Sky wave					Night	Ground wave	Sky wave						Night	
		Noon (low solar activity)							Noon (low solar activity)							
		Latitude							Latitude							
		0°	30°	40°	50°	60°			0°	10°	20°	30°	40°	50°	60°	
10	71							67								10
50	41						45	37								47	50
100	27	26	27	28	28	32	44	23	27	28	29	30	31	35	40	47	100
200	14	17	18	22	25	28	44	4	24	25	26	27	29	32	37	47	200
300		9	10	15	20	27	44		19	20	21	22	25	29	34	47	300
400		2	3	5	15	21	44		14	15	16	17	21	26	32	47	400
500		–3	–2	1	11	17	44		5	8	11	14	19	24	30	47	500
600		–6	–5	–3	3	14	44		0	1	6	11	16	21	28	46	600
700		–8	–7	–5	0	12	44		–2	–1	1	5	12	17	26	46	700
800		–10	–9	–8	–3	10	44		–5	–4	–3	–2	8	13	24	45	800
900		–11	–10	–9	–5	6	44		–8	–6	–5	–4	4	12	21	44	900
1 000		–12	–11	–10	–6	2	43		–10	–8	–6	–5	–2	10	18	43	1 000
1 100		–14	–13	–12	–8	0	43					–8	–3	5	16	42	1 100
1 200		–15	–14	–13	–10	–1	42					–9	–5	1	14	42	1 200
1 300		–16	–15	–14	–11	–3	41						–7	–1	11	41	1 300
1 400		–18	–17	–16	–13	–4	40						–9	–3	8	40	1 400
1 500		–19	–19	–18	–14	–6	39							–4	7	39	1 500
1 600		–20	–20	–19	–15	–7	38							–5	5	38	1 600

TABLE 5

Field strength (dB relative to 1 μV/m) (*end*) **LAND**

Distance (km)	2 850-3 500 kHz							3 500-3 900 kHz								Distance (km)
	Ground wave	Sky wave						Ground wave	Sky wave							
		Noon (low solar activity)					Night		Noon (low solar activity)						Night	
		Latitude							Latitude							
		0°	30°	40°	50°	60°			0°	10°	20°	30°	40°	50°	60°	
1 700							38							–7		38	1 700
1 800							37							–9		37	1 800
1 900							36									36	1 900
2 000							35									35	2 000
2 200							34									34	2 200
2 400							33									33	2 400
2 600							32									32	2 600
2 800							31									31	2 800
3 000							30									30	3 000
3 200							28									28	3 200
3 400							27									27	3 400
3 600							25									26	3 600
3 800							23									25	3 800
4 000							21									23	4 000
4 500							16									18	4 500
5 000							11									13	5 000

The values for sky-wave field strength have not been included when they are less than the ground-wave, except when they make the interpolation easier.

PART B

SECTION B5

Rules concerning criteria for applying the provisions of No. 9.36 to a frequency assignment in the bands governed by No. 5.92

1 The identification of the administrations with which coordination may need to be effected is based on the characteristics of the assignment that is subject to the procedure of No. **9.21** and the worst-case assumptions relating to the propagation characteristics and other technical parameters. These worst-case assumptions were developed on the basis of the Calculation Methodology as contained in Section B4 of the Rules of Procedure.

2 The provisions of No. **5.92** deal with the application of the procedure of No. **9.21** for radiodetermination systems, whose maximum "radiated mean power" is limited to 50 W. Since the term "radiated mean power" is not defined in the Radio Regulations, the Bureau applies this provision to the mean power supplied to the antenna transmission line (Item 8A of Appendix **4**).

3 For identification of the administrations whose agreement may need to be obtained, the following criteria are applied:

3.1 the *coordination distance concept* is applied for protection of the services that are allocated according to Article **5**;

3.2 the *case-by-case examination* is performed with respect to the assignments for which the procedure of No. **9.21** was completed or initiated.

