



This electronic version (PDF) was scanned by the International Telecommunication Union (ITU) Library & Archives Service from an original paper document in the ITU Library & Archives collections.

La présente version électronique (PDF) a été numérisée par le Service de la bibliothèque et des archives de l'Union internationale des télécommunications (UIT) à partir d'un document papier original des collections de ce service.

Esta versión electrónica (PDF) ha sido escaneada por el Servicio de Biblioteca y Archivos de la Unión Internacional de Telecomunicaciones (UIT) a partir de un documento impreso original de las colecciones del Servicio de Biblioteca y Archivos de la UIT.

(ITU) للاتصالات الدولي الاتحاد في والمحفوظات المكتبة قسم أجراه الضوئي بالمسح تصوير نتاج (PDF) الإلكترونية النسخة هذه والمحفوظات المكتبة قسم في المتوفرة الوثائق ضمن أصلية ورقية وثيقة من نقلًا.

此电子版（PDF版本）由国际电信联盟（ITU）图书馆和档案室利用存于该处的纸质文件扫描提供。

Настоящий электронный вариант (PDF) был подготовлен в библиотечно-архивной службе Международного союза электросвязи путем сканирования исходного документа в бумажной форме из библиотечно-архивной службы МСЭ.



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 Radiocommunications Conferences

Edition of 1998

Geneva, 1999

THE RADIOCOMMUNICATION SECTOR OF THE 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.

Contact address for inquiries about radiocommunication matters:

ITU

Radiocommunication Bureau

Place des Nations

CH-1211 Geneva 20

Switzerland

Telephone	+41 22 730 5800
Fax	+41 22 730 5785
Internet	brmail@itu.int
X.400	S=brmail; P=itu; A=400net; C=ch

Contact address for orders of ITU publications:

ITU

Sales and Marketing Service

Place des Nations

CH-1211 Geneva 20

Switzerland

Telephone	+41 22 730 6141 English
Telephone	+41 22 730 6142 French
Telephone	+41 22 730 6143 Spanish
Fax	+41 22 730 5194
Telex	421 000 uit ch
Telegram	ITU GENEVE
Internet	sales@itu.int
X.400	S=sales; P=itu; A=400net; C=ch

RULES OF PROCEDURE

Edition of 1998

**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 Radiocommunications Conferences**

PREAMBLE

Following the simplification of the Radio Regulations (Geneva 1998), the Radio Regulations Board (RRB), on the basis of proposals submitted by the Radiocommunication Bureau, consolidated all the earlier Rules of Procedure into the present document, eliminating outdated Rules and adopting new Rules. 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 working methods of the RRB.

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 S1 of the RR	ARS1-1/2
	Article S2 of the RR	ARS2-1
	Article S4 of the RR	ARS4-1/2
	Article S5 of the RR	ARS5-1/19
	Article S6 of the RR	ARS6-1
	Receivability	Receivability-1/4
	Article S9 of the RR	ARS9-1/19
	Article S11 of the RR	ARS11-1/24
	Article S12 of the RR	ARS12-1/2
	Article S21 of the RR	ARS21-1/3
	Article S22 of the RR	ARS22-1
	Article S23 of the RR	ARS23-1/2
	Appendix S4 to the RR	APS4-1/2
	Appendix S5 to the RR	APS5-1
	Appendix S27 to the RR	APS27-1/2
	Appendix S30 to the RR	APS30-1/23
	Appendix S30A to the RR	APS30A-1/14
	Appendix S30B to the RR	APS30B-1/16
	Resolution 1 (Rev.WRC-97)	RES1-1/2
	Resolution 51 (WRC-97)	RES51-1
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
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)	GE75-1/3
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
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)	GE89-1/2
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

PART B

Section		Page
B1	Rules concerning calculation methodology for the “agreement area” related to a transmitting earth station in the frequency bands below 1 GHz, in application of the procedure of No. S9.21	B1-1/9
B2	Rules concerning calculation methodology for coordination contours	B2-1/12
B3	Rules concerning calculation methodology for calculation of probability of harmful interference between space networks (C/I ratios)	B3-1/13
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	B4-1/26
B5	Rules concerning criteria for applying the provisions of No. S9.36 to a frequency assignment in the bands governed by No. S5.92	B5-1/3
B6	Rules concerning criteria for applying the provisions of No. S9.36 to a frequency assignment in the services whose allocation is governed by Nos. S5.292 , S5.293 , S5.297 , S5.309 , S5.323 , S5.325 and S5.326	B6-1/3

PART C

Section	Page
C Rules concerning internal working methods of the Radio Regulations Board	C-1/3

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 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 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 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).
- A6 - GE89:** Rules concerning 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 regional agreement concerning the MF maritime mobile and aeronautical radionavigation services (Region 1) (Geneva, 1985) (GE85-MM-R1).
- A9 - GE85-EMA:** Rules concerning regional agreement concerning the planning of the maritime radionavigation service (radio-beacons) in the European Maritime Area, (Geneva, 1985) (GE85-EMA).

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:** Rules concerning calculation methodology for the “agreement area” related to a transmitting earth station in the frequency bands below 1 GHz, in application of the procedure of No. **S9.21**.
- B2:** Rules concerning calculation methodology for coordination contours.

- B3:** Rules concerning calculation 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. **S9.36** to a frequency assignment in the bands governed by No. **S5.92**.
- B6:** Rules concerning criteria for applying the provisions of No. **S9.36** to a frequency assignment in the services whose allocation is governed by Nos. **S5.292**, **S5.293**, **S5.297**, **S5.309**, **S5.323**, **S5.325** and **S5.326**.

PART C

- C:** Rules concerning internal 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 examples:

S1.23

This means that the Rule following the above indication concerns the application of the Radio Regulations provision **S1.23**.

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

Part A1	ARS11	page 7	rev. -
---------	-------	--------	--------

The page concerned in Part A1 is page No. 7 of the Chapter dealing with Article **S11** 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 S1 of the RR

S1.23

1 Number **S1.23** 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. **S11.31** 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. FSS, BSS, 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. **S11.31** Finding will be unfavourable.

S1.61

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. 6A1 of the Preface to the IFL.)

S1.63

Transportable Earth station: The Board considers a transportable earth station in the Fixed-Satellite Service (see No. **S1.21**) (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.

S1.112

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 **S4** (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 **S4** 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 **S4** 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 S2 of the RR

S2.1

In practice, the Radiocommunication Bureau in the application of the Radio Regulations and Regional Agreements does not use the Table indicated in this provision; it applies the following units:

kHz for frequencies up to 28 000 kHz inclusive

MHz for frequencies above 28 000 kHz up to 10 500 MHz inclusive

GHz for frequencies above 10 500 MHz.

Rules concerning

ARTICLE S4 of the RR

S4.4

1 Use of a frequency in derogation of the Table of Frequency Allocations

1.1 This provision is considered as a direct consequence of the Preamble to the Constitution which recognizes the sovereign right of an administration to regulate its own telecommunications. It 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. **S8.5** and **S11.36** that the recording of an assignment with a reference to No. **S4.4** 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. The underlined part serves to indicate that this limitation on the use of an assignment notified with a reference to No. **S4.4** is valid only when the two assignments concerned are in use.

1.3 Similarly and taking account of No. **S4.4** as well as of No. **S5.43**, 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 (see Preface to the IFL, Column 13B1, symbol **S4.4**, **S8.5**).

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:

aa) Appendix **S13** (Part A2) (Non-GMDSS): § 13, 15(1), 16(1), 17A, 18(1);

ab) Appendix **S15** (GMDSS), Tables **S15-1** and **S15-2** (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:

Nos. **S5.267** and **S5.340**.

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. **S4.4**; furthermore the administration submitting such a notice is urged to abstain from such usage.

S4.5

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. **S11.31**.

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.

S4.8

The first sentence of this provision establishes the equality of right between allocations in different Regions or sub-Regions. In the Board's view the second sentence should be understood as a general rule applicable in all cases, even to stations of the same service; and it should not be interpreted in the meaning of No. **S5.43**.

Rules concerning

ARTICLE S5 of the RR

S5.2.1

Several footnotes of the Table of Frequency Allocations contain a reference to “sub-regional” uses (for example No. **S5.488**) with a small “r”. The Board considered such footnotes on the basis of this provision together with No. **S5.22** and reached the following conclusions:

- Where the allocation is made to one Region only, the term “sub-Regional” is interpreted in the meaning of No. **S5.22**, i.e. sub-Regional applies only within a Region.
- When the allocation is made to more than one Region, the term “sub-regional” may cover territories in different Regions.
- A “sub-region” or “sub-Region” is not necessarily limited to bordering countries.

S5.22

See comments under the Rules of Procedure concerning No. **S5.2.1**.

S5.33

Number **S5.152** 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. **S5.152**. When either station is not within one of the countries listed in the footnote, the assignment is out of band.

S5.36

The Radio Regulations contain the procedure defined in No. **S9.21** 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. **S9.21**”. The Board had to indicate to the Bureau under which category of allocation an assignment in the service to which the procedure of No. **S9.21** 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 **S5.37** 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.

S5.40

The interpretation given under No. **S5.36** for additional allocations when the agreement under No. **S9.21** is required applies also in this case to alternative allocations.

S5.43

1 As this provision is similar in its wording to No. **S5.29** and No. **S5.30**, very often allocations on a non-interference basis are considered equivalent to a secondary service. This is correct when only a primary service is concerned, but this is not the case when a secondary service is concerned, because this provision refers to “services to which the band is allocated” and consequently an allocation on a non-interference basis shall not cause interference to or claim protection from even a secondary service. The respective statuses of the different allocations are summarized in the following table.

Assignment	has equality of rights with	shall not cause interference to or claim protection from
primary	primary	
secondary	secondary	primary
No. S5.43	No. S5.43	Primary Secondary
No. S4.4	No. S4.4	Primary Secondary No. S5.43

2 This provision covers only the case of allocations which are made subject to not causing harmful interference. In some cases, such as No. **S5.429**, the allocation is made without the right to claim protection. The Board is of the view that such allocations are also deemed not to cause harmful interference and this provision applies to them.

S5.49

Several footnotes, 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 MIFR.

S5.73

1 This footnote 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 the 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 provisions. Therefore, the Bureau shall formulate an unfavourable regulatory finding, in the application of No. **S5.73**, if that limit is exceeded for notified classes of emission F1B or G1D.

S5.128

1 This provision applies to parts of the frequency bands to which No. **S5.129** also applies. For their application, the Board has considered that:

- Number **S5.129**, which pertains to a worldwide allocation, does not exclude the countries listed in No. **S5.128**;
- previous provisions (those existing before WARC-79 which described more in detail the conditions of use of the band) permitted a maximum radiated power of 1 kW p.e.p. under certain conditions, and
- several assignments were notified before 1979 and were recorded with this power.

The Board therefore decided to apply the two provisions as follows:

- a) In all countries, administrations may exceptionally use, for stations of the fixed service, frequencies in the bands 4063-4123 kHz and 4130-4438 kHz, with a mean power not exceeding 50 W (this limit may be exceeded in the band and countries listed in *b*) below), on condition that the communications are within the boundary of the country concerned.
- b) AFG, ARG, ARM, AZE, BLR, BOT, BFA, CAF, CHN, GEO, IND, KAZ, MLI, NGR, KGZ, RUS, TCD, TJK, TKM and UKR may exceptionally use mean power greater than 50 W but less than 1 kW on frequencies in the bands 4063-4123 kHz, 4130-4133 kHz

and 4408-4438 kHz when the transmitting stations of the fixed service are situated at least 600 km from the coast and the communications are within the boundary of the country concerned.

2 Both provisions Nos. **S5.128** and **S5.129** make the additional allocation “on condition that harmful interference is not caused ...”. Therefore, No. **S5.43** applies in all cases.

S5.129

See comments under the Rules of Procedure concerning No. **S5.128**.

S5.149

There is no allocation to radio astronomy in the bands 73-74.6 MHz (Regions 1 and 3), 1330-1400 MHz, 3260-3267 MHz, 3332-3339 MHz, 3345.8-3352.5 MHz, 6650-6675.2 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 and 93.07-93.27 GHz. Notification of frequency assignments to radio astronomy stations in the bands 73-74.6 MHz (Regions 1 and 3), 1330-1400 MHz, 3260-3267 MHz, 3332-3339 MHz, 3345.8-3352.5 MHz, 6650-6675.2 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 and 93.07-93.27 GHz will be considered by the Bureau not to be in conformity with the Table of Frequency Allocations.

S5.164

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. **S5.165** and **S5.171**,
- a symbol to indicate that the assignment is primary with respect to the amateur service in countries listed in No. **S5.169**,
- 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.

S5.172

The French Overseas Departments in Region 2 are the territories indicated in the Preface of the IFL under the following symbols:

GDL (including Saint Barthélemy and the French part of Saint Martin), GUF, MRT, SPM.

S5.198

1 This is one of the few provisions of this type, where the allocation is made on a secondary basis subject to the application of the procedure defined in No. **S9.21**.

2 It is to be noted that in accordance with No. **S9.52** any administration may object to the planned use on the basis of its existing or planned stations and that No. **S9.52C** stipulates that “an administration not responding ... shall be regarded as unaffected”. An administration may consider that the application of the No. **S9.21** 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. **S9.21** 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. **S9.52**. Any other arrangement between administrations when reaching agreement in application of No. **S9.21** agreement procedure is considered only in the relations between those administrations.

S5.233

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. **S9.21** 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. **S9.21** procedure, the space services can be operated only under No. **S5.43**.

2 In accordance with the comments made under No. **S5.164**, 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.

S5.254

The Board understands that the successful application of the No. **S9.21** procedure will lead to a status restricted to operation on a non-interference basis (see No. **S5.43**). The mobile-

satellite service shall not cause harmful interference to the services appearing in the Table, including the space operation service (space-to-Earth) in the band 267-272 MHz. In other respects, § 1 and 2 in the comment made under No. **S5.198** apply.

S5.257

1 As indicated in the comments under the Rules of Procedure concerning No. **S1.133**, 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. **S9.21**.

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.

S5.281

With respect to the French Overseas Departments in Region 2, see comments under the Rules of Procedure concerning No. **S5.172**.

S5.291

This footnote is similar to No. **S5.233**; the same Rule applies.

S5.329

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. **S5.331** (Symbol R in Column 13B2 and reference to No. **S5.329** in Column 13B1).

S5.340

The comments made under the Rules of Procedure concerning No. **S4.4** apply.

S5.351

1 This provision permits, in derogation of the definitions contained in No. **S1.73** and **S1.79**, the use of the bands allocated to a mobile-satellite service by a station at a specified fixed point (without being a coast earth station 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.

S5.357

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.

S5.364

This provision contains two different types of e.i.r.p. density limits for transmitting mobile earth stations in the frequency band 1 610-1 626.5 MHz, namely: (i) peak e.i.r.p. density limit, and (ii) 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 the provisional basis, and until the relevant ITU-R Recommendation is available, the Bureau use a spectral mean e.i.r.p. density when apply 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.

S5.366

This provision is considered an additional allocation to the aeronautical radionavigation-satellite service. The comments made under No. **S5.49** 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”.

S5.376

The comments made under the Rules of Procedure concerning No. **S5.357** apply.

S5.397

The Board has no means to identify the administrations concerned and instructed the Bureau to treat notices from France as follows:

- Complete notices from France will receive a favourable regulatory Finding under No. **S11.31**, assuming that, when the agreement of a country B is not indicated in the notice, that agreement is not required.
- If, following the publication of the assignment, country B objects to the notified use, the Bureau will modify its Finding and request France to seek the agreement of country B.

S5.399

1 This provision does not indicate the frequency band in which it is applicable. The Board concluded that it applies in the band 2 483.5-2 500 MHz.

2 The comments made under the Rules of Procedure concerning No. **S5.164** apply.

S5.415

1 In this footnote, 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 of the administrations concerned and they shall be notified by one of these administrations on behalf of all the administrations concerned. The Board reached this conclusion keeping in mind No. **S5.2.1**, 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.
- 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.

S5.409

1 In the band 2 500-2 690 MHz, four provisions are applicable:

- Number **S5.409** recommending that administrations do not develop new tropospheric scatter systems;
- Number **S5.410** permitting the use of tropospheric scatter systems in Region 1 subject to the application of the procedure of No. **S9.21**;
- Number **S5.411** recommending that administrations planning new tropospheric scatter links avoid directing the radiation towards the geostationary-satellite orbit;
- Number **S21.3** (together with No. **S21.6**) limiting the e.i.r.p. in Regions 2 and 3 in the band 2 655-2 690 MHz.

2 As indicated above, Nos. **S5.409** and **S5.411** are considered recommendations to administrations, and the Bureau has no action to take in their respect.

S5.410

See comments under the Rules of Procedure concerning No. **S5.409**.

S5.411

See comments under the Rules of Procedure concerning No. **S5.409**.

S5.441

1 Article **S5** defines, in the band 10.7-11.7 GHz, a bi-directional allocation for the Fixed-satellite service in Region 1. Three footnotes (**S5.441**, **S5.484** and **S5.484A**) further regulate the usage of the bands. The provisions of No. **S5.484** apply to the up-link

(Earth-to-space) allocation for BSS feeder-links. Numbers **S5.441** and **S5.484A** (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 bi-directional allocation of the whole band 10.7-11.7 GHz for the FSS in Region 1. Number **S5.484** defines the up-link allocation for Region 1, while Nos. **S5.441**, **S5.484A** and Resolution **130 (WRC-97)** regulate the down-link use for GSO and non-GSO FSS. 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 No. **S30B**. The up- and down-link allocations, for GSO use, are of the same category. Non-GSO uses are under power flux-density limitations defined by Article **S22** and are subject to certain conditions as stipulated in No. **S22.2** which is referred to in Resolution **130 (WRC-97)** (*resolves* 3, 6.1.2 and 7);

1.2 the applicable Radio Regulatory Procedures for the fixed-satellite service are as follows:

a) Earth-to-space (No. **S5.484**): 10.7-11.7 GHz (Region 1): Articles **S9** and **S11** apply;

b) Space-to-Earth:

10.7-10.95 GHz and 11.2-11.45 GHz:

- for GSO use: Appendix **S30B** (and Article **S11**) apply (No. **S5.441**);
- for non-GSO: Articles **S9**, **S11** and **S22** apply.

10.95-11.2 GHz and 11.45-11.7 GHz:

- for GSO: Articles **S9** and **S11** apply;
- for non-GSO: Articles **S9**, **S11** and **S22** apply.

2 While the regulatory situation between non-GSO and GSO uses is clear, the regulatory relationship between GSO FSS uses, namely the up-link (Region 1) and the down-link (Appendix **S30B**) 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 **S30**, Article 7 of Appendix **S30A**, existing systems in Part B of the Appendix **S30B** Plan), the Board considering that (1) up to now the Bureau has received only one case of the bi-directional use by GSO FSS of the bands 10.7-10.95 GHz and 11.2-11.45 GHz and (2) that 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 **S9**)

The FSS up-link usage (according to No. **S5.484**) should protect the continuing rights of the Appendix **S30B** Plan as well as the entries in the Appendix **S30B** List, as evolve. To this

effect the FSS up-link networks shall apply the coordination (Article **S9**) and notification (Article **S11**) 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 **S30B** Plan within the Article **S9** 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 **S30A** (where the same bi-directional 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 **S30B** 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 **S9** or **S11**, shall provisionally not undergo the examination relating to compatibility with Appendix **S30B**. Therefore a note shall be included in the relevant Special Section to reflect the situation and a symbol shall be inserted in the MIFR to indicate that such assignments shall not claim protection from Appendix **S30B**.
- b)* For the compatibility assessment between Earth stations (transmitting ES of the FSS up-links and the receiving ES within the Plan allotment) the principle defined in Appendix **S30A** (§ 3 of Annex 4, a modified Appendix **S7** method) will be used. The service areas defined in Appendix **S30B** 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 **S30B**, planned usage):

- a)* As for the interference which is likely to be caused to FSS uplink from Appendix **S30B** downlink the same condition referred to in 2.1 *a)* above applies, i.e, in the examination of Appendix **S30B** Plan and List entries no account shall be taken of the FSS uplink assignments included in the MIFR with the above mentioned symbol.
- b)* As for the interference which is likely to be caused to Appendix **S30B** downlink receiving earth stations from FSS uplink transmitting earth stations the same condition referred to in 2.1 *b)* above applies.

S5.467

As the title of this provision is “*Alternative allocation*”, the allocation of the band 8 400-8 500 MHz to the space research service in the United Kingdom is not limited to the direction space-to-Earth. The limitation to deep space specified in No. **S5.465** does not apply to it.

S5.484

See comments under the Rules of Procedure concerning No. **S5.441**.

S5.485

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 footnotes 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 **S9** and **S11** and Resolution **33 (Rev.WRC-97)** 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 fixed-satellite service and others for the broadcasting-satellite service, 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 fixed-satellite service may be used in a given period of time for broadcasting (this is not to be confused with the use of the fixed-satellite service 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 **S9** and **S11** or that of Resolution **33 (Rev.WRC-97)**?

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 **S9** and **S11** (and Appendix **S30** 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.

S5.487

Number **S5.43** states that “a service may operate ... subject to not causing harmful interference”. This provision stipulates that “services ... shall not cause harmful interference to ...”. Despite this difference in wording, the Board is of the view that No. **S5.43** would apply in this case. This would lead to a contradiction with Articles 4, 6 and 7 of Appendix **S30**, containing procedures which lead one to consider that the fixed-satellite, the fixed and the mobile services have equality of rights with the broadcasting-satellite service. The Board considers that in this case it should be deemed when applying Appendix **S30** that the service concerned has equality of rights; however, if, despite the application of the procedures of Appendix **S30**, harmful interference is actually caused to a broadcasting-satellite station, the fixed, fixed-satellite or mobile station shall cease this interference.

S5.488

This Rule contains several decisions, which may be understood as follows:

1 Use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2

This use shall be made in accordance with Appendix **S30**. The Plan being essentially based on national systems, only those sub-regional systems that may result from the successful application of Article 4 of Appendix **S30** will be considered to be in conformity with the Table of Frequency Allocations.

2 Use of the band 11.7-12.2 GHz by the fixed-satellite service in Region 2

2.1 In this footnote, the allocation “is limited to national and sub-regional systems”. Following WRC-97, a question has arisen as to the relevance of this limitation to non-geostationary satellite systems in the fixed-satellite service (non-GSO FSS systems). Having analyzed all decisions of WRC-97 related to the use of non-GSO FSS systems in certain frequency bands and particularly Resolution **130 (WRC-97)** and Resolution **538 (WRC-97)**,

the Board is of the opinion that WRC-97 had the intention to promote the development of non-GSO satellite systems capable of providing global service. For that reason, the Board decided to instruct the Bureau to provisionally disregard, until WRC-2000, the limitation to national and sub-regional systems stipulated in the footnote when examining the conformity with the Table of Frequency Allocations of assignments to non-GSO FSS systems in the bands in question. The Board agreed also to instruct the Bureau to continue applying this limitation in the case of geostationary satellite (GSO) networks.

2.2 For GSO networks, 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 sub-regional system to which reference is made shall be considered an aggregate of two or more national systems; it shall be limited to the territories of the administration concerned and it shall be notified by one of the participating administrations. The Board reached this conclusion keeping in mind No. **S5.22**, which defines a sub-Region, and No. **S5.2.1**, relating to the interpretation of the word “sub-regional” without a capital “R”. Therefore, 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 national or sub-regional system is within Region 2;
- 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 countries outside Region 2 pertain, the notice must indicate that the use is limited to Region 2.

2.3 According to this provision, “the use of the band 11.7-12.2 GHz by the fixed-satellite service in Region 2 is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles **S9** and **S11**)”. Due to the fact, that in No. **S5.488** there is no longer any reference to No. **S9.21** (former footnote RR839 did contain a parenthetical reference to Article 14), the Board concluded that the former Article 14 procedure is no longer required. In fact, the wording of No. **S9.21** is very specific: “for any station of a service for which the requirement to seek agreement of other administration is included in the footnote of the Table of Frequency Allocations referring to this provision” (emphasis added to indicate that there would need to be a reference to No. **S9.21** if the former Article 14 procedure were to be applied). Consequently, the replacement in the old text of the Articles 11,13 and 14 by Articles **S9** and **S11** is understood to mean that there is no longer a need for the specific procedures of No. **S9.21**, in addition to the normally applicable coordination/ agreement procedures of Article **S9**. (In all footnotes where the former Article 14 continues to apply a specific reference to No. **S9.21** has been introduced.)

The Board also understands that, in view of suspension of provisions **S9.8**, **S9.9** and **S9.17** until WRC-2000, the Bureau shall apply relevant provisions of Appendices **S30** and **S30A**, with respect to the broadcasting satellite services and their associated Feeder links as contained in these Appendices.

S5.490

This provision is similar to No. **S5.487**. The same rules apply.

S5.491**Use of the band 12.2-12.5 GHz by the fixed-satellite service in Region 3**

In this footnote, the allocation “is limited to national and sub-regional systems”. Following WRC-97, a question has arisen as to the relevance of this limitation to non-geostationary satellite systems in the fixed-satellite service (non-GSO FSS systems). Having analyzed all decisions of WRC-97 related to the use of non-GSO FSS systems in certain frequency bands and particularly Resolution **130 (WRC-97)** and Resolution **538 (WRC-97)**, the Board is of the opinion that WRC-97 had the intention to promote the development of non-GSO satellite systems capable of providing global service. For that reason, the Board decided to instruct the Bureau to provisionally disregard, until WRC-2000, the limitation to national and sub-regional systems stipulated in the footnote when examining the conformity with the Table of Frequency Allocations of assignments to non-GSO FSS systems in the bands in question. The Board agreed also to instruct the Bureau to continue applying this limitation in the case of geostationary satellite (GSO) networks.

For GSO networks, the Board understands a national system as being a system having a service area limited to the territory of the notifying administration. As a consequence of this, the sub-regional system to which reference is made shall be considered an aggregate of two or more national systems; it shall be limited to the territories of the administration concerned and it shall be notified by one of the participating administrations. The Board reached this conclusion keeping in mind No. **S5.22**, which defines a sub-Region, and No. **S5.2.1**, relating to the interpretation of the word “sub-regional” without a capital “R”. Therefore, 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 national or sub-regional system is within Region 3;
- b) in the case of a national system the service area is limited to the territory under the jurisdiction of the notifying administration;
- c) in the case where a service area covers territory under the jurisdiction of other administrations it shall be limited to the territories of the administrations concerned and it shall be notified by one of the participating administrations on behalf of the other administrations;
- d) if the satellite network is operated within the framework of an international system to which countries outside Region 3 pertain, the notice must indicate that the use is limited to Region 3.

S5.492

1 The Board concluded that the frequency bands covered by Appendix **S30** are not allocated to the fixed satellite Service in the Regions where the broadcasting-satellite service is subject to the Plan of Appendix **S30**. Those transponders of the broadcasting-satellite

service which are also used for fixed satellite service purposes will be treated in accordance with Article 5 of Appendix **S30**. When recorded they will bear a symbol to indicate such a use. No established methodology exists to-date to carry out the compatibility analysis between the assignments that may be used in broadcasting-satellite transponders for fixed satellite service transmissions and the assignments in the Plan.

2 Earth stations receiving fixed-satellite service transmissions from the Broadcasting Satellite transponders will be treated as earth stations of the broadcasting-satellite service and are not to be notified as individual earth stations.

S5.496

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

- have equal rights with the fixed-satellite service in the countries of the footnote and in the relations between them, and the coordination under No. **S9.17** and No. **S9.18** shall be applied;
- shall be operated under No. **S5.43** with respect to the fixed-satellite service in the other countries of Region 1, and coordination under No. **S9.17** cannot be imposed on earth stations. The fixed and mobile stations shall apply coordination under No. **S9.18**;
- 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. **S5.164** apply.

S5.498

See comments under the Rules of Procedure concerning No. **S5.198**.

S5.502

This provision sets a lower and an upper e.i.r.p. limit for transmitting earth station in the fixed-satellite service in the band 13.75-14.0 GHz. On the other hand, Appendix **S4** requires administrations to submit minimum and maximum total power per assignment, thus defining minimum and maximum e.i.r.p. values per assignment produced by the earth station. The finding will be favourable only if both minimum and maximum e.i.r.p. values fall inside the minimum-to-maximum e.i.r.p. limit range set by this provision.

S5.523A

Footnote **S5.523A** 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. **S9.11A/Resolution 46 (Rev.WRC-97)** 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 Weekly Circular accordingly.

S5.538

For up-link power control beacons, this provision sets an e.i.r.p. limit “in the direction of adjacent satellites on the GSO”. The Board concluded that this direction is “tangential to the GSO at the position of the network under examination”.

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.”

S5.543

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.

**S5.551B,
S5.551E**

1 Footnote **S5.551B** states that “The use of the band 41.5-42.5 GHz by the fixed-satellite service (space-to-Earth) is subject to Resolution **128 (WRC-97)**”. Resolution **128 (WRC-97)** indicates in its *resolves* “that administrations shall not implement fixed-satellite systems in the band 41.5-42.5 GHz until technical and operational measures have been identified and agreed within ITU-R to protect the radio astronomy service from harmful interference in the band 42.5-43.5 GHz.

Footnote **S5.551E** further refers to Resolution **134 (WRC-97)** (“Use of the band 40.5-42.5 GHz by the fixed-satellite service shall be in accordance with Resolution **134 (WRC-97)**”) which *resolves*:

“1 that the date of the provisional application of the allocation to the FSS in Regions 1 and 3 in the band 40.5-42.5 GHz is 1 January 2001;

2 that WRC-1999 should review this allocation, including the date of 1 January 2001, taking full account of the requirements of the other services to which the band is allocated and available ITU-R studies.”

2 The prohibition referred to in Resolution **128 (WRC-97)** is only related to the implementation of the Fixed Satellite Service in the band 41.5-42.5 GHz before a certain date (prior to 1 January 1999 in Region 2 and 1 January 2001 in Regions 1 and 3). Consequently, there is no restriction for administration to initiate the process of advance publication and coordination before these dates. However, until the next WRC decides on the definitive status of the allocation and the ITU-R agrees on technical and operational measures, there is no technical criteria based on which the Bureau could carry out the required regulatory and technical examination with respect to the assignments for which the request for coordination is received under Nos. **S9.30** and **S9.32**.

3 In view of the above, the Board decided that when submissions are received by the Bureau in the frequency band 41.5-42.5 GHz, the Bureau shall act as follows:

- to proceed with the process of advance publication as appropriate;
- to proceed with the coordination process indicating the results of its examination based on the criteria available at the time of the examination; once the status of the allocation becomes definitive and the technical criteria and operational measures are agreed upon, the Bureau shall take necessary actions to review the situation and revise its previous finding accordingly.
- as for the notification, if the date of bringing into use is before 1 January 1999, for submissions notified for operation in Region 2 and before 1 January 2001 for those notified for operation in Regions 1 and 3, the subject Forms of Notice will be considered not receivable and shall be returned to the notifying administration.

If the date of bringing into use is after 1 January 1999 for operation in Region 2 and 1 January 2001 for operation in Regions 1 and 3, and if at the time of examination the status of allocation is not yet definitive and the technical and operational criteria are not yet agreed, the assignments in question will be recorded for information only. This situation shall be reflected in the appropriate remarks columns. Once the status of allocation becomes definitive and the technical and operational measures agreed upon, the Bureau will review its previous finding and take necessary measures, as appropriate.

S5.554

See comments under § 1 of the Rules of Procedure concerning No. **S5.351**.

S5.556

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.

S5.565

The bands above 275 GHz are not allocated to any service. However, the administrations may use the frequency band 275-400 GHz for experimentation with, and development of, various active and passive services. The frequency assignments notified in this frequency band will be recorded in the Master Register with favourable regulatory finding, without any examination, for information only, with reference to footnote **S5.565**.

Rules concerning

ARTICLE S6 of the RR

S6.7

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 the application of the Radio Regulatory
Procedures relating to space services**

1 Forms of notice

Circular-letters CR/65 (22 November 1996) and CR/86 (25 March 1998) of the Bureau contain the forms of notice to be used for communication of particulars of radiocommunication stations and satellite networks. The forms of notice were derived from Appendix **S4** of the Radio Regulations. The above circular-letters include detailed instructions for filling out the forms.

2 Treatment of forms of notice by date order

According to provisions **S11.28** and **S11.29**, complete notices are examined by date order of 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 **S9**, **S11**, Appendices **S30**, **S30A**, **S30B** and Resolutions containing specific procedures.

3 Establishment of a date of receipt

3.1 In order to establish a formal date of receipt for the purpose of treatment, in date order, of the submissions (notices for advance publication, request for coordination, request for Plan modification or conversion of a Plan allotment, as well as for notifications for recording in the Master International Frequency 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. **S9.1** when establishing the 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 **S9** is applicable) and the date of publication (when the coordination procedure of Section II of Article **S9** is not applicable) of advance information, respectively.

3.2 Should the Bureau find that the information is incomplete or incorrect, it shall request the administration responsible for the station or network to provide the missing information or clarification within 30 days. The Bureau shall send a reminder message, with an additional deadline of 15 days, as soon as the above-mentioned period expires (counted from the date of the dispatch of the Bureau's initial message).

3.3 If the missing information or clarification is provided within that period of 30 days (counted from the date of the dispatch of Bureau's message) plus the extension of 15 days mentioned in § 3.2 above, the initial date of receipt established by the Bureau will be considered as the formal date of receipt for the purpose of any further treatment of the notice. (See however, § 3.4 below).

3.4 Nevertheless, for replies received within the above period of 30 days plus the extension of 15 days mentioned in § 3.2 and 3.3 above, a new date of receipt is established in those cases (or for the concerned part of the station or network) where the information is outside the scope and beyond the objective of the Bureau's enquiry with respect to providing the missing data or clarifying the incorrect information, unless the new or modified data relate to the non-basic characteristics. The new date of receipt will be the date of receipt of the new or modified information. See also Rules of Procedure relating to provisions No. **S9.27**.

3.5 If the missing information is not provided within the above period, the submission shall be considered incomplete and no formal date of receipt will be established by the Bureau. After that date, for any information, clarification or modification relating to the basic characteristics (except deletion, see § 3.6 below), a new date of receipt will be established when the complete information is received. A new date of receipt will be so established irrespective of the fact of whether the newly provided information adds new affected administrations or not.

3.6 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:

3.6.1 The satellite network or satellite system in question has not yet been examined and published by the Bureau. In that case, the initial date of receipt will be maintained.

3.6.2 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 corrigendum to previously published relevant special section. However, the technical bearing of the deletion will be examined by the Bureau in the date order of receipt of the request.

3.7 After one year, unless otherwise specified in the relevant procedures, any pending submissions containing incomplete information shall be returned to the notifying administration.

