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108TH CONGRESS
2d Session

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108–28

1995 REVISION OF RADIO REGULATIONS

MESSAGE

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

1995 REVISION OF THE RADIO REGULATIONS, WITH APPENDICES, SIGNED BY THE UNITED STATES AT GENEVA ON NOVEMBER 17, 1995 (THE "1995 REVISION"), TOGETHER WITH DECLARATIONS AND RESERVATIONS OF THE UNITED STATES AS CONTAINED IN THE FINAL ACTS OF THE WORLD RADIOCOMMUNICATION CONFERENCE (WRC–95)

DECEMBER 7, 2004.—Treaty was read the first time, and together with the accompanying papers, referred to the Committee on Foreign Relations and ordered to be printed for the use of the Senate

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LETTER OF TRANSMITTAL

THE WHITE HOUSE, *December 7, 2004.*

To the Senate of the United States:

With a view to receiving the advice and consent of the Senate to ratification, I transmit herewith the 1995 Revision of the Radio Regulations, with appendices, signed by the United States at Geneva on November 17, 1995 (the "1995 Revision"), together with declarations and reservations of the United States as contained in the Final Acts of the World Radiocommunication Conference (WRC–95). I transmit also, for the information of the Senate, the report of the Department of State concerning these revisions.

The 1995 Revision, which was adopted at WRC–95, constitutes a revision of the International Telecommunication Union (ITU) Radio Regulations, to which the United States is a party. It provides for the simplification of the Radio Regulations, the introduction of new global mobile-satellite services, and new regulatory provisions both for non-geostationary satellites operating in the same frequency bands as geostationary satellites and for other new space services that share spectrum with the space research and terrestrial services.

Subject to the U.S. declarations and reservations mentioned above, I believe the United States should become a party to the 1995 Revision, which will facilitate the development of mobile-satellite and non-geostationary satellite orbit communication services by U.S. Government and industry. It is my hope that the Senate will take early action on this matter and give its advice and consent to ratification.

GEORGE W. BUSH.

LETTER OF SUBMITTAL

DEPARTMENT OF STATE.

The PRESIDENT,
The White House.

THE PRESIDENT: I have the honor to submit to you, with the view to its transmission to the Senate for advice and consent to ratification, the Revision of the Radio Regulations, with appendices, signed by the United States on November 17, 1995 (the "1995 Revision"). I also have the honor to submit to you certain U.S. declarations and reservations that also require Senate advice and consent.

The 1995 Revision was adopted at the World Radiocommunication Conference (WRC–95), held under the auspices of the International Telecommunication Union (ITU) at Gene-

va from October 23 to November 17, 1995. The text of the 1995 Revision, with the U.S. declarations and reservations, is contained in a bound volume, which also includes texts of the following documents that do not require ratification by the United States: (1) declarations and reservations of other governments, (2) resolutions, and (3) recommendations. The certified English-language text of the 1995 Revision is submitted herewith. Certified copies of the Arabic, Chinese, French, Russian, and Spanish versions of the text are also available.

The ITU is the United Nations specialized telecommunication agency with over 180 member countries. It is the principal forum for agreements on telecommunication standardization activities, management and use of the radio spectrum, and efforts to develop and expand worldwide telecommunications. Radio conferences often had limited agendas, and the consequent Radio Regulations had grown in patchwork fashion. The Voluntary Group of Experts (VGE) was established by the 1989 Plenipotentiary Conference with the task of simplifying the Radio Regulations without making substantive alterations. The VGE produced a comprehensive report that contained an extensive number of recommendations for revision of the Radio Regulations. At the same time, advances in technology producing new operating requirements, as well as the need to simplify and provide consistency in the wording of the specialized provisions of the Radio Regulations, also had to be accommodated. The United States was an active participant in the work of the VGE and supported its recommendations for simplification of the Radio Regulations and improvement of the frequency allocation process while retaining existing rights and obligations of members. WRC–95 was convened as a wide-ranging conference to address international spectrum allocations and to simplify the Radio Regulations in accordance with the Report of the Voluntary Group of Experts. WRC–95 resulted in simplified, more cohesive Radio Regulations with specialized procedures amalgamated into generalized procedures where possible.