4 For the application of the coordination distances concept appropriate Tables (Tables 1 and 2) were developed on the basis of the Technical Standards A-1 and A-2, as contained in the Calculation Methodology (Section B4 of the Rules of Procedure), using the telegraphy as reference transmission type, for night-time operation. This type of transmission was selected since it represents the worst-case condition for calculation of the coordination distances due to the low value of the minimum field strength to be protected. Table 1 relates to the protection ratio of 17 dB, which corresponds to the "upper value of Technical Standard A-1" concerning the RF signal-to-interference protection ratio for telegraphy, automatic reception without error correction, in the frequency band 1 606.5-4 000 kHz; countries outside the coordination area determined by these coordination distances are certainly not affected. Table 2 relates to the protection ratio of 5 dB, which corresponds to the "minimum limit of Technical Standard A-1" concerning the RF signal-to-interference protection ratio for telegraphy, aural reception, in the frequency band 1 606.5-4 000 kHz; countries within the coordination area determined by these coordination distances are certainly affected if their services use telegraphy. The countries situated between the two coordination contours have a slightly higher probability of harmful interference than that considered desirable for the referenced type of transmission.

5 However, with respect to allocations to the amateur service in these bands, the Bureau is not in a position to identify the countries whose amateur service could be affected and consequently one of the following notes is included in the appropriate Special Section:

– "In some countries of Region 1, the band 1 715-1 800 kHz, or part of it, is allocated to the amateur service. The Bureau has no means of identifying the countries whose amateur service could be affected."

– "In Regions 2 and 3, except in countries mentioned in No. **5.102**, and in some countries in Region 1, the band 1 850-2 000 kHz, or part of it, is allocated to the amateur service. The Bureau has no means of identifying the countries whose amateur service could be affected."

– "In Regions 1, 2 and 3, the band 3 500-3 750 kHz is allocated to the amateur service. The Bureau has no means of identifying the countries whose amateur service could be affected."

– "In Regions 1, 2 and 3, except in countries mentioned in No. **5.122**, the band 3 750-3 800 kHz is allocated to the amateur service. The Bureau has no means of identifying the countries whose amateur service could be affected."

TABLE 1

Coordination distance for assuring protection ratio of 17 dB
(protected transmission: telegraphy, automatic reception)

Noise degree	50	60	70	80
Minimum field strength (dB relative to 1 μV/m)	4	13	22	30

Power (of the interfering transmission)		**Coordination distance (km)**			
1 W	0 dBW	4 400	3 400	1 800	800
3 W	5 dBW	4 900	3 900	2 800	1 400
10 W	10 dBW	5 000	4 500	3 500	2 200
30 W	15 dBW	5 000	5 000	4 000	3 100
50 W	17 dBW	5 000	5 000	4 200	3 400

TABLE 2

Coordination distance for assuring protection ratio of 5 dB
(protected transmission: telegraphy, aural reception)

Noise degree	50	60	70	80
Minimum field strength (dB relative to 1 μV/m)	0	9	18	26

Power (of the interfering transmission)		**Coordination distance (km)**			
1 W	0 dBW	3 400	1 600	800	300
3 W	5 dBW	3 900	2 600	1 300	700
10 W	10 dBW	4 500	3 500	2 200	1 100
30 W	15 dBW	5 000	4 000	3 100	1 600
50 W	17 dBW	5 000	4 200	3 400	1 900

PART B

SECTION B6

Rules concerning criteria for applying the provisions of No. 9.36 to a frequency assignment in the services whose allocation is governed by Nos. 5.292, 5.293, 5.297, 5.309, 5.316A, 5.316B, 5.323, 5.325 and 5.326 (MOD RRB09/51)

1 The identification of the administrations with which coordination may need to be effected is based on the characteristics of the assignment that is subject to the procedure of No. **9.21** and the worst-case assumptions relating to the propagation characteristics and other technical parameters. These worst-case assumptions were developed on the basis of the information contained in various sources (Regional Agreements, ITU-R Recommendations), since the Radiocommunication Bureau has no Technical Standards for application in the frequency bands above 28 MHz.