4 Other non-receivable submissions

There are, in addition to the above case 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 five 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. **S9.1** refers.)

4.2 A notification received by the Bureau earlier than the date limits prescribed in provisions **S11.24** to **S11.26** (date limits relate to the date of bringing into use of a station or satellite network) is not receivable and shall be returned to the administration responsible for the network.

4.3 The Radio Regulations prescribe, in some cases, the application of multiple procedures which have to be applied, for the same stations or satellite network, in a sequential order, 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 coordination category) 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 procedures have been effected. In fact, no notice for a request for coordination is receivable if the advance information was not submitted to the Bureau. Similarly no notification under Article **S11** is receivable if the advance publication and coordination request, where applicable, were not published for the satellite network.

Number **S11.30** does not refer to the need to compare the notified characteristics of a satellite network with those published in the Special Sections for advance publication and coordination. This problem necessarily requires consideration by the Bureau for appropriate decisions. The following actions shall be taken:

- a) A notification received under No. **S11.2** or **S11.9** relating to a satellite network or an earth station whose associated space station is not supported by an advance publication is not receivable and shall be returned to the notifying administration.
- b) A notification received under No. **S11.2** or **S11.9** for a satellite network which is not supported by a publication of a Special Section relating to the coordination referred to in Nos. **S9.30** and **S9.32** is not receivable and shall be returned to the notifying administration except those cases where the coordination procedure referred to in any of Nos. **S9.7** to **S9.14** and **S9.21** is not applicable. For a notification received, under No. **S11.2** or **S11.9** if the required coordination information is missing (either the name of administrations with which coordination was required, in accordance with the corresponding Special Sections and their Addenda/modifications or the name of administrations from which agreement was to be obtained, except specific cases in which the assistance of the Bureau is requested (exchange of correspondence is not possible between administrations or indication of applicability of one of the sub-paragraphs listed in § 6 of Appendix **S5**, etc., as appropriate) the notice is considered incomplete, thus non-receivable and shall be returned to the notifying administration, if the above-mentioned information is not provided within the period referred to in § 3.3 above.

4.4 Moreover, if the required coordination with a given administration was not effected for any reason and if the assistance or action of the Bureau as specified in No. **S11.43D** with reference to relevant provisions of Article **S9** (e.g. Nos. **S9.45**, **S9.59**, **S9.60** and **S11.32A** and **S11.33**) was not sought, the notice is considered incomplete thus non receivable and shall be returned to the notifying administration.

4.5 A notification received under No. **S11.2** or **S11.9** relating to a satellite network/system for which either the regulatory time limit (5 + 2 years, if extension is granted) has expired or the due diligence information as prescribed by Resolution **49 (WRC-97)** has not been provided, are not receivable and shall be returned to notifying administration.

5 In each case where the Bureau returns a form of notice according to the above paragraphs, the necessary justification for such an action shall be provided to the notifying administration.

Rules concerning

ARTICLE S9 of the RR

Advance publication (Article S9, Section I)

S9.1

1 Postponement of the date of bringing into use

1.1 The Board understands from the reference to Nos. **S11.44** and **S11.44B** to **S11.44I** in No. **S9.1** in conjunction with in No. **S11.48** that, for a space station of a satellite network not yet brought into use, the maximum overall period of validity of an advance publication can be five years under No. **S9.1** plus a maximum of two years extension if granted. Consequently, any postponement of the date of bringing into use (beyond the original five years), at any stage of the procedure, is acceptable only if the date of bringing into use (2C date) remains within five years plus any agreed extension of up to two years following the date of receipt by the Bureau of the relevant advance information referred to in Nos. **S9.1** and **S9.2**. The granting of the extensions within this overall seven year period is, however, subject to several other conditions which are described in the appropriate parts of the Rules of Procedure. (See comments under the Rules of Procedure concerning Nos. **S9.5D**, **S11.44** and Resolution **51 (WRC-97)**).

1.2 The last paragraph of this provision relates to the establishment of the date of receipt for coordination and/or notification, as the case may be. The Conference decided to treat the cases of satellite networks for which the coordination procedure of Section II of Article **S.9** is applicable differently from those satellite networks for which the above-mentioned coordination is not applicable. For the former the earliest possible date of receipt of a coordination request is six months after the date of receipt of the information for advance publication and for the latter, the information date of receipt of a notification is six months after the date of publication of the advance information.

The Bureau shall periodically provide the information concerning the date of receipt of the advance publication information for both types of the space network in order to apply this provision as well as Nos. **S11.44** and **S11.48**.

2 Cancellation of advance publication

On the basis of the above (in particular Nos. **S11.44** and **S11.48**) and irrespective of the regulatory status of the network (under advance publication, coordination or already recorded in the Master Register), the Bureau will, after having informed the administration concerned, cancel from the Master Register or its advance publication or coordination files those networks which are not notified as being brought into use within the above mentioned period.

Administrations intending to bring these networks into use at a later date will have to re-start the procedures from the advance publication stage. In accordance to No. **S11.48**, the Bureau shall inform the administration responsible for the space station not later than 3 months before the expiry date of the five-year period, and 3 months before the expiry date of seven-year period, if exention is granted. (See comments under the Rules of Procedure concerning Nos. **S9.5D**, **S11.44** and Resolution **51 (WRC-97)**).

3 The seven-year period (five years plus up to maximum two years of extention, if granted) mentioned under § 1 above is not taken into account in case for the addition, at any time, of an earth station, even if it was not foreseen in the advance publication.

S9.2

Number **S9.2** indicates that “the use of an additional frequency band will require the application of the advance publication procedure for this band.”. An administration, except in the case of the use of an additional frequency band, is not required to re-start the advance publication procedure for a modification of a frequency assignment which is either recorded in the Master Register or being coordinated under Section II of Article **S9**. Such cases are treated in accordance with the relevant provisions of Section II of Article **S9** or those of Article **S11**. This also means that the modification of characteristics other than the addition of new frequency bands will not affect the original date of receipt or date of publication of the advance publication information. For the use of the additional frequency band(s), the advance publication is required with a new date which will be the start for the period of validity (five years plus any granted extension) for that (those) frequency band(s) as referred to in relevant provisions of Articles **S9** and **S11** (see also the Rules under No. **S11.43A** and that under Resolution **51 (WRC-97)**).

S9.3

See comments relating to the exclusion of the territory made under the Rules of Procedure concerning No. **S9.50**.

S9.5

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 **S9**. The Bureau, using the information received from administrations, will publish a summary of the comments received under No. **S9.3** together with the report submitted by the administration responsible for the network under No. **S9.4**, 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.

S9.5B

See comments relating to the exclusion of the territory made under Rules of Procedure concerning No. **S9.50**.

S9.5D

1 In cases where no Appendix **S4** Forms of Notice containing the coordination request of the satellite network as referred to in Nos. **S9.30** and **S9.32**, where applicable, were received by the Bureau within the period of 21 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 **S9**, the Bureau shall send to the responsible administration a request for clarification on the status of the satellite network. If, within 3 months counted from the date of inquiry (24 months after the date of receipt of the advance publication information), no answer is received to this inquiry or no complete notice (Appendix **S4**) containing the coordination request is submitted to the Bureau, the Bureau shall cancel the advance information from its data bases. 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 information sent at the same time as foreseen by No. **S9.1**. 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 **S9.23** stipulates that requests shall be appropriately identified by reference to Nos. **S9.7** to **S9.14** and **S9.21**, 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 canceled 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. **S9.30** and **S9.32**, as the case may be, relating to only one form of coordination (e.g. No. **S9.7**) 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. **S9.30** and **S9.32**, 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. **S9.34/S9.38** 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. **S9.7** to **S9.14** and **S9.21** 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 S9, Section II)

S9.6

1 Based on an analysis of Articles **S9** and **S11** and Appendix **S5**, the Board agreed that as far as coordination requests, submitted to the Bureau under Nos. **S9.30** or **S9.32** (space network coordination cases), are concerned:

- a) publication, under No. **S9.38**, 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. **S9.6** (**S9.7** to **S9.21**), **S9.27** and Appendix **S5** 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 provision RR1085A which was confirmed by WRC-97 in No. **S9.53**;
- d) in the application of Article **S9** of the Radio Regulations no administration obtains any particular priority as a result of being the first to start either the advance publication phase (Section I of Article **S9**) or the request for coordination procedure (Section II of Article **S9**).

2 Cases of continuing disagreement or unsuccessful coordination (See No. **S9.65**) are dealt with in Article **S11** where the goal of the procedures, i.e. the international recognition of frequencies, is secured through the recording of frequency assignments in the MIFR (see also Nos. **S11.32A**, **S11.33**, **S11.41** and **S11.41A**).

S9.11A

1 With the provisional date of entry into force of the "Simplified Radio Regulations" on 1 January 1999, the provisions of No. **S9.11A**, relating to Nos. **S9.12** to **S9.16** and **S9.17A** as appropriate together with associated part of Appendix **S5** as well as the relevant provisions of Article **S11** replace Resolution **46** (Rev.WRC-97).

2 Application of No. S9.11A to different services/frequency bands

2.1 This provision does not specifically define the services to which the coordination procedure required under Nos. S9.12 to S9.16 applies.

2.2 Administrations found some difficulties in applying the equivalent procedure contained in Resolution 46 (Rev.WRC-97) now incorporated in Articles S9, S11 and Appendix S5 with respect to certain categories of services. The question was whether, in addition to the space services specifically mentioned in the footnotes (mobile-satellite and radiodetermination-satellite services 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 recognising the difficulties of harmonising the text of the footnotes to Article S5 introduced by WARC-92, WRC-95 and WRC-97 on the one hand and the text of the provision of No. S9.11A (including Nos. S9.12 to S9.16) and S9.17A, 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 or higher 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. Table S5-1A of Appendix S5 contains these frequency bands. In this Table, there is an indication of those other space services (in addition to the mobile-satellite and radiodetermination-satellite services 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 S5 are exceeded.

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. S9.11A. 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 the 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 earlier date of implementation of the procedure does not influence the date of entry into force of the related allocations. Table S5-1A of Appendix S5 contains an indication of the dates of entry into force of the allocations concerned with the application of No. S9.11A.

3.3 In a coordination request the conformity of the frequency assignments, with the Table of Frequency Allocations is considered through the examinations under No. **S9.35** (with respect to the conformity with No. **S11.31**) and the Findings of the Bureau will reflect the status of the assignment with respect to the allocation. The Board decided that the following categories of No. **S11.31** Finding shall be formulated regarding the dates concerned:

- a) the Finding is favourable if, at the date of receipt by the Bureau of the coordination request, the allocation concerned is in force;
- b) the Finding is unfavourable if, at the date of receipt by the Bureau of the coordination request, the allocation concerned is not in force and will not come into force before the planned date of bringing the assignment into use;
- c) the Finding is “qualified favourable” (which will become favourable at the date of coming into force of the allocation) if, at the date of receipt by the Bureau of the coordination request, the allocation concerned is not in force but will come into force before the planned date of bringing the assignment into use. This Finding will permit the network in question to coordinate its assignments and to be taken into account in the application of No. **S9.27**.

4 Application of the procedure for “existing” networks

4.1 The Board noted that, 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 18.8-18.9 GHz, 19.6-19.7 GHz, 28.6-28.7 GHz and 29.4-29.5 GHz to which the Resolution **46/No. S9.11A** was referred by WRC-95 and WRC-97, as appropriate, some GSO systems were already under the coordination (former Article 11) or MIFR recording (former Article 13) procedures (complete Appendix **S4/3** information had been received by the Bureau) and some non-GSO systems were under the MIFR recording procedure (complete Appendix **S4/3** information had been received by the Bureau under former Article 13). On the basis of WRC-97 decisions (see Nos. **S5.523A**, **S5.523C**, **S5.523D**, **S5.523E**) these networks are not subject to the formal 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 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** (see also Rules of Procedure relating to No. **S5.523A**).

On the other hand, however, these GSO 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 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 6700-7075 MHz. The band had already been allocated to the FSS (Earth-to-space) and a portion of the band (6725-7025 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 $\pm 5^\circ$ 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 6725-7025 MHz or other GSO receiving space stations (operating in the Earth-to-space direction) in the bands 6700-6725 MHz and 7025-7075 MHz, shall not be taken into account under No. **S9.27**.

S9.15 to S9.19

1 The expression in Nos. **S9.15**, **S9.17** and **S9.17A** of “band allocated with equal rights” is understood to mean bands with the same category of allocation. According to footnote No. 1 to § 1 of Appendix **S5** the “equality of right” condition is extended to all coordination forms under Nos. **S9.15** to **S9.19**.

2 Cases have arisen in practice where the coordination contour around an earth station exceeds several hundreds of kilometer and overlaps only a very small part of the territory of an administration (less than a few tens of kilometers). 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.

S9.18

The coordination procedure of No. **S9.18** 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. **S9.17** 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. **S9.17**. 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.

S9.19

This provision relates to the requirements of coordination between transmitting terrestrial stations and BSS earth stations in non-planned bands. To date, there is no ITU-R Recommendation defining the power flux-density level produced by the terrestrial stations 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 administration, 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.

S9.21

1 Notification under Article S11 before the completion of the procedure of No. S9.21

The Bureau accepts notifications under Article S11 with a reference to No. S4.4 in a band where the coordination procedure of No. S9.21 is to be applied at any moment before starting the procedure or during the application of the procedure of No. S9.21 (See footnote No. S11.31.1). For cases of notification under Article S11, where the coordination of No. S9.21 was already initiated but not yet fully completed, see comments under the Rules of Procedure relating to footnote No. S11.31.1 and No. S11.37.

2 Application of the procedure of No. S9.21 to frequency assignments for reception by an earth or space station

Because the coordination procedures of Nos. S9.7 to S9.19, as well as the notification and recording of frequency assignments to space networks and earth stations, are applicable separately to receiving and transmitting assignments, the Board considered that the coordination procedure of No. S9.21 also applies separately to these types of stations. However, the Board considered that in the case of receiving frequencies, the reference to “the agreement of an administration with respect to the frequency assignment which may be affected” (§ 2 of Appendix S5) has no meaning unless the recording of such frequencies, after successful application of No. S9.21, imposes restrictions on the current use and the future development of the services of another administration (for example if the assignments to such services run the risk of receiving an unfavourable Finding due to a recorded assignment with respect to No. S9.21).

To this effect the Board adopted the following Rules:

- a) for the purpose of applying the coordination procedure of No. **S9.21** to a receiving earth or space station, the characteristics of the station shall be published in an appropriate Special Section, without indicating the names of the administrations concerned (“likely to be affected”);
- b) after the completion of the procedure the assignment will be deemed to have successfully applied the coordination procedure of No. **S9.21** and will receive a favourable Finding with respect to No. **S11.31**;
- c) however, if the Bureau is informed within the prescribed period of four months following the publication of the Special Section that an administration considers that one of its assignments, operated or planned to be operated in accordance with the Radio Regulations, notified or not notified to the Bureau, may adversely affect the assignment published in the subject Special Section, and it could not reach an agreement with the administration which had initiated the coordination procedure of No. **S9.21**, the Bureau will enter in the Master Register, by means of an appropriate symbol in Column 11 of the entry for the assignment in question, the name of the administration formulating such an objection, in order to indicate this situation. The administration responsible for the assignment published in the Special Section will be deemed not to be entitled to object to any harmful interference that may be caused by the assignment of the administration whose name is entered in Column 11. Furthermore, when the latter administration notifies its assignments, the Bureau will not take account of the receiving space or earth station which is the subject of this publication when it applies the procedures of Articles **S9** and **S11** to such assignments.

3 Secondary services

The following Rule has been adopted by the Board for application in cases where the application of the coordination procedure of No. **S9.21** will upgrade a secondary allocation to a primary status.

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. **S5.28** to **S5.31** 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. **S9.21** 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. **S9.21**.

4 Coordination of a satellite network

When an administration communicates Appendix **S4** data (APS4/II) for a satellite network to initiate the coordination procedure of No. **S9.21**, the Bureau will act under Nos. **S9.36**

to **S9.38** 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. **S9.21** be also initiated for earth stations of the satellite network, the request shall be accompanied with the **APS4/III** forms of notice. 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. **S9.38**. 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.

S9.23

See comments under the Rules of Procedure concerning No. **S9.5D**.

S9.27

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 **S5**.

1.1 As stated under the Rules of Procedure concerning No. **S9.1** the period between the date of receipt by the Bureau of relevant information under Nos. **S9.1** and **S9.2** 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 five years as referred to in No. **S9.1** plus any extension up to two years granted according to the procedure of Nos. **S11.44B** to **S11.44I**. Consequently, frequency assignments not complying with these time limits will no longer be taken into account under the provisions of No. **S9.27** and Appendix **S5**. (See also Nos. **S9.1**, **S9.2**, **S11.43A**, **S11.44**, **S11.48** and Resolution **49 (WRC-97)**.)

2 Assignments in different allocation categories

These assignments may have been recorded following different provisions and different Findings; some as secondary, others with an unfavourable Finding under No. **S11.32** but favourable Finding under No. **S11.32A** or **S11.33** or unfavourable Finding under Nos. **S11.32** and **S11.32A** or **S11.33** but without having caused harmful interference (and recorded under No. **S11.41**). The Board decided that the Bureau in application of No. **S9.36** takes into

account the assignments described in § 1 and 2 of Appendix S5 as indicated in the following Table.

Assignments to be taken into account in accordance with No. S9.36, and § 1 and 2 of Appendix S5		
Category of Assignment for which coordination is requested	Recorded in the MIFR (or for which notification under Article S11 is received) or included in the Plan where appropriate	Received for publication in accordance with Nos. S9.30 and S9.32 (see also the Rules of Procedure relating to Nos. S11.44, S11.47 and S11.48)
Primary	<p>1. Primary with:</p> <ul style="list-style-type: none"> – a favourable Finding under No. S11.31 and – a favourable Finding under No. S11.32 or – an unfavourable Finding under No. S11.32 but a favourable Finding under No. S11.32A or – an unfavourable Finding under No. S11.32 and an unfavourable Finding under No. S11.32A but without having caused harmful interference, in application of No. S11.41 <p>2. Assignments in the Plans</p>	<ul style="list-style-type: none"> – Primary with a favourable Finding under No. S11.31
Secondary	<p>a) Any primary assignment as above (including assignments in the Plans)</p> <p>b) Any secondary assignment meeting condition specified for primary assignment in 1 above</p>	<ul style="list-style-type: none"> – Primary and secondary with a favourable Finding under No. S11.31
As defined in No. S5.43	<p>a) Any primary assignment as above</p> <p>b) Any secondary assignment as above</p> <p>c) As in No. S5.43 meeting condition specified for primary assignment 1 above</p>	<ul style="list-style-type: none"> – Primary as above – Secondary as above – As in No. S5.43 with a favourable Finding under No. S11.31
As defined in No. S4.4 ¹	None	None

¹ Frequency assignments with reference to No. S4.4 which are submitted under No. S9.34 for publication in any special section concerning coordination procedures are included in such a publication for information only.

An assignment not conforming with the Radio Regulations and notified with reference to No. S4.4 will not be examined, from the viewpoint of the coordination referred to in Nos. S9.7 to S9.14 with respect to any other assignment including those recorded with a reference to No. S4.4.

3 Modification of characteristics of a satellite network during coordination

3.1 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.

3.2 The guiding principles for dealing with modifications are:

- general obligation to effect coordination before notification (No. **S9.6**), 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 other administration, as specified in Appendix **S5**.

3.3 Based on these principles, and provided that the 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 (see Table above):

- a) with dates of receipt (DR) before the original date of submission (D1) of the subject network; and
- b) with date of receipt (DR) after the original date of submission (D1) of the modified network but before the date of the modification (D2), where the nature of the change is such as to increase the interference to or from, as the case may be, the assignments of those networks which were received in the period between D1 and D2. In case of GSO networks referred to in Nos. **S9.7** and **S9.9**, the increase of interference will be measured in terms of $\Delta T/T$.

3.3.1 Where the coordination requirements of the modification involve any network under *b*) above, the modified assignments will have as their date of receipt (DR) the date of submission of the modification (i.e. DR = D2). Otherwise, they will retain their original date of receipt (DR) (i.e. DR = D1).

3.3.2 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.

3.3.3 If it is not possible to verify that there is no increase of interference (e.g. in absence of appropriate criteria or calculation methods), the date of receipt (DR) date of the modified assignments will be D2.

3.4 After having examined the modified network as described in § 3.3 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. **S9.36**.

4 Modification to characteristics of an earth station

4.1 The use of another associated space station may be one of the modifications of characteristics to an earth station. In such a case, 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. 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).

4.2 Generally, the Bureau uses the same approach, i.e. an increase of the coordination distance in order to decide if there is an increase of interference.

S9.28, S9.29 and S9.31

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. **S9.15** to **S9.19**), without any involvement of the Radiocommunication Bureau, except the cases referred to in Nos. **S9.33** and/or **S9.52**. 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 Rules of Procedure under No. **S11.32** (§ 4).

S9.36

1 Under this provision, the Bureau “shall identify any administrations with which coordination may need to be effected”. In applying Appendix **S5** with respect to No. **S9.21**, the Bureau uses the following calculation methods and criteria¹:

- space network vs. space network: Appendix **S8**;
- earth station vs. terrestrial stations (and *vice versa*): Rules of Procedure B1, B2 (derived from Appendix **S7**);
- transmitting terrestrial stations vs. receiving space stations: criteria of Article **S21**;

¹ For cases not covered under this paragraph, the Bureau, in collaboration with the appropriate ITU-R Study Groups, continue to develop applicable calculation methods and criteria in the form of Rules of Procedure to be submitted to the RRB for approval.

- transmitting space stations vs. terrestrial services: pfd limits defined in Article **S21** and in Annex 1 (§ 4, 5 and 8) of Appendix **S30** (see also the Rules of Procedure concerning **S5.488**);
- fixed-satellite transmitting space stations in the band 11.7-12.2 GHz vs. Broadcasting-satellite service (inter-Regional): pfd limits defined in Annex 4 of Appendix **S30**;
- 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. **S9.11** to **S9.14** and **S9.21**, it is to be noted that irrespective of the identification by the Bureau under No. **S9.36** (see footnote **S9.36.1**), any administration, even one which was not identified, may object to the published assignment under No. **S9.52** 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 have no objection to that use in accordance with No. **S9.52C**.

S9.42

If the Bureau's calculations do not indicate that the requesting administration should be brought into coordination procedure, the matter is left for consideration by the administration initiating the coordination.

S9.48

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. **S9.29** or submitted to the Bureau in the case of application of Nos. **S9.30** and **S9.32**. 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.

S9.49

The comments made in the Rules of Procedure concerning No. **S9.48** apply. This administration is deemed to have undertaken not to cause interference to those stations for which the agreement was requested.

S9.50

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 geostationary satellite orbit, 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 S9 and S11 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. S15.5, 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 **S9**, 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.

S9.50.2

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

S9.52

1 The provision No. **S9.52** 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.” “A copy of these comments shall also be sent to the Bureau. 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. **S11.2** or **S11.9**”. Provision No. **S9.52** 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. **S11.2** or **S11.9** 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.

2 The information submitted to the Bureau by Administration B which, according to No. **S9.52**, shall be treated as notifications under No. **S11.2** or **S11.9** could only be so considered, if it contains complete data as required by Appendix **S4**; 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. **S11.31**; otherwise the notice(s) will be either returned to the 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. **S4.4**. Furthermore, the relevant frequency assignments of Administration B will be examined under No. **S11.32** (with respect to its conformity with the procedures relating to coordination) and may be eventually returned to administration, under No. **S11.37**, if the Bureau finds that the procedures for obtaining coordination were not successfully applied with all concerned administrations, under No. **S9.27** with respect to their assignments recorded in MIFR. See also Rules of Procedure relating to No. **S9.29**.

3 This provision allows the responding Administration B to inform the requesting Administration A of its disagreement within four months. It is to be noted that Administration B which may not be in position, for any reason, to respond to the requesting Administration A 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. **S9.52**, and the Bureau shall communicate the disagreement to Administration A.

4 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.

4.1 When an administration has responded in application of No. **S9.52** within four months and requested the assistance of the Bureau, the latter will act according to Article **S13**.

4.2 When an Administration B has responded, in application of No. **S9.52**, 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. **S9.29**, and the Bureau has been informed of a continuing disagreement between the two administrations, the Bureau has to literally apply No. **S9.52C**; 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.

4.3 When an Administration B has responded, in application of No. **S9.52**, more than four months after the date of publication of the Special Section in application of No. **S9.38** or the dispatch of the coordination data under No. **S9.29**, and an agreement is reached between the two administrations, the Bureau will take this situation into account.

S9.52C

1 Case of administrations not responding

With respect to 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. S9.11 to S9.14 and S9.21

2.1 Upon expiry of the deadline for disagreement to a coordination request under Nos. **S9.11** to **S9.14** and **S9.21**, the Bureau shall, according to its records, publish a list of administrations having submitted within the regulatory deadline their disagreement in the appropriate Special Section series. This will provide an opportunity to all administrations to ensure that their disagreements/comments are acknowledged and that they will duly be taken into account when the Bureau further examines the frequency assignments at the notification stage (Nos. **S11.31** and **S11.32**).

2.2 Any comment which does not explicitly express objection to the request for coordination is not considered as a disagreement under No. **S9.52**. In case of doubt concerning the nature of comments, the administration concerned should be consulted.

2.3 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. **S9.52C**, all administrations other than those listed above shall be regarded as unaffected, and in the case of Nos. **S9.11** to **S9.14** the provision of Nos. **S9.48** and **S9.49** shall apply.”

S9.53

See comments under the Rules of Procedures concerning No. **S9.6** (§ 1 c)).

S9.58

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 § 3 of the Rules concerning No. **S9.27**. 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. **S9.58**.

S9.60

In application of No. **S9.11A**, when the information on a station in the fixed service upon which an administration's disagreement is based cannot be provided as referred to in under **S9.52**, the reference parameters contained in Annex 1 to Appendix **S5** can be used to determine the need for coordination.

S9.62

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 with respect to assignments for which there was no response.

S9.63

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.

S9.65

See Rules under No. **S9.6** (§ 2), Nos. **S11.32A** and **S11.33**.

Rules concerning

ARTICLE S11 of the RR

S11.3

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 (Section V of the Preface). The common frequencies appear in the Master Register and in the IFL.

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

- Worldwide distress and calling frequencies (500 kHz, 2 182 kHz);
- 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 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, 13 137, 16 420, 17 302, 18 795, 19 770, 22 060, 22 756, 25 097 and 26 172 kHz);
- Worldwide and international working frequencies for ship radiotelegraph stations in the authorized bands between 415 and 535 kHz (425, 454, 458, 468, 480 and 512 kHz);

- International ship-to-shore working or intership frequencies (2045, 2048, 2635 and 2638 kHz);
- 410 kHz, worldwide frequency for radio direction-finding in the maritime radionavigation 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 **S11** of the Radio Regulations and, in some cases, under the provisions of No. **S4.4**.

S11.14

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 **S11**. On the other hand, the provisions of No. **S11.2** stipulate the conditions under which receiving stations are to be notified to the Bureau. Similarly, the provisions of No. **S11.9** 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 **S17**);
- Worldwide working frequencies for ship stations equipped for wideband telegraphy, facsimile and special transmission systems (frequencies indicated in Part A of Appendix **S17**);
- 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 **S17**);
- Ship calling frequencies using A1A Morse telegraphy (frequencies indicated in Part B, Section IV of Appendix **S17**);
- Ship working frequencies using A1A Morse telegraphy (frequencies indicated in Part B, Section V of Appendix **S17**).

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 **S11** of the Radio Regulations and in some cases under the provisions of No. **S4.4**.

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 **S26** and **S27**.

S11.17

This provision and provisions of Nos. **S11.18** to **S11.21A** 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 **S11**, are the following:

- 1 Assignments to stations covered by the Allotment Plans of Appendices **S25**, **S26** and **S27** (No. **S11.18**) and by any Frequency Assignment Plan.
- 2 Assignments to stations of the broadcasting service in any band (No. **S11.19**).
- 3 Assignments to stations of all terrestrial services which are within the coordination area of an earth station (No. **S11.20**) 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 **S5**, Table S5-1.

According to No. **S11.20**, 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 A of the BR Weekly Circular, shall bear a special symbol making reference to this Rule of Procedure.

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

² Frequency assignments to stations in the amateur service shall not be notified (No. **S11.14**).

³ Frequency assignments to broadcasting stations in the high frequency bands allocated to broadcasting service between 5 900 kHz and 26 100 kHz which are subject to the procedure of Article **S12** shall not be notified under Article **S11** (see No. **S11.14**).

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 Table II of Appendix S7 and in No. S21.3 (No. S11.21).

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. The Table below indicates the band and the e.i.r.p. limit above for which individual notification is required.

Band	e.i.r.p. (dBW)	Notes
1 525-1 535 MHz	55	
1 670-1 700 MHz	55	
1 700-1 710 MHz	55	<i>Note 1:</i> Table II of Appendix S7 indicates two values depending on the space service concerned (92 or 62 dBW). <i>Note 2:</i> The footnote 6 to Table II of Appendix S7 indicates that the e.i.r.p. values indicated therein are associated with transhorizon systems. The Board is of the view that terrestrial stations using an e.i.r.p. greater than 55 dBW are probably associated with transhorizon systems. Considering that footnotes of the Table of Frequency Allocations make special reference to such systems, the Board decided that administrations should notify them individually.
1 710-1 790 MHz	55	See Note 2 above.
2 200-2 290 MHz	55	See Note 2 above
2 290-2 300 MHz	55	See Note 2 above.
2 500-2 655 MHz	55	See Note 2 above.
2 655-2 690 MHz	55	Table II of Appendix S7 indicates an e.i.r.p. of 92 dBW, and in accordance with No. S11.21A any station in this band shall be notified individually, irrespective of its e.i.r.p.
3 400-4 200 MHz	55	
4 500-4 800 MHz	55	See Note 2 above.
7 250-7 750 MHz	55	
8 025-8 400 MHz	55	
8 400-8 500 MHz	55	<i>Note 3:</i> The e.i.r.p. given in Table II of Appendix S7 is derived from a total e.i.r.p. of 55 dBW.
10.7-12.75 GHz	55	
17.7-40 GHz	55	See Note 3 above.

5 Assignments to terrestrial stations in the frequency bands listed in Table S21.2 (No. S11.21A).

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

S11.28

Comparison of data with those submitted under Article S9

Number **S11.28** 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. **S11.2** or **S11.9** 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 5 years plus any extension of up to 2 years, if granted, the notice is returned to the notifying administration with a recommendation to restart the Article **S9** procedure. (See also comments under the Rules of Procedure concerning No. **S9.1**.)
- 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.
- 3) For practical reasons, the Bureau could not systematically undertake the comparison of coordination information contained in the notice form submitted under No. **S11.2** or **S11.9** and that from the voluminous correspondence from the coordination phase. The Board thus decided that the No. **S11.32** 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. **S9.2** apply.

S11.31

1 Provision No. **S11.31.2** requires that the “other provisions” mentioned in No. **S11.31** should be identified and included in the Rules of Procedure. This chapter intends to answer the above problem.

The regulatory examination under No. **S11.31** includes the following⁴:

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

⁴ With respect to the application of this provision to assignments of the Broadcasting-satellite service submitted under Resolution **33 (Rev.WRC-97)** see comments under Rules of Procedure concerning No. **S23.13**.

- the successful application of No. **S9.21**, when mention is made of that provision in a footnote (See also Rules of Procedure relating to Nos. **S9.21**, **S11.31.1** and **S11.37**);
- all “other” mandatory provisions that are contained in Articles **S21** to **S57**, in Appendices to the Radio Regulations and/or in Resolutions (except Resolution **49 (WRC-97)** for which there is a separate procedure as contained in the Rules of Procedure concerning No. **S11.44**) 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. **S11.31.2**, 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. **S23.7** concerning the power limit (50 kW) of the broadcasting transmitters operating in the Tropical bands in the frequency bands listed in No. **S23.6**.

2.2 *Fixed service:* Those of No. **S24.2** which stipulate that F3E and G3E emissions are prohibited in the fixed service below 30 MHz;

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 **S26** and **S27**. The provisions of No. **S43.4** 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:

	Provision No.
Power limits	S52.56, S52.104 S52.117, S52.127 (Region 1 only), S52.143, S52.144, S52.172 S52.184-S52.186, S52.188, S52.200 (Region 1 only) S52.219, S52.220, S52.227
Class of emission	S52.2, S52.3, S52.17, S52.37 S52.55, S52.98, S52.101, S52.177, S52.183, S52.188, S52.198, S52.217
Mandatory sub-division	S52.10 (Region 1 only), S52.13, S52.39 and S52.40 Appendix S17

2.5 The list of these “other provisions”, referred to in No. **S11.31.2**, with respect to which notices to stations in terrestrial services⁵ 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, in the context of services and frequency bands indicated in Table **S21-2** (Nos. **S21.3**, **S21.4** and **S21.6**);

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 **S21-2** (Nos. **S21.5** and **S21.6**).

2.6 The list of these “other provisions”, referred to in No. **S11.31.2**, applicable to space services, is given below so far as Articles **S21** and **S22** are concerned:

2.6.1 conformity with the power limits for earth stations as stipulated in provisions Nos. **S21.8**, **S21.10** and **S21.12**, **S21.13** account being taken of Nos. **S21.9** and **S21.11**⁶.

2.6.2 conformity with the minimum angle of elevation of earth stations as stipulated in provisions Nos. **S21.14**⁷ and **S21.15**.

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 **S21-4** (No. **S21.16**), as well as in Tables **S21-1** (No. **S22.5C**), **S22-3** (No. **S22.5E**) and **S22-4** (No. **S22.5F**), taking into account, as appropriate, the provisions of Nos. **S21.17** and **S22.5G**⁸.

2.6.4 conformity with the limits of power flux-density from space stations produced at the geostationary-satellite orbit as indicated in Nos. **S22.5** and **S22.5A** as well as in Table **S22-2** (No. **S22.5B**).

2.6.5 conformity with limit of aggregate power flux density from earth stations produced at the GSO as indicated in the Table **S22-2** (No. **S22.5D**).

2.6.6 conformity with the limit specified in Nos. **S22.8**, **S22.13**, **S22.17** and **S22.19**.

⁵ 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 **S4**, is treated as a separate assignment representing a separate station.

⁶ See Rule of Procedure relating to No. **S21.11**.

⁷ See Rule of Procedure relating to No. **S21.14**.

⁸ For the application of these limits, see also Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**.

3 Other provisions of Articles **S21** and **S22**, which do not contain specific limits that could be taken into account by the Bureau in its calculation or those, which do not have a mandatory character, will not be taken into account in the Regulatory examination under No. **S11.31**. The Board understands that these provisions are to be applied between administrations.