The major spectrum allocation elements of the 1995 Revision are summarized below:

MOBILE-SATELLITE SERVICES (MSS) FEEDER LINKS

The 1992 World Administrative Radio Conference (WARC–92) allocated spectrum in the vicinity of 1.6 and 2.4 GHz for MSS. Subsequent to WRC–92, the U.S. Federal Communications Commission (FCC) licensed three non-geostationary satellite orbit (NGSO) MSS systems to operate in these bands and had additional applications pending. A primary U.S. objective at WRC–95 was to obtain sufficient feeder link spectrum for U.S. licensed and about-to-be licensed NGSO–MSS systems and those of other administrations. WRC–95 made ample feeder link spectrum available for U.S. systems to proceed with launches and for implementation of service in the United States and to offer service to the rest of the world.

NON-GEOSTATIONARY SATELLITE ORBIT–MOBILE SATELLITE SERVICES

WARC–92 allocated 3.45 MHz of spectrum for Non-Geostationary Satellite Orbit–Mobile Satellite Services (NGSO–MSS) operating below 1 GHz. This was not sufficient to accommodate U.S. MSS

systems or those of other administrations as they develop. The U.S. proposals to WRC–95 were to increase the allocations by 6.15 MHz. The U.S. proposals encountered severe opposition from European and Asian administrations which were concerned about sharing with existing terrestrial services. In the end, the United States was marginally successful. A worldwide allocation was obtained in the band 399.9–400.05 MHz, a Western Hemisphere allocation was obtained in the bands 455–456 and 459–460 MHz, and the power flux density limit in the 148–149.9 MHz band worldwide allocation was removed. The result for the United States was a smaller increase in spectrum for NGSO–MSS below 1 GHz than it proposed along with the adoption of a resolution calling for additional studies on sharing of spectrum by NGSO–MSS with other radiocommunication services. The resolution and the resulting studies were included on the agenda for WRC–97 so that that conference could consider the allocation of additional spectrum for NGSO–MSS below 1 GHz.

WARC–92 adopted a worldwide primary spectrum allocation in the vicinity of 2 GHz for use by the MSS. Subsequently, the FCC designated a portion of that spectrum for use by personal communication services. At WRC–95, the United States sought to compensate for the loss of the MSS spectrum by proposing a new worldwide primary allocation in the band 2010–2025 MHz and to add 2165–2170 MHz on a primary basis to Regions 1 (Europe and Africa) and 3 (Asia and Pacific). Also at issue was the date of entry into force of the MSS allocations. WRC–95 agreed to a regional allocation for the Americas in the band 2010–2025 MHz and the date of entry into force was changed to 2000 from 2005.

REGULATORY ALLOCATIONS

At WARC–92 when frequency allocations were first introduced for NGSO space services, interim procedures for the coordination and notification of NGSO frequency assignments were adopted. At WRC–95, the United States proposed to extend the procedure to feeder links associated with NGSO–MSS networks and to reduce unnecessary coordination. Further, because U.S. companies were beginning to implement NGSO–MSS networks, the United States proposed that any modifications to procedures be made effective immediately upon the conclusion of the conference, as was done at WARC–92. The U.S. proposals were fully adopted.

After the agenda for WRC–95 was established, the FCC received an application for a major new satellite service to deliver broadband data directly to the individual user. This new NGSO Fixed-Satellite Service (FSS), which operates in the 20 and 30 GHz frequency bands, faced the same regulatory obstacles of NGSO–MSS systems. New regulatory measures were required for GSO and NGSO FSS satellite systems to equitably share the same frequency bands. The United States proposed that 18.9–19.3 and 28.7–29.1 GHz, sub-bands in bands already allocated to the FSS, be specifically designated for NGSO–FSS. The United States also proposed ITU regulatory changes to allow these frequency band allocation changes to be implemented. The United States overcame considerable opposition to obtain a favorable decision that this issue was within the terms of reference of the conference. Once suc-

cessful, it was able to obtain 300 of the 400 MHz of requested spectrum in each of the bands and changes to the regulations necessary for the new services to proceed. The issue of the remaining 100 MHz in both bands was placed on the agenda for WRC–97. The U.S. success on this issue was a major accomplishment.

SPACE SCIENCES

With new space services being added to frequency bands already being used by space research and terrestrial services, it was necessary to establish power limits for satellites and earth stations to ensure that these new services provide adequate protection to existing services operating in the bands. Of particular importance to the United States was protection it obtained for fixed and mobile services in the 2025–2110 MHz band. Additional protection was also obtained for space-based sensors and spaceborne precipitation radars used by the U.S. National Aeronautics and Space Administration.