2 For identification of the administrations whose agreement may need to be obtained, in the context of the provisions of Nos. **5.292**, **5.293**, **5.297**, **5.309**, **5.316A, 5.316B, 5.323**, **5.325** and **5.326**, the following criteria are applied: (MOD RRB09/51)

2.1 the *coordination distance concept* is applied with respect to the services that are allocated according to Article **5** (these services are indicated in the Table below under the heading "Protected service");

	Frequency band (MHz)	**Allocated service (No. 9.21)**	**Protected service**
5.292 [1]	470-512	FX, MO	BT
5.293 [1]	470-512 and 614-806	FX, MO	BT
5.297	512-608	FX, MO	BT
5.309 [1]	614-806	FX	BT
5.316A (ADD RRB09/51)	790-862	MO(-AER)	FX, MO(-AER), AL
5.316B (ADD RRB09/51)	790-862	MO(-AER)	AL
5.323	862-960	AL	FX, MO
5.325 [1]	890-942	LR	FX, MO
5.326 [1]	903-905	MO(-AER)	FX

[1] Different category of service.

2.2 the *case-by-case examination* is performed with respect to the assignments for which the procedure of No. **9.21** was completed or initiated.

3 In the calculation of the coordination distances the following approach was used:

3.1 For the protection of the broadcasting (television) service, in the context of the provisions of Nos. **5.292**, **5.293**, **5.297** and **5.309**, the relevant criteria and methodology contained in the GE06 Agreement were used, notably the data relating to propagation zones 1 and 4. The calculated coordination distances over land paths and sea paths, respectively, are contained in Table 1. (MOD RRB09/51)

TABLE 1 (MOD RRB09/51)

Coordination distances for protection of the BT service (from the FX/MO service, effective antenna height 37.5 m)

	Frequency band 470-582 MHz		**Frequency band 582-862 MHz**	
Power (of the interferer) (dBW)	**Land path (km)**	**Sea path (km)**	**Land path (km)**	**Sea path (km)**
30	140.7	917.1	114.1	864.9
25	101.4	794.7	84.9	755
20	74	683.9	63	647.7
15	54.8	585	47	543
10	41	489.6	35.9	446.5
5	31.3	395.5	27.1	360.7
0	23.6	303.7	20.9	272

NOTE − The coordination distances were calculated using propagation curves of the GE06 Agreement for 1% of time, 50% of locations, the coordination trigger of 18 (μV/m) for the band 470-582 MHz and of 20 (μV/m) for the band 582-862 MHz, calculations were made for the lowest frequencies of the band concerned.

3.2 For the protection of the fixed and mobile services, from the radionavigation and radiolocation services, in the context of the provisions of Nos. **5.323** and **5.325**, propagation curves from Recommendation ITU-R P.528-2 are used in connection with the following data:

Minimum field strength to be protected (FX): 30 dB(μV/m), $PR = 8$ dB.

3.3 For the protection of the fixed and mobile services, in the context of the provisions of Nos. **5.316A** and **5.326**, the relevant criteria and methodology contained in the GE06 Agreement were used, notably the data relating to propagation zones 1 and 4. The calculated coordination distances over land paths and sea paths, respectively, are contained in Table 2. (MOD RRB09/51)

TABLE 2 (MOD RRB09/51)

Coordination distances for protection of the FX/MO services (from the FX/MO service, effective antenna height 37.5 m) in the frequency band between 790 and 960 MHz

Power (of the interferer) (dBW)	**Land path (km)**	**Sea path (km)**
30	86	463.8
25	65.2	397.4
20	50.1	335.4
15	39.2	276.8
10	30.6	219.9
5	23.9	168.1
0	19	125.7

NOTE − The coordination distances were calculated using propagation curves of the GE06 Agreement for 10% of time, 50% of locations, the coordination trigger of 18 (μV/m), calculations were made for the frequency 790 MHz.