4 The examination, under No. **S11.31**, of the conformity with the off-axis power limits of earth stations in the fixed-satellite service stipulated in Nos. **S22.26** to **S22.29** is suspended according to the footnote to the title of Section VI of Article **S22**. Consequently the Bureau does not take them into account in its examinations.

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. 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. **S9.3** 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 weekly Circular, 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 S1 of the Radio Regulations does not contain a definition for these terms; however, the definitions given in Annex 5 to Appendix S30 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. S23.6 are allocated on a shared basis to the tropical broadcasting, to fixed and mobile services (see also footnote No. S5.113). In the Tropical Zone (No. S5.16-S5.21) 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. **S11.31** examination 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. (See Rules of Procedure relating to No. **S11.31.1**).

7 The examination under Articles **S21** and **S22** 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 No. **S11.31** only if it is informed that such agreement exists. This agreement is treated by the Bureau separately from the coordination agreement.

S11.31.1

1 Experience indicates that the number of administrations commenting on the Special Sections containing the request for agreement under No. **S9.21** is limited, and there may be only few administrations objecting to the use on the basis of sound technical criteria without necessarily ascertaining that harmful interference exists or will exist. Number **S11.31.1** indicates that the conformity with the Table of Frequency Allocations implies the successful application of No. **S9.21**, when necessary. This raises the question of the advisability of formulating an unfavourable Finding to indicate that, because of the few objections to the request, the procedure of No. **S9.21** has not been successfully applied. Two alternatives were examined:

- *Alternative 1:* record the assignment with a favourable Finding together with the name(s) of the administration(s) still having objections, indicating that with respect to this (these) administration(s) the recording is made under the conditions of No. **S4.4**.
- *Alternative 2:* record the assignment with an unfavourable Finding together with the names of administrations having given their agreement and indicating that No. **S4.4** does not apply to them.

As indicated above, the number of disagreeing administrations is very limited, and for this reason the Board decided that the Bureau shall apply the first alternative. It is understood that the partially favourable Finding (with respect to a few administrations No. **S4.4** applies) satisfies the conditions of No. **S11.31.1** and this condition permits the assignment in question to be included in the coordination procedures, when necessary, or to be recorded, as appropriate.

See also Rules of Procedures under No. **S9.52C**.

S11.32

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. **S9.27** 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. **S9.7** to **S9.9** 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. **S9.7** to **S9.9** 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 **S5** or No. **S11.32A**, the notice shall be sent back to the administration with an unfavourable finding with respect to No. **S11.32**. For practical reasons, when an unfavourable finding with respect to No. **S11.32** is given at this stage, the examination under No. **S11.31** shall not be performed.

(See Circular Letter No. 104 of 10 August 1998 and Rules of Procedure under No. **S9.52C**).

- 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 **S5** and, if additional administrations (other than those listed in corresponding Special Sections in column 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 Rules of Procedure relating to No. **S9.27**.

2 Examination of a frequency assignment to an earth station with respect to the application of Nos. S9.7, S9.9 (where applicable), S9.12 and S9.13

- a) This examination would normally involve the application of Appendix S8 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 S9) and 13 (now S11), 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. S9.7, S9.9 (where applicable), S9.12 and S9.13 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 MIFR

- a) In the case of a space station recorded with a Favourable No. S11.32 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. S11.32 Finding with the following indication in Column 11:
 - Z/S9.7, S9.9 (where applicable), S9.12 and S9.13 as the case may be/--- (see Preface) followed by the names of administrations appearing in Column 11 under the symbol S9.7, S9.9 (where applicable), S9.12 and S9.13 as the case may be/--- of the associated space station (if no administration is listed because of application of § 6 of Appendix S5, only Z/S9.7, S9.9, where applicable, S9.12 and S9.13 as the case may be will be indicated); and
 - numbers S9.7, S9.9 (where applicable), S9.12 and S9.13 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 weekly Circular, 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. S9.7, S9.9 (where applicable) S9.12 and S9.13 by applying criteria and method prescribed in Appendix S5. 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. **S11.32A** Finding (examination of the probability of harmful interference). The assignment of the associated earth station shall be given a Favourable No. **S11.32** Finding with respect to the application of Nos. **S9.7**, **S9.9** (where applicable), **S9.12** and **S9.13** with the appropriate indications, in Column 11, as described in § *a*) above.
- d) In the case of an associated space station recorded with an Unfavourable Finding under No. **S11.36** (operated in accordance with No. **S4.4**), the earth station will be given a regulatory (No. **S11.31**) 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. **S9.15**, **S9.17** and **S9.17A**. 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 terrestrial services and has no recognized status in the space network coordination context (Nos. **S9.7**, **S9.9** (where applicable), **S9.12** and **S9.13**.)

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

This category may include the following cases:

- a) a space station for which the procedure of Section II of Article **S9** is applicable and not yet communicated to the Bureau under Nos. **S9.30** and **S9.32**;
- b) a space station in the process of coordination (the coordination procedure not yet completed and the space station not yet notified under No. **S11.2** or **S11.9**);
- c) a space station successfully completed the procedure of Article **S9** but not yet notified to the Bureau under Nos. **S11.2-S11.9**;
- d) a space station notified (No. **S11.2** or **S11.9**) but returned to the administration with an unfavourable finding Nos. **S11.31** or **S11.32** and **S11.32A**; and
- e) a space station already notified (No. **S11.2** or **S11.9**) 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 *a*) to *d*) above will be given an Unfavourable No. **S11.32** Finding.

2.1.2.2 The earth station notices of category *e*) above shall be processed by the Bureau together with the associated space station and the No. **S11.32** Finding with respect to the application of Nos. **S9.7**, **S9.9** (where applicable), **S9.12** and **S9.13** 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. **S11.32** Finding with respect to the application of Nos. **S9.7**, **S9.9** (where applicable), and **S9.12** and **S9.13** 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. **S11.32** with respect to application of Nos. **S9.7**, **S9.9** (where applicable), **S9.12** and **S9.13**, 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. **S13.13** 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. S9.15, S9.17 and S9.17A

See comments under the Rules of Procedure concerning No. **S9.27** (§ 4.1 and 4.2).

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

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.

If, within a period of three years following the date of notification 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. **S9.29** in respect to its earth station(s) coordination under No. **S9.15** or **S9.17**, 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 **S14** and will proceed accordingly.

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

5.1 In its examinations of a frequency assignment notice to an earth station operating in 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 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. **S9.29** in respect to its earth station(s) coordination under No. **S9.17A**, 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 **S14** and will proceed accordingly.

S11.32A

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. **S9.7** are contained in the Rules of Procedure B3.

S11.34

1 Bands governed by Appendix S25

1.1 With regard to these examinations of conformity with the allotment Plan of Appendix **S25**, 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 and Section I of Appendix **S25**, 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 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 IFRB Circular-letter No. 860 of 22 March 1991, are considered as working assumptions only and not as compulsory conditions.

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. **S11.34**, 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 **S17**: conformity with Nos. **S52.177**, **S52.217**, **S52.219** and **S52.220**) and, where applicable, with respect to the conditions contained in the Appendix **S25** 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 **S25**, 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-a-vis the allotment area, power limit, hours of operation).

1.2.3 The non-conformity with the relevant characteristics of the Appendix **S25** Plan will result in an unfavourable Finding under No. **S11.34** and the modification of these characteristics will be subject to the application of the procedure of Section I of Appendix **S25** 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. **S4.4** shall be returned to the notifying administration;

2.1.1.2 the frequency assignment notices submitted under the provisions of No. **S4.4** shall be recorded with unfavourable finding regarding No. **S11.31** and under the conditions of No. **S4.4**;

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 and GE85-EMA): 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.

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. **S11.31** 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.

S11.36

See comments under the Rules of Procedure relating to No. **S4.4** concerning frequency bands which are prohibited from any other use than that indicated in the Radio Regulations.

S11.37

An assignment can be recorded in the Master Register with reference to No. **S4.4** only in the case of an unfavourable finding with respect to No. **S11.31** e.g. non-conformity with the Table of Frequency Allocation (see No. **S11.36**). This implies that No. **S4.4** is also applicable to non-conformity with the coordination requirement under No. **S9.21** when this provision is referred to in a footnote of the Table (see No. **S11.31.1**). 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. **S9.7** to **S9.19**) has not been completed cannot be recorded under No. **S4.4**. There are other provisions (e.g. Nos. **S11.32A**, **S11.33** and **S11.41**) which may lead in given circumstances to recording when the coordination has not been successfully effected.

S11.39

The Board understands the third sentence of provision No. **S11.39**, and the provisions Nos. **S11.39A** to **S11.39E**, as being applicable to those notices under Appendices **S25**, **S26** or **S27**, as appropriate, which receive unfavourable finding under No. **S11.34**.

S11.43A

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. **S9.27** (§ 3), **S9.58**, **S11.28** and **S11.32**.

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. **S11.43A** (former RR1548), should be subject only to the coordination procedure (Section II of Article **S9**). 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 the addition of a new frequency band which was not included in the advance publication of the network.

The purpose of the examination under No. **S11.43A** 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. **S11.28** and **S11.32**). In these cases, the provisions of No. **S11.43B** 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 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 **S9**. Findings with respect to No. **S11.32** are determined on the basis of the coordination agreements effected to meet the new coordination requirements. In the case, where the provisions of Nos. **S11.32A** and **S11.33** 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. **S11.38**. See also Rules of Procedure under No. **S11.43B**.

3 Modification of an earth station by changing the associated space station or the associated beam so far as No. **S11.32** is concerned is covered in the comments under the Rules of Procedure concerning No. **S11.32** in § 2.2.2 and 2.2.3.

4 When the modification of a frequency assignment to an earth station is examined in application of Nos. **S9.15**, **S9.17** and **S9.17A**, the coordination distance is calculated in each azimuth and the coordination under Nos. **S9.15**, **S9.17** and **S9.17A** 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. **S9.27** (§ 4.1 and 4.2.)

S11.43B

1 This provision specifies that a change in the characteristics shall be examined when appropriate with respect to Nos. **S11.32** to **S11.34**, as appropriate.

1.1 In the case of the examination of Space Networks under No. **S11.32** or **S11.32A**, the comments under No. **S11.43A** 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 **S5**. In cases where there is no calculation method and/or criteria to check the application of these provisions (e.g. coordination requirement for Nos. **S9.12** and **S9.13**), the Bureau shall treat these modifications as new notifications of assignments. Number **S11.43B** refers to an increase in the probability of harmful interference. The probability of harmful interference (*C/I*) is calculated in the examination Nos. **S11.32A** and **S11.33** only. The examination No. **S11.32** is made using the threshold/condition specified in Appendix **S5**.

1.2 It should be noted that in the examination under No. **S11.32A**, assignments published under No. **S9.38** or **S9.58** 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 MIFR.

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.

S11.43C

The Board concluded that the resubmitted assignments will be recorded only if the finding with respect to No. **S11.31** remained favourable.

S11.44

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

- in APS4 form of notice when submitted under No. **S11.2** or **S11.9**; and
- in any subsequent communication to the Bureau under Nos. **S11.44B** to **S11.44I**; and
- in the confirmation of the date of bringing into use under No. **S11.47**.

It should be noted that the information concerning the date of bringing into use shall be provided for each assignment or group of assignments.

2 Number **S11.44** provides that administrations may request an extension of the date of bringing into use. This extension cannot be more than two years. In addition, the extension is given only under specific conditions as enumerated in Nos. **S11.44C** to **S11.44I**. As mentioned in No. **S11.44B**, the extension cannot be granted if the complete “due diligence” information required by Resolution **49 (WRC-97)** is not provided.

3 Number **S11.44** also states that the Bureau shall cancel those frequency assignments which are not brought into use within the required period (5 years plus the extension granted by the Bureau). Before the Bureau cancels any frequency assignment, it needs to inform the administration at least 3 months before the expiry of the above period.

4 The Board noted from Resolution **49 (WRC-97)** that the submission of the complete “due diligence” information by administrations is closely associated with the expiry date (five years) of the regulatory period. In fact, § 10 of Annex 1 to Resolution **49 (WRC-97)** instructs the Bureau to inquire about the complete “due diligence” information if this was not received at least 6 months before the 5 year deadline.

5 The Board concluded from the above that the Bureau shall inquire on the date of bringing into use of the assignments and the complete “due diligence” information before the 5 year period expires, if the above information is not communicated by the administration. The Board noted that the two inquiries concern similar information and they are to be effected at similar points in time. Consequently the Board decided that one inquiry shall be effected by the Bureau for both purposes. Six months before the expiry of the 5 year period counted from the date of receipt of the advance information submitted under No. **S9.1**, if the administration has not confirmed the date of bringing into use of the assignments of a satellite network and/or has not provided the complete “due diligence” information pursuant to Resolution **49 (WRC-97)**, the Bureau shall request the administration to fulfill its obligations.

6 If no answer is received, a reminder shall be sent 3 months before the expiry of the 5 year period.

7 At the end of the five year period the following situations may be envisaged:

7.1 If the administration confirms that the assignments of the space station have been brought into use and it provides the complete “due diligence” information in accordance with Resolution **49 (WRC-97)**, the Bureau maintains the MIFR recording of the satellite network (provisional recording is changed to definitive one) or, if the network has not reached the recording status, the Bureau continues to take into account the coordination and/or advance publication files of the subject network in the applicable regulatory procedures, provided that administration request to the Bureau to apply Nos. **S11.32A** and/or **S11.41**.

7.2 If the complete “due diligence” information is provided in accordance with Resolution **49 (WRC-97)** but the assignments have not been brought into use and the administration requests an extension not more than two years referring to one or more circumstances mentioned in Nos. **S11.44C** to **S11.44I**, the Bureau examines this request for extension and, according to its findings, either grants an extension or, if it is not in a position to grant the extension, it explains the reasons thereof to the administration. If the extension is granted, then the Bureau maintains the MIFR recording of the satellite network (provisional recording) or, if the network has not reached the recording status, the Bureau continues to take into account the coordination and/or advance publication files of the subject network in the applicable regulatory procedures provided that administration request to the Bureau to apply Nos. **S11.32A** and/or **S11.41**. If the extension is not granted, the Bureau cancels the MIFR recording of the satellite network or, if the network has not reached the recording status, it will no longer take into account the coordination and/or advance publication files of the network in the applicable regulatory procedures (files are cancelled).

7.3 In any other cases (i.e. no complete “due diligence” information provided or no extension requested or no answer from the administration received) the Bureau shall cancel the MIFR recording of the satellite network or, if the network has not reached the recording status, it will no longer take into account the coordination and/or advance publication files of the network in the applicable regulatory procedures (files are cancelled).

8 See also the Rules of Procedures concerning No. **S11.47**.

S11.47

According to this provision, the Bureau shall send a reminder and inform the administrations concerned before it cancels the subject entry from the Master Register and/or its files. Considering that administrations can submit and resubmit the notice with a new date of bringing into use within this 5 year period, the Board adopted the following practical procedure for this process with respect to assignments to stations in the space services:

1 When, on expiry of the 15-day period after the date of bringing into use (date) recorded in the MIFR, the Bureau has not received confirmation of the bringing into use of an assignment, a reminder shall be sent to the notifying administration in accordance with

No. **S11.47**. The administration is advised that in the absence of such confirmation, the Bureau will cancel the provisional recording and publish it in Part I of the Weekly Circular.

2 If the administration replies within 15 days following the dispatch of the above mentioned reminder that the assignment is already in use, should the interval between the new date of bringing into use and the date of receipt by the Bureau of the relevant information under No. **S9.1** is still less than 5 years, the entry in the MIFR is modified accordingly.

3 If the administration modifies the date of bringing into use so that the interval between the new date of bringing into use and the date of receipt by the Bureau of the relevant information under No. **S9.1** is still less than 5 years, the new date of bringing into use is recorded in the MIFR with provisional status as specified in No. **S11.47**.

4 If the administration requests the Bureau to extend the date of bringing into use so that the interval between the new date of bringing into use and the date of receipt by the Bureau of the relevant information under No. **S9.1** exceeds 5 years (see also comment under the Rules of Procedure concerning Nos. **S9.1** and **S9.27**), the Bureau shall apply Nos. **S11.44B** to **S11.44I**.

4.1 If the extension requested by the administration is within two years and it meets the conditions specified under Nos. **S11.44B** to **S11.44I**, then the extension is granted and the new date is recorded in the MIFR with provisional status specified in No. **S11.47**.

4.2 If the extension requested by the administration does not meet the conditions specified under Nos. **S11.44B** to **S11.44I** or if it exceeds two years, the Bureau shall cancel the entry and inform the administration accordingly.

5 The Bureau shall cancel the entry for which the administration fails to reply within the 15 days period following the dispatch of the reminder described in § 1 above (within 30 days from the date when the assignment is expected to be brought into use).

6 See also the comments made under the Rules of Procedure concerning No. **S11.44**.

S11.49

1 Suspended assignments

1.1 Under the provisions of No. **S11.49** of Article **S11**, an administration may suspend the use of a frequency assignment to a space station for a period not exceeding two years and still continue to enjoy the protection acquired by virtue of the coordination agreements already obtained. The Bureau may be informed of such suspensions either by the administration at its own initiative (No. **S11.49**) or in response to an inquiry made under No. **S13.13**.

1.2 Accordingly, 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. **S11.49** or in response to an No. **S13.13** inquiry, that the use of a frequency assignment to a space station or earth station recorded in the Master Register is suspended, this information is published in Part II of the weekly Circular (in order to inform all administrations) and the entry in the MIFR will be amended to include the date D of resumption of use indicated by the notifying administration.

2.2 Frequency assignments to space stations or earth stations whose suspension is notified for a period of less than 2 years will continue to be taken into account for the purposes of the examination of other assignments in accordance with Nos. **S9.36**, **S11.31.1**, **S11.32**, **S11.32A** and **S11.33** until the time that the consultation concerning their resumption of use is completed.

2.3 Frequency assignments to space and earth stations whose suspension is notified for a period of more than 2 years will not be taken into account for the purpose of examinations of other assignments under Nos. **S9.36**, **S11.31.1**, **S11.32-S11.32A** and **S11.33** as of the date of such notification or after confirmation from the administration of the period of suspension exceeding 2 years and shall be canceled according to Nos. **S11.49** and **S13.13**.

2.4 Consultation concerning resumption of use of an assignment

At the expiry of the period of suspension of the use of a frequency, the notifying administration is consulted as to the date of resumption of use. If no reply is received, a reminder will be sent. According to the results of the consultation, the Bureau will apply the following procedures:

2.4.1 When the administration confirms that the use has been resumed at the originally indicated date (not later than two years after the date of suspension) or before, this information is published in Part II of the weekly Circular and the MIFR is modified to indicate this situation.

2.4.2 When the administration notifies that the use will be resumed at a date later than two years after the date of suspension, these assignment shall be canceled according to the provisions Nos. **S11.49** and **S13.13**. For those stations which may be resumed later than the 2-year period, the administration responsible for the assignment shall apply again the relevant coordination procedure of Article **S9**.

Rules concerning

ARTICLE S12 of the RR

S12.9

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 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 S12 applies and at all test points within the required service area. It will be calculated at the center 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. The signal to noise ratio will be 34 dB for a bandwidth of 5 kHz and the protection ratios will be taken from Annex 4 to Recommendation ITU-R BS 560 (17 dB for co-channel). The user may decide to chose other values for signal to noise ratio and co-channel protection ratio, and not to consider adjacent channel interference with frequency differences greater than a given value.

Rules concerning

ARTICLE S21 of the RR

S21.11

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. **S21.8** 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 No. **S11.31**.

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. **S11.31**.

S21.14

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 **S21**. 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. **S11.31** only when it is informed of the formal agreement of these administrations.

S21.16

Application of 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 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 exceed the applicable hard PFD limits, the Bureau will establish favourable finding only if:

- 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 (PD) 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:

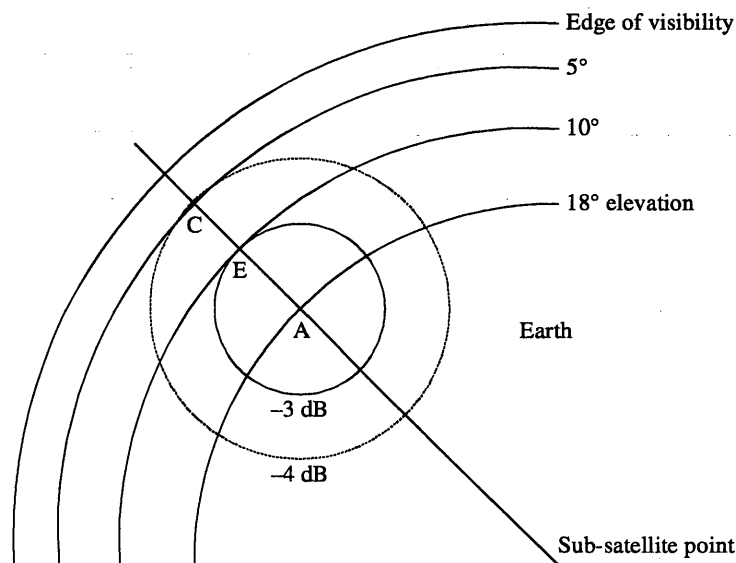
Step 1: For a specific beam position, produce a plot of beam gain contours on a map of the Earth that shows equal elevation lines.

Step 2: Using the notified power density (PD) 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 § 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 PD 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
S21.16 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 PD to meet the limit (dB)	2.0		
Maximum PD to be used at this beam position (dB(W/Hz))	-57.7		

Rules concerning

ARTICLE S22 of the RR

S22.10

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. **S22.8**. So far as the conformity examination of the Bureau with respect to No. **S22.10** is concerned, the Bureau shall formulate a favourable Finding No. **S11.31** when examining the validity of the longitudinal tolerance only in the following cases:

- a) if the tolerance is within $\pm 0.1^\circ$, or
- b) if the administration indicates that its space station has the capability to be maintained within $\pm 0.1^\circ$, if necessary.

S22.14

The comments under the Rules of Procedure concerning No. **S22.10** apply, replacing $\pm 0.1^\circ$ by $\pm 0.5^\circ$.

S22.19

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 No. **S11.31**.

Rules concerning

ARTICLE S23 of the RR

S23.13

1 No. **S23.13** refers to the radiation from a space station over the territory of other countries and consequently it relates mainly to the question of “coverage area” and not “service area”. Paragraph 4.3 of Resolution **531 (WRC-95)** indicates that an agreement under No. **S23.13** (former RR2674) should be sought from administrations included in the “service area” of a BSS space station. It was also stated that this agreement, which is a separate agreement from the one required under Article 4 of Appendix **S30**, should be sought either directly from the administrations concerned or through the publication required under the Plan modification procedure.

2 On the basis of § 5.3.1 and 4.3 of the Annex to Resolution **531 (WRC-95)**, the Board decided that, for the application of No. **S23.13** within the procedures of Article 4 of Appendix **S30** as well as those of No. **S9.11** and Resolution **33 (Rev.WRC-97)**, the Bureau shall apply the following procedure.

2.1 When examining, for data completeness, the information related to a BSS space station, received by the Bureau after 18 November 1995, for application in the Plan modification or coordination procedures in accordance with either Article 4 of Appendix **S30** or Section B (§ 3.2.1) of Resolution **33 (Rev.WRC-97)** or under No. **S9.11**, whose service area exceeds the territory of the notifying Administration, the Bureau shall require that the service area be defined in terms of other administrations (country/territory symbols) included in the service area. The notifying administration should therefor indicate whether a special (separate) agreement has been obtained from these administrations relating to the inclusion of their territories in the service area.

2.2 The Special Sections published by the Bureau in application of Article 4 of Appendix **S30** (APS30/E... series) or of Resolution **33 (Rev.WRC-97)** (RS33/C.. series) or of No. **S9.11** shall contain the indication of the agreements already obtained under No. **S23.13** or not yet obtained with a request for such agreement. The expiry period for comment relating to the inclusion or otherwise of the territory in the service area will be the same 4 months which is required for comments of administrations concerning technical compatibility with the proposed plan modification procedures.

2.3 If no comment is received either by the notifying administration or through the Bureau within the four month period mentioned in § 2.2 above, it is understood that there is no objection to the inclusion of the territory in the planned service area.

2.4 In case of a disagreement on the inclusion of a territory in the service area the Bureau shall modify the service area by excluding the test points (see item 7 of Annex 2 to Appendix **S30**) situated on the territory of the objecting administrations from the service area of the proposed plan modification. In cases where the service area is not described by test points (as in the Resolution **33 (Rev.WRC-97)** or in No. **S9.11** applications), the exclusion of the territory of the objecting administrations from the service area shall be effected by graphical means to be implemented in the BR's Space Network System (SNS). In these cases, the reception of the emission of the BSS space station is not entitled to be protected within the territory excluded from the service area.

Thereafter, the administration initiating the BSS project is entitled to bring it into use after successful completion of the relevant plan modification procedure.

2.5 When a plan modification request or the application of Resolution **33 (Rev.WRC-97)** or of No. **9.11** is submitted by a notifying administration on behalf of a group of named administrations or when the submission concerns a sub-regional or multinational system (and in which case the notification contains the list of administrations on behalf of which the communication has been made), it is understood that the agreement of inclusion of the territory in the service area has been given.

2.6 For cases received before 18 November 1995, but not yet processed and published, the Bureau shall add the following Note in the relevant Special Section of the WIC:

"Note by the Bureau:

Attention of the administrations is drawn to the provisions of No. **S23.13** (former RR2674) under which they may wish to comment with respect to the inclusion or otherwise of their territory in the service area of the satellite network which is published in this Special Section. The expiry date for such comments will be the same four months as indicated on page [...] of this publication."

Rules concerning

APPENDIX S4 to the RR

An. 1A

ITEM 3A

When submitting a notice within the procedure of Article **S11**, the administrations are required to provide information on the call sign or other identification used, as requested by Nos. **S19.7** to **S19.9** of the Radio Regulations. 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 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. 2A

B.4 a)

When submitting a notice within the applicable procedures of Articles **S9** or **S11**, in order to better describe the power flux density pattern on the surface of the Earth resulting from the emission of a space station aboard a non-geostationary satellite in circular orbit, the following optional information can be provided together with the other data contained in Appendix **S4** to the Radio Regulations:

Appendix S4, Annex 2A, Item B.4 a) (non-geostationary space station antenna characteristics)

1 In addition to the information currently contained in Appendix **S4** to be provided under this item, if appropriate, indicate:

1.1 in the case of a transmitting space station aboard a non-geostationary 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-geostationary satellite.

1.2 in the case of a space station aboard a non-geostationary 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. **S1.175**) 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. **S1.175**) is less than the global or nearly global service area, provide the maximum isotropic gain and the effective gain contours (see No. **S1.176**) 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.

An. 2B

Table of characteristics

The Board noted that in Annex 2B of Appendix **S4**, in the “Table of characteristics to be submitted for space and radio astronomy services”, two data elements, namely B.4.b and C.9.c, are marked as required in the case of “Advance publication of non-geostationary-satellite network not subject to coordination under Section II of Article **S9**” represented in the 4th column of the Table. These data elements are, however, according to the definition included in the textual part of Appendix **S4**, only required for submissions made under **S9.11A/Resolution 46 (Rev.WRC-97)** which is a coordination procedure defined by Section II of Article **S9**. The inclusion of the above data in the Table has been, probably, made by inadvertence. To correct the inconsistency the Board decided that the Bureau, in the completeness examination of the submitted data, will disregard the requirement for the characteristics B.4.b and C.9.c in the case of advance publication of those non-GSO satellite systems which are not subject to the coordination procedures of Section II of Article **S9**.

The data items concerned by the present Rule are the following:

B.4 b):

- orientation of the satellite transmitting and receiving antenna beams and their radiation pattern;
- satellite antenna gain $G(\theta_e)$ as a function of elevation angle at a fixed point on the Earth;
- spreading loss (for a non-GSO satellite) as a function of the elevation angle;
- maximum and average beam peak e.i.r.p./4 kHz and e.i.r.p./1 MHz for each beam.

C.9 c):

The type of modulation and multiple access, and spectrum mask.

Rules concerning

APPENDIX S5 to the RR

1 e), 1 g)

See also Rules of Procedure relating to Nos. **S9.29, S9.31** and **S11.32**.

Table S5-1

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 **S9** corresponding to the reference made in the first column of the Table.

Rules concerning

APPENDIX S27 to the RR

S27/15

This provision specifies that the use of channels derived from the frequencies indicated in No. S27/18 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.

S27/18

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 S27. 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. S1.33 of the Radio Regulations.

2 In the examinations referred to in No. S11.34, 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 S27 (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.

S27/19

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 concluding 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.

S27/58

This provision lists the permissible classes of emission on the channels of Appendix **S27**, 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 SSB (suppressed carrier) class of emission is authorized on the channels of the Appendix **S27** (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. **S27/18**),
 - the occupied bandwidth of other authorized emissions does not exceed the upper limit of J3E emissions (No. **S27/12**), i.e., 2 800 Hz,
 - the assigned frequency is at a value 1 400 Hz above the carrier (reference) frequency (No. **S27/75**).
-

Rules concerning

APPENDIX S30 to the RR

(Rules are arranged by paragraph numbers of Appendix S30)

In application of the following Rules whenever reference is made to the Region 1 and 3 Plan, it means the Plan revised at WRC-97 for Region 1 and 3 WRC-97 Plan

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. S5.492.

Art. 4

Procedure for modification to the Plans

4.1 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 which are shown in the appropriate Regional Plan”. The Plans as they appear in Articles 10 and 11 of Appendix S30 contain only eight and sixteen characteristics respectively, while Annex 2 contains a greater number of characteristics which were used by each of the conferences concerned to establish the Plan. Among these characteristics only one, the energy dispersal (Annex 2, § 14 *h*)), is referred to in the footnote of § 4.1. The Board considers that modifications of characteristics other than those listed in Articles 10 and 11 of Appendix S30 may be considered as modifications to the Plans. These other characteristics are listed in the comments under § 5.2.1 *b*) of Article 5 of Appendix S30.

In reviewing § 4.1 *a*) and 4.1 *b*) of Article 4 of Appendix S30, the Board concluded that, the Bureau, in applying relevant sections of Annex 1 shall, where applicable, compare the power flux density and $\Delta T/T$ values, as the case may be, resulting from modification to the Plan with those values in the Plan. If it is not possible to do so, the Bureau should use the absolute limit expressed in relevant sections of Annex 1 to that Appendix.

See also Rules of Procedure under § 4.3.5.

4.1 b)

See Rules of Procedure relating to § 4.1 a) above.

See also Rules of Procedure under § 4.3.5.

4.1 c)

When an administration cancels an assignment from the Regional Plan under this paragraph, or when the Bureau, in applying § 4.3.5 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 need not to recalculate the affected administration(s) as result of the above-mentioned cancellation.

4.3.1.1

1 In determining those administrations of Regions 1 and 3 that may be affected, the proposed modification is examined with respect to the Regions 1 and 3 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 Annex 1 of Appendix S30 are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.3.15.

2 Following the introduction by 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 IFRB decided to extend this concept to the 1977 Conference BSS Plan. On the other hand, the cluster concept was introduced by 1983 Conference for Region 2 for BSS and associated feeder-links (§ B of Annex 7 of Appendix S30, § 4.13 of Annex 3 of Appendix S30A) and for Regions 1 and 3 by WARC Orb-88 for feeder-links (§ 3.15 of Annex 3 of Appendix S30A). The IFRB decided that Regions 1 and 3 could also apply this concept for the BSS Plan provided that the required agreement is obtained from administrations in the cluster.

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.

For the Regions 1 and 3 Plans, the Board did not find any regulatory basis to extend the use of multiple orbital positions for networks involving grouping beyond those cases which were accepted by WRC-97 and included in the revised Regions 1 and 3 Plans.

For the Region 2 Plan, 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).

4.3.1.2

In determining those administrations of Region 2 that might be affected, the proposed modification of the Regions 1 and 3 Plan is examined with respect to the Region 2 Plan as it exists at the date of receipt of the proposal for modification including the proposed modifications 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 bandwidth overlaps the necessary bandwidth of the proposed modification. The Region 2 administration is identified as having services which are considered to be affected when the power flux-density over any part of its territory which lies within the service area of the Region 2 assignment under examination exceeds the limits specified in § 3 of Annex 1 to Appendix S30. 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 that Region 2 assignment in this examination.

4.3.1.4

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 channel. Therefore the modification to the Regions 1 and 3 Plan should take account of:

- terrestrial stations in Regions 1 and 3; and
- terrestrial stations in Region 2.

In the case of terrestrial stations in Regions 1 and 3 the limit for the power flux-density not to be exceeded by a broadcasting-satellite space station in the same Regions is specified in section 8 a) of Annex 1. In the case of terrestrial stations in Region 2, the limit for the power flux-density not to be exceeded by a broadcasting-satellite space station in Regions 1 and 3 is that specified in § 4 of Annex 1 to Appendix S30. The agreement of an administration is required when a pfd excess exists over some part of its territory, unless the assigned bandwidth of the examined assignment is completely within the assigned bandwidth(s) of one or more assignments¹ of the potentially affected administration in the Appendix S30 Plan and the area of pfd excess is inside the service area(s) of those Appendix S30 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 Appendix S30 assignments in this examination.

¹ 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.

4.3.1.5

1 The bands 11.7-12.2 GHz in Region 2 and 12.2-12.5 GHz in Region 3 are allocated to the fixed-satellite service (FSS). See comments made under the Rules of Procedure concerning Nos. **S5.488** and **S5.491**.

2 An administration in Region 2 is identified among those whose agreement is required under this paragraph when the following conditions are fulfilled:

- a) it has assignment to fixed-satellite service space stations in the band 11.7-12.2 GHz whose assigned bandwidth overlaps the necessary bandwidth of the proposed assignment and which is:
 - recorded in the MIFR, with a favourable Finding under No. **S11.31**; or
 - published or received for publication for coordination under provision **S9.7**; or
 - published or received for publication under § 7.2.1 of Article 7 of Appendix **S30/No. S9.8** and
- b) the power flux-density over any portion of the service area of the above mentioned Region 2 FSS assignment resulting from the proposed Regions 1 and 3 BSS assignment exceeds the limits prescribed in § 1 and 3 of section 6 of Annex 1 to Appendix **S30**.
- c) See also the comments made under the Rules of Procedure concerning Annex 7.

3 An administration of Region 3 is identified among those whose agreement is required under this paragraph when the following conditions are fulfilled:

- a) it has assignment to fixed-satellite service space stations in the band 12.2-12.5 GHz whose assigned bandwidth overlaps the necessary bandwidth of the proposed assignment and which is:
 - recorded in the MIFR, with a favourable Finding under No. **S11.31**; or
 - published or received for publication for coordination under provision **S9.7**; or
 - published or received for publication under § 7.2.1 of Article 7 of Appendix **S30/No. S9.8**; and
- b) the power flux-density over any portion of the service area of the above mentioned Region 3 FSS assignment resulting from the proposed Region 1 BSS assignment exceeds the limits prescribed in § 1 and 3 of section 6 of Annex 1 to Appendix **S30**.
- c) See also the comments made under the Rules of Procedure concerning § 6 of Annex 1.