BROADCASTING SERVICES

The U.S. objectives for WRC–95 regarding the use of the high frequency (HF) broadcasting bands were to maintain the existing availability dates for the additional frequency bands allocated for HF broadcasting, to assure that there would be no detailed planning of the frequency bands allocated to the HF broadcasting service, and that future planning of the use of the HF broadcasting bands would be based on the work of the ITU-Radiocommunication task group. The United States obtained all of these objectives, which were of vital concern to the Voice of America (VOA). Through the years the VOA has worked hard to establish a laissez-faire international regulatory environment that gives VOA access to all of the frequencies that it needs to meet its broadcasting requirements. By obtaining the U.S. objectives, this environment was maintained.

ITU practice provides for declarations and reservations to be submitted by governments prior to signature of the instruments to be adopted at a particular conference. In 1995, the United States submitted four declarations and reservations that are included in the 1995 Final Acts. These declarations and reservations require Senate advice and consent to ratification.

The first (Number 67) reiterates the longstanding U.S. positions that it can only be considered bound by instruments adopted at an ITU Conference once it officially notifies the ITU of its consent to be bound and it reserves the right to make additional specific reservations at the time of deposit of the U.S. instrument of acceptance of the revisions to the Radio Regulations. It also declares that the conference unduly restricted allocations for MSS in certain frequency bands and that it will utilize these bands in the way most appropriate to its MSS requirements.

The full text reads as follows:

> 1. The United States of America shall not be deemed to have consented to be bound by revisions of the Radio Regulations adopted at this Conference without specific notifi-

cation to the International Telecommunication Union by the United States of America of its consent to be bound.

2. The United States of America refers to No. 445 and No. 446 of the International Telecommunication Union Convention (Geneva, 1992) and notes that in considering the Final Acts of this World Radiocommunication Conference (Geneva, 1995), the United States of America may find it necessary to make additional declarations or reservations. Accordingly, the United States of America reserves the right to make additional specific declarations or reservations at the time of deposit of its notification to the International Telecommunication Union of its consent to be bound by the revisions to the Radio Regulations adopted by this World Radiocommunication Conference.

3. The United States of America declares that, in view of the fact that the Conference has unduly restricted allocations for mobile-satellite services in the bands 1525—1559 MHz and 1626.5–1660.5 MHz, it will utilize these bands in the way most appropriate to satisfy its particular mobilesatellite service requirements recognizing the priority of AMSS (R) and maritime safety communications.

The second (Number 68), in which the United States was joined by the United Kingdom of Great Britain and Northern Ireland, concerned additional and unnecessary burdens of coordination between geostationary and non-geostationary mobile-satellite networks in certain frequency bands. Both governments refuse to accept any additional commitments for coordination. The full text reads as follows:

> Referring to the frequency range below 3 GHz concerning mobile-satellite services, it is necessary to note that proposals were put forward at this Conference to revise No. 726D (S5.354) to the Table of Frequency Allocations in Article 8 in order to avoid additional and unnecessary burdens of coordination between geostationary and nongeostationary mobile-satellite networks in the bands 1525–1559 MHz and 1626.5–1660.5 MHz. There was insufficient time to consider these proposals at this Conference. Accordingly, the above administrations will not accept any additional commitments for coordination arising from No. 726D (S5.354). This reservation is made on behalf of all national and international organizations for whose frequency assignments the two countries are the notifying administrations.

The third (Number 78), in which the United States joined 14 other countries, was in response to a statement by Colombia concerning the use of the geostationary satellite orbit:

> The delegations of the above mentioned countries referring to the Declaration made by the Republic of Colombia (No. 16), inasmuch as this statement refers to the Bogota Declaration of 3 December 1976 by equatorial countries and to the claims of those countries to exercise sovereign rights over segments of the geostationary-satellite orbit,

> and any similar statements, consider the claims in question cannot be recognized by this Conference. Further, the above-mentioned delegations wish to affirm or reaffirm the Declarations made on behalf of a number of the above-mentioned Administrations in this regard when signing the Final Acts of the World Administrative Radio Conference (Geneva, 1979), and the World Administrative Radio Conference on the Use of the Geostationary-Satellite orbit and the Planning of Space Services Utilizing It (first and second sessions, Geneva, 1985 and 1988), the Plenipotentiary Conference of the International Telecommunication Union (Nice, 1989), in the Final Protocol of the International Telecommunication Convention (Nairobi, 1982) and the Final Acts of the Additional Plenipotentiary Conference (Geneva, 1992), as if these Declarations were here repeated in full.
>
> The above-mentioned delegations also wish to state that reference in Article 44 of the Constitution to the "geographical situation of particular countries" does not imply a recognition of claim to any preferential rights to the geostationary-satellite orbit.