4 For the identification of potentially affected administrations with respect to their aeronautical radionavigation service, in the context of the provisions of Nos. **5.316A** and **5.316B** see the Rule of Procedure on No. **5.316A**. (ADD RRB09/51)

PART B

SECTION B7

Rules concerning the protection ratio values and minimum values of field strength to be used in the case of digital modulation transmission systems when applying the provisions of Article 4 of the GE75 Regional Agreement

1 Introduction

This section provides the protection ratios and the minimum values of field strength for the various interference cases where digital modulation transmission systems are used. The values of the protection ratios are given in Recommendation ITU-R BS.1615-1. Only the cases involving the DRM transmission system with robustness modes A or B and spectrum occupancy type 2 are considered.

2 RF protection ratios

Protection ratios are provided only for the cases of co-channel and the first adjacent channel interference that are considered by the Agreement.

Table 2.1 provides the relative protection ratios for the cases of analogue transmission systems interfered with by systems using digital transmission systems. It should be noted that these values are for analogue systems using a high degree of modulation compression and audio bandwidth of 4.5 kHz (Case D in § 4.4.2.1 of the Agreement). These values should be adjusted to provide protection ratio values for the cases in 4.4.1 and 4.4.2.1 of the Agreement for the co-channel and adjacent channel cases according to the different degrees of modulation compression and audio bandwidth (Cases A to D in § 4.4.2.1 of the Agreement).

TABLE 2.1

Relative RF protection ratios (dB) for analogue modulation system interfered with by digital modulation system

Wanted signal	Unwanted signal	Frequency separation, $f_{unwanted} - f_{wanted}$ (kHz)			Parameters	
					B_{DRM} (kHz)	A_{AF} [1, 2] (dB)
		–9	**0**	**9**		
AM	DRM_A2	–29.8	6.6	–29.8	9	–
AM	DRM_B2	–29.7	6.5	–29.7	9	–

[1] The RF protection ratio for analogue interfered with by digital can be calculated by adding a suitable value for the AF protection ratio according to a given case to the values in Table 2.1.

[2] The values presented in this table refer to the specific case of high degree of modulation compression and audio bandwidth of 4.5 kHz (Case D). The modulation depth, associated with high degree of modulation compression, has been assumed for the analogue signal. In order to offer adequate protection to analogue signals with normal degree of compression, each value in Table 2.1 should be increased to accommodate the difference between normal and high degree of modulation compression.

Tables 2.2 and 2.3 provide the relative RF protection ratios for cases of digital modulation transmission systems interfered with by analogue modulation transmission systems or by digital modulation transmission systems. These tables have been prepared for the DRM transmission system using robustness modes A and B and spectrum occupancy type 2, 64-QAM and protection level number 1.

In order to obtain the applicable RF protection ratio for a specific case, the relevant *S/I* value from Tables 2.2 and 2.3 should be added to the relative protection ratio along with the relevant *S/I* correction value from Table 2.4 in order to make provision for systems using a different modulation and protection level.

TABLE 2.2

Relative RF protection ratios (dB) for digital modulation system (64-QAM, protection level No. 1) interfered with by analogue modulation system

Wanted signal	Unwanted signal	Frequency separation, $f_{unwanted} - f_{wanted}$ (kHz)			Parameters	
					B_{DRM} (kHz)	*S/I* (dB)
		–9	**0**	**9**		
DRM_A2	AM	–34	0	–34	9	6.7
DRM_B2	AM	–33.7	0	–33.7	9	7.3

TABLE 2.3

Relative RF protection ratios (dB) for digital modulation systems (64-QAM, protection level No. 1) interfered with by digital modulation (identical robustness modes and spectrum occupancy types)

Wanted Signal	Unwanted signal	Frequency separation, $f_{unwanted} - f_{wanted}$ (kHz)			Parameters	
					B_{DRM} (kHz)	S/I (dB)
		–9	0	9		
DRM_A2	DRM_A2	–38.3	0	–38.3	9	15.3
DRM_B2	DRM_B2	–38.1	0	–38.1	9	15.9

TABLE 2.4

***S/I* correction values to be used in Tables 2.2 and 2.3 for other combinations of modulation scheme and protection level No.**