In the case of inclusion of a new assignment to the Regions 1 and 3 Plan, the limit prescribed in § 3 of section 6 of Annex 1 shall be applied with the same conditions as those mentioned in § 2 and 3 above (see also Rules relating to § 4.1 a) and 4.1 b) above).

4.3.3.1

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 Annex 1 of Appendix **S30** are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.3.15.

2 According to Resolution **42 (Rev.Orb-88)**, 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 § 4.3.1.1.

4.3.3.2

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 as it exists at the date of receipt of the modification including all proposed modifications 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 bandwidth overlaps the necessary bandwidth of the proposed modification. An administration of Region 1 is identified as having services which might be affected when the power flux-density over any part of its territory which lies within the service area of the Region 1 assignment under examination exceeds the limits specified in § 3 of Annex 1 to Appendix **S30**. 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 that Region 1 assignment in this examination.

4.3.3.4

As indicated in the comments under § 4.3.1.4, a modification to the Region 2 Plan should take account of:

- terrestrial stations in Region 2; and
- terrestrial stations in Regions 1 and 3.

In the case of terrestrial stations in Region 2, the limit for the power flux-density not to be exceeded by a broadcasting-satellite station in Region 2 is specified in § 8 *b*) of Annex 1. In the case of terrestrial stations in Regions 1 and 3, the limit for the power flux-density not to be exceeded by a broadcasting-satellite space station in Region 2 is specified in § 5 of Annex 1 to Appendix **S30**. The agreement of an administration is required when a pfd excess exists over some part of its territory, unless the assigned bandwidth of the examined

assignment is completely within the assigned bandwidth(s) of one or more assignments² of the potentially affected administration in the Appendix **S30** Plan and the area of pfd excess is inside the service area(s) of those Appendix **S30** 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 Appendix **S30** assignments in this examination.

4.3.3.5

1 See item 1 in the comments under § 4.3.1.5.

2 An administration of Regions 1 and 3 is identified among those whose agreement is required under this paragraph when the following conditions are fulfilled:

a) it has assignment to fixed-satellite service space stations in the band 12.5-12.7 GHz (Region 1) or 12.2-12.7 GHz (Region 3) whose assigned bandwidth overlaps the necessary bandwidth of the proposed assignment and which is :

- recorded in the MIFR with a favourable Finding under No. **S11.31**; or
- published or received for publication for coordination under provision **S9.7**; or
- published or received for publication under § 7.2.1 of Article 7 of Appendix **S30/No. S9.8** and

b) the power flux-density over any portion of the service area of the above mentioned Regions 1 and 3 FSS assignment resulting from the proposed Region 2 BSS assignment exceeds the limits prescribed in § 2 and 3 of section 6 of Annex 1 to Appendix **S30**.

3 In the case of inclusion of a new assignment to the Region 2 Plan, the limit prescribed in § 3 of section 6 of Annex 1 shall be applied with the same conditions as those mentioned in § 2 above (see also Rules relating to § 4.1 a) and 4.1 b) above).

4 An administration of Region 1 is identified among those whose agreement is required under this paragraph when the following conditions are fulfilled:

a) it has assignment to fixed-satellite service space stations (Earth-to-space) in the band 12.5-12.7 GHz whose assigned bandwidth overlaps the necessary bandwidth of the proposed assignment and which is:

- recorded in the MIFR with a favourable Finding under No. **S11.31**; or

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 organizations.

- published or received for publication for coordination under provision **S9.7**; or
 - published or received for publication under § 7.2.1 of Article 7 of Appendix **S30/No. S9.8**; and
- b) the $\Delta T/T$ resulting from the proposed modification of the Region 2 BSS assignment exceeds the limit prescribed in § 7 of Annex 1 to Appendix **S30**.

5 In the case of inclusion of a new assignment to the Region 2 Plan, the limit prescribed in the second indent of § 7 of Annex 1 shall be applied with the same conditions as those mentioned in § 4 above (see also Rules relating to § 4.1 a) and 4.1 b) above).

4.3.3.6

1 Until there is a Plan for Region 3 for the band 12.5-12.7 GHz, administrations of Region 3 having broadcasting-satellite assignments in the MIFR or published for coordination under Resolution **33 (Rev.WRC-97)** shall be identified as possibly affected if their necessary bandwidth overlaps the necessary bandwidth of the proposed modification and the limits of § 3 of Annex 1 of Appendix **S30** are exceeded.

2 See comments under No. **S5.493**.

4.3.5

1 Appendix **S30** contains assignment Plans with beams covering only a territory or a part of a territory, which leads one to conclude that the usual wording used in similar paragraphs “or an administration on behalf of a group of administrations” is not necessary. However, it is to be noted that some beams have been included in both Plans for some groups of administrations. Consequently the Board decided that the Bureau shall accept the application of the procedure of Article 4 for a modification of either of the two Plans by an administration on behalf of other administrations. See Rules of Procedure under No. **S23.13**.

2 This paragraph states that modifications to that Plan submitted under § 4.1 b) shall lapse if the assignment is not brought into service by the date indicated. The paragraph does not contain any possibility for administrations to extend this date within a specified period as is done in No. **S11.44**. Moreover, there is no mention about the modifications submitted under § 4.1 a) of Article 4 of this Appendix which should logically be treated in the same manner. The Board, therefore decided that:

2.1 Modifications to the Plans submitted under § 4.1 a) and 4.1 b) of Article 4 of Appendix **S30** shall lapse if the assignment is not brought into use within the envelope of the characteristics as coordinated and published under § 4.3.17 of this Appendix by the notified date on which they were to be brought into use.

2.2 For modifications to the Plans, the postponement of the date of bringing into use of any assignment beyond the original date shall not exceed by more than three years . In any case, the new date of bringing into use shall not exceed maximum 8 years from the date of receipt of complete Annex 2 data by the Bureau whether or not the Annex 2 data is received for both Appendices **S30** and **S30A** together or separately.

2.3 During the 8-year regulatory period, both the initial assignment and the modified assignment submitted under § 4.1 *a*) shall be protected until the modified assignment is brought into use. In cases where a modification made under § 4.1 *a*) is consequently suppressed from the Plan, the original Plan entry which was concerned with the lapsing modification shall be maintained.

3 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 under § 4.1 *b*) and entered in the Plan, shall also be removed from the Plan.

4 See also Rules of Procedure concerning receivability of the forms of notice.

4.3.8

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.

4.3.9

The agreement referred to in this paragraph is the agreement of the administrations identified under § 4.3.1 or 4.3.3 and of those under § 4.3.8 which have been confirmed by the Bureau using the appropriate criteria.

4.3.10

An administration which has only requested additional information in accordance with § 4.3.10 will not be considered by the Bureau to have submitted comments in accordance with § 4.3.12.

4.3.12

This paragraph specifies that, an administration that has not notified its comment within four months (from the publication date of the special section) shall be understood to have agreed to the proposed modifications. The Board considered the adverse effect of such missing replies and decided that the Bureau shall send reminder telegrams 30 days before the expiry of the above four month period.

4.3.13

See also comments under § 4.3.5 and Rules relating to the receivability of forms of notice.

4.3.17

The second part of this paragraph 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 § 4.3.6 and 4.3.8 have either given their agreement or failed to comment on the proposed modification.

The Bureau shall update the Reference Situation of the Plan entries and of those networks which are the subject of requests for Plan modifications which are still at the stage of application of Article 4.

4.4

If the assignments in question were deleted from the Plan, the Bureau shall update the Reference Situation of the Plan assignments and those in the process of modification and inform all administrations of the action taken together with Special Sections published as result of cancellation of frequency assignments from the appropriate Regional Plan.

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 means only the columns of Articles 10 and 11 of Appendix **S30**, as updated or whether it also includes an examination with respect to the technical criteria given in Annex 5 to Appendix **S30** 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 c) 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 Plan³ 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 S30);
- nominal orbital position (as indicated in columns 2 and 3 of Articles 10 and 11 respectively of Appendix S30);
- channel number/frequency (as indicated in columns 3 and 4 of Articles 10 and 11 respectively of Appendix S30);
- boresight coordinates (as indicated in columns 4 and 5 of Articles 10 and 11 respectively of Appendix S30);
- in the case of an elliptical beam:
 - antenna beamwidth (as indicated in columns 5 and 6 of Articles 10 and 11 respectively of Appendix S30),
 - ellipse orientation (as indicated in column 6 of Articles 10 and 11 of Appendix S30),
 - antenna rotational accuracy (same as or better than that of § 3.14 of Annex 5 to Appendix S30);
- polarization (as indicated in columns 7 and 11 of Articles 10 and 11 respectively of Appendix S30);
- power plus co-polar antenna gain (as indicated in columns 8 and 12 of Articles 10 and 11 respectively of Appendix S30), and in the case of shaped beam the cross-polar antenna gain (as indicated in column 9 of Article 11 of Appendix S30);
- service area (test points shall be located within the service area);
- class of emission and bandwidth (as indicated in column 13 of Article 11 of Appendix S30 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 S30);
- antenna characteristics (same as or better than those indicated in columns 7 or 8 as appropriate of Article 11 of Appendix S30 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 S30);
- antenna pointing accuracy (same as or better than that referred to in § 3.14 of Annex 5 to Appendix S30);
- station keeping tolerance (same as or better than that mentioned in § 3.11 of Annex 5 to Appendix S30);
- modulation characteristics (same as in column 13 of Article 11 of Appendix S30 in the case of the Regions 1 and 3 Plan, or otherwise as indicated in § 3.1 of Annex 5 to Appendix S30);

³ Any time the “Plan” is referred to, this means the current version of the Plan as updated on the date of Bureau’s examination.

- energy dispersal (same as § 3.18 of Annex 5 to Appendix **S30**);
- the power flux-density identified in Note 10 of the Region 2 Plan, to determine whether the limits are met or whether there is an agreement with the affected administrations.

5.2.1 c)

1 If an administration notifies any characteristics different from those listed in the Rules of Procedure related to § 5.2.1 b) of Article 5 of Appendix **S30**, and those allowed in § 5.2.1 c) of the same Article, a calculation is undertaken to determine if the proposed characteristics will increase the interference to other assignments in the Plan, in the same service or in other service sharing the same frequency bands.

2 See comments made under the Rules of Procedure concerning Annex 7.

3 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 **S30** and § 4.13.1 of Annex 3 to Appendix **S30A** in the case of the Region 2 Plan, and § 3.15 of Annex 3 to Appendix **S30A** in the case of the Regions 1 and 3 Plan) 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 **S30**. Appendices **S30** and **S30A** 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.

4 See comments under No. **S5.492**.

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 an unfavourable Finding with respect to § 5.2.1 b) but a favourable Finding with respect to § 5.2.1 c). 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.Orb-88)** for Region 2.

In case of Regions 1 and 3, should the Bureau reach a favourable finding with respect to § 5.2.1 *a)* but an unfavourable Finding with respect to § 5.2.1 *b)* and 5.2.1 *c)*, 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.

5.3.1

1 See item 2 in the comments under § 4.3.5 above.

2 For any notification other than that relating to the modification to the Plan, the date of bringing into use of assignments can be extended at the request of the notifying administration by no more than three years.

Nevertheless, the total period for the implementation (bringing into use) of the assignments whether or not the submission is received for both Appendices **S30** and **S30A** shall be limited to 8 years.

See comments under § 4.3.5.

Art. 6

Coordination, notification and recording of terrestrial assignments affecting BSS assignments

6.3.9

This paragraph refers to “the other administrations concerned”. These administrations are those identified in application of § 6.1.1. There is no reference in either this paragraph or in § 6.1.1 to Resolution **42 (Rev.Orb-88)** therefore the Board understands these paragraphs also to apply to assignments appearing in the Interim System List.

6.3.10

See comments made under § 6.3.9 above.

Art. 7**Coordination, notification and recording of FSS assignments
affecting BSS assignments****7.1.1**

The procedures contained in Article 7 of Appendix **S30** follow the general principle of coordination procedures in the non-planned bands contained in Article **S9**. A similar article exists in Appendix **S30A**. The Board, having noted that this paragraph applied to the fixed-satellite service could not find any reason for excluding the possibility for an administration to apply this paragraph on behalf of a group of administrations.

7.2.2

In this paragraph there is reference to the interference potential specified in an agreement; the Bureau may not have the details of this agreement, and will therefore take this into account only when it has been communicated to it.

**Sect. III
to VIII**

Any frequency assignment subject to application of Article 7 of Appendix **S30** are simultaneously notified under Article **S11**, the Board therefore decided that the application of the relevant paragraph of Sections III to VIII of Article 7 of Appendix **S30** shall be carried out within the framework of Article **S11**.

An. 1**Limits for determining whether a service of an administration is
affected by proposed modifications to the Plan****1****a) Test points**

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 reference situation of the updated Plan.

b) Reference protection margin⁴

The reference equivalent protection margin (EPM) used as the basis for comparing the effect of a proposed modification is that periodically published by the Bureau and updated once a modification to the Plan is successfully applied. In making these examinations to determine which administrations might be affected, the assignments considered are:

- all assignments in the Plan at the time of the Conference;
- all modifications that successfully applied the procedure of Article 4 or those which are in process under Article 4, i.e. for which the complete Annex 2 data have been received.

If the calculations for a proposed modification show that the equivalent protection margin (EPM) of any assignment which is currently 0 dB or negative, decreases by more than 0.25 dB⁵ then that administration is identified as possibly affected.

In the application of this section the cumulative effect of the proposed modification of all assignments in the Plan is calculated and compared as follows:

i) For an assignment entered in the Plan by the Conference:

The cumulative effect is compared with the reference situation on the date of entry into force of the Plan, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

ii) For an assignment entered in the Plan by the Conference and modified by the administration:

The cumulative effect is compared with the reference situation on the date of modification, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

iii) For a new assignment entered in the Plan in application of Article 4:

The cumulative effect is compared with the reference situation on the date of entry of the new assignment in the Plan, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

⁴ An analysis carried out by the Radiocommunication 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 S30 and S30A, caused by subsequent proposed modifications to the Plan, decreases when those networks have a very low equivalent protection margin (EPM). In those cases where, because of the above phenomenon they are not identified as affected (the equivalent protection margin reduces by at least 0.25 dB) it is up to the administrations concerned to take necessary action, as appropriate.

⁵ For reasons of uniformity, the Board decided that the Bureau shall use the same margin of 0.25 dB as indicated for the same purpose in Section 2 of Annex 1 of Appendix S30.

a) *Test points*

In examining a proposed modification or interim system all test points communicated to the Bureau by administrations are used. These test points are periodically published by the Bureau together with the reference situation of the Plan.

b) *Reference protection margin⁶*

The reference overall equivalent protection margin (OEPM) used as the basis for comparing the effect of a proposed modification or interim system is that periodically published in by the Bureau and updated. In making these examinations to determine which administrations might be affected, the assignments considered are:

- all assignments in the Plan at the time of the Conference;
- all modifications that successfully applied the procedure of Article 4 or those which are in process under Article 4, i.e for which the complete Annex 2 data have been received.

Interim systems are not considered to be assignments likely to be affected; therefore they are not taken into account in the examination except vis à vis other interim systems however, the suspended assignments are taken into consideration.

When applying this section to a proposed interim system in accordance with Resolution **42 (Rev.Orb-88)**, all the corresponding suspended assignments in the Region 2 Plan are deleted from the interference calculations.

If the calculations for a proposed modification or interim system show that the OEPM of any assignment which is currently 0 dB or negative decreases by more than 0.25 dB, then that administration is identified as possibly affected.

In the application of this section the cumulative effect of the proposed modification on all assignments in the Plan is calculated and compared as follows:

i) For an assignment entered in the Plan by the Conference:

The cumulative effect is compared with the reference situation on the date of entry into force of the Plan, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

ii) For an assignment entered in the Plan by the Conference and modified by the administration:

The cumulative effect is compared with the reference situation on the date of modification, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

⁶ See footnote 4 related to Rule of Procedure concerning the reference protection margin under § 1.

iii) For a new assignment entered in the Plan in application of Article 4:

The cumulative effect is compared with the reference situation on the date of entry in the Plan, such as modified after the administration responsible for this assignment gave its coordination agreement to another assignment which was, as a consequence of this acceptance, modified or entered in the Plan.

6

The Board noted that this section does not contain the limits applicable to the protection of Region 3 fixed-satellite stations in the band 12.2-12.5 GHz from Region 1 broadcasting-satellite stations in the case of modifications to the Plan. The Board therefore decided that, to protect the fixed satellite service in Region 3 in the band 12.2-12.5 GHz from the modifications to the Region 1 BSS Plan, the Bureau shall apply the limits applicable for Region 2 (11.7-12.2 GHz).

7

The Board noted that the $\Delta T/T$ criteria contained in this section which is to be used in conjunction with the calculation method of Appendix S8 is 4%. (In Appendix S8 this trigger limit is 6%.) In reviewing the footnote 3 of Appendix S8, the Board instructs the Bureau to continue to use 4% as the criteria for identification of affected administration.

An. 5

Technical data used in establishing the plan and 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 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 available ITU-R Recommendations provide only a method for calculation of interference 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 S30
"Non-standard" analogue	"Standard" analogue	As described in the Bureau's internal Rule relating to MSPACE Manual
"Standard" analogue	"Non-standard" analogue	As described in the Bureau's internal Rule relating to MSPACE Manual
"Non-standard" analogue	"Non-standard" analogue	As described in the Bureau's internal Rule relating to MSPACE Manual
Digital	"Standard" or "non-standard" analogue	As described in the Bureau's internal Rule relating to MSPACE Manual
"Standard" or "non-standard" analogue	Digital	As defined in Recommendation ITU-R BO.1293
Digital	Digital	As defined in Recommendation ITU-R BO.1293

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 S30.
- *For Region 2:* 24 MHz bandwidth, 14.58 MHz channel spacing and the assigned frequencies as specified in Article 10 of Appendix S30.

3.9

The provisions of § 3.9 of Annex 5 allow the use of the guard bands at the lower and upper edges of the planned bands for transmissions in the space operation service. No procedure is however defined for these transmissions. Consequently, the Board decided that frequency assignments in the guard bands of the Plans are only subject to publications in a Special Section APS30/A/... and no other publication or technical examination shall be effected by the Bureau.

3.11

Section 3.11 of Annex 5 to Appendix S30 describes the space station keeping accuracy under which the space stations operating in the broadcasting satellite services 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 Regulation Board (RRB) decided that the Bureau should develop the appropriate methodology for the application of this section.

An. 7

Orbital position limitations

1 Section A 3) of Annex 7 of Appendix S30 reads as follows:

“Any new orbital position in the Regions 1 and 3 Plan in the range of the orbital arc between 37° W and 10° E associated with a new assignment, or resulting from a modification of an assignment in the Plan, shall be coincident with, or within 1° to the East of, a nominal orbital position in the Regions 1 and 3 Plan at the date of entry into force of the Final Acts of the 1977 Conference (in force on 1 January 1979).

In the event of a modification to an assignment in the Regions 1 and 3 Plan, the use of a new nominal orbital position not coincident with any nominal orbital position in the Plan at the date of entry into force of the Final Acts of the 1977 Conference (in force on 1 January 1979) shall involve an 8 dB reduction in the e.i.r.p. compared to that appearing in the Regions 1 and 3 Plan for the assignment before modification.”

2 During WRC-97, Committee 4 approved the following text relating to Annex 7 of Appendix S30:

“Concerning Annex 7 of Appendix S30, it was agreed to retain it without changes at this Conference. WG 4D ad hoc has been asked to include appropriate text indicating that Annex 7 will be reviewed within the context of the preparation for the possible planning conference (including the 8 dB reduction). Appropriate action on Annex 7 will be taken at WRC-99. In the mean time, the reference in Annex 7 to a reduction of 8 dB will measured relative to average e.i.r.p.s that are at the level of the 1977 Plan”.

Furthermore, in relation to the 8 dB reduction provision, Committee 4 decided that it should be left to the RRB to review the Rules of Procedure concerning Annex 7 and make any requisite revisions.

3 Considering that the purpose of § A 3) of Annex 7 is to protect the Region 2 fixed-satellite service, and the text of that section requires an 8 dB e.i.r.p. reduction to achieve this protection and recognizing that there is no difference between the treatment of orbital positions of the initial 1977 Conference and those added at WRC-97 as far as the restriction of movement in the western direction and the allowance of movement in the eastern direction is concerned, the Board decided that within the orbital arc between 37° W and 10° E the limits given in Tables 2 and 3 would apply.

TABLE 2

Allowable orbital positions in the arc 37° W to 10° E for which no 8 dB e.i.r.p. reduction applies

Orbital Position (degrees E)	-37.00	-33.50	-30.00	-25.00	-19.00	-13.00	-7.00	-1.00	-0.80	5.00	5.20
---------------------------------	--------	--------	--------	--------	--------	--------	-------	-------	-------	------	------

TABLE 3

Allowable portions of the orbital arc between 37° W and 10° E for which the 8 dB e.i.r.p. reduction clause applies

Orbital Position (degrees E)	-37.00 to -36.00	-33.50 to -32.50	-30.00 to -29.00	-25.00 to -24.00	-19.00 to -18.00	-13.00 to -12.00	-7.00 to -6.00	-1.00 to 0.00	0.00 to 0.20	5.00 to 6.00	6.00 to 6.20
e.i.r.p. Limit (dBW) ¹	55.15	56.57 ²	55.41 ²	55.55	56.23	55.38	56.17	55.98 ²	51.50	57.32 ²	55.60

¹ The e.i.r.p. limit values were calculated by subtracting 8 dB from the average of the e.i.r.p.'s of the assignments of the related orbital position of the 1977 Conference Plan. For the orbital arcs: 33.5° W to 32.5° W; 30.0° W to 29.0° W; 0.0° to 0.2° E and 6.0° E to 6.2° E for which no related orbital positions of the 1977 Conference Plan were available, e.i.r.p. limit values were calculated by subtracting 3 dB from the average of the WRC-97 Plan assignments at the 33.5° W, 30° W, 0.8° W and 5.2° E orbital locations, as appropriate.

² The orbital positions 33.50° W, 30.00° W, 0.80° W and 5.20° E do not require an 8 dB e.i.r.p. reduction (see Table 2).

4 The Board decided that if the e.i.r.p. level for the orbital positions defined in Table 3 is exceeded the Bureau shall act as follows:

For those requests for modifications submitted in application of the Article 4 procedure, including those which were previously published and which are to be re-examined in application of Resolution **533 (WRC-97)**, a Note shall be included in the Special Section drawing the attention of the responsible administration to the need to take necessary action at the stage of Part B publication (application of § 4.3.14 of Appendix **S30**) to ensure that the e.i.r.p. level satisfies the limit specified in Table 3, otherwise the assignments in question shall not be considered to be in conformity with § 3.2 of Article 3 of Appendix **S30** and shall not be thus included in the Plan even if all other paragraphs of Article 4 were successfully applied.

ATTACHMENT 1

Clusters for Region 2

Column No.	Designation
1	Cluster (degree)
2	Number of beams in the cluster
3	Administration names and orbital position

CLUSTERS FOR REGION 2

1	2	3							
-175.00	8	ALS00003	HWA00003	HWA01003	USAPSA03	ALS00003	HWA00003	USAPSA03	HWA01003
		-175.2	-175.2	-175.2	-175.2	-174.8	-174.8	-174.8	-174.8
-166.00	8	ALS00002	HWA00002	HWA01002	USAPSA02	ALS00002	HWA00002	USAPSA02	HWA01002
		-166.2	-166.2	-166.2	-166.2	-165.8	-165.8	-165.8	-165.8
-157.00	2	USAWH102	USAWH102						
		-157.2	-156.8						
-148.00	2	USAWH101	USAWH101						
		-148.2	-147.8						
-138.00	8	CAN01101	CAN01201	CAN02101	CAN02201	CAN01101	CAN01201	CAN02101	CAN02201
		-138.2	-138.2	-138.2	-138.2	-137.8	-137.8	-137.8	-137.8
-136.00	2	MEX02NTE	MEX02NTE						
		-136.2	-135.8						
-131.00	1	CTR00201							
		-130.8							
-129.00	12	CAN01203	CAN01303	CAN01403	CAN02203	CAN02303	CAN02403	CAN01203	CAN01303
		-129.2	-129.2	-129.2	-129.2	-129.2	-129.2	-128.8	-128.8
		CAN01403	CAN02203	CAN02303	CAN02403				
		-128.8	-128.8	-128.8	-128.8				
-127.00	2	MEX02SUR	MEX02SUR						
		-127.2	-126.8						
-121.00	1	PNRIFRB2							
		-121.0							
-119.00	2	USAEH004	USAEH004						
		-119.2	-118.8						
-116.00	3	BLZ00001	CYM00001	TCA00001					
		-115.8	-115.8	-115.8					
-115.00	6	BOLAND01	CLMAND01	EQACAND1	EQAGAND1	PRUAND02	VENAND03		
		-115.2	-115.2	-115.2	-115.2	-115.2	-115.2		
-110.00	4	PTRVIR02	USAEH003	PTRVIR02	USAEH003				
		-110.02	-110.2	-109.8	-109.8				

CLUSTERS FOR REGION 2 (continuation)

1	2	3							
-107.50	4	GTMIFRB2	HNDIFRB2	NCG00003	SLVIFRB2				
		-107.3	-107.3	-107.3	-107.3				
-106.00	5	CHLCONT5	CHLPAC02	PAQPAC01	CHLCONT4	CHLCONT6			
		-106.2	-106.2	-106.2	-105.8	-105.8			
-104.00	2	VEN02VEN	VEN11VEN						
		-103.8	-103.8						
-103.00	1	CLM00001							
		-103.2							
-102.00	1	B SE911							
		-101.8							
-101.00	4	PTRVIR01	USAEH002	PTRVIR01	USAEH002				
		-101.2	-101.2	-100.8	-100.8				
-99.00	1	PRG00002							
		-99.2							
-96.00	1	BERBERMU							
		-96.2							
-95.00	2	EQAC0001	EQAG0001						
		-94.8	-94.8						
-94.00	3	ARGINSU4	ARGSUR04	ARGNORT4					
		-94.2	-94.2	-93.8					
-92.50	7	BRB00001	JMC00002	CRBBAH01	CRBBER01	CRBBLZ01	CRBEC001	CRBJMC01	
		-92.7	-92.7	-92.3	-92.3	-92.3	-92.3	-92.3	
-91.00	12	CAN01304	CAN01404	CAN01504	CAN02304	CAN02404	CAN02504	CAN01304	CAN01404
		-91.2	-91.2	-91.2	-91.2	-91.2	-91.2	-90.8	-90.8
		CAN01504	CAN02304	CAN02404	CAN02504				
		-90.8	-90.8	-90.8	-90.8				
-89.00	1	CUB00001							
		-89.2							
-87.00	2	BAHIFRB1	BOL00001						
		-87.2	-87.2						

CLUSTERS FOR REGION 2 (continuation)

1	2	3							
-86.00	1	PRU00004							
		-85.8							
-84.50	3	GUY00201	SURINAM2	TRD00001					
		-84.7	-84.7	-84.7					
-83.50	2	DOMIFRB2	HTI00002						
		-83.3	-83.3						
-82.00	12	CAN01405	CAN01505	CAN01605	CAN02405	CAN02505	CAN02605	CAN01405	CAN01505
		-82.2	-82.2	-82.2	-82.2	-82.2	-82.2	-81.8	-81.8
		CAN01605	CAN02405	CAN02505	CAN02605				
		-81.8	-81.8	-81.8	-81.8				
-81.00	4	B SU111	B SU211	B SU111	B SU211				
		-81.2	-81.2	-80.8	-80.8				
-79.50	8	ATGSJN01	MSR00001	SCN00001	VRG00001	DMAIFRB1	GRD00003	LCAIFRB1	VCT00001
		-79.7	-79.7	-79.7	-79.7	-79.3	-79.3	-79.3	-79.3
-78.00	2	MEX01NTE	MEX01NTE						
		-78.2	-77.8						
-74.00	6	B N0611	B N0711	B N0811	B N0611	B N0711	B N0811		
		-74.2	-74.2	-74.2	-73.8	-73.8	-73.8		
-72.50	4	CAN01202	CAN02202	CAN01202	CAN02202				
		-72.7	-72.7	-72.3	-72.3				
-71.50	1	URG00001							
		-71.7							
-70.50	4	CAN01606	CAN02606	CAN01606	CAN02606				
		-70.7	-70.7	-70.3	-70.3				
-69.00	1	MEX01SUR							
		-69.2							
-64.00	6	B CE311	B CE411	B CE511	B CE311	B CE411	B CE511		
		-64.2	-64.2	-64.2	-63.8	-63.8	-63.8		
-61.50	2	USAEH001	USAEH001						
		-61.7	-61.3						

CLUSTERS FOR REGION 2 (end)

1	2	3									
-57.00	2	FLKANT01	GRD00059								
		-57.2	-57.2								
-55.00	3	ARGINSU5	ARGSUR05	ARGNORT5							
		-55.2	-55.2	-54.8							
-53.00	4	GRLDNK01	SPMFRAN3	ATNBEAM1	GUFMGG02						
		-53.2	-53.2	-52.8	-52.8						
-45.00	8	B CE312	B CE412	B SU112	B SU212	B CE312	B CE412	B SU112	B SU212		
		-45.2	-45.2	-45.2	-45.2	-44.8	-44.8	-44.8	-44.8		
-42.00	1	GRD00002									
		-42.2									
-34.00	2	GUY00302	JMC00005								
		-33.8	-33.8								
-31.00	2	BERBER02	FLKFALKS								
		-31.0	-31.0								

Rules concerning

APPENDIX S30A to the RR

(Rules are arranged by paragraph numbers of Appendix S30A)

Art. 4

Procedure for modification to the Plans

4.1 a)

This paragraph refers to the modification in the sense of a change to “the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the appropriate Regional Plan”. The Plans as they appear in Articles 9 and 9A contain only eight and eighteen characteristics, respectively, while Annex 2 contains a greater number of characteristics which were used by each of the conferences concerned to establish the Plan. The Board considers that modifications of characteristics other than those listed in Articles 9 and 9A may be considered as modifications to the Plans. These other characteristics are listed in the comments under § 5.2.1 *b*) of Article 5.

In reviewing § 4.1 *a*) and 4.1 *b*) of Article 4 of Appendix S30, the Board concluded that, the Bureau, in applying relevant sections of Annex 1 shall, where applicable, compare the power flux density and $\Delta T/T$ values, as the case may be, resulting from modification to the Plan with those values in the Plan. If it is not possible to do so the Bureau should use the absolute limit expressed in relevant sections of Annex 1 to Appendix S30.

See also Rules of Procedure under § 4.2.5.

4.1 b)

See Rules of Procedure relating to § 4.1 *a*) above.

See also Rules of Procedure under § 4.2.5.

4.1 c)

When an administration cancels an assignment from the Regional Plan under this paragraph, or when the Bureau, in applying § 4.2.5 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 need not to recalculate the affected administration(s) as result of the above-mentioned cancellation.

4.2.1.1

1 In determining those administrations of Regions 1 and 3 that may be affected, the proposed modification is examined with respect to the Regions 1 and 3 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 Annex 1 (§ 4) of Appendix **S30A** are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.2.16.

2 Following the introduction by 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 IFRB decided to extend this concept to the 1977 Conference BSS Plan. On the other hand, the cluster concept was introduced by 1983 Conference for Region 2 for BSS and associated feeder-links (§ B of Annex 7 of Appendix **S30**, § 4.13 of Annex 3 of Appendix **S30A**) and for Regions 1 and 3 by WARC Orb-88 for feeder-links (§ 3.15 of Annex 3 of Appendix **S30A**). The IFRB decided that Regions 1 and 3 could also apply this concept for the BSS Plan provided that the required agreement is obtained from administrations in the cluster.

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.

For the Regions 1 and 3 Plans, the Board did not find any regulatory basis to extend the use of multiple orbital positions for networks involving grouping beyond those cases which were accepted by WRC-97 and included in the revised Regions 1 and 3 Plans.¹

For the Region 2 Plan, 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).

4.2.1.2

In determining those administrations affected in accordance with this paragraph, the limits of Annex 1 (§ 1) and Annex 4 (§ 3) will be used for those specific earth stations in the fixed-

¹ The Radiosat-6 and -7 feeder link networks were accepted by the WRC-97 for subsequent inclusion in the Regions 1 and 3 feederlink Plan by the Bureau.

satellite service (space-to-Earth) which are either recorded in the MIFR or notified at the time of examination under Nos. **S11.2** to **S11.9**.

4.2.1.3

In determining those administrations affected in accordance with this paragraph, the limits of Annex 1 (§ 2) shall be applied. Paragraphs 4.2.1.2 and 4.2.1.3 refer to “the coordination area of the feeder link fixed-satellite earth station”, implying that any modification to the Plan should be limited to feeder links with fixed earth stations. The Board noted that few entries in the Plan contain fixed feeder-link earth stations. It may be concluded from this situation that nothing prevents an administration from applying the Article 4 procedure to a typical feeder link earth station the coordination area of which should be calculated as indicated in § 7 of Appendix **S7**.

4.2.1.4

In determining those administrations of Region 2 that may be affected, the proposed modification of the Regions 1 and 3 Plan is examined with respect to the Region 2 Plan as it exists at the date of receipt of the proposal for modification including the proposed modifications 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 bandwidth overlaps the necessary bandwidth of the proposed modification. 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 **S30A** are exceeded.

4.2.2

This paragraph refers to, inter alia, transportable feeder-link earth station in the bands 14.5-14.8 GHz and 17.3-18.1 GHz. The Board noted that, a transportable earth station is an earth station which does not include the following characteristics: geographical coordinates, some of its antenna characteristics (i.e. items *g*), *h*) and *i*) of § 2.6 of Annex 2 to Appendix **S30A**). Having defined the characteristics of the earth stations, the Board had to identify the procedures to be applied to them, and reached the following conclusions.

a) From the viewpoint of the application of Article 4:

An administration may bring into use any fixed or transportable earth station in the bands 14.5-14.8 GHz and 17.3-18.1 GHz with the characteristics listed in Annex 3 of Appendix **S30A** without applying the procedure of Article 4.

b) From the viewpoint of Article 5:

A transportable earth station is not defined in any part of the Radio Regulations. The Board understands that the purpose of a transportable earth station is to permit an administration to install it at any point of the service area without a need to notify geographical coordinates. With this understanding the Board is of the view that what is referred to in Appendix **S30A** as

a “transportable earth station” is a “typical earth station”, and decided that the Bureau shall treat it as a typical earth station being associated with the notified test points identifying the service area. See also § 4.2.1.3 above.