The fourth (Number 82), was in response to several declarations by various delegations, including one by Cuba which incorporates by reference previous reservations and declarations concerning the United States. The response read as follows:

> With respect to Declarations 39, 50, 54, 59 and 64, the interpretation of the United States of America on the basis of which the majority of delegations to this Conference supported the United States of America and Indonesian proposals which resulted in Resolution 118 (WRC–95) is as follows:
>
> Any satellite system, GSO or non-GSO, communicated or notified to the Bureau before 18 November 1995 has a status derived from the date of notification or communication of information required for coordination or notification, as the case may be.
>
> As of 18 November 1995, Resolution 46 applies to all these systems and they shall be coordinated one system with respect to another system in the order of receipt of the information described above.
>
> With respect to the applicability of No. 2613 as agreed in Committee 4, No. 2613 is of an operational character and No. 2613 and Resolution 46 are mutually exclusive.
>
> The United States of America reiterates and incorporates by reference all declarations or reservations made at prior world radiocommunication conferences and in particular with regard to Declaration 60 of this Conference.

The Department of State and the other agencies involved recommend that these declarations and reservations be confirmed in the U.S. instrument of ratification to the 1995 Revision. The Department of State and the other interested agencies are of the view that no additional reservations are required. The 1995 Revision will not require implementing legislation on the part of the United

States. The Federal Communications Commission; the National Telecommunications and Information Administration, Department of Commerce; the Department of Defense; the Broadcasting Board of Governors; the National Aeronautics and Space Administration; the Coast Guard; and the Federal Aviation Administration, Department of Transportation concur in my recommendation that the 1995 Revision, with the U.S. declarations and reservations thereto, be transmitted to the Senate for its consideration and advice and consent to ratification.

Respectfully submitted.

COLIN L. POWELL.

INTERNATIONAL TELECOMMUNICATION UNION

FINAL ACTS

of the World Radiocommunication Conference (WRC-95)

Geneva, 1995

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Note by the Secretary-General

1 Final Acts

1) The Final Acts are based on the version of the Radio Regulations (RR) currently in force (edition of 1990, revised in 1994).

2) To facilitate referencing of the changes introduced by the Voluntary Group of Experts (VGE) and by the World Radiocommunication Conference (WRC-95) with respect to the Radio Regulations, a comparative table is provided at the beginning of each Article.

3) For each Article[1], this table shows the correspondence between the provisions of the Radio Regulations (column 1) and the provisions in Part C of the VGE Report (column 3) as well as any modifications proposed to the Radio Regulations provisions by the VGE (column 2) and the WRC-95 decisions (column 4) *with respect to the original text of the Radio Regulations*.

4) Where a RR provision has been modified neither by the VGE nor by the WRC-95, the text of that provision is not reproduced in the Final Acts.

5) Where the VGE has proposed the modification or deletion of an RR provision and the Conference has decided to revert to the original provision, this will be reflected in the fourth column of the table (WRC-95 decision).

6) Where the VGE has proposed deleting a RR provision and that deletion has been confirmed by the WRC-95, the provision is not reproduced in the Final Acts.

---

[1] Does not apply to provisions relating to procedures, which are reproduced *in extenso*.

7) The following symbols have been used to indicate the nature of each revision:

MOD Substantial change

(MOD) This symbol has two meanings:

- if used in column 2 (VGE proposal): editorial change proposed by the VGE
- if used in column 4 (WRC-95 decision): editorial change made by the WRC-95

SUP Deletion of a provision

SUP* Transfer elsewhere of an RR provision (appears at the point from which the provision has been transferred)

(ADD) Transfer of a provision from elsewhere (appears at the point to which the provision has been transferred)

ADD Addition of a new provision

NOC No change

2 Handling of "SUP*"

The attached Tables 1 and 2 show WRC-95's decisions concerning the handling of texts appearing with a "SUP*" symbol in the tables associated with the new articles. Table 3 lists the suppressed articles and appendices.