Wanted signal			S/I_{corr} - Correction values (dB) for DRM robustness mode with spectrum occupancy type 2	
			Robustness mode	
Modulation Scheme	Protection level No.	Average code rate	A	B
16-QAM	0	0.5	– 6.7	– 6.6
	1	0.62	– 4.6	– 4.6
64-QAM	0	0.5	–1.2	–1.2
	1	0.6	0.0	0.0
	2	0.71	1.8	1.8
	3	0.78	3.4	3.4

2.1 Examples of calculating an RF protection ratio

In order to obtain the relevant RF protection ratio to be used in a specific case, it is necessary to identify the parameters of the wanted digital system (that which is being interfered with), then:

– Select from Table 2.2 or 2.3 the relative RF protection ratio according to the frequency separation and the robustness mode of the wanted digital system;

– add the *S/I* value from Table 2.2 or 2.3 which is that which would be applicable for a wanted digital system with modulation scheme 64-QAM and protection level no.1; and

– add the S/I_{corr} value from Table 2.4 according to the actual parameters of the wanted digital system based upon modulation scheme, protection level no. and robustness mode.

Example 1: A digital system with robustness mode A, spectrum occupancy type 2, modulation scheme 16-QAM and protection level no.1 interfered with by a digital system with robustness mode A and spectrum occupancy type 2 on an upper adjacent channel:

RF protection ratio = relative RF protection ratio (from Table 2.3)

+ *S/I* (from Table 2.3) + S/I_{corr} (from Table 2.4)

= –38.3 + 15.3 – 4.6 = –27.6 dB

Example 2: A digital system with robustness mode B, spectrum occupancy type 2, modulation scheme 64-QAM and protection level no. 3 interfered with by a digital system with robustness mode A and spectrum occupancy type 2 on an upper adjacent channel:

RF protection ratio = relative RF protection ratio (from Table 2.3)

+ *S/I* (from Table 2.3) + S/I_{corr} (from Table 2.4)

= –38.1 + 15.9 + 3.4 = –18.8 dB

3. Minimum values of field strength

Table 3.1 provides the minimum values of field strength in the presence of natural noise alone to achieve a BER of 1 x 10^{-4} for DRM transmission with robustness modes A or B and spectrum occupancy type 2 and different modulation schemes and protection levels for the cases of ground wave (MF and LF bands) and ground wave in the presence of sky-wave (MF band).

These values have been normalised for Zone A and 1 MHz. Values for zones B and C may be obtained by adding 10 dB and 3 dB respectively, then applying the appropriate frequency correction factor from Figure 24 of Annex 2 of the Agreement.

TABLE 3.1

Minimum values of field strength (dB(μV/m)) in the presence of natural noise (1 MHz) in zone A to achieve a BER of 1 x 10^{-4} for DRM with robustness modes A or B and spectrum occupancy type 2 and different modulation schemes and protection levels for the cases of ground-wave propagation and ground-wave in the presence of sky-wave propagation

Modulation scheme	Protection level No.	Average code rate	Minimum value of field strength (dB (μV/m))				
			Ground-wave (MF)		Ground-wave and sky-wave (MF)		Ground-wave (LF)
			A2 (9 kHz)	B2 (9 kHz)	A2 (9 kHz)	B2 (9 kHz)	A2 (9 kHz)
16-QAM	0	0.5	33.1	33.8	33.9	34.7	39.1
	1	0.62	35.2	35.8	37.0	37.6	41.2
64-QAM	0	0.5	38.6	39.2	39.4	40.1	44.6
	1	0.6	39.8	40.4	40.8	41.4	45.8
	2	0.71	41.6	42.2	43.7	44.2	47.6
	3	0.78	43.2	43.8	46.5	46.8	49.2

PART C

Internal arrangements and working methods of the Radio Regulations Board

Introduction

In accordance with Nos. 143 to 147 of the Convention the Board has approved the following internal arrangements and working methods.

1 Board meetings

1.1 A meeting of the Board will be held approximately every three months. The specific dates and durations for the meetings in a given year will be decided at the last meeting of the preceding year. Any subsequent change of dates or durations will be made only with the agreement of all the members. (CV145 (Rev. Marrakesh, 2002)).