4.2.3.1

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 Annex 1 (§ 3) of Appendix **S30A** are not exceeded. Account is also taken of any time-limited modifications to the Plans in accordance with § 4.2.16.

2 According to Resolution **42 (Rev.Orb-88)**, 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 § 4.2.1.1.

4.2.3.2

See comments made under § 4.2.1.2 above.

4.2.3.3

See comments made under § 4.2.1.3 above.

4.2.3.4

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 Regions 1 and 3 Plan as it exists at the date of receipt of the modification including all proposed modifications 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 bandwidth overlaps the necessary bandwidth of the proposed modification. An administration is identified as having services which may be affected when the limits specified in § 5 of Annex 1 to Appendix **S30A** are exceeded.

4.2.5

1 Appendix **S30A** contains assignment Plans with beams covering only a territory or a part of a territory, which leads one to conclude that the usual wording used in similar paragraphs “or an administration on behalf of a group of administrations” is not necessary. However, it is to be noted that some beams have been included in both Plans for some groups of administrations. Consequently the Board decided that the Bureau shall accept the application of the procedure of Article 4 for a modification of either of the two Plans by an administration on behalf of other administrations.

2 Paragraph 4.3.5 of Appendix **S30** states that modifications to that Plan submitted under § 4.1 *b*) shall lapse if the assignment is not brought into use by the date indicated. § 4.2.5 of Appendix **S30A**, however does not provide for similar situation. The paragraph does not contain any possibility for administrations to extend this date of bringing into use within a specified period as is done in No. **S11.44**. Moreover, there is no mention about the modifications submitted under § 4.1 *a*) of Article 4 of Appendix **S30A** which should logically be treated in the same manner. The Board therefore decided that:

2.1 Modifications to the Plans submitted under § 4.1 *a*) and 4.1 *b*) of Article 4 of Appendix **S30A** shall lapse if the assignment is not brought into use within the envelope of the characteristics as coordinated and published under § 4.2.18 of this Appendix by the notified date on which they were to be brought into use.

2.2 For modifications to the Plans, the postponement of the date of bringing into use of any assignment beyond the original date shall not exceed by more than three years. In any case, the new date of bringing into use shall not exceed maximum 8 years from the date of receipt of complete Annex 2 data by the Bureau whether or not the Annex 2 data is received for both Appendices **S30** and **S30A** together or separately.

2.3 During the 8-year regulatory period, both the initial assignment and the modified assignment submitted under § 4.1 *a*) shall be protected until the modified assignment is brought into use. In cases where a modification made under § 4.1 *a*) is consequently suppressed from the Plan, the original Plan entry which was concerned with the lapsing modification shall be maintained.

3 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 under § 4.1 *b*) and entered in the Plan, shall also be removed from the Plan.

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

4.2.6

See comments under Rules of Procedure concerning § 4.2.5 above.

4.2.9

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.

4.2.10

The agreement referred to in this paragraph is the agreement of the administrations identified under § 4.2.1 or 4.2.3 and of those under § 4.2.9 which have been confirmed by the Bureau using the appropriate criteria.

4.2.11

An administration which has only requested additional information in accordance with § 4.2.11 will not be considered by the Bureau to have submitted comments in accordance with § 4.2.13.

4.2.13

This paragraph specifies that, an administration that has not notified its comment within four months (from the publication date of the special section) shall be understood to have agreed to the proposed modifications. The Board considered the adverse effect of such missing replies and decided that the Bureau shall send reminder telegrams 30 days before the expiry of the above four month period.

4.2.14

See also comments under § 4.2.5 and Rules relating to the Receivability of Forms of Notice.

4.2.18

The second part of this paragraph 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 § 4.2.7 and § 4.2.9 have either given their agreement or failed to comment on the proposed modification.

The Bureau shall update the Reference Situation of the Plan entries and of those networks which are the subject of requests for Plan modifications which are still at the stage of application of Article 4.

4.3

If the assignments in question were deleted from the Plan, the Bureau shall update the Reference Situation of the Plan assignments and those in the process of modification and inform all administrations of the action taken together with Special Sections published as result of cancellation of frequency assignments from the appropriate Regional Plan.

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 means only the columns of Articles 9 and 9A of Appendix **S30A**, as updated or whether it also includes an examination with respect to the technical criteria given in Annex 3 to Appendix **S30A** which were used for the establishment of the Plans. 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 c) 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 Plan² are not exceeded. To this effect, the following characteristics 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 **S30A**);
- nominal orbital position (as indicated in columns 2 and 3 of Articles 9 and 9A respectively of Appendix **S30A**);
- channel number/frequency (as indicated in column 3 of Article 9 and columns 4 and 5 of Article 9A of Appendix **S30A**);
- boresight coordinates (as indicated in columns 4 and 6 of Articles 9 and 9A respectively of Appendix **S30A**);
- in the case of elliptical beam:
 - antenna beamwidth (as indicated in columns 5 and 7 of Articles 9 and 9A respectively of Appendix **S30A**);
 - ellipse orientation (as indicated in columns 6 and 7 of Articles 9 and 9A respectively of Appendix **S30A**);
 - 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 **S30A**);
- polarization (as indicated in columns 7 and 12 of Articles 9 and 9A respectively of Appendix **S30A**);
- service area (test points shall be located within the service area);

² Any time the “Plan” is referred to, this means the current version of the Plan as updated on the date of Bureau’s examination.

- class of emission and bandwidth (as indicated in column 15 of Article 9A in the case of Regions 1 and 3 Plan of Appendix **S30A**, or otherwise as indicated in § 3.1 and 3.8 of Annex 5 to Appendix **S30**);
- antenna characteristics (same as or better than those indicated in columns 8 or 9 as appropriate of Article 9A of Appendix **S30A** in the case of Regions 1 and 3 Plan, or otherwise same as or better than § 4.6 of Annex 3 to Appendix **S30A**);
- 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 **S30A**);
- system noise temperature (see § 3.8 (Regions 1 and 3) and § 4.7 of Annex 3 to Appendix **S30A** as appropriate);
- station keeping tolerance (same as or better than that of § 3.16 of Annex 3 to Appendix **S30A**);
- modulation characteristics (same as in column 15 of Article 9A of Appendix **S30A** in the case of the Regions 1 and 3 Plan, or otherwise as indicated in § 3.1 of Annex 5 to Appendix **S30**);
- range of automatic gain control (same as § 3.10 of Annex 3 to Appendix **S30A** for Regions 1 and 3, and 4.9 of the same Annex for Region 2).

ii) For a transmitting earth station:

The examination of a notice of a frequency assignment to an earth station under this paragraph use the characteristics mentioned below or those for which the Article 4 procedure was successfully applied. In regard to the rules that the Bureau shall apply in processing frequency assignments to earth stations, the uncertainties originate from the reference in several paragraphs to “the characteristics appearing in the Plan”, although the Plan contains only the earth station e.i.r.p. (Column 8 identical for all the entries) for Region 2 Plan and earth station e.i.r.p. and power control for Regions 1 and 3 Plan (Columns 13 and 14). In order to alleviate these uncertainties, the Board decided that the Bureau shall consider as “characteristics appearing in the Plan” those characteristics used for the establishment of the Plan as indicated in Annex 3 to this Appendix. As a result of the above, whenever a paragraph of Appendix **S30A** refers to the characteristics of earth stations appearing in the Plan, the following characteristics will be used for Regions 1 and 3 or Region 2, as appropriate:

- e.i.r.p.: Columns 8 and 13 of Articles 9 and 9A respectively of Appendix **S30A**;
- antenna diameter: § 3.5.1 or 4.4.1 of Annex 3 to Appendix **S30A**;
- reference patterns: Fig. 6 or Fig. A of Annex 3 to Appendix **S30A** (as indicated in Column 11 of Article 9A of Appendix **S30A** for the Regions 1 and 3 Plan);
- transmit power: § 3.6 or 4.5 of Annex 3 to Appendix **S30A**;
- in the case of a fixed feeder-link earth station:
 - its geographical coordinates within the service area,
 - elevation angle of the horizon around the earth station;

- in the case of a typical earth station:
 - the location of the earth station to be associated with test points within the service area,
 - elevation angle of the horizon around the earth station is assumed to be zero;
- energy dispersal (same as § 3.18 of Annex 5 to Appendix S30).

In relation to the transmitting power, the Board noted that according to § 3.11 and 4.10 of Annex 3 to Appendix S30A, the use of power control shall remain within the limits indicated in those paragraphs.

5.2.1 c)

1 If an administration notifies any characteristics different from those listed in § 1 b) of the Rules of Procedure related to § 5.2.1 b) of Article 5 of Appendix S30A, and those allowed in § 5.2.1 c) of the same Article, a calculation is undertaken to determine if the proposed characteristics will increase the interference to other assignments in the Plan, in the same service of an inter-regional Plan or in an other service sharing the same frequency bands.

2 The orbital position shall be examined to ensure compliance with the cluster concept (§ B of Annex 7 to Appendix S30 and § 4.13.1 of Annex 3 to Appendix S30A in the case of the Region 2 Plan, and § 3.15 of Annex 3 to Appendix S30A in the case of the Regions 1 and 3 Plan) 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 the Attachment 1 to the Rules of Procedure concerning Appendix S30. Appendices S30 and S30A 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) and § 5.2.1 e) and an unfavourable finding with respect to § 5.2.1 b) but a favourable finding with respect to § 5.2.1 c). 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.Orb-88) for Region 2.

In case of Regions 1 and 3, should the Bureau reach a favourable finding with respect to § 5.2.1 a) but an unfavourable finding with respect to § 5.2.1 b) and § 5.2.1 c), 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.

5.3.1

1 See § 2 in the comments under § 4.2.5 above.

2 For any notification other than that relating to the modification to the Plan, the date of bringing into use of assignments can be extended at the request of the notifying administration by no more than three years.

Nevertheless, the total period for the implementation (bringing into use) of the assignments whether or not the submission is received for both Appendices **S30** and **S30A** shall be limited to 8 years.

See comments under § 4.2.5.

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.Orb-88)**. Such systems may be implemented in the following frequency bands shared with equal rights with terrestrial services:

- 17.7-17.8 GHz for Region 2; and
- (through application of Resolution **519 (Orb-88)** and Article 4) 14.5-14.8 GHz and 17.7-18.1 GHz for Regions 1 and 3.

Such usage may affect terrestrial stations.

2 This paragraph refers to “the closest feeder-link earth station located on the border of the territory of another administration”. 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 § 7 of Appendix **S7** around a service area as referred to in the comments under § 4.2.1.3.

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;
- 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

7.6

The comments under § 6.5 apply.

An. 1

**Limits for determining whether a service of an administration is
affected by proposed modifications to the Plan**

3

See comments made under the Rules of Procedure concerning § 2 of Annex 1 to Appendix S30.

4

See comments made under the Rules of Procedure concerning § 1 of Annex 1 to Appendix S30.

An. 3

**Technical data used in establishing the Plan and 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 S30), equivalent protection margins for the second adjacent channels may be used. Appropriate protection masks included in ITU-R Recommendations should be used if available. Until 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 ITU-R Recommendation BO.1293 (incorporated in this Annex by reference) provides only a method for calculation of interference 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 S30A
“Non-standard” analogue	“Standard” analogue	As described in the Bureau’s internal Rule relating to MSPACE Manual
“Standard” analogue	“Non-standard” analogue	As described in the Bureau’s internal Rule relating to MSPACE Manual
“Non-standard” analogue	“Non-standard” analogue	As described in the Bureau’s internal Rule relating to MSPACE Manual
Digital	“Standard” or “non-standard” analogue	As described in the Bureau’s internal Rule relating to MSPACE Manual
“Standard” or “non-standard” analogue	Digital	As defined in Recommendation ITU-R BO.1293
Digital	Digital	As defined in Recommendation ITU-R BO.1293

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 S30A;
- *for Region 2*: 24 MHz bandwidth, 14.58 MHz channel spacing and the assigned frequencies as specified in Article 9 of Appendix S30A.

3

Procedures in the guardbands

The provisions of § 3.1 (Regions 1 and 3) and 4.1 (Region 2) of Annex 3 make it possible to use the guard bands at the lower and upper edges of the planned bands for transmissions in the space operation service. No coordination procedure is, however, established by Appendix S30A for protection of these transmissions.

Consequently, the Board decided that frequency assignments in the guard bands of the Plans are only subject to publications in a Special Section APS30A/A/... and no other publication or technical examination shall be effected by the Bureau.

Power-control

Paragraph 3.11.4 of Annex 3 to Appendix S30A 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.

ATTACHMENT 1

to Rules concerning Appendix S30A

FAST ROLL-OFF ANTENNA PATTERN

for the feeder-link Plan (Appendix S30A (Region 2))

A discontinuity was noticed in Curve A for the Region 2 feeder-link fast roll-off antenna beam (Fig. 8 of § 4 of Annex 3 to Appendix S30A). The upper limit for the plateau at -25.23 dB is given for a $\varphi/\varphi_0 = 1.413$.

When used in the equation of $-(22 + 20 \log(\varphi/\varphi_0))$ this value gives a relative gain of -25.00 dB, which leaves a gap of 0.23 dB between the plateau and the next equation. For this reason, the value of 1.413 should be replaced by 1.45 as shown below:

Curve A: co-polar component (dB relative to main beam gain)

$$\begin{array}{ll}
 -12 (\varphi/\varphi_0)^2 & \text{for } 0 \leq \varphi/\varphi_0 \leq 0.5 \\
 -33.33 \varphi_0^2 ((\varphi/\varphi_0) - x)^2 & \text{for } 0.5 < \varphi/\varphi_0 \leq (0.87/\varphi_0) + x \\
 -25.23 & \text{for } (0.87/\varphi_0) + x < \varphi/\varphi_0 \leq 1.45 \\
 -(22 + 20 \log (\varphi/\varphi_0)) & \text{for } \varphi/\varphi_0 > 1.45
 \end{array}$$

after intersection with Curve C, as Curve C.

Rules concerning

APPENDIX S30B to the RR

I Introduction

1 Appendix **S30B** contains a frequency Plan and associated procedures for the fixed-satellite service in the following frequency bands:

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

2 The initial Plan which was established by WARC Orb-88 contains allotments for all countries which were Member of the ITU in 1988. Article 7 contains a procedure to provide, on request, an allotment to new Member States of the Union. An allotment comprises a nominal orbital position, a bandwidth of 800 MHz (in each, both up-link and down-link) a service area for national coverage and a set of generalised parameters within which a specific satellite network may be implemented. In order to provide an additional flexibility to the Plan the nominal orbital positions were associated with an orbital segment of a given size called "predetermined arc" (PDA) to allow future adjustments of the orbital position of the satellites within the predetermined arc.

3 The Plan consists of two separate parts:

- Part A containing the national allotments (described above);
- Part B containing the networks of "existing systems"; and supplemented by the List of assignments associated with the Plan as defined in § 5.5 of Article 5 of Appendix **S30B**.

II Applicable Rules

(The following Rules of Procedure are arranged by paragraph numbers of Appendix **S30B**.)

Art. 2

Definitions

2.5

Sub-regional systems

The definition of sub-regional systems contained in § 2.5 of Article 2 of Appendic **S30B** limits the group of administrations in a sub-regional system to neighbouring countries only. In some cases, it may be difficult to define whether two given countries are or are not neighbouring countries. The Board has consequently decided that the Bureau shall examine this question on every specific request on a case by case basis.

2.6

Additional use

The definition for “Additional use” limits this utilisation for national coverage (third line under *a*) in the definition). This limitation may, nevertheless, be the subject of agreements between administrations concerned according to the concluding part of the same sentence (the expression “unless otherwise agreed” is linked with the restriction meant by “shall be limited to national coverage”). Those notices for additional use whose service area covers the territory of other countries will, thus, be considered receivable only if these other countries agreed on this utilisation.

Art. 4

Execution of the provisions and associated Plan

4.1

Space operation functions

1 It has been noted that the use of the space operation service with class of station EK/ER and/or TK/TR was not considered when the Plan was drawn up in WARC Orb-88.

2 However, frequency assignments in the space operation service with the above mentioned class of station associated with the existing systems of Part B of the Plan which (recorded in the MIFR) were entered in the Appendix **S30B** List without any compatibility examinations¹ (§ 6.25 of Article 6 of Appendix **S30B**) and should thus be taken into account in the subsequent examinations under appropriate provisions of that Appendix.

3 In the light of § 1 above the Board decided that for assignments to the stations in space operation service associated with the Appendix **S30B** Plan received under that Appendix after 29 August 1988 the Bureau shall:

3.1 consider them as being incompatible with the Plan and thus,

3.2 not enter them in the Appendix **S30B** List as far as the reference situation is concerned,

3.3 continue to protect the assignments mentioned in § 2 above.

See also comments made under the Rules of Procedure concerning § 6.25².

Bi-directional allocation of some bands

4 See comments made under the Rules of Procedure concerning No. **S5.441**.

Art. 6

Procedures for implementation of the Plan

6.12

Compatibility examinations

1 The footnote to the provisions of § 6.27 of Article 6 of Appendix **S30B** makes reference to the case of an apparent incompatibility between two assignments in Part B when, nevertheless, an agreement exists between the administrations concerned. Such agreements may be concluded for assignments in Part A as well. These examples raise the question of calculating the aggregate carrier-to-interference ratio in case of coordinated (agreed)

¹ While affecting a number of allotments in Part A of the Plan with the single-entry or aggregate *C/I* ratios different to those agreed at the WARC Orb-88.

² In which it is required that the Bureau shall continue to protect the assignments to the space operation service with the single-entry and aggregate *C/I* ratios resulting from their entry in the Appendix **S30B** List and to retain the lowest resulting values of the single-entry and/or aggregate *C/I* ratios for the affected allotments of Part A in the technical examination of subsequent submissions of administrations under the provisions of Appendix **S30B**.

frequency usage. The Board decided that for such cases the coordinated assignments shall be included in the calculations of the aggregate *C/I* and the *C/I* value so calculated will further be considered as the reference situation of interference which was accepted by the administrations. It should be noted that over-protection of networks may result after the acceptance of relatively low level of *C/I* (i.e. high levels of interference) during a specific coordination if the network were to be subsequently protected according to the criteria contained in Annex 4 of Appendix **S30B** against other networks submitted later for the application of the procedures of the Plan. To deal with this possible inequity, the Board decided that such assignments/allotments will be protected in subsequent examinations by the Bureau using the new aggregate and/or single entry *C/I* values, as the case may be (resulting from the accepted higher levels of interference) rather than using the *C/I* criteria contained in Annex 4 of Appendix **S30B** (i.e., 26 and 30 dB for aggregate and single entry cases, respectively).

2 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 particular, existing systems use only part of the available spectrum). In the compatibility examination by the Bureau, the mutual interference between non-overlapping frequency assignments shall not be taken into consideration in formulating Findings.

3 Paragraphs 6.12, 6.18, 6.43 and 6.56 determines the different categories of allotments/assignments which have to be taken into account in the compatibility examinations of “non-conforming assignments” (Section IA), sub-regional systems (Section II), “additional uses” (Section III) or of those assignments for which the macrosegmentation concept was not applied. In contrast with § 6.24 (Section IB), in the above mentioned provisions the compatibility examinations are not extended to Part B networks. This would mean that networks being notified under provisions of Sections IA, II and III would not be examined as to their compatibility with Part B of the Plan. In order to avoid the recording of assignments whose compatibility has not been fully examined the Board decided to extend the compatibility examinations to the above case and before recording the assignments found incompatible with a Part B network it will inform the administration concerned accordingly.

4 Use of additional frequency bands by “existing systems”

4.1 The Board’s views on the possibility of using for a satellite network contained in Part B of Appendix **S30B** (existing system) a frequency sub-band which was not originally included in any publications of that network referred to in § 2.4 *a)*, *b)* and *c)* of Article 2 of that Appendix is summarised as follows.

4.1.1 The main purpose of the WARC Orb-88 was to establish the allotment Plan and its associated Regulatory procedures for national coverage for the fixed satellite service in 6/4 and 13/10-11 GHz bands.

4.1.2 The Conference was faced with some difficulties to incorporate existing systems in the allotment Plan and the “existing systems” were finally included in Part B of that Plan, with their characteristics as communicated to the IFRB in accordance with § 2.4 of Article 2 of Appendix **S30B** and recognized by WARC Orb-88.

4.1.3 Some administrations obtained allotments with carrier-to-interference ratio, *C/I* less than 26 dB (*the value agreed by the Conference for the establishment of the Plan*) and in some cases “existing systems” were the prime source of interference to the allotments having a *C/I* lower than 26 dB. Administrations accepted the Plan on the understanding that “existing systems” should remain with their original characteristics as communicated to and recognized by the Conference.

4.2 The Board thus decided that:

4.2.1 existing systems shall normally remain within their original characteristics as communicated to and recognized by WARC Orb-88 (see definitions given under § 2.4 of Article 2 of Appendix **S30B**);

4.2.2 consequently, the use by an existing system of a frequency band different from those communicated to and recognized by WARC Orb-88 is not in conformity with the provisions of Section IB of Article 6 of that Appendix;

4.2.3 the extended use of the band could only be made through the application of the provisions of Section III of Article 6 (Supplementary provisions applicable to additional uses of the planned Bands).

5 In application of § 6.12, 6.24, 6.43 and 6.56, should the Bureau find that allotments or assignments of other administrations are affected, before applying § 6.13, 6.27, 6.45 and 6.58 respectively which require returning the Annex 2 data to the notifying administration, the Bureau shall first send the results of its calculations to the notifying administration. That Administration may within a period of 30 days after having received the results of the first examination of the satellite networks in question, change or adjust characteristics previously submitted and send the changes to the Bureau within that 30 days period.

If the results of the second examination do not show compatibility with the Plan and the List, the Annex 2 notice forms shall be returned to the notifying administration in accordance with § 6.13, 6.27, 6.45 and 6.58 with an indication that subsequent resubmission will be considered in the order of date of receipt as appropriate.

6.12 c)

1 When the notices of the proposed frequency assignments under Article 6 are received by the Bureau they have to be examined in accordance with the appropriate provisions of this Article one by one in the order of the date of receipt. In all cases the examination consists in checking if the criteria of Annex 4 of Appendix **S30B** are met for the allotments of the Part A, the existing systems contained in Part B of the Plan, the assignments

entered in the Appendix **S30B** List and the assignments with respect to which the Bureau previously received information in accordance with Article 6 (Assignments In Process – AIP). Depending on the category of submission (the Section of Article 6 under which it is submitted) and the results of examinations different actions follow:

1.1 Finding favourable with respect to the Plan, the assignments in the List and the assignments in AIP (i.e. no administrations are affected – the criteria of Annex 4 of Appendix **S30B** are met); the subject assignment is recorded in the Appendix **S30B** List (see § 6.6, 6.11, 6.19, 6.21, 6.26, 6.34, 6.44, 6.50 and 6.59 of Article 6 of Appendix **S30B**).

1.2 Finding favourable with respect to § 6.32 or 6.48 – the results of examination are published in a Special Section APS30B/.. (see § 6.33 and 6.49, respectively of Article 6 of Appendix **S30B**).

1.3 Finding unfavourable with respect to § 6.7, 6.18/6.20 (provisions of Annex 3B and Annex 4 of Appendix **S30B** are not met); the administration responsible for the proposed assignment shall seek the agreement of affected administration.

1.4 Finding unfavourable with respect to the criteria of Annex 4 of Appendix **S30B** (administration(s) affected); the assignment shall be returned to the responsible administration (see § 6.13, 6.23, 6.27, 6.45, 6.51 and 6.58 of Article 6 of Appendix **S30B**).

1.5 In cases mentioned in § 1.2 and 1.3 above the assignments are neither returned to the responsible administrations nor recorded in the Appendix **S30B** List. Thus, they form the group of assignments (AIP) to which provisions of § 6.12 c), 6.24 d), 6.43 c), 6.56 c) of Article 6 shall be applied.

1.6 There is no provision in Appendix **S30B** which specifies the time limit under which the agreement (such as that referred to in § 6.20) is to be obtained. Since the submission is not returned to the responsible administration, it should thus be protected as per § 6.12 c). Nevertheless, it is not logical nor desirable to protect these assignments for an unspecified period.

1.7 Section I is silent for cases with respect to which agreement referred to in § 6.10 is not obtained.

2 In view of the above, the Board decided that the Bureau shall:

2.1 constitute a temporary list of assignments in process “AIP” list containing *the assignments with respect to which the Bureau previously received information in accordance with Article 6* and which were subject to application of § 6.20, 6.34 and 6.50.

2.2 afford provisional status (in terms of reference situation) to these assignments for the period of time referred to in § 2.2.1 and 2.2.2 below or until the agreement is reached with the affected administration(s) (whichever is shorter):

2.2.1 four months (from the communication of the unfavourable finding) for submissions referred to in § 1.3 above);

2.2.2 sixty days from the date of publication of corresponding special section of weekly circular for submissions referred to in § 1.2 above;

2.3 protect these assignments during the above periods in subsequent technical examination with the resulting single-entry or aggregate carrier-to-interference *C/I* ratios;

2.4 depending on the results of coordination or publication either transfer the corresponding assignments to the Appendix **S30B** List (agreement is reached or no comments received from administrations within sixty days) or return the notices to the responsible administration (disagreement is communicated to the Bureau directly by the administration concerned or through the notifying administration within the time limits specified in § 2.2.1 and 2.2.2 above);

2.5 update the Appendix **S30B** reference situation accordingly;

2.6 return the assignments referred to in § 1.7 above to the notifying administration.

6.13

In § 6.13 the case of non-conformity with only Annex 3A is mentioned. From § 6.8 (which makes the liaison between Sections I and IA) as well as from the title of Section IA it is clear that the word “Annex 3A” should be understood as “Part A”. Consequently the Board understands that the part concerned of § 6.13 should read: “If the proposed assignment is not in conformity with Part A of the Plan, the Board...”.

6.14

The provisions of § 6.14 of Section IA are applicable to an assignment which, not being in conformity with Part A of the Plan (§ 6.8), had been returned to the administration for modifications. According to these provisions the modified and resubmitted case should go back to § 6.2 of Section I of Article 6 and should be the subject of an examination of conformity with the Plan. The cases which, after the modifications, conform to Part A of the Plan are treated under Section I of Article 6. Those other cases, however, which, after the modification, are still not in conformity with Part A do not have any instruction to undergo the examination foreseen by the preamble § 6.12 of Section IA. That paragraph defines the purpose of Section IA in determining if the proposed assignment affects allotments of the Plan or assignments of the List. On the basis of the above considerations as well as of what is stated in § 6.13 *a*), the Board understands that for those resubmitted cases which are still not in conformity with the Plan a compatibility examination (using the method of Annex 4) should be effected. This examination is also to be carried out for the case of modification of the satellite position irrespective whether the other characteristics are or are not in conformity with Part A of the Plan.

6.16

Application of PDA concept

1 Appendix **S30B** contains provisions inviting the Bureau, when it is requested, to assist the administration in the selection of an alternative orbital position in the process of conversion of an allotment into an assignment, or in resolving incompatibilities with existing systems or assignments of the Appendix **S30B** List, or to accommodate a sub-regional system.

2 The Bureau, to the extent practicable³, should endeavour to find appropriate orbital positions compatible with the Plan using, if necessary, the PDA concept (defined in § 5.3 and 5.4 of Appendix **S30B**).

3 In view of the difficulties of the Bureau to apply the PDA concept in its integrity, the Board decided that the Bureau shall provisionally apply the following procedures upon receipt of the request to provide the assistance to administrations under provisions of § 6.16, 6.31, 6.47 or 6.48 of Appendix **S30B**. The Bureau shall:

3.1 proceed with the compatibility analysis prescribed in Appendix **S30B** only if the orbital position for the planned system and/or new orbital positions within the PDA of other administrations are provided by the notifying administration; and

3.2 return the notice to the responsible administration if these data are not supplied. See also the Rules relating to Annex 2 of Appendix **S30B**.

6.17

Paragraph 6.17 makes reference to the successful application of the PDA concept and, for that case it refers back the procedure to § 6.5 of Section I. There is, however, no instruction for the case of unsuccessful application of the PDA concept. In view of this, notifying Administration may, within a period of 30 days after having received the result of first examination, change or adjust the orbital position(s) previously submitted. If the results of the second examination does not show compatibility with the Plan and the List, the notice shall be returned to the notifying administration with an indication that subsequent resubmission will be considered in the order of date of receipt as appropriate.

6.18

See item 5 in the comments made under the Rules of Procedure concerning § 6.12.

³ *Note by the Radiocommunication Bureau: Due to non-availability of a method to apply the PDA concept, the computer software currently available for the Appendix **S30B** applications (MSPACEG) is limited to the method of Annex 4 of Appendix **S30B** to carry out compatibility calculations between networks at fixed orbital positions. Consequently the Radiocommunication Bureau is not in a position to apply the PDA concept.*

6.24

1 Based on the provisions of the footnote to § 6.24 *b*) (continuation of the procedure of coordination of Section II of Article **S9** for existing networks in Part B of the Plan), the Board decided that the Bureau shall use in the examination of incompatibilities between Part B assignments the criteria defined in Appendix **S5**, i.e. the $\Delta T/T$ ratio with a threshold value of 6 %. In any other compatibility examination the method of Annex 4 will be used.

Macrosegmentation concept

2 Paragraphs 6.24, 6.43 and 6.56 of Article 6 of Appendix **S30B** prescribe the application of the method of Annex 4 to determine whether the proposed assignment affects the allotments of Part A, the existing systems contained in Part B of the Plan, the assignments of the Appendix **S30B** List and the assignments with respect to which the Bureau previously received information in accordance with Article 6. While Annex 3B refers to Annex 3A which is generally concerned with Part A, the order of its application to Subregional Systems, Additional use and Existing Systems requires clarification.

3 In view of the above, the Board decided that the Bureau shall also (in addition to Part A of the Plan) apply the macrosegmentation concept and the second paragraph of Annex 4 of Appendix **S30B** to:

- sub-regional systems,
- additional uses.

4 Nevertheless, the Bureau shall not apply the second paragraph of Annex 4 of Appendix **S30B** with respect to the frequency assignments of existing systems regardless the carrier distribution within the allotment bands.

5 When administrations submit the frequency assignments with low-density carriers in the whole allotment bands (there is no provision in Appendix **S30B** which prohibits such use) and these assignments are recorded in the Appendix **S30B** List (no administrations affected), the question of application of $(25 + k)$ criteria in subsequent examinations is raised with respect to the frequency assignments using the portion of allotment bands intended for high-density carriers as defined in Annex 3B.

6 The Board decided that the Bureau shall not apply the criteria mentioned in the second paragraph of Annex 4 of Appendix **S30B** with respect to the frequency assignments resulting from Part A of the Plan, of Subregional Systems and Additional Use entered in the Appendix **S30B** List using the upper 60 % of each allotment band (foreseen for high-density carriers) for low-density carriers.

7 See also Rules of Procedure relating to § 6.12.

6.25

1 See item 1 in the comments made under the Rules of Procedure concerning § 6.24.

Appendix S30B List for compatibility examinations

2 The first sentence of § 6.25 of Article 6 of Appendix **S30B** stipulates that “assignments for the networks contained in Part B of the Plan for which notices for recording in the Master Register were received prior to 29 August 1988 and recorded subsequently in the MIFR will be entered in the List” (without compatibility examination).

3 It has been noted that frequency assignments to some space stations relating to the existing systems recorded in the MIFR have different characteristics (power density, etc.) from those contained in Part B of the Plan adopted by the Conference. By virtue of § 6.12, 6.24, 6.43, 6.56 of Appendix **S30B** the assignments contained in the Plan as well as those recorded in the List shall be taken into account in the compatibility analysis in accordance with the criteria defined in Annex 4 to Appendix **S30B**. On the other hand, the recorded MIFR space station characteristics can be used in *C/I* calculations as prescribed in Appendix 1 to Annex 4 of Appendix **S30B** only if the corresponding network link are established.

4 The inclusion of this type of systems in the Appendix **S30B** List with technical characteristics different from those of Part B of the Plan may result in degradation of the *C/I* ratios in some test points or an improvement of the *C/I* ratio in other test points compared with the first reference situation established by the Conference for a number of allotments of Part A of the Plan.

5 It was also noted that the existing systems of Part B of the Appendix **S30B** Plan having assignments already recorded in the MIFR and the Appendix **S30B** List form in some cases “multi-beam networks” (MBN).

6 Some of the existing links in Part B of the Plan, including those recorded in the Appendix **S30B** List in accordance with Article 6 of Appendix **S30B**, contain up-link or down-link parts only. While the Annex 4 criteria of Appendix **S30B** relate to complete networks, the separate values of *C/I* ratio applicable for down- or up-links are not defined.

7 In view of the above, the Board decided that the Bureau shall:

7.1 constitute, for the existing systems referred to in § 3 above, complete links (uplink and downlink) required for Appendix **S30B** *C/I* calculations, using the recorded characteristics in the MIFR (for receiving/transmitting space stations) as entered in the Appendix **S30B** List together with the parameters of transmitting/receiving earth stations as contained in Part B of the Plan;

7.2 use for subsequent technical examination of the assignments submitted by Administrations under the provisions of Appendix **S30B** the resulting lowest values of single-entry

or aggregate carrier-to-interference *C/I* ratios for the allotments of Part A of the Plan affected as a result of the application of the first sentence of § 6.25 of Article 6 of Appendix **S30B**;

7.3 not to take into account, while performing *C/I* calculations, inter-beam interference within a multi-beam network;

7.4 calculate the interference to each assignment of these “multi-beam networks” and corresponding *C/I* ratio for their protection in subsequent calculations;

7.5 take into account in the technical examinations the interference of only one beam of “multi-beam networks” which constitutes the worst case with respect to the assignments of the Plan and Appendix **S30B** List;

7.6 apply the Annex 4 criteria for the separate up-and down-links for the case mentioned in § 5 above.

6.31

See comments made under the Rules of Procedure concerning § 6.16.

6.38

1 The Board’s understanding of the “intention of a group of administrations” establishing the subregional system is that this intention needs to be reflected on the notice form by a reference to the agreement by each of the administration forming the “group of administrations”. In case that any test point of the sub-regional system is situated inside the territory of an administration(s) other than those on behalf of which the sub-regional system is submitted, agreement of that administration(s) should also be provided together with the Annex 2 data.

2 See also the Rules of Procedure concerning § 2.5.

6.39

The national allotment used by the subregional system needs to be suspended unless it is used in a compatible way, i.e. without affecting the Plan. This compatibility may be obtained through coordination agreements concluded between the administrations concerned. The Board’s understanding of the phrase “it can be used in a way that does not affect allotments in the Plan ...” is that the compatibility analysis will be carried out by the Bureau in accordance with the Rules relating to § 6.12.

6.43

See also item 5 in the comments made under the Rules of Procedure concerning § 6.12.