TABLE 1

Texts transferred to ITU-R Recommendations and service documents

Texts of current RR	VGE proposal	New status (WRC-95 decision)
Article 20	Annex 20	ITU-R SM.1139
Article 58	Annex 58	ITU-R M.1169
Article 62 (SSFC)	Annex 62A	ITU-R M.257-3
Article 62 (DSC)	Annex 62B	ITU-R M.541-6
Article 63	Annex 63	ITU-R M.1170
Article 64	Annex 64	ITU-R M.492-6
Article 65 (Telephony)	Annex 65A	ITU-R M.1171
Article 65 (DSC)	Annex 65B	ITU-R M.541-6
Appendix 6	Annex AP 6	ITU-R SM.1138
Appendix 12	Annex AP 12	ITU-R M.1169
Appendix 14	Annex AP 14	ITU-R M.1172
Appendix 15	Annex AP 15	ITU-R SM.1135
Appendix 17	Annex AP 17	ITU-R M.1173
Appendix 19	Annex AP 19	ITU-R M.489-2
Appendix 20	Annex AP 20	ITU-R M.1174
Appendix 21	Annex AP 21	ITU-R SM.1139
Appendix 36	Annex AP 36	ITU-R M.1175
Appendix 37A	Annex AP 37A	ITU-R M.690-1
Appendix 38	Annex AP 38	ITU-R M.476-5 ITU-R M.625-3 ITU-R M.627-1
Appendix 39	Annex AP 39	ITU-R M.257-3
Appendix 43	Service documents	Preface to List VIIA
Appendix 44	Service documents	Preface to List VIIA

TABLE 2

Texts remaining in the RR

Texts of current RR	VGE proposal	New status (WRC-95 decision)
Appendix 7	Annex AP 7	Appendix S2
Appendix 8	Annex AP 8	Appendix S3
Appendix 37	Annex AP 37	Appendix S19
Appendix 42	BR publication	Appendix S42
Appendix 25		Appendix S25
Appendix 26		Appendix S26
Appendix 27		Appendix S27
Appendix 28		Appendix S7
Appendix 29		Appendix S8
Appendix 30		Appendix S30
Appendix 30A		Appendix S30A
Appendix 30B		Appendix S30B

TABLE 3

Suppressed texts

Texts of current RR	VGE proposal	New status (WRC-95 decision)
Article 67	SUP	SUP
Article 68	SUP	SUP
Article 69	SUP	SUP
Appendix 13	SUP	SUP
Appendix 41	SUP	SUP

3 Handling of Resolutions

In accordance with Resolution **94 (WARC-92)**, this Conference reviewed, under its agenda item 5, those resolutions and recommendations of previous conferences to be revised, replaced or abrogated.

NOC	RESOLUTION 8
SUP	RESOLUTION 35
SUP	RESOLUTION 103
SUP	RESOLUTION 112
NOC	RESOLUTION 113
SUP	RESOLUTION 201
SUP	RESOLUTION 325 (Mob-87)
SUP	RESOLUTION 326 (Mob-87)
SUP	RESOLUTION 327 (Mob-87)
SUP	RESOLUTION 328 (Mob-87)
SUP	RESOLUTION 329 (Mob-87)
SUP	RESOLUTION 332 (Mob-87)
SUP	RESOLUTION 334 (Mob-87)

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TABLE OF CONTENTS

FINAL ACTS

of the World Radiocommunication Conference (WRC-95)

Geneva, 1995

		Page
PREAMBLE		1
Signatures		3
ANNEX	Revision of the Radio Regulations and the Appendices thereto	21
	Preamble	21
Article S1	Terms and Definitions	23
Article S2	Nomenclature	29
Article S3	Technical Characteristics of Stations	31
Article S4	Assignment and Use of Frequencies	35
Article S5	Frequency Allocations	38
Article S6	Special Agreements	219
Article S7	Application of the Procedures	221
Article S8	Status of Frequency Assignments Recorded in the Master International Frequency Register	222
Article S9	Procedure for Effecting Coordination With or Obtaining Agreement of Other Administrations	224
Article S10	*(Number not used)*	239