1.2 A convening notice for the next meeting of the Board, including the date and duration, will be prepared by the Executive Secretary and normally provided to Board Members at the current meeting.

1.3 The draft agenda should be prepared by the Executive Secretary of the Board[1] after approval by the Chairman as soon as possible following the closing date for submissions but not later than two weeks before the meeting. The draft agenda and the documents of the meeting shall be sent to members of the Board by the Executive Secretary of the Board. Simultaneously, the draft agenda shall be made available in electronic form on the RRB website.

1.4 The agenda should include the following, as required:

a) consideration of the report by the Director, Radiocommunication Bureau;

b) approval of the new or revised Rules of Procedure (CS95, RR No. **13.12**);

c) consideration of cases dealing with the review of Findings by the Bureau, following a request by an administration, which cannot be resolved by the use of the Rules of Procedure (CV171);

d) consideration of any appeal against a Bureau decision or any other request submitted by an administration (CV140);

---

[1] The Director of the Radiocommunication Bureau acts as the Executive Secretary of the Board (see CV174).

e) consideration of reports on harmful interference (CV140, CV173, RR No. **13.2**) and reports of alleged contravention or non-observance of the Radio Regulations (RR No. **13.3**);

f) consideration of any other matters which cannot be resolved by the Bureau (CS96);

g) matters which should be referred to the radiocommunication conferences (CS95);

h) the examination of any item for assistance in the application of the Radio Regulations requested by any administration (RR Nos. **7.5** and **7.6**);

i) the examination of any item requested by any member of the Board;

j) the examination of any item requested by the Director of the Radiocommunication Bureau;

k) any other business (CS97, etc.). (MOD RRB13/62)

1.5 All submissions from Administrations containing comments concerning draft Rules of Procedure shall be received by the Executive Secretary at least four weeks before the meeting. Comments on the draft Rules of Procedure received after that date will not be considered (RR No. **13.12A**).

1.6 All other submissions from Administrations shall be received by the Executive Secretary at least three weeks before the meeting. Any submissions received from Administrations following the three-week deadline will normally not be considered at the same meeting and will be placed on the agenda of the following meeting. However, if so agreed by Board Members, delayed submissions relevant to items on the approved agenda could be considered for information. (MOD RRB13/62)

1.6 *bis* The Board will conduct its work transparently (CS95 and Resolution 119 (Rev. Antalya, 2006)). Any submission to the Board containing restricted material (e.g. confidential, proprietary, sensitive, etc.) shall be returned by the Bureau, who will invite the administration concerned to resubmit an unrestricted document if it wishes the Board to consider the material. (ADD RRB13/63)

1.7 All documentation should be prepared by the Executive Secretary and distributed to the Members as soon as it becomes available but not later than two weeks before the start of the meeting. RRB meeting documents will be made available in electronic form on the RRB website as soon as they are available.

1.8 Meeting attendance will be as follows:

– Members

– Executive Secretary/Director of the Radiocommunication Bureau

– Minute writer(s).

The Director of the Radiocommunication Bureau may be accompanied by any necessary staff of the Bureau on a case-by-case basis.

1.9 The Board shall endeavour to reach its decisions unanimously. If it fails in that endeavour, a decision shall be valid only if at least two-thirds of the members of the Board vote in favour thereof. Each member of the Board shall have one vote; voting by proxy is not allowed (see CV146). The minutes should clearly indicate if a decision is taken by a vote (at least two-thirds of the members of the Board). (MOD RRB13/62)

1.10 The first draft of the minutes shall be prepared in the official languages of the Union requested by the Board Members. The Executive Secretary shall distribute the draft minutes to the Board Members by electronic means as soon as possible after the meeting, but no later than six weeks prior to the next meeting. Any amendments to the draft minutes by any Board Members shall be provided to all Board Members and the Executive Secretary not later than five weeks prior to the next meeting. The draft minutes, as amended, are considered approved and ready for circulation. At least one month before the start of the following meeting, the BR shall, by means of a circular letter, send the approved minutes in all official languages of the Union to administrations and make them available on the RRB pages of the ITU website (RR No. **13.18**). (MOD RRB13/62)