6.47

See comments made under the Rules of Procedure concerning § 6.16.

6.48

See comments made under the Rules of Procedure concerning § 6.16.

6.56

See item 5 in the comments made under the Rules of Procedure concerning § 6.12.

Art. 7**New allotments to new Member States of the Union****7.1****New allotment to the Plan for a new Member State of the Union**

1 Appendix **S30B** contains provisions inviting the Bureau, when it is requested, to provide an allotment to a new Member State of the Union.

2 The Bureau, to the extent practicable⁴, should endeavour to find appropriate orbital positions compatible with the Plan using, if necessary, the PDA concept (defined in § 5.3 and 5.4 of Article 5 of Appendix **S30B**).

3 In view of the difficulties of the Bureau to apply the PDA concept in its integrity, the Board decided that the Bureau shall provisionally apply the following procedures upon receipt of the request to find an appropriate orbital position for an allotment in Part A of the Plan for a new Member State of the Union under Article 7 of Appendix **S30B**. The Bureau shall:

3.1 study the orbit occupancy on a case by case basis, and select a few (not more than 3) likely suitable orbital positions;

3.2 using the criteria of Annex 4 of Appendix **S30B** to determine whether the new allotment at selected orbital position(s) are compatible with the allotments of the Part A, the existing networks contained in Part B of the Plan, the assignments which appear in the

⁴ *Note by the Radiocommunication Bureau: Due to non-availability of a method to apply the PDA concept, the computer software currently available for the Appendix **S30B** applications (MSPACEG) is limited to the method of Annex 4 of Appendix **S30B** to carry out compatibility calculations between networks at fixed orbital positions. Consequently the Radiocommunication Bureau is not in a position to apply the PDA concept.*

Appendix **S30B** List and the assignments with respect to which the Bureau previously received information in accordance with Article 6;

3.3 if the result of the exercise for all three selected positions is not satisfactory (affected administrations are identified) send the results to the requesting administration recommending that it may seek the agreement(s) of affected administration(s) and upon reaching the agreement may formally submit the request for the allotment on any of the proposed position to the Bureau;

3.4 enter the new allotment in Part A of the Plan and inform administrations in its circular telegram, indicating the characteristics of the allotment concerned if no administration was identified as affected in the above mentioned exercises or if agreement is reached and the request is resubmitted.

Art. 8

Procedure for notification and recording

8.1

Examination of the frequency assignments under Article S11 of the Radio Regulations

1 It was noted that in examining the notices of frequency assignments to earth/space transmitting/receiving station(s) notified under Article **S11** in the frequency bands which are subject to No. **S5.441** (the use of these bands shall be in accordance with the provisions of Appendix **S30B**) the technical characteristics of the notified assignment (as prescribed by Appendix **S4**) shall be checked whether they are conform with those recorded in the Appendix **S30B** List (frequency assignment having successfully applied the provisions of Article 6 of Appendix **S30B**).

2 For the existing systems recorded in the MIFR and for those notified under Article 13 of the RR between 29 August 1988 (end of WARC Orb-88) and 16 March 1990 (the date of entry into force of the Final acts of that Conference) the Bureau shall calculate the missing parameter and enter it in the Appendix **S30B** List.

3 To derive the power density averaged over the necessary bandwidth of the modulated carrier for the frequency assignments of existing systems the following formula shall be applied:

$$P_d = P_t - 10 \log_{10} B$$

where:

P_d : value of power density averaged over the necessary bandwidth of the modulated carrier (dB(W/Hz))

P_t : value of total peak envelope power (dBW)

B: the necessary bandwidth of the modulated carrier (Hz). In case that the notified assigned frequency band exceeds the necessary bandwidth as defined in No. **S1.147**, the necessary bandwidth used in calculations shall be that specified in the designation of emission (col. C7a of APS4 Form of Notice refers).

4 By analogy with columns 10 and 11 of Article 10 of Appendix **S30B** the e.i.r.p. density using power density averaged over the necessary bandwidth of the modulated carrier either provided by the administration or derived from the formula referred to in § 3 above shall be applied to determine whether values such as the isotropic gain of the antenna in the direction of maximum radiation, the antenna pattern, the total peak envelope power and the necessary bandwidth of the modulated carrier of the frequency assignments to earth/satellite transmitting stations of existing systems notified by the administrations under Article **S11** conform to the Appendix **S30B** List.

An. 1

Parameters used in characterizing the FSS Plan

The antenna characteristics referred to in the footnote under the title of Annex 1 (Fast roll-off antenna pattern for the allotment Plan) are reproduced in the Attachment 1 to the present Rules of Procedure.

An. 2

Basic data to be furnished in notices relating to stations in the fixed-satellite service entering the design stage using frequency bands of the Plan

In order to establish a formal date of receipt for submission received by the Bureau, information relating to the modification of orbital position(s), in application of "PDA concept" should be sent together with Annex 2 data. See also Rules of procedure relating to § 6.16.

ATTACHMENT 1

to Rules concerning Appendix **S30B**

FAST ROLL-OFF ANTENNA PATTERN

1 An examination of Fig. 2 of Annex 1 to Appendix **S30B** showed that the equations are valid only for a minimum beamwidth of 0.8° , i.e. for the 13/10-11 GHz bands.

2 A corrected set of equations is given in § 4 below. These equations are applicable to any fast roll-off antenna beam with a minimum beamlet beamwidth, B_{min} , given as an input parameter. Figure 2 was also modified accordingly.

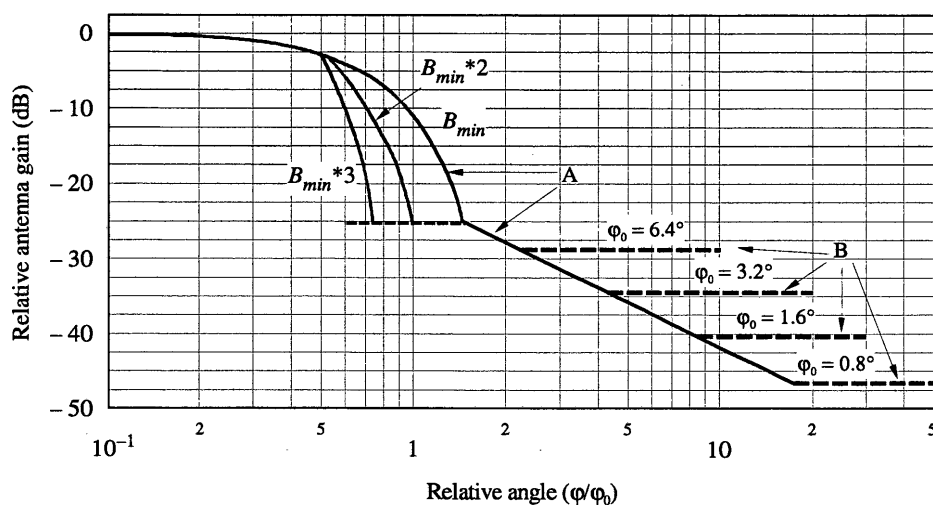
3 When B_{min} is set at 0.8° (for 13/10-11 GHz) the expression:

$$12 \left[\frac{(\varphi/\varphi_0) - x}{B_{min}/\varphi_0} \right]^2 \text{ resolves to } 18.75 \varphi_0^2 [(\varphi/\varphi_0) - x]^2$$

and $1.45 B_{min}$ becomes 1.16 as given in the Final Acts. At 6/4 GHz (with B_{min} set at 1.6°) these values become $4.69 \varphi_0^2 [(\varphi/\varphi_0) - x]^2$ and $1.45 B_{min}$ becomes 2.32 .

4

FIGURE 2
Reference patterns for satellite antennas
with fast roll-off in the main beam



RP/A1-02

Curve A: dB relative to main beam gain

$$-12 (\phi/\phi_0)^2 \quad \text{for } 0 \leq (\phi/\phi_0) \leq 0.5$$

$$-12 \left[\frac{(\phi/\phi_0) - x}{B_{min}/\phi_0} \right]^2 \quad \text{for } 0.5 < (\phi/\phi_0) \leq \left(\frac{1.45 B_{min}}{\phi_0} + x \right)$$

$$-25.23 \quad \text{for } \left(\frac{1.45 B_{min}}{\phi_0} + x \right) < (\phi/\phi_0) \leq 1.45$$

$$-(22 + 20 \log (\phi/\phi_0)) \quad \text{for } (\phi/\phi_0) > 1.45$$

after intersection with curve B: Curve B.

Curve B: minus the on-axis gain (Curves A and B represent examples of four antennas having different values of ϕ_0 as labelled in Fig. 2. The on-axis gains of these antennas are approximately 28.3, 34.3, 40.4 and 46.4 dBi, respectively).

where:

ϕ : off-axis angle (degrees)

ϕ_0 : cross-sectional half-power beamwidth in the direction of interest (degrees)

$$x = 0.5 \left(1 - \frac{B_{min}}{\phi_0} \right)$$

where:

$$B_{min} = \begin{cases} 0.8^\circ & \text{for 13/10-11 GHz} \\ 1.6^\circ & \text{for 6/4 GHz.} \end{cases}$$

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 Weekly Circular 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 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 **S11** 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. **S9.50**.

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.

Rules concerning

RESOLUTION 51 (WRC-97)

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

Resolves 3

1 Resolution **51 (WRC-97)** concerns the provisional application of certain provisions of the Radio Regulations as modified by the World Radiocommunication Conference (Geneva, 1997) and transitional arrangements. In its *resolves 3*, Resolution **51 (WRC-97)** indicates that: “for satellite networks for which the API has been received by the Bureau prior to 22 November 1997, the maximum allowed time period from the date of receipt of the API to bring the relevant frequency assignments into use shall be six years plus the extension pursuant to No. **1550** (see also Resolution **49 (WRC-97)**)”.

2 In view of the above, the Board decided that:

2.1 Taking into account *resolves 1 and 3* of the Resolution, for satellite networks for which Advance Publication Information has been received by the Bureau prior to 22 November 1997, the maximum allowed regulatory time is 9 years from the date of receipt of Advance Publication.

2.2 If the characteristics of a satellite network are modified after assignments are brought into use and if new coordination agreements are required without a need to publish a new advanced publication then a total allowed regulatory time for bringing into use of any assignment for the modified characteristics should be:

2.2.1 8 1/2 years from the date of receipt of the request for publication of the modified characteristics for the subject satellite networks if the request for modification is received by the Bureau prior to 22 November 1997,

2.2.2 5 years from the date of receipt of the request for publication of the modified characteristics for the subject satellite networks if the request for modification is received by the Bureau after 22 November 1997 (see No. **S11.43A**).

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)

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,

- 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 combination of maximum e.r.p. and reduced e.r.p. in azimuths or sectors.

4 When an assignment, notified under Article S11 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. 3

Execution of the Agreement

2

1 According to *further resolves* of Resolution **500**, the bringing into use of a broadcasting station in the LF Band (148.5-283.5 kHz) or the implementation of a modification to such a station is subject to prior notification to the Radiocommunication Bureau two years in advance for publication. Consequently:

1.1 Where notice of an assignment is received at least two years after the date of receipt of information published in Special Section RES500, the notice shall be considered to be in conformity with Resolution **500**, and examined in accordance with the procedure of Article **S11** of the Radio Regulations.

1.2 Where notice of an assignment is received less than two years after the date of receipt of information in accordance with *further resolves* of Resolution **500**, the notice is considered to be not in conformity with the said Resolution. In the examination of the notice under Article **S11**, the Finding is unfavourable with respect to No. **S11.31**. The unfavourable Finding with respect to No. **S11.31** shall be reviewed at the end of the two-year period mentioned in *further resolves* of Resolution **500**, i.e. two years from the date of receipt of the information in the Bureau. An appropriate symbol to this effect shall be entered.

Where no information has been received by the Bureau under *further resolves* of Resolution **500**, the receipt of the notice under Article **S11** will also be considered to be the receipt of the information under Resolution **500**. This information will then be published in Special Section RES500.

Art. 4

Procedure for modifications to the Plan

3.2.12

If the delay between publication in Part A and 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 S11 are applied.

An. 2

**Technical data used in the preparation of the Plan and to be used
in the application of the Agreement**

4.8.3

Paragraph 4.8.3 of Annex 2 of the Agreement specifies the limiting distance for a broadcasting station in a low-power channel. When the equivalent monopole radiated power of the station is 0.25 kW or less, two values are given: one for land and one for sea paths. 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.

PART 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)

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 4 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. S11.24, 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 S11 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 S11 and shall be reminded of the action that will be taken in accordance with § 5 above. The examination under Article S11 (§ 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.

Rules of Procedure

PART A5

(Number not used)

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)

Examination of notices related to the non-planned services in the bands governed by the Regional Agreement GE89

1 Sections 5.2 and 5.3 of Article 5 of the GE89 Agreement specify 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

Frequency band (MHz)	Services and countries within the planning area	Provisions	Notes
47-68	FX: AFS, AGL, BOT, BDI, CME, COD, COG, IRN, LSO, MDG, MLI, MOZ, MWI, NMB, RRW, SOM, SDN, SWZ, TCD, TZA, YEM, ZWE	S5.165 S5.171	
	MO(-AER): AFS, AGL, BOT, BDI, CME, COD, COG, LSO, MDG, MLI, MOZ, MWI, NMB, RRW, SOM, SDN, SWZ, TCD, TZA, YEM, ZWE	S5.165 S5.171	
	MO: IRN (47-50 MHz, 54-68 MHz)		
174-223	FX: IRN		
	MO: IRN		
223-230	FX: IRN		
	MO: IRN		
	AL: ARS, BHR, IRN, JOR, OMA, QAT, SYR, UAE	S5.247	
230-238	FX: from all parties to the Agreement (excepting those referred to in No. S5.252)	S5.247	1
	MO: from all parties to the Agreement (excepting those referred to in No. S5.252)		
	AL: ARS, BHR, IRN, JOR, OMA, QAT, SYR, UAE		

TABLE (end)

Frequency band (MHz)	Services and countries within the planning area	Provisions	Notes
246-254	FX: from all parties to the Agreement (excepting those referred to in No. S5.252) MO: from all parties to the Agreement (excepting those referred to in No. S5.252)		1
470-790	FX: IRN MO: IRN		
790-862	FX: from all parties to the Agreement MO: IRN		

NOTE 1 – 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 Plan following a successful application of the procedure referred to in No. **S9.21**, as required by Resolution 1 (GE89) and No. **S5.252**.

2 The frequency assignment notices related to the aeronautical radionavigation service of Nigeria, whose allocation is governed by No. **S5.251**, 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. **S9.21**.

3 The frequency assignment notices related to services and countries referred to in Nos. **S5.164**, **S5.235**, **S5.243** and **S5.316** 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 MIFR under the conditions of No. **S5.43** 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 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 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 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. **S5.89** 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 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. S52.177 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, 1606.5-1621 kHz, 1635-1800 kHz and 2060-2156 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. **S52.10**, **S52.177**, **S52.183**, **S52.184** to **S52.186** and **S52.202** of the Radio Regulations. The provisions of Nos. **S5.81** and Appendix **S13**, § 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*: 2800 Hz, in accordance with No. **S52.177**.

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 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 (Rev.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 Rules of Procedure No. H42 concerning the application, by the administrations parties to the Agreement and by the 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 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 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. S5.73).

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. S11.31 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 MIFR 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 B

SECTION B1

Rules concerning calculation methodology for the “agreement area” related to a transmitting earth station in the frequency bands below 1 GHz, in application of the procedure of No. S9.21

The following procedures are to be applied in determination of the “agreement area” around the transmitting earth station subject to the application of the procedure of No. S9.21. These rules have been derived from relevant ITU-R Recommendations.

- 1 The transmission loss is calculated by applying the following formula:

$$L_b = P_t' + G_t' + G_r - P_I$$

where

L_b : basic transmission loss

P_t' : interfering power in the input bandwidth of the receiver calculated by multiplying the value of power density per Hz of a transmitting station by the value of B (kHz) taken from Table 1 for appropriate frequency bands and comparing this value with the total peak power value, retaining the smaller of the two values for the calculation. In the event that the total peak power is not available, it may be estimated by multiplying the maximum power density by 4 000

G_t' : gain of interfering station antenna towards horizon

G_r : gain of the receiving station antenna towards horizon

P_I : maximum permissible interfering power.

- 2 Protection criteria used for calculations are presented in Table 1. According to the Rules of Procedures concerning the application of No. S9.21 (see § 3 under the Rules concerning No. S9.21) only those bands were included in Table 1 which, after the application of No. S9.21, result in an allocation of equal rights between earth stations and terrestrial services.

- 3 Agreement distances for frequencies below 500 MHz are obtained from Figures 1, 2 and 3 for land, cold-sea and warm-sea paths respectively. When a mixed path is involved, the method of summation of Appendix S7 is used to obtain the resulting distance.

4 Agreement distances for the frequency range 800-1 000 MHz are obtained from Fig. 4, 5 and 6 for land, cold-sea and warm-sea paths respectively. These are curves of Appendix S7 which have been extrapolated for frequencies below 1 GHz. Figure 7 and Table III of Appendix S7 are to be used for determining the agreement distance for 1% of the time. When a mixed path is involved, the method of summation of Appendix S7 is used to obtain the resulting distance.

TABLE 1

Parameters required for the determination of the “agreement area” for a transmitting earth station in the space operation, mobile-satellite (except aeronautical mobile-satellite¹⁾) and space research services

Frequency band (MHz)	148-149.9 (No. S5.218)	449.75-450.25 (No. S5.286)	806-890 942-960 (Nos. S5.317, S5.320)
Satellite service sharing the frequency band	Space operation	Space operation, Space research	Mobile-satellite
Terrestrial service sharing the frequency band	Mobile, Fixed ²	Radiolocation, Mobile, Fixed ²	Broadcast, Mobile, Fixed ²
Modulation at terrestrial stations	FM	FM	
Interference time	1%	1%	
Protection ratio (dB)	10	10	
Min. median wanted signal level to be protected	-130	-130	
<i>B</i> (kHz)	16	14	
Permitted level of interference (P_I dBW/B)	-140	-140	
Receiving antenna gain (dB)	+2	+2	

¹ For aircraft earth stations, see § 3.2 of Rules B2.

² For terrestrial stations, parameters associated with the land mobile service have been used.

FIGURE 1
Basic transmission loss (dB)

Frequency: 100 to 500 MHz – Land – 1% of the time – 1% of the locations

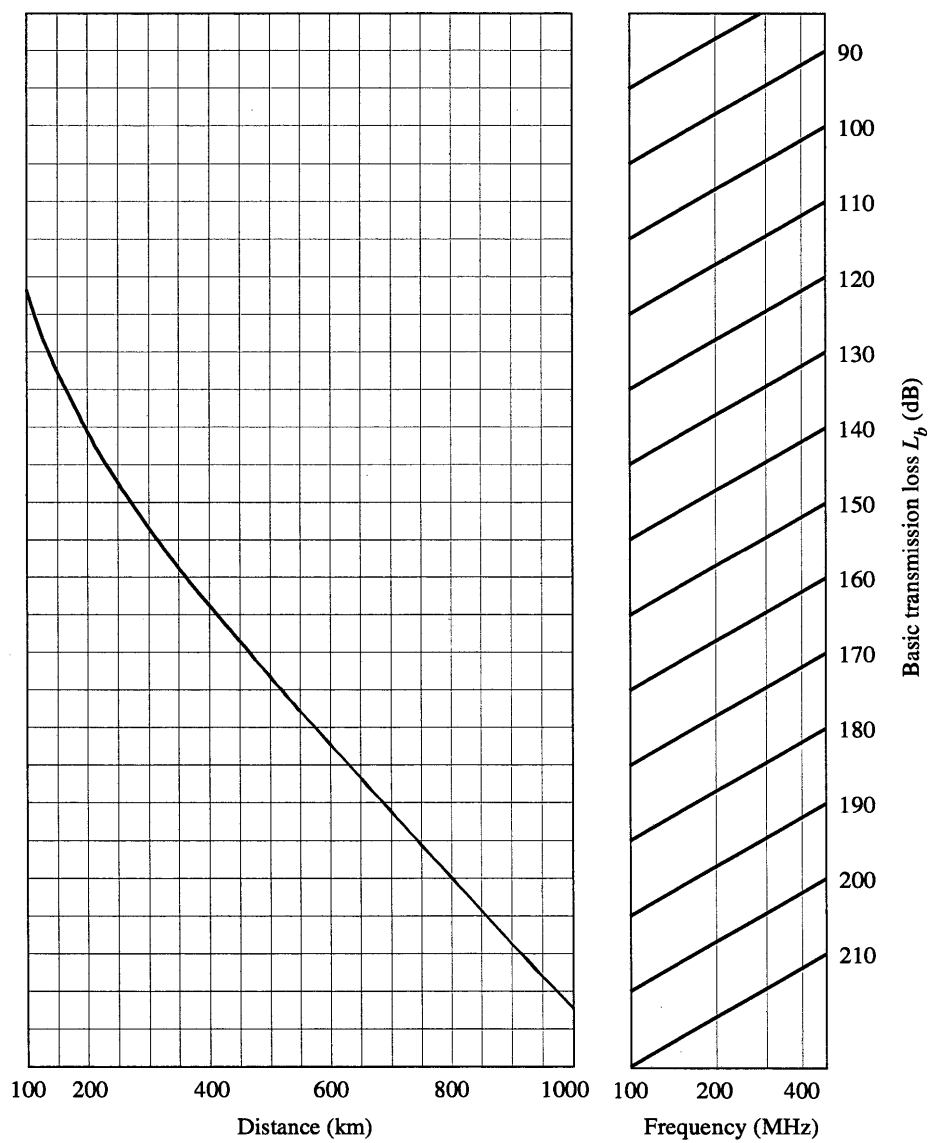


FIGURE 2
Basic transmission loss (dB)

Frequency: 100 to 500 MHz – North Sea – 1% of the time – 1% of the locations

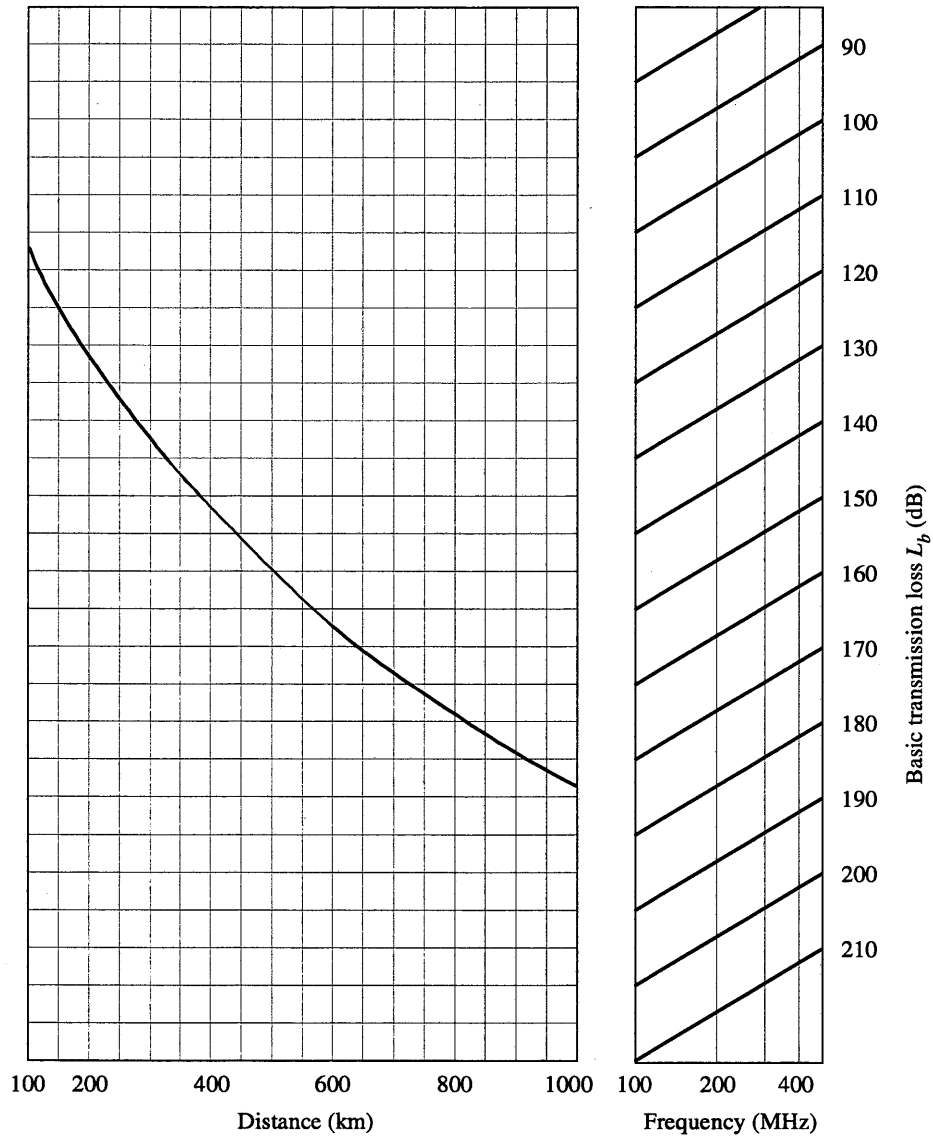


FIGURE 3
Basic transmission loss (dB)

Frequency: 100 to 500 MHz – Mediterranean Sea – 1% of the time – 1% of the locations

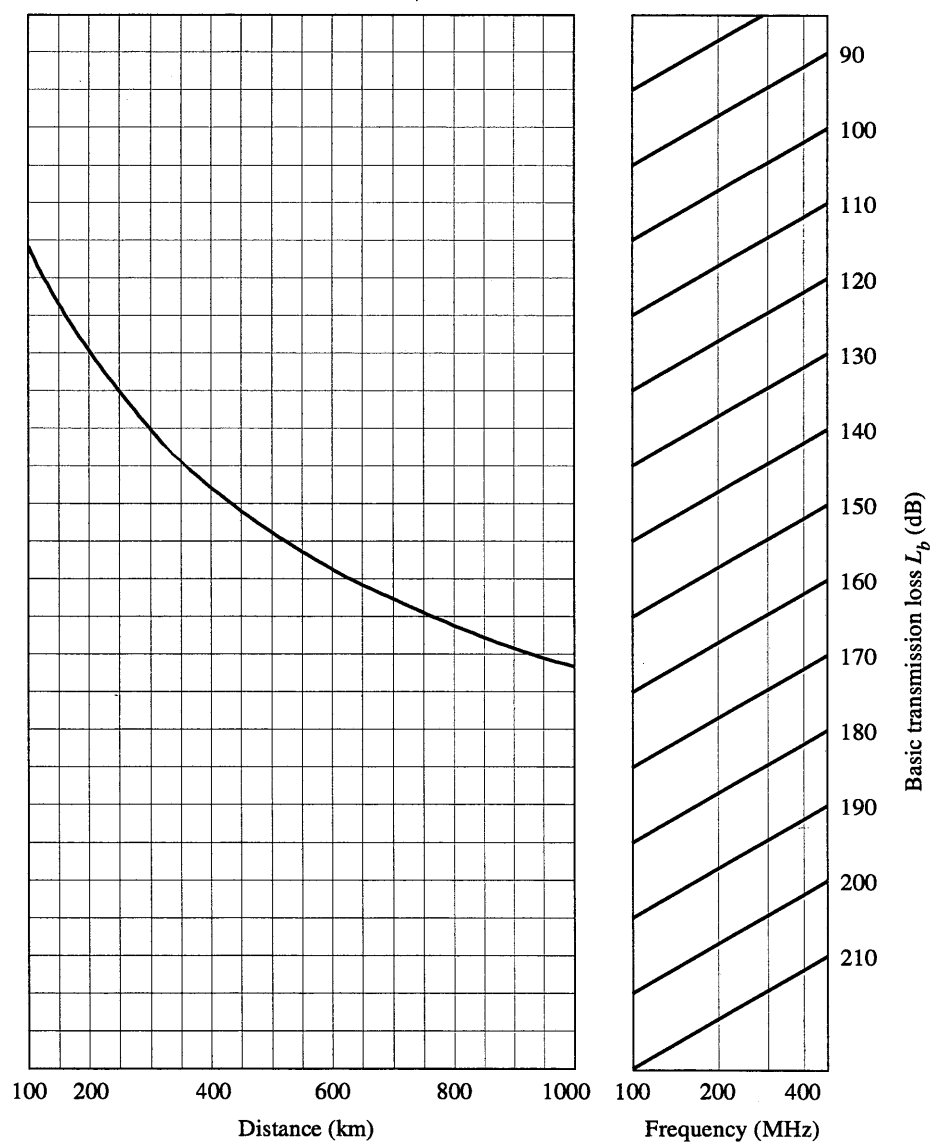
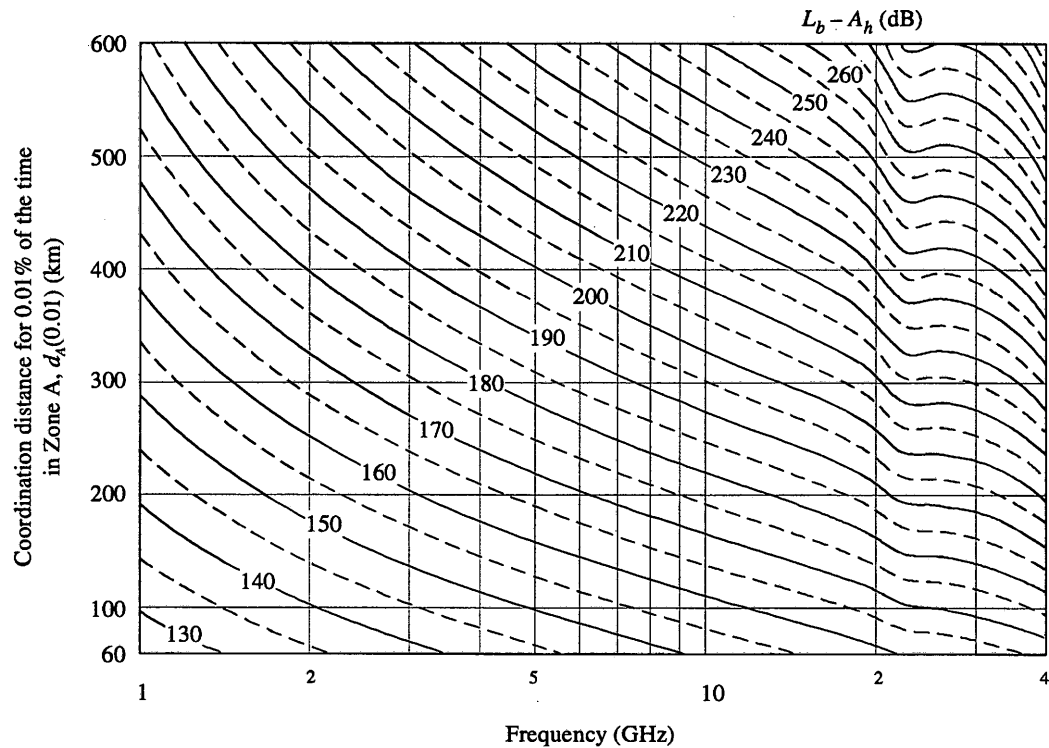


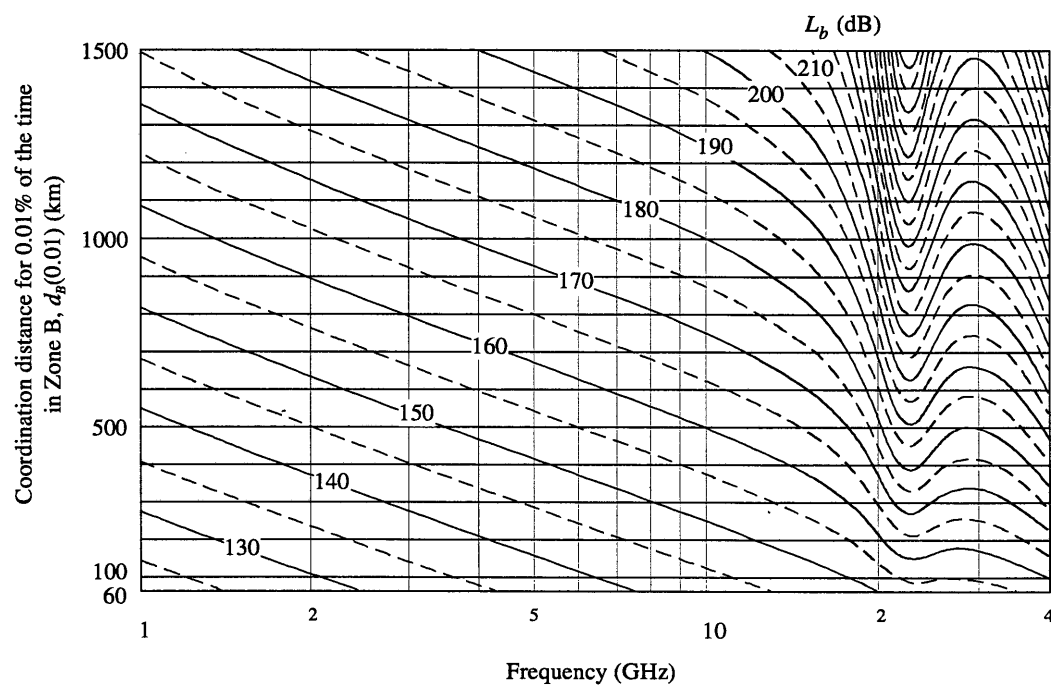
FIGURE 4
 Coordination distance $d_A(0.01)$ for 0.01% of the time due to propagation mode (1)
 as a function of frequency and coordination loss in Zone A



RP/B1-04

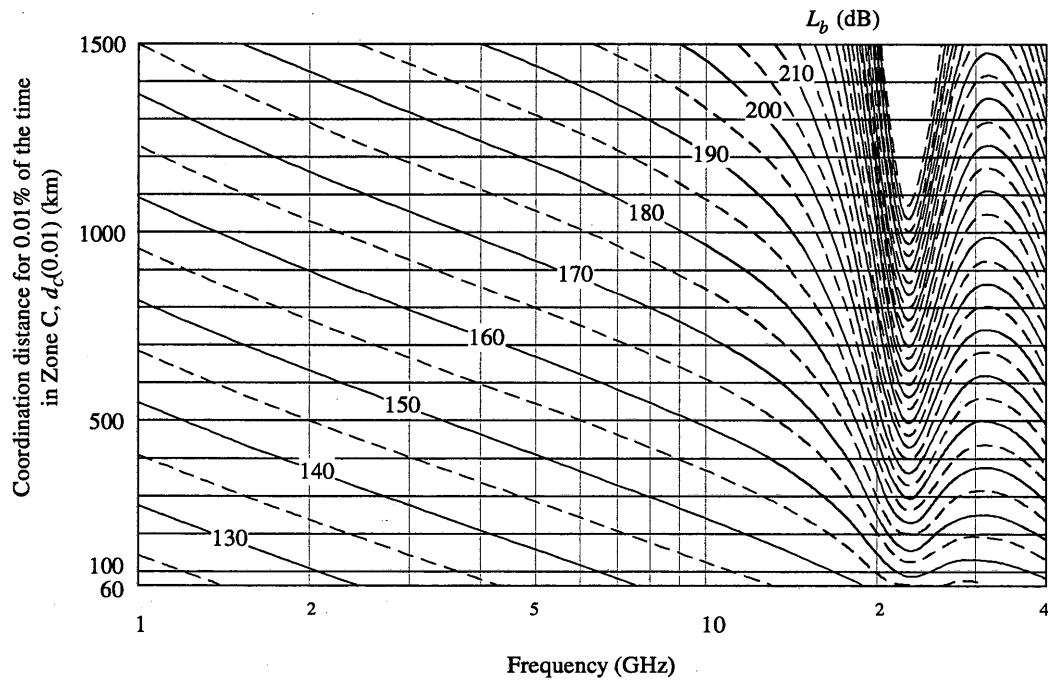
FIGURE 5

Coordination distance $d_p(0.01)$ for 0.01% of the time due to propagation mode (1)
as a function of frequency and coordination loss in Zone B



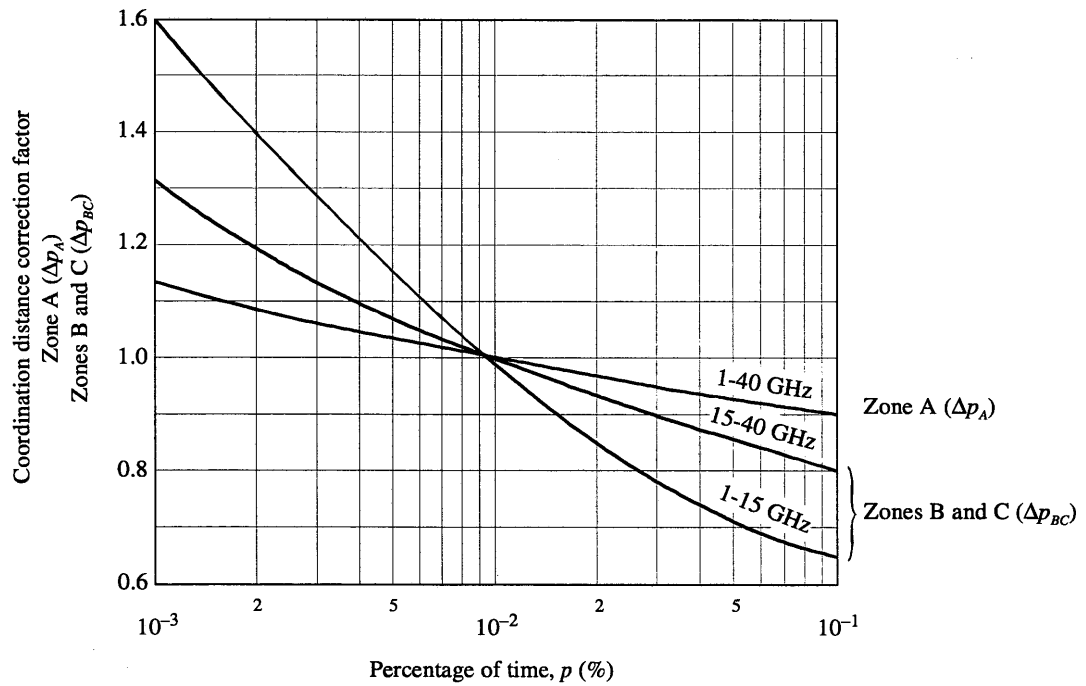
RP/B1-05

FIGURE 6
**Coordination distance $d_c(0.01)$ for 0.01% of the time due to propagation mode (1)
as a function of frequency and coordination loss in Zone C**



RP/B1-06

FIGURE 7
 Coordination distance correction factor for propagation mode (1)
 for percentages of time other than 0.01



RP/B1-07

PART B

SECTION B2

Rules concerning calculation methodology for coordination contours

1 Introduction

Tables 1 and 2 present in a consolidated form the possible sharing situations involving stations of space and terrestrial services in frequency bands from 1 GHz to 47 GHz, with indications of the parameters to be used in the application the method of Appendix S7 or with reference to other methods used in the determination of the earth station coordination area.