		Page
Article S11	Notification and Recording of Frequency Assignments.	239
Article S12	*(Number not used)*	250
Article S12A	Planning and Procedures for the Bands Allocated Exclusively to the Broadcasting Service Between 5 950 kHz and 26 100 kHz	250
Article S13	Instructions to the Bureau	255
Article S14	Procedure for the Review of a Finding or Other Decision of the Bureau	259
Article S15	Interference	261
Article S16	International Monitoring	266
Article S17	Secrecy	269
Article S18	Licences	270
Article S19	Identification of Stations	272
Article S20	Service Documents	286
Article S21	Terrestrial and Space Services Sharing Frequency Bands Above 1 GHz	289
Article S22	Space Services	304
Article S23	Broadcasting Services	309
Article S24	Fixed Service	311
Article S25	Amateur Services	312
Article S26	Standard Frequency and Time Signal Service	313
Article S27	Experimental Stations	314
Article S28	Radiodetermination Services	315
Article S29	Radio Astronomy Service	317
Article S30	General Provisions	319

Page

Article S31	Frequencies for the Global Maritime Distress and Safety System (GMDSS)	322
Article S32	Operational Procedures for Distress and Safety Communications in the Global Maritime Distress and Safety System (GMDSS)	324
Article S33	Operational Procedures for Urgency and Safety Communications in the Global Maritime Distress and Safety System (GMDSS)	330
Article S34	Alerting Signals in the Global Maritime Distress and Safety System (GMDSS)	335
Article S35	Introduction	337
Article S36	Authority of the Person Responsible for the Station	338
Article S37	Operator's Certificates	338
Article S38	Personnel	341
Article S39	Inspection of Stations	342
Article S40	Working Hours of Stations	343
Article S41	Communications with Stations in the Maritime Services	343
Article S42	Conditions to be Observed by Stations	344
Article S43	Special Rules Relating to the Use of Frequencies	345
Article S44	Order of Priority of Communications	346
Article S45	General Communication Procedure	347
Article S46	Authority of the Master	349
Article S47	Operator's Certificates	350
Article S48	Personnel	359
Article S49	Inspection of Stations	360

		Page
Article S50	Working Hours of Stations	361
Article S51	Conditions to Be Observed in the Maritime Services	362
Article S52	Special Rules Relating to the Use of Frequencies	368
Article S53	Order of Priority of Communications	393
Article S54	Selective Calling	394
Article S55	Morse Radiotelegraphy	395
Article S56	Narrow-Band Direct-Printing Telegraphy	395
Article S57	Radiotelephony	397
Article S58	Charging and Accounting for Maritime Radiocommunications	398
Article S59	Provisional Application of the Radio Regulations	399
Appendix S1	Classification of Emissions and Necessary Bandwidths	401
Appendix S2	Table of Transmitter Frequency Tolerances	409
Appendix S3	Table of Maximum Permitted Spurious Emission Power Levels	420
Appendix S4	Consolidated List and Tables of Characteristics for Use in the Application of the Procedures of Chapter SIII	425
Appendix S5	Identification of Administrations with Which Coordination Is to Be Effected or Agreement Sought Under the Provisions of Article S9	474
Appendix S9	Report of an Irregularity or Infringement	517

		Page
Appendix S10	Report of Harmful Interference	518
Appendix S11	Double-Sideband (DSB) or Single-Sideband (SSB) System Specifications in the HF Broadcasting Service	519
Appendix S12	Special Rules Applicable to Radiobeacons	520
Appendix S13	Distress and Safety Communications (Non-GMDSS)	523
Appendix S14	Phonetic Alphabet and Figure Code	537
Appendix S15	Frequencies for Distress and Safety Communications for the GMDSS	538
Appendix S16	Documents with Which Stations on Board Ships and Aircraft Shall Be Provided	546
Appendix S17	Frequencies and Channelling Arrangements in the High-Frequency Bands for the Maritime Mobile Service	547
Appendix S18	Table of Transmitting Frequencies in the VHF Maritime Mobile Band	548
Appendix S25	Provisions and Associated Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4 000 kHz and 27 500 kHz	549
Appendix S42	Table of Allocation of International Call Sign Series	556

Page

FINAL PROTOCOL 565

(Figures between parentheses indicate the order in which the statements appear in the Final Protocol)

Algeria (People's Democratic Republic of) (35, 47, 53)

Angola (Republic of) (34)

Argentine Republic (61)

Armenia (Republic of) (66)

Australia (78)

Austria (20)

Bahrain (State of) (28)

Bangladesh (People's Republic of) (4)

Belarus (Republic of) (66)

Belgium (20)

Brazil (Federative