1.11 In order to clarify the status of the opinions expressed by individual Board Members as reflected in the minutes and the Board's official decisions as contained in the Summary of Decisions, the minutes shall include a statement along the following lines: "The minutes of the meeting reflect the detailed and comprehensive consideration by the members of the Radio Regulations Board of the items that were under consideration on the agenda of the [insert meeting number] meeting of the Board. The official decisions of the [insert meeting number] meeting of the Radio Regulations Board may be found in the Summary of Decisions, Document RRB [insert document number]." (ADD RRB13/62)

1.12 A summary of decisions shall be prepared by the Executive Secretary in a tabular form (subject, decision, reasons for the decision, including references to comments of administrations received and considered, as well as follow-up) and approved by the Board at its current meeting. The summary shall be made available on the RRB pages of the ITU website within one week after a meeting of the Board (RR No. **13.18**). (MOD RRB13/62)

2 Rules of Procedure

2.1 Principles for establishment or revision of Rules of Procedure

2.1.1 In the development of Rules of Procedure, the following principles shall be applied by the Board, the Bureau, and administrations:

2.1.1.1 New Rules of Procedure shall be developed only when there is a clear need and justification (RR No. **13.0.1**). Such Rules of Procedure shall, if necessary, be developed in the following cases:

– Difficulties in the application of the Radio Regulations, including those due to inconsistencies in the Radio Regulations;

– Difficulties in the application of the regional agreements (i.e., special agreements concluded under the auspices of the ITU) in as much as they concern the relationship between the Radio Regulations and those regional agreements (RR Nos. **6.4** and **11.34**);

– Any practice used by the Bureau in the application of the Radio Regulations (RR No. **13.12A** *b*)) and regional agreements.

2.1.1.2 Rules of Procedure are to be in conformity with the spirit and principle of the Constitution, Convention and the Radio Regulations and shall avoid any relaxation to the application of the corresponding provisions of the Radio Regulation to which the rules make reference (RR No. **13.12A** *g*)).

2.1.1.3 For those Rules of Procedure which were developed to alleviate difficulties or inconsistencies in the application of the Radio Regulations (see the first indent to § 2.1.1.1), the Board shall submit to the next world radiocommunication conference the modifications to the Radio Regulations to alleviate such difficulties or inconsistencies and include its suggestions in the Report of the Director to this conference (RR No. **13.0.1**)[2].

2.1.1.4 If difficulties or inconsistencies in the Radio Regulations are identified but a clear need for developing a new Rule of Procedure is not identified, the Board will suggest any necessary modifications to the Radio Regulations to the next WRC (RR No. **13.0.2**).

2.2 Preparation of Rules of Procedure

2.2.1 In the preparation of Rules of Procedure, the following steps shall be applied by the Board, the Bureau, and administrations (RR No. **13.12A**):

2.2.1.1 preparation, by BR, of a draft Rule of Procedure;

2.2.1.2 draft Rules of Procedure shall be made available to the administrations for comments in a circular letter and on the RRB website at least ten weeks before the meeting (RR No. **13.12A** *c)*);

2.2.1.3 all comments from administrations on these draft Rules of Procedure shall be submitted to the Bureau at least four weeks before the start of the Board meeting (RR No. **13.12A** *d)*);

2.2.1.4 comments from administrations should suggest specific text for the proposed Rule of Procedure (RR No. **13.12A** *e)*);

2.2.1.5 all comments on draft Rules of Procedure received from administrations will be posted on the RRB website (RR No. **13.12A** *f)*);

2.2.1.6 comments submitted by administrations concerning draft Rules of Procedure that have not been received within the four-week time limit (see RR No. **13.12A** *d)*) shall not be considered by the Board (cf. RR No. **13.12A** *f)*);

---

2 See Minutes of the Third Plenary of WRC-07, Document 217, § 3.

2.2.1.7 the approved Rule of Procedure shall be published in a circular letter and in electronic form.