2 Application of Appendix S7

Whenever the method of Appendix S7 is to be applied, the appropriate values of the constants used in the calculation of the transmission loss, as well as the reference bandwidth and the percentage of the time (%) are indicated if they are not given in Tables I and II of Appendix S7.

The definition of the constants (dB) referred to above are as follows:

i) Mode 1 (see expressions (2) and (3) of Appendix S7):

$$C1 = G_r - P_r(p)$$

For those bands where $P_r(p)$ is given:

$$C3 = P_{t'} + G_{t'} - P_r(p)$$

Otherwise:

$$C3' = P_{t'} + G_{t'} - 10 \log B + 228,6 - J - M(p) + W$$

and transmission loss is calculated by

$$L_b(p) = G_r + C3' - 10 \log T$$

ii) Mode 2 (see expression (20) of Appendix S7):

$$C2 = C1 - 42$$

$$C4 = C3 - 42$$

For the bands where $P_r(p)$ is not given C3 is replaced by C3' and $10 \log T$ is taken into account in the calculation of the loss.

For bands where Table II of Appendix S7 does not contain the necessary parameters, the calculation of C3 is based on relevant ITU-R Recommendations.

For the determination of the coordination area of an earth station in the bands between 40 and 47 GHz, until more adequate information is available about the sharing conditions for the bands and services involved, the method of Appendix S7 is to be applied using the present data of Tables I and II pertaining to the closest bands below 40 GHz as indicated in Tables 1 and 2.

3 Application of other methods

3.1 Mobile (except aeronautical mobile) earth stations

Section 7 of Appendix S7 is to be applied. Furthermore, the coordination distances should be calculated assuming that the horizon elevation angle of the mobile earth station is zero. For the ship earth station, the rain climate to be used is that associated with the overland portion of the path involved.

3.2 Aircraft earth station in the aeronautical mobile-satellite service or aeronautical radiodetermination-satellite service

The coordination area of aircraft earth stations, either transmitting or receiving, is to be determined by increasing its service area by:

- i) 1 000 km, vis-à-vis the (terrestrial) aeronautical mobile service; and
- ii) 500 km, vis-à-vis terrestrial services, other than aeronautical mobile.

These coordination distances were derived assuming line-of-sight propagation between the aircraft earth station and the terrestrial station with a 4/3 Earth radius and an aircraft altitude of 12 km.

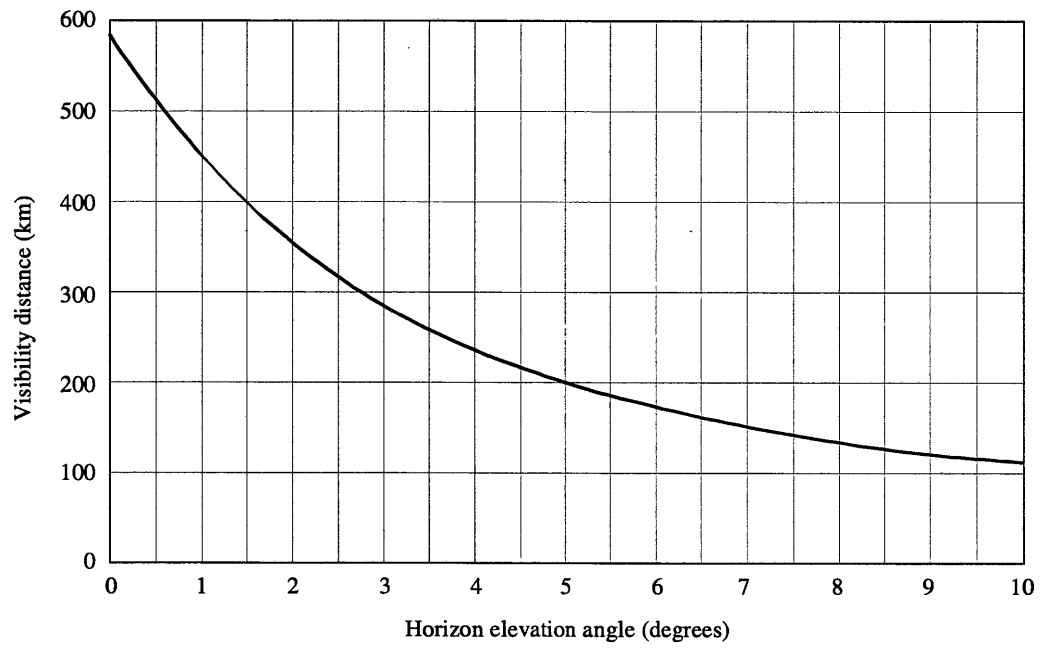
3.3 Receiving earth stations in the meteorological-satellite service in frequency bands shared with the meteorological aids service

The coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above the mean sea level, assuming a 4/3 Earth radius. Figure 1 shows the resulting distances for an earth station at sea level for a range of horizon elevation angles.

3.4 No. S9.11A

For earth stations of a non-geostationary satellite network for which the coordination procedures of No. S9.11A are applicable, the coordination distances are defined in § 3. of Annex 1 to Appendix S5.

FIGURE 1



RP/B2-01

TABLE 1
Transmitting earth station

Band (MHz)		Space service (Article S5 footnote (underline: No. S9.21))	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table I of Appendix S7	Article S5 allocation			
1 427-1 429	1 427-1 429	Space operation	Fixed, Mobile (except aeronautical)	APS7: C1 = 166
	1 610-1 626.5	Mobile-satellite Radiodetermination-satellite <u>Aeronautical radionavigation-satellite (S5.366)</u> <u>Aeronautical mobile-satellite (S5.367)</u>	Aeronautical radionavigation Fixed (S5.359)	– non-S9.11A: APS7: C1 = 166 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) APS5, Table S5-1, box S9.17: 100/400 km (RDSS-GSO) – S9.11A (non-GSO): Table 2 of APS5
	1 626.5-1 645.5	Mobile-satellite (or sub-set)	Fixed (S5.359)	
	1 646.5-1 656.5	Aeronautical mobile-satellite (R)	Fixed (S5.359) Aeronautical mobile (S5.376)	
	1 656.5-1 660	Mobile-satellite (or sub-set)	Fixed (S5.359)	
	1 675-1 710	Mobile-satellite	Fixed, Mobile (except aeronautical) Meteorological Aids	
2 655-2 690	1 750-1 850	<u>Space operation</u> , <u>Space research (S5.386)</u>	Fixed, Mobile	– non-S9.11A: APS7: C1 = 192 (fixed and mobile ¹ , except aircraft) §.3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 2 of APS5
	1 770-1 790	<u>Meteorological-satellite (S5.387)</u>		
	1 980-2 025	Mobile-satellite ²		
	2 025-2 110	Space research, Space operation, Earth exploration-satellite		

(See cont.)

TABLE 1
Transmitting earth station (continued)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table I of Appendix S7	Article S5 allocation			
2 655-2 690 (cont.)	2 110-2 120	Space research	Fixed, Mobile	– non-S9.11A: APS7: C1 = 192 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 2 of APS5
	2 655-2 690	Fixed-satellite (S5.415) Mobile-sat (except aeronautical) (S5.420)	Fixed, Mobile (except aeronautical)	
5 725-7 075	5 000-5 250	Aeronautical mobile-satellite (S5.367) Fixed-satellite (S5.444A, S5.447A)	Aeronautical radionavigation Mobile (S5.447)	– non-S9.11A: APS7: C1 = 176 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
	5 725-7 075	Fixed-satellite	Radiolocation, Fixed, Mobile	
7 145-7 235	7 125-7 155	Space operation (S5.459)	Fixed, Mobile	APS7: C1 = 178 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft)
	7 145-7 235	Space research (S5.460)		
7 900-8 400	7 900-8 400	Fixed-satellite		
	7 900-8 025	Mobile-satellite (S5.461)		
	8 175-8 125	Meteorological-satellite		
10 700-11 700	10 700-11 700 12 500-13 250	Fixed-satellite	Fixed, Mobile (except aeronautical)	
12 500-14 500	13 250-13 400	Space research	Aeronautical radionavigation Fixed (S5.499)	

(See cont.)

TABLE 1
Transmitting earth station (continued)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table I of Appendix S7	Article S5 allocation			
14 500-14 800 (cont.)	13 750-14 000	Fixed-satellite	Radiolocation Fixed (S5.499, S5.500) Mobile (S5.500) Radionavigation (S5.501)	APS7: C1 = 178 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft)
	14 000-14 300	Fixed-satellite Mobile-satellite	Radionavigation (S5.504) Fixed (S5.505, S.5508) Mobile (except aeronautical) (S5.509)	
	14 300-14 500		Fixed, Mobile (except aeronautical)	
	14 300-14 500	Fixed-satellite Mobile-satellite	Fixed, Mobile	
	14 500-14 800	Fixed-satellite	Fixed, Mobile	
	15 430-15 650	Fixed-satellite (S5.511D)	Aeronautical radionavigation	
17 700-18 100 27 000-37 500	17 700-18 100 18 100-18 400 19 300-19 700	Fixed-satellite	Fixed, Mobile	– non-S9.11A: APS7: C1 = 178 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
	24 650-24 750	Radiolocation-satellite		
	24 750-25 250 27 000-29 500	Fixed-satellite		
	31 000-31 300	Space research (S5.545)		
	34 200-34 700 34 700-35 200	Space research (deep space) Space research (S5.550)	Radiolocation Fixed, Mobile (S5.549)	

(See cont.)

TABLE 1
Transmitting earth station (*end*)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table I of Appendix S7	Article S5 allocation			
27 000-37 500 (<i>cont.</i>)	40 000-40 500	Space research	Fixed, Mobile	– non-S9.11A: APS7: C1 = 178 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
	42 500-43 500	Fixed-satellite	Fixed, Mobile (except aeronautical)	
	43 500-47 000	Mobile-satellite Radionavigation-satellite	Mobile, Radionavigation	

¹ See § 3.1.

² From 1 January 2000: 1 980-1 990 MHz in Regions 1 and 3, 1 990-2 010 MHz in all Regions.
 From 1 January 2005: 1 980-1 990 MHz in Region 2.
 From 1 January 2002: 2 010-2 025 MHz in Region 2.

TABLE 2
Receiving earth station

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table II of Appendix S7	Article S5 allocation			
1 525-1 535	1 215-1 260	Radionavigation-satellite	Radiolocation Fixed, Mobile (S5.330) Radionavigation (S5.331) Aeronautical radionavigation (S5.334)	– non-S9.11A: APS7: $C3 = 239$, $p = 1$ (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 2 of APS5
	1 492-1 525	Mobile-satellite	Fixed, Mobile	
	1 525-1 530	Space operation Mobile-satellite	Fixed, Mobile (S5.349) Aeronautical mobile (S5.350)	
	1 545-1 555	Mobile-satellite	Aeronautical mobile (S5.357) Fixed (S5.359)	
	1 555-1 559	Mobile-satellite or Sub-set		
	1 559-1 610	Radionavigation-satellite	Aeronautical radionavigation Fixed (S5.359)	
	1 610-1 626.5	Mobile-satellite Aeronautical radionavigation satellite (S5.366) Aeronautical mobile-satellite (S5.367)		
1 670-1 700	1 670-1 675	Meteorological-satellite	Meteorological aids, Fixed, Mobile (S5.381)	APS7: $C3' = 255.6$, $B = 1$ MHz, $p = 0.1$ (non-GSO) or 0.05 (GSO) (when interference is not from SM) § 3.3 (when interference is from SM)
	1 675-1 690		Meteorological aids, Fixed, Mobile (except aeronautical)	

(See cont.)

TABLE 2
Receiving earth station (continued)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table II of Appendix S7	Article S5 allocation			
1 670-1 700 (cont.)	1 690-1 700	Meteorological-satellite	Meteorological aids Fixed, Mobile (except aeronautical) (S5.381, S5.382)	APS7: C3' = 255.6, B = 1 MHz, p = 0.1 (non-GSO) or 0.05 (GSO) (when interference is not from SM) § 3.3 (when interference is from SM)
1 700-1 790	1 700-1 710		<u>Meteorological-satellite</u> (S5.387)	
	1 770-1 790			
1 700-1 710	1 700-1 710	Space research (S5.384)		– non-S9.21: APS7: C3 = 278 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft)
	2 160-2 200	Mobile-satellite ²		
2 200-2 290	2 200-2 290	Space operation, Space research (near Earth unmanned)		– S9.11A (non-GSO): Table 2 of APS5
		Space research (near Earth manned)		
		Earth exploration-satellite		
2 290-2 300	2 290-2 300	Space research (deep space)		APS7: C3 = 246, p = 0.1 (non-GSO) or 0.05 (GSO)
				APS7: C3 = 284

TABLE 2
Receiving earth station (continued)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table II of Appendix S7	Article S5 allocation			
2 500-2 690	2 483.5-2 500	Radiodetermination-satellite Mobile-satellite <u>Radiodetermination-satellite (S5.400)</u>	Fixed, Mobile Radiolocation	– non-S9.11A: APS7: C3' = 255.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) APS5, Table S5-1, box S9.17: 400/100 km (RDSS-GSO) – S9.11A (non-GSO): Table 2 of APS5
	2 500-2 535	<u>Mobile-satellite</u> (except aeronautical (S5.403)	Fixed, Mobile (except aeronautical) Radiolocation (S5.405)	
	2 500-2 516.5	<u>Radiodetermination-satellite</u> (S5.404)		
	2 500-2 690	<u>Fixed-satellite</u> (S5.415)		
3 400-4 200	3 400-4 200	Fixed-satellite	Fixed, Mobile	APS7: C3' = 218.6
4 500-4 800	4 500-4 800			– non-S9.11A: APS7: C3' = 255.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft)
	5 000-5 250	<u>Aeronautical mobile-satellite</u> (S5.367) <u>Fixed-satellite</u> (S5.447B)	Aeronautical radionavigation <u>Mobile</u> (S5.447)	– S9.11A (non-GSO): Table 3 of APS5

(See cont.)

TABLE 2
Receiving earth station (continued)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table II of Appendix S7	Article S5 allocation			
4 500-4 800 (cont.)	5 150-5 216	Fixed-satellite (S5.447B) <u>Radiodetermination-satellite (S5.446)</u>	Aeronautical radionavigation <u>Mobile (S5.447)</u>	– non-S9.11A: APS7: C3' = 255.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
7 250-7 750	6 700-7 075	Fixed-satellite (S5.458B)	Fixed, Mobile	– non-S9.11A: APS7: C3' = 218.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
	7 250-7 750	Fixed-satellite		
	7 250-7 375	<u>Mobile-satellite (S5.461)</u>		
	7 450-7 550 7 750-7 850	Meteorological-satellite		
8 025-8 400	8 025-8 400	Earth exploration-satellite		APS7: C3 = 209
8 400-8 500	8 400-8 500	Space research (deep space)	Fixed, Mobile (except aeronautical)	APS7: C3 = 245
	8 450-8 500	Space research (near Earth)	Radiolocation (S5.467)	APS7: C3 = 241
10 700-12 750	10 700-11 700	Fixed-satellite	Fixed, Mobile (except aeronautical)	– non-S9.11A: APS7: C3' = 218.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) – S9.11A (non-GSO): Table 3 of APS5
	11 700-12 200	Fixed-satellite (S5.488)		
	12 200-12 500	Fixed-satellite (S5.491)		
	12 500-12 750	Fixed-satellite		
	15 400-15 700	Fixed-satellite (S5.511A, S5.511D)	Aeronautical radionavigation	

TABLE 2
Receiving earth station (*end*)

Band (MHz)		Space service (Article S5 footnote) (underline: No. S9.21)	Terrestrial service (Article S5 footnote)	Method and parameter (earth station type)
Table II of Appendix S7	Article S5 allocation			
17 700-40 000	17 700-21 200	Fixed-satellite	Fixed, Mobile	– non-S9.11A: APS7: C3' = 198.6 (fixed and mobile ¹ , except aircraft) § 3.2: 1 000/500 km (aircraft) NOTE – See § 3 of Annex 4 to Appendix S30A (TC, when interference is from TC in 17.7-18.1 GHz). – S9.11A (non-GSO): Table 3 of APS5
	18 100-18 300	Meteorological-satellite (S5.519)		
	19 700-21 200	Mobile-satellite		
	31 800-32 300	Space research	Radionavigation	
	34 200-35 200	Space research (S5.550)	Radiolocation Fixed, Mobile (S5.549)	
	37 000-38 000	Space research	Fixed, Mobile	
	37 500-40 500	Fixed-satellite		
	39 500-40 500	Mobile-satellite		
	40 500-42 500	Fixed-satellite ³	Fixed, Broadcasting	
	43 500-47 000	Mobile-satellite Radionavigation-satellite	Mobile, Radionavigation	

¹ See § 3.1.

² From 2002: 2 160-2 170 MHz in Region 2.

³ From 2001.

PART B

SECTION B3

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

1 Introduction

In application of the provisions of No. **S11.32A** of the Radio Regulations when, as a consequence of continuing disagreement (Nos. **S9.63** to **S9.65**) 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. **S11.32A** 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. **S9.7**, 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, shall be used to examine the subject assignments with respect to the provisions of No. **S11.32A**.

2.2 The Bureau shall request the administrations concerned to provide the mutually agreed criteria for accepted interference in the format appearing in Table 2 of Recommendation ITU-R S.741.

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 13 A3 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 13 A3 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 the single entry interference limits indicated in Table 2 of Recommendation ITU-R S.741. The finding in column 13 A3 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 the above mentioned Recommendation. The finding in column 13 A3 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. A set of *carrier-to-interference C/I* calculations 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 Recommendation ITU-R S.741 shown below which contains a set of single entry interference criteria to protect different carriers from noise like or slowly swept interference (caused by TV-FM modulated with energy dispersal). 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.

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 for each test point¹, a set of carrier-to-noise ratios C/N are calculated (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 Recommendation ITU-R S.741. 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).

In respect of C/N ratio calculations, Table 2 of Recommendation ITU-R S.741 (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.

¹ A set of a maximum of 20 test points defining the service area shall be provided by the administrations. Otherwise, the Bureau will use a set of randomly chosen test points within the service area of the satellite networks likely to be affected (including those test points already communicated).

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

Interfering cases

Desired Interfering	Digital	Analogue (TV-FM)	Analogue (other than TV-FM)
Digital	Use C/I plus interference adjustment factor (I)	Use C/I plus interference adjustment factor (II)	Use C/I plus interference adjustment factor (III)
Analogue (TV-FM)	Use C/I plus interference adjustment factor ¹ (IV)	<i>Co-frequency:</i> use C/I plus interference adjustment factor <i>Non co-frequency:</i> use relative protection ratio mask (Rec. ITU-R S.483) (V)	Use C/I plus interference adjustment factor ¹ (VI)
Analogue (other than TV-FM)	Use C/I plus interference adjustment factor ¹ (VII)	Use C/I plus interference adjustment factor ¹ (VIII)	Use C/I plus B (IX)

¹ See § 3.5 below.

3.2 Margin M , C/I , C/N algorithms

The algorithms described in Attachment1 shall be used to evaluate compliance with the mutually accepted interference criteria or with the single entry limits established in Table 2 of Recommendation ITU-R S.741.

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.

TABLE 2

(Recommendation ITU-R S.741)

Single entry interference (SEI) protection criteria for FSS carriers

FSS carrier	ITU-R Recommendations for SEI	Type of interference	Single entry (SEI) Protection criteria	
			API before 1987 ¹	API after 1987
FDM-FM CFDM-FM	Rec. ITU-R S.466	Any	600 pW0p	800 pW0p
TV-FM	Rec. ITU-R S.483	Noise-like	$C/N + 14$ (dB)	$C/N + 14$ (dB)
Digital	Rec. ITU-R S.523	Noise-like	$C/N + 14$ (dB)	$C/N + 12.2$ (dB)
SCPC-FM	²	Noise-like	$C/N + 14$ (dB)	$C/N + 12.2$ (dB)
SCPC-FM	Rec. ITU-R S.671	Slowly-swept	$13.5 + 2 \log(\delta) - 3 \log(i/10)$ (dB)	
Digital narrow-band – with coding	Rec. ITU-R S.671	Slowly-swept	$C/N + 9.4 + 3.5 \log(\delta) - 6 \log(i/10)$ (dB)	
– without coding	Rec. ITU-R S.671	Slowly-swept	$C/N + 6.4 + 3 \log(\delta) - 8 \log(i/10)$ (dB)	

API: Advanced Publication of Information of networks

C/N : ratio (dB) of carrier to total noise power which includes all internal system noise and interference from other systems

δ : ratio of desired signal bandwidth to peak-to-peak deviation of the TV carrier caused by the energy dispersal signal

i : pre-demodulation interference power in the desired signal bandwidth expressed as a percentage of the total pre-demodulation noise power

¹ Not applicable.

² The criteria for noise-like interference are being used for the purposes of coordination.

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).

3.5 Other interference cases

For cases (IV), (VI), (VII) and (VIII) in Table 1 above, the interference adjustment factor mentioned in § 3 above shall be used. In calculating this factor consideration shall be given to third paragraph of § 3.4 of Annex 1 to Recommendation ITU-R S.741.

3.6 Additional information to be provided by the administrations concerned

In addition to the data provided under Appendix S4 of the Radio Regulations and in order to permit the Bureau to carry out this examination, the mutually agreed criteria for the acceptable interference, the modulation characteristics and a set of test points (maximum 20) defining the service area shall be requested from the administrations concerned.

ATTACHMENT 1

Calculation algorithms (M , C/I , C/N)

1 Margin algorithm

To compute the margins, it is necessary first to determine the minimum desired $\left(\frac{C}{I}\right)_m$

value, which is a function of the C/N and the K factor:

$$\left(\frac{C}{I}\right)_m = \left(\frac{C}{N}\right) + K$$

where:

$\left(\frac{C}{I}\right)_m$: minimum desired C/I value (dB)

$\left(\frac{C}{N}\right)$: calculated value of C/N (dB)

K : factor used in computing the minimum desired 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).

Since $\left(\frac{C}{I}\right)_m$ will vary with each test point, the margin is also computed at each test point.

The margin is the difference between the calculated C/I value and the minimum desired 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 minimum desired 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

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).

The adjusted C/I values will be determined separately for the uplink and downlink, keeping in mind that the interference adjustment factor may be different for the uplink and for the downlink.

The overall C/I will also be computed. If there are uplink calculations only (*i.e.*, no downlink for the desired or interfering signal, or both, or no downlink frequency overlap between the desired and interfering signals), the values of the overall C/I are simply the uplink values of C/I . Similarly, if there are downlink calculations only (*i.e.*, no uplink for the desired or interfering signal, or both, or no uplink frequency overlap between the desired and interfering signals), the values of the overall C/I are simply the downlink values of C/I . However, if the desired and interfering signals have both an uplink and a downlink, the overall C/I will be computed for each downlink test point using the *worst case* uplink C/I and the individual downlink C/I values:

$$\left(\frac{C}{I}\right)_T = -10 \log_{10} \left[10^{-\left(\frac{(C/I)_u}{10}\right)} + 10^{-\left(\frac{(C/I)_d}{10}\right)} \right]$$

where:

$\left(\frac{C}{I}\right)_T$: overall value of C/I for a particular downlink test point (dB)

$\left(\frac{C}{I}\right)_u$: worst case uplink C/I at any uplink test point (dB)

$\left(\frac{C}{I}\right)_d$: downlink C/I for a particular downlink test point (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 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) will be assumed as a result of the work of Working Party 4A concerning the methodology to treat cases of frequency offset carriers through 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).

3 The C/N algorithm

The algorithm for C/N requires the computation of the value of N , as follows:

$$N = -228.6 + 10 \left[\log_{10}(T_R) + 6 + \log_{10}(BW) \right]$$

where:

N : value of noise (dBW)

T_R : receiving system noise temperature K

BW : bandwidth (MHz).

The value of N 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 is determined, C/N will be computed at each uplink test point (if there's an uplink) and each downlink test point (if there's a downlink):

$$\left(\frac{C}{N} \right) = C - N$$

where:

C : carrier (dBW)

N : noise (dBW) computed above.

The overall C/N is also computed. If there is an uplink only, the values of the overall C/N are simply the uplink values of C/N . Similarly, if there is a downlink only, the values of the overall C/N are simply the downlink values of C/N . However, if there is both an uplink and a downlink, the overall C/N is computed for each downlink test point using the *worst case* uplink C/N and the individual downlink C/N values:

$$\left(\frac{C}{N}\right)_T = -10 \log_{10} \left[10^{-\left(\frac{(C/N)_u}{10}\right)} + 10^{-\left(\frac{(C/N)_d}{10}\right)} \right]$$

where:

$\left(\frac{C}{N}\right)_T$: overall value of C/N for a particular downlink test point (dB)

$\left(\frac{C}{N}\right)_u$: worst case uplink C/N at any uplink test point (dB)

$\left(\frac{C}{N}\right)_d$: downlink C/N for a particular downlink test point (dB).

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 mask as it appears in Recommendation ITU-R S.483. This 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 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).

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. S1.174

Number **S1.174** 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 **S8** to the RR 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.

3 Noise to be calculated in accordance with Recommendation ITU-R S.741

To be in accordance with Recommendation ITU-R S.741 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 space networks 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 Recommendation 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 space networks sharing the same frequency band (Recommendation ITU-R S.466)

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 2500 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 10000 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 1000 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 10000 pW0p established by Recommendation ITU-R S.353 for the same percentage of time.

4.1.3 Calculation of the additional margin

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:

$$N_{tot} = N_i + 0.35 N_{tot}$$

$$N_{tot}(1 - 0.35) = N_i$$

$$N_{tot} = 1.53 N_i$$

$$\text{Additional margin: } 10 \cdot \log(1.53) = 1.87 \text{ dB.}$$

In the absence of sufficient information to calculate an additional margin for cases in which uplink and downlink are treated independently e.g. telemetry and telecommand signals the initial margins will be used i.e. no additional margin will be considered for these cases.

4.2 Digital emissions

4.2.1 Aggregate interference produced by other space networks sharing the same frequency band (Recommendation ITU-R S.523)

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 ten minutes, 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 space networks sharing the same frequency band (Recommendation ITU-R S.483)

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

$$N_{tot} = N_i + 0.1 N_{tot}$$

$$N_{tot}(1 - 0.1) = N_i$$

$$N_{tot} = 1.11 N_i$$

$$\text{Additional margin: } 10 \cdot \log(1.11) = 0.46 \text{ dB}$$

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.

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. **S9.21**, in the context of the relevant frequency allocation footnotes referred to in Article **S5** of the Radio Regulations, in the bands between 9 kHz and 28 000 kHz;
- 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. **S7.6**, or in any other 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.240-6, ITU-R SM.326-6, ITU-R F.339-6 and ITU-R SM.669-1).

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.

1.4 For the calculation of the signal/interference ratios both the wanted and the interference field strength are considered as median values (exceeded 50 % of time) and on the basis of peak envelop power (p.e.p.; notified power type: *PX*). Types of power other than p.e.p. (notified as *PY* 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)

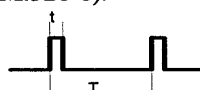
Transmission type		Frequency band (kHz)		
		9-1 606.5	1 606.5-4 000	4 000-28 000
Telegraphy, aural reception		8 (3-7)	11 (5-10)	15 (7-14)
Telegraphy, aural reception; Meteo, Press		9 (3-8)	13 (5-12)	17 (7-16)
Telegraphy, automatic reception, without error correction		11 (6-10)	17 (10-16)	26 (13-25)
Telegraphy, 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, <i>not</i> 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	–

1.5 For each transmission type, two time percentages are used: one (e.g. 99 % of 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 ITU-R Recommendation SM.326-6).



² In the case of pulse modulation :

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 below) 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 the ITU-R Recommendations and Reports, namely on Recommendation ITU-R F.339-6 and ex-CCIR Report 322.

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 $\mu\text{V/m}$) for the main types of transmissions (from telegraphy, aural reception, to telephony, for connection to the public network) 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 signal-to-noise 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 .

2.5 The assessment of the minimum field strength to be protected is based on a uniform reference power type: the peak envelop power (p.e.p. notified as PX). Types of power other than p.e.p. (notified as PY or PZ 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 $\mu\text{V/m}$) 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.

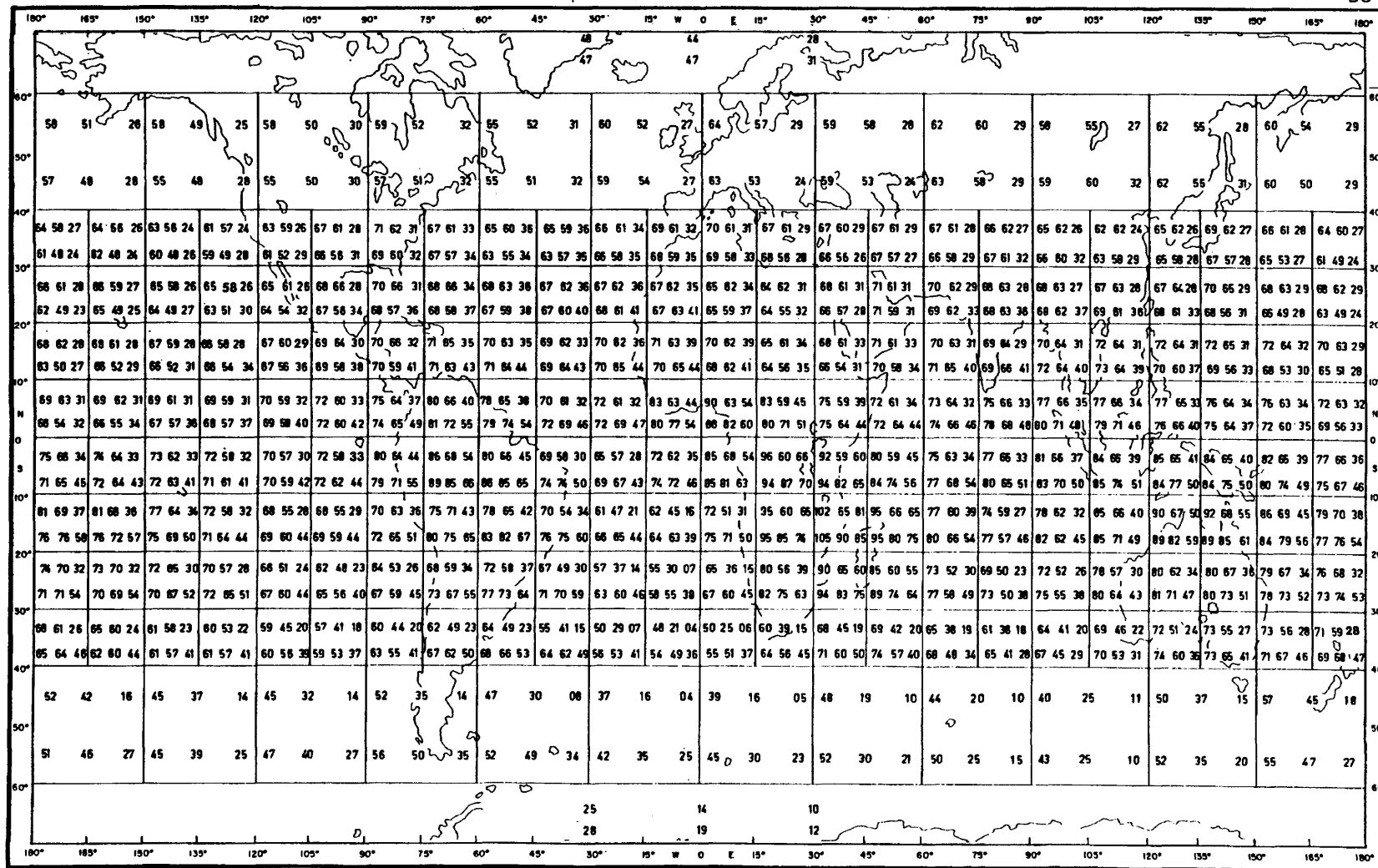
VALEUR DU DEGRÉ DE BRUIT EN FONCTION DE LA LATITUDE ET DE LA LONGITUDE DU LIEU DE RÉCEPTION
 NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT
 VALORES DEL GRADO DE RUIDO EN FUNCIÓN DE LA LATITUD Y DE LA LONGITUD DEL LUGAR DE RECEPCIÓN

période: DÉCEMBRE - JANVIER - FÉVRIER
 period: DECEMBER - JANUARY - FEBRUARY
 período: DICIEMBRE - ENERO - FEBRERO

DC

1

DC

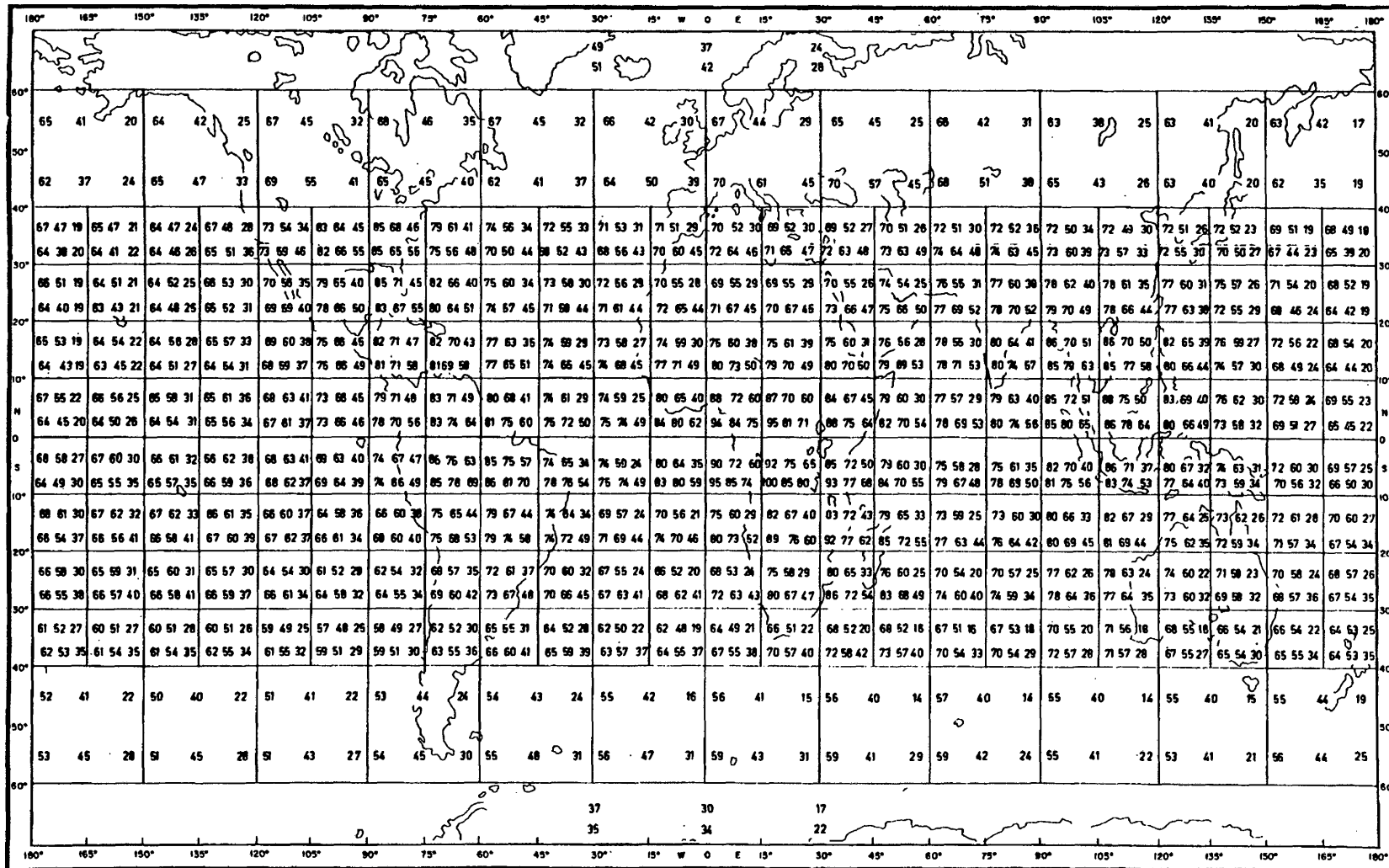


RP/B4-01sc

VALEUR DU DEGRÉ DE BRUIT EN FONCTION DE LA LATITUDE ET DE LA LONGITUDE DU LIEU DE RÉCEPTION
 NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT
 VALORES DEL GRADO DE RUIDO EN FUNCIÓN DE LA LATITUD Y DE LA LONGITUD DEL LUGAR DE RECEPCIÓN

période: MARS - AVRIL - MAI
period: MARCH - APRIL - MAY
periodo: MARZO - ABRIL - MAYO } MR

②
MR

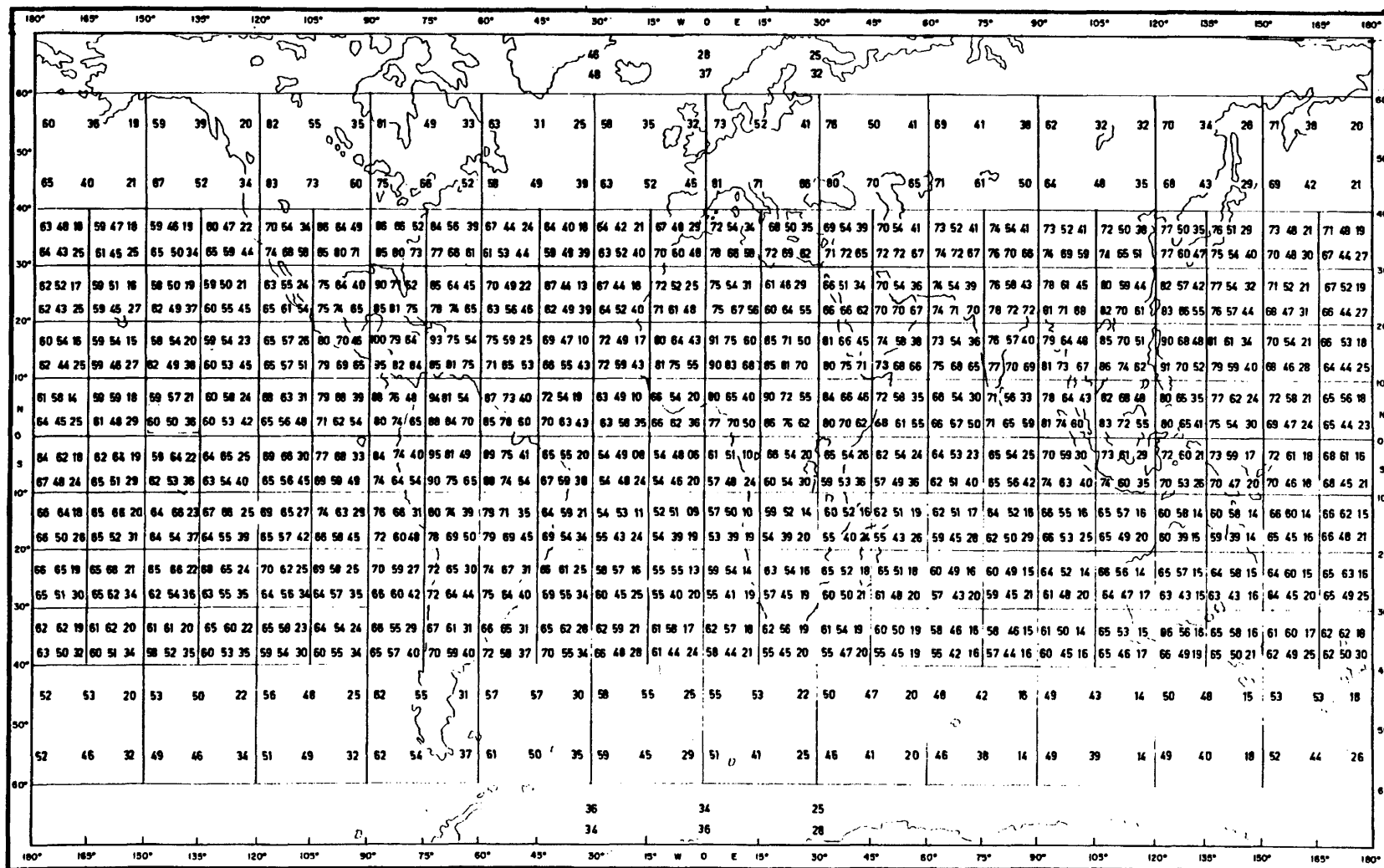


VALEUR DU DEGRÉ DE BRUIT EN FONCTION DE LA LATITUDE ET DE LA LONGITUDE DU LIEU DE RÉCEPTION
 NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT
 VALORES DEL GRADO DE RUIDO EN FUNCIÓN DE LA LATITUD Y DE LA LONGITUD DEL LUGAR DE RECEPCIÓN

période: JUIN - JUILLET - AOÛT } JN
 period: JUNE - JULY - AUGUST }
 período: JUNIO - JULIO - AGOSTO }

3

JN



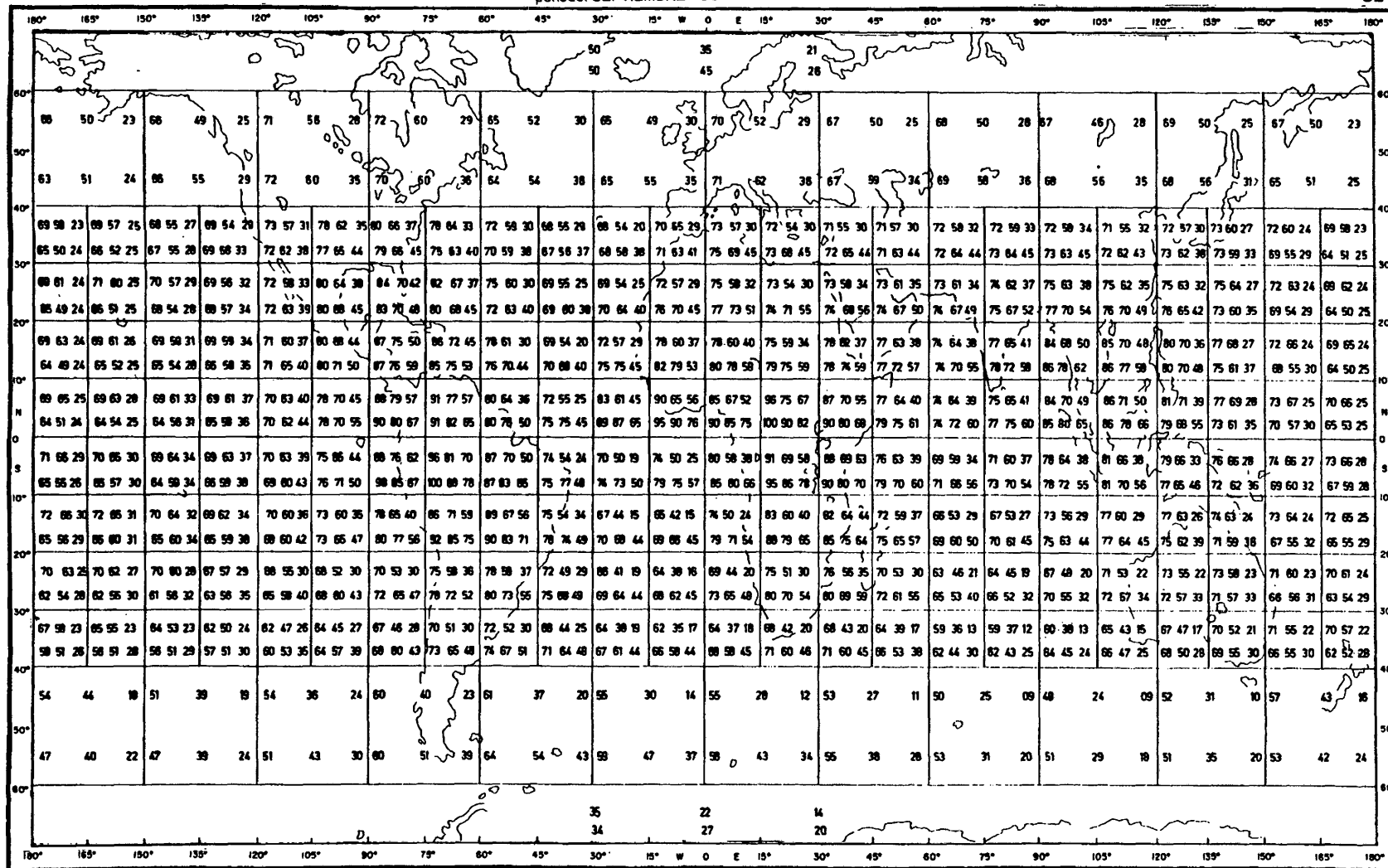
VALEUR DU DEGRÉ DE BRUIT EN FONCTION DE LA LATITUDE ET DE LA LONGITUDE DU LIEU DE RÉCEPTION
 NOISE GRADE FIGURES ACCORDING TO LATITUDE AND LONGITUDE OF RECEIVING POINT
 VALORES DEL GRADO DE RUIDO EN FUNCIÓN DE LA LATITUD Y DE LA LONGITUD DEL LUGAR DE RECEPCIÓN

période: SEPTEMBRE - OCTOBRE - NOVEMBRE
 period: SEPTEMBER - OCTOBER - NOVEMBER
 período: SEPTIEMBRE - OCTUBRE - NOVIEMBRE

SE

4

SE



RP/B4-04sc

Intensité minimum du champ à protéger (dB par rapport à 1 µV/m)
 Minimum field strength to be protected (dB relative to 1 µV/m)
 Intensidad de campo mínima a proteger (dB con relación a 1 µV/m)

Type de transmission: Télégraphie, réception auditive
 Type of transmission: Telegraphy, aural reception
 Tipo de transmisión: Telegrafía, recepción auditiva

(*B* > 0.5 kHz)

5A

DEGRÉ DE BRUIT NOISE GRADE GRADO DE RUIDO	(kHz)																		(MHz)																	
	10			20			50			100			200			500			1			1.5			2			3			4					
	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	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	J1 J2			
100	72	72	74	70	72	81	68	70	85	65	68	83	62	65	78	57	59	67	52	54	52	47	50	41	44	47	34	38	42	23	34	38	16			
	72	74	77	71	75	81	68	74	83	65	73	84	62	70	80	56	63	68	51	55	54	47	49	43	42	45	36	36	39	27	32	35	22			
90	69	69	72	67	69	77	63	65	78	59	61	75	54	57	69	48	50	57	42	44	42	38	40	32	35	38	26	31	34	17	28	31	11			
	70	71	74	67	71	77	62	68	77	58	65	75	53	60	70	47	53	57	41	45	44	37	40	33	34	36	28	30	31	20	27	28	15			
80	66	66	69	63	65	73	58	59	72	52	54	67	46	49	60	38	40	46	32	34	32	28	31	23	27	29	18	24	27	10	22	25	5			
	67	68	71	63	66	72	57	61	71	51	57	67	45	51	60	37	43	46	31	35	34	28	30	25	26	28	20	23	24	13	21	22	9			
70	64	63	66	60	61	68	53	54	66	46	48	59	38	40	50	28	30	35	22	24	22	19	22	14	18	20	10	17	19	3	16	18	1			
	64	65	68	59	61	68	52	55	63	45	49	58	37	42	50	26	32	36	21	25	24	19	22	16	18	20	12	16	18	6	15	16	4			
60	61	60	64	57	57	64	49	49	59	40	42	51	30	32	42	18	21	25	12	14	12	10	12	6	10	12	2	10	12	-1	10	12	-1			
	61	61	66	56	56	63	47	48	57	39	40	49	29	32	40	18	22	26	11	15	14	9	12	7	9	11	4	9	11	0	9	10	-1			
50	58	57	61	53	53	60	44	44	52	33	35	43	22	24	32	8	11	15	4	4	4	3	3	3	2	3	2	3	4	-1	4	5	-1			
	58	58	63	52	52	59	43	41	50	32	32	41	21	23	30	8	12	16	4	5	4	3	3	3	2	3	2	2	3	-1	4	4	-1			
40	55	55	58	49	50	56	38	39	46	26	28	35	14	16	22	7			4			3			2			-1			-1					
	55	55	60	49	47	55	38	35	43	26	24	32	14	14	20	7			4			3			2			-1			-1					
30	52	52	56	46	47	52	33	34	40	19	22	27	11	11	13	7			4			3			2			-1			-1					
	52	51	58	45	42	50	32	28	36	20	16	24	11	11	11	7			4			3			2			-1			-1					
20	50	49	54	43	42	48	28	28	33	15	15	20	11	11	11	7			4			3			2			-1			-1					
	49	48	55	40	37	46	27	20	30	15	15	15	11	11	11	7			4			3			2			-1			-1					
10	48	46	51	40	39	44	22	23	28	15	15	15	11	11	11	7			4			3			2			-1			-1					
	47	45	53	35	32	42	21	18	21	15	15	15	11	11	11	7			4			3			2			-1			-1					
0	45	43	48	36	35	40	18	18	22	15	15	15	11	11	11	7			4			3			2			-1			-1					
	44	41	50	31	27	37	18	18	18	15	15	15	11	11	11	7			4			3			2			-1			-1					

Constants to be added to obtain other types of emissions			
Narrow band TG (<i>B</i> < 0.5 kHz)			-5
Telegraphy aut. (<i>B</i> > 0.5 kHz)			4
Phototelegraphy			16
T e l e p h o n y	CO	J3E	14
		R3E	
		B8E	
	CP	H3E	20
		A3E	23
		A3E	34
Broad-cast	LF/MF		49
	BC Trop.		46

5B

Intensité minimum du champ à protéger (dB par rapport à 1 µV/m)
 Minimum field strength to be protected (dB relative to 1 µV/m)
 Intensidad de campo mínima a proteger (dB con relación a 1 µV/m)

Type de transmission: Télégraphie, réception auditive
 Type of transmission: Telegraphy, aural reception
 Tipo de transmisión: Telegrafía, recepción auditiva

(B > 0.5 kHz)

DEGRÉ DE BRUIT NOISE GRADE GRADO DE RUIDO	(MHz)																													
	4			5			6			7			8			10			12			15			20			30		
	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	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
100	34	38	16	31	34	12	28	31	11	25	28	11	23	25	11	18	21	12	14	17	13	7	11	13	-3	4	10	-7	-7	-3
	32	35	22	30	32	17	28	30	15	26	29	14	24	28	13	21	26	14	19	25	15	14	22	15	7	17	14	-7	0	2
90	28	31	11	26	28	8	23	25	8	21	23	9	18	21	9	14	16	10	9	12	11	2	6	11	-7	-2	8	-7	-7	
	27	28	15	25	26	12	23	25	11	21	24	11	20	23	11	17	22	12	14	21	13	9	18	13	0	11	12			-5
80	22	25	5	20	23	4	18	21	5	16	18	6	14	16	7	9	13	8	4	8	9	-4	1	9	-7	-7	5	-7		
	21	22	9	19	21	8	18	20	8	16	19	9	15	19	9	12	18	10	9	17	11	3	13	11	-7	5	9			
70	16	18	1	15	17	1	13	16	2	11	14	3	9	13	4	4	9	6	-1	4	7	-5	-3	7	-7	-7	2	-7		
	15	16	4	14	15	3	13	15	4	12	14	6	11	14	7	8	14	8	4	13	9	-3	9	9	-7	-1	6			
60	10	12	-1	9	12	-3	9	11	-1	7	10	1	5	9	2	0	5	4	-5	0	5	-5	-5	5	-7	-7	-2	-7		
	9	10	-1	9	10	-1	9	10	1	8	10	3	7	10	4	3	10	6	-1	9	7	-5	4	7	-7	-6	2			
50	4	5	-1	4	6	-3	4	6	-3	2	6	-2	8	5	0	-5	1	2	-5	-4	3	-5	-5	2	-7	-5	-7			
	4	4	-1	5	5	-3	5	5	-2	4	5	-1	3	6	1	-1	6	4	-5	5	5	-5	0	5		-2				
40		-1		-1	0	-3		-3		-3	1	-3	-3	0	-3	-5	-3	0	-5	-5	1	-5		0	-7	-7	-7			
				-1	-1	-3				-3	1	-3	-3	2	-3	-5	2	2	-5	1	3		2		-6					
30		-1			-3		-3			-3			-3			-5	-5	-2		-5		0	-5	-2	-7		-7			
																-5	-2	0			1		-1							
20		-1			-3		-3			-3			-3			-5		-4	-5	-2		-5	-4	-7		-7				
																	-2			-1			-4							
10		-1			-3		-3			-3			-3			-5		-5	-5	-4		-5		-7		-7				
																	-4			-3										
0		-1			-3		-3			-3			-3			-5		-5		-5		-5		-7		-7				

Constants to be added to obtain other types of emissions			
Narrow band			
TG (B < 0.5 kHz)			
Telegraphy			
aut. (B > 0.5 kHz)			
Phototelegraphy			
T e l e p h o n y	CO	J3E	
		R3E	14
		B8E	
		H3E	20
	CP	A3E	23
		J3E	
		R3E	25
		B8E	
Broad- cast	LF/MF	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.

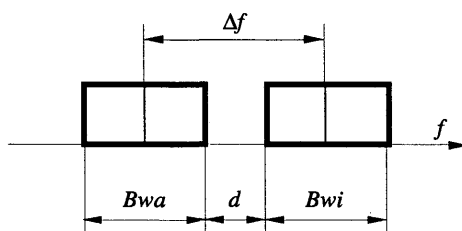
3.3 Data that are used for the establishment of this standard were extracted from the Recommendations ITU-R SM.328-8 and ITU-R SM.332-4; they are summarised in Table 1.

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 pass-band, 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

Class of emission	Receiver of wanted emission		Interfering emission		
	Assumed pass band (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 $\pm 5 B/2$	-57 dB at $\pm 5 B$, then 12 dB/oct
A1A (1 605-28 000 kHz) (<i>B</i> : up to 200 Bd)	1	120	as notified	-27 at $\pm 5 B/2$	-57 dB at $\pm 5 B$, 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) ($2D = 200$ to 400 Hz, <i>B</i> : up to 200 Bd, <i>m</i> = 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 (<i>F</i> : up to 1 000 Hz, <i>B</i> : up to 50 Bd)	2	120	as notified	-24 at $\pm(F + 5 B/2)$	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

TABLE 1

Assumed characteristics of receivers of wanted emissions and characteristics of interfering emissions (*end*)

Class of emission	Receiver of wanted emission		Interfering emission		
	Assumed pass band (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
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)*2D*: difference between mark and space frequencies*m*: modulation index $2D/B$ *F*: modulation frequency

TABLE 2

Values of the frequency discrimination (dB) for different interfering emissions

<i>d</i>	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 ($d = \Delta f - 0.5 (B_{wa} + B_{wi})$)
B_{wa}: pass-band of the receiver of wanted emission
B_{wi}: 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 μ V/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 the Recommendation ITU-R P.368-7 for the following reference values:

- propagation over sea: $\sigma = 4 \text{ S/m}$, $\epsilon_r = 80$;
- propagation over land: $\sigma = 10 \text{ mS/m}$, $\epsilon_r = 4$.

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, ex-CCIR Report 264-1, etc.).

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.

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. **S9.21** 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, which is already incorporated in the Bureau's application software:

4.4.1 The monthly median values of the standard MUF (EJF) are calculated in accordance with the ex-CCIR Recommendation 434 (New Delhi, 1970) and the ex-CCIR Report 340 (New Delhi, 1970), 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). These pre-calculated values are stored in a form of tables and are incorporated in the appropriate application software.

4.4.2 The field-strength values are calculated in accordance with the methodology explained in the NBS Circular No. 462. The same concept of pre-calculated values is applied and the pre-calculated values are stored in a form of tables that are incorporated in the appropriate application software.

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
1000	43	40	38	36	33	32	30	28	26		39	39	38	38	37	37		43	40	38	36	33	29	18	7	-4	1000
1100	42	38	36	33	31	29	27	25	22		38	37	37	36	36	35		42	38	36	33	30	25	14	2	-10	1100
1200	40	37	34	31	29	27	24	21	19		38	36	36	35	35	34		40	37	34	31	27	22	9	-3	-15	1200
1300	39	35	32	29	26	24	21	17	15		36	35	35	34	33	33		39	35	32	29	24	19	6	-8	-21	1300
1400	38	33	29	26	23	21	17	14	12		36	34	34	33	32	32		38	33	29	27	22	16	-2	-13		1400
1500	36	32	27	24	21	18	14	11	8		35	33	33	32	31	30		36	32	27	24	19	13	-2	-18		1500
1600	35	29	25	22	18	15	11	7	5		34	32	32	31	30	29		35	29	25	22	16	10	-7	-23		1600
1700	34	28	23	19	15	12	8	4	1		33	32	31	30	29	28		34	28	23	20	13	7	-10			1700
1800	32	26	20	17	13	10	5	1	-3		32	31	31	29	28	27		32	26	20	18	10	4	-14			1800
1900	31	24	19	15	10	7	2	-3	-6		31	30	30	28	27	26		31	24	19	15	8	1	-18			1900
2000	29	23	17	12	8	4	-1	-5	-9		31	29	29	27	26	25		29	23	17	13	6	-3	-21			2000
2200	27	19	13	7	3	-1	-7	-12	-16		29	28	27	25	24	23		27	19	13	7	0	-8				2200
2400	25	16	9	4	-2	-6	-13	-18	-23		28	27	26	24	23	21		25	16	9	4	-5	-14				2400
2600	22	13	5	-1	-7	-11	-18	-24			27	26	25	23	21	20		22	13	5	-1	-10	-20				2600
2800	20	9	2	-5	-11	16	-24				26	24	23	21	20	18		20	9	2	-5	-15					2800
3000	18	7	-3	-10	-17	22					25	23	22	20	18	17		18	7	-3	-10	-21					3000
3200	15	4	-5	-14	-21						25	23	21	19	17	15		15	4	-5	-14						3200
3400	13	0	-10	-18							24	22	20	18	16	14		13	0	-10	-18						3400
3600	10	-3	-13	-23							24	21	20	17	15	13		10	-3	-13	-23						3600
3800	9	-5	-16								23	21	19	16	14	12		9	-5	-16							3800
4000	7	-9	-20								23	20	18	15	13	11		7	-9	-20							4000
5000	-5	-24									23	20	17	14	10	8		-5	-24								5000
6000	-15										23	20	17	14	8	6		-15									6000
7000											22	19	16	13	8	5											7000

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 μ V/m)

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°		
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 μ V/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 μ V/m)

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°	
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 μ V/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 μ V/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 μ V/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 μ V/m)

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°	
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 μ V/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. S9.36 to a frequency assignment in the bands governed by No. S5.92

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. **S9.21** 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. **S5.92** deal with the application of the procedure of No. **S9.21** 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 **S4**).

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 **S5**;

3.2 the *case-by-case examination* is performed with respect to the assignments for which the procedure of No. **S9.21** 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. **S5.102**, 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. **S5.122**, 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 μ V/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. S9.36 to a frequency assignment in the services whose allocation is governed by Nos. S5.292, S5.293, S5.297, S5.309, S5.323, S5.325 and S5.326

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. S9.21 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. S5.292, S5.293, S5.297, S5.309, S5.323, S5.325 and S5.326, the following criteria are applied:

2.1 the *coordination distance concept* is applied with respect to the services that are allocated according to Article S5 (these services are indicated in the Table below under the heading “protected service”);

	Frequency band (MHz)	Allocated service (No. S9.21)	Protected service
S5.292 ¹	470-512	FX, MO	BT
S5.293 ¹	470-512 and 614-806	FX, MO	BT
S5.297	512-608	FX, MO	BT
S5.309 ¹	614-806	FX	BT
S5.323	862-960	AL	FX, MO
S5.325 ¹	890-942	LR	FX, MO
S5.326 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. S9.21 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. **S5.292**, **S5.293**, **S5.297** and **S5.309**, the criteria established by the GE89 Conference 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.

TABLE 1

**Coordination distances for protection of the BT service
(from the FX/MO service, effective antenna height 37.5 m)**

Power (of the interferer) (dBW)	Frequency band 470-582 MHz		Frequency band 582-890 MHz	
	Land path (km)	Sea path (km)	Land path (km)	Sea path (km)
30	136.8	938.1	85.0	756.8
25	102.1	826.2	63.0	652.1
20	75.2	714.6	46.9	550.0
15	56.1	610.4	36.1	458.3
10	41.1	510.0	29.1	371.0
5	33.2	422.2	23.8	300.0
0	27.0	340.5	18.8	228.6

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. **S5.323** and **S5.325**, 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(μ V/m), $PR = 8$ dB.

3.3 For the protection of the fixed and mobile services, in the context of the provisions of No. **S5.326**, the criteria established by the GE89 Conference 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.

TABLE 2

**Coordination distances for protection of the FX/MO services
(from the FX/MO service, effective antenna height 37.5 m)
in the frequency band around 900 MHz**

Power (of the interferer) (dBW)	Land path (km)	Sea path (km)
30	50.9	254.1
25	38.1	182.1
20	29.4	130.8
15	24.2	90.0
10	19.2	63.7
5	15.2	41.3
0	12.4	26.1

PART C

Rules concerning internal working methods of the Radio Regulations Board

Introduction

These working methods are intended to complement basic provisions which have been included in Article 14 of the Constitution and Article 10 of the Convention and in accordance with the provisions of No. 147 of the Convention (Geneva, 1992).

1 Board meetings

1.1 A meeting of the Board will be held approximately every three months and the specific date for the next meeting will be decided at the end of each Board meeting. Any subsequent change of date will only be made with the agreement of all the members.

1.2 The duration of the meeting will be decided by the Chairman and the Executive Secretary, taking into consideration the agenda of the meeting.

1.3 A convening notice which includes the specific agenda and the duration of the meeting should be prepared by the Executive Secretary of the Board after approval by the Chairman at least three weeks before the meeting and sent to members of the Board.

1.4 The agenda should include the following, as required:

- a) approval of the minutes of the previous Board meeting;
- b) approval of the new or revised Rules of Procedure (CS95);
- c) consideration of Review of Findings which cannot be resolved by the use of the Rules of Procedure (CV171);
- d) consideration of Reports on Harmful Interference (CV140, CV173);
- e) consideration of any other matters which cannot be resolved by the Bureau (CS96);
- f) matters concerning simplification of the Radio Regulations (Report on VGE meeting and exchange of views) (transitional arrangement) (Resolution 1, APP, Geneva, 1992);
- g) matters which should be referred to the Radiocommunication Conference (CS95, Resolution 1, APP, Geneva, 1992);
- h) any item requested by any member of the Board;
- i) any item requested by the Director of the Radiocommunication Bureau;
- j) miscellaneous (CS97, etc.).

1.5 All documentation should be prepared by the Executive Secretary and distributed to the members normally two weeks before the meeting.

1.6 Meeting attendance will be as follows:

- Members
- Executive Secretary/Director of the Radiocommunication Bureau
- Secretary
- 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.

1.7 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).

1.8 The minutes should clearly indicate whether the decision was unanimous or by majority. Minutes should be approved at the following meeting of the Board and maintained by the Executive Secretary.

1.9 A summary of decisions should be prepared by the Executive Secretary in a tabular form (subject, decision, follow-up) and approved by the Chairman of the Board.

2 Rules of Procedure

2.1 Establishment or revision of Rules of Procedure

2.2 Draft new Rules or draft revision of the existing Rules should be prepared by the Director of the Radiocommunication Bureau and the draft should be submitted to the Board for approval.

2.3 In submitting the draft Rules, the Director should also submit relevant material which explains the practical necessity of the new or revised Rules, as well as its possible impact on administrations, and other background information.

2.2 Possible review of Rules after publication

2.2.1 The Rules are effective when approved by the Board. However, if comments are received from any administration after publication, the Board will review the Rules taking into account those comments collected by the Director from administrations and submitted to the Board and revise the Rules, if appropriate (CV169).

2.2.2 If there is continuing disagreement, the matter shall be submitted to a forthcoming World Radiocommunication Conference (CS95).

3 Review of Findings

3.1 Any review of a Finding which is requested by an administration and which cannot be resolved by the use of the Rules of Procedure shall be submitted to the Board with the information indicated below (CV171):

- a) Brief explanation on the case including 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.

4 Recommendations on interference

4.1 When an administration has requested an investigation for the resolution of a case of harmful interference in accordance with CV173, and the case has not been resolved within three months after efforts by the Director following the established procedures in the Radiocommunication Bureau, a report shall be submitted to the Board, which includes the following:

- a) Brief explanation of the case which will include the degree of reported interference, history of the reported interference and the status of notification of the concerned assignments.
- b) The statements by the administrations concerned which clarify the views of those administrations.
- c) Draft recommendation to those administrations.

4.2 The Board will decide on the appropriate action.

5 Any other matters that cannot be resolved by the Bureau through the application of the Rules of Procedure

The Director may raise any such matter. Such cases will be handled by the Board on a case-by-case basis (CS96).



★ 1 4 1 9 6 ★

Printed in Switzerland
Geneva, 1999
ISBN 92-61-07691-2