2.2.2 The Bureau shall also publish, on the RRB website, a list of future proposed Rules and the time-frame for their consideration by the Board in order to facilitate administrations providing comments on the future proposed Rules (RR No. **13.12A** *a)*).

2.2.3 In submitting the draft Rules of Procedure, the Director should also submit relevant material which explains the practical necessity of the new or revised Rules, as well as their possible impact on administrations, and other background information.

2.3 Review of Rules of Procedure

2.3.1 The Rules are effective when approved by the Board, except in cases where a different date of application is specified in the Rule of Procedure. If comments are received from any administration after publication, the Board will review the Rule of Procedure, if appropriate.

2.3.2 If there is continuing disagreement, the matter shall be submitted to the next World Radiocommunication Conference in the report of the Director of the Radiocommunication Bureau, with the agreement of the concerned administration (CS 95, RR No. **13.14**).

2.3.3 For Rules of Procedure referenced in § 2.1.1.3, the Board will consider the possibility of making a proposal for transforming the current Rule of Procedure into provisions of the Radio Regulations. The BR will assist the Board in this task.

3 Review of Findings and cases of appeal (CV140 2); RR No. 14.5)

3.1 If requested by Administrations, the Bureau shall forward review of findings to the Board. Administrations may appeal decisions of the Bureau to the Board. In both of the above cases the following information shall be supplied:

a) brief explanation and the history of the case;

b) all relevant documents which were received from the concerned administrations and those relevant documents which were sent by the Director of the Radiocommunication Bureau to that administration;

c) brief statement by the Director to clarify the view of the Radiocommunication Bureau.

3.2 The Board will decide on the appropriate action.

3.3 The decision of the Board is final in so far as the Bureau and the Board are concerned. The administration requesting the review may raise the matter at a world radiocommunication conference if it disagrees with the Board's decision (RR No. **14.6**).

4 Harmful interference (CV173, RR No. 13.2)

4.1 When an administration has requested the Bureau's assistance for the resolution of a case of harmful interference in accordance with the Convention and the Radio Regulations, and the case has not been resolved after efforts by the Director following the appropriate provisions of the Radio Regulations and established procedures in the Radiocommunication Bureau or the administration requests the assistance of the Board, a report from the Director of the Bureau will be submitted to the Board for consideration, which includes the following:

a) brief explanation of the case which will include the degree of reported interference, history to the reported interference and the status of notification of the concerned assignments;

b) all relevant documents which were received from the concerned administrations and those relevant documents which were sent by the Director of the Radiocommunication Bureau to that administration;

c) brief statement to clarify the view of the Radiocommunication Bureau, including draft recommendations to the administrations concerned.

4.2 The Board will decide on the appropriate action.

5 Contravention or non-observance of the Radio Regulations (RR No. 13.3)

5.1 When an administration has requested an investigation of alleged contravention or non-observance of the Radio Regulations by another administration, and the case has not been resolved after efforts by the Director following the appropriate provisions of the Radio Regulations and established procedures in the Radiocommunication Bureau or the administration requests the assistance of the Board, the Bureau will submit a report to the Board for consideration. The report will include the following:

a) brief explanation and background of the case;

b) all relevant documents which were received from the concerned administrations and those relevant documents which were sent by the Director of the Radiocommunication Bureau to the concerned administrations;

c) draft recommendations to the concerned administrations.

5.2 The Board will decide on the appropriate action.

6 Any other matters that cannot be resolved by the Bureau through the application of the Rules of Procedure

The Director of the Radiocommunication Bureau may raise any such matter. Such cases will be dealt with by the Board on a case-by-case basis (CS96).

_____

Rules of Procedure

Notes

Rules of Procedure

Notes

Rules of Procedure

Notes

Rules of Procedure

Notes

Rules of Procedure

Notes

Rules of Procedure

Notes

Printed in Switzerland
Geneva, 2012
ISBN 978-92-61-14081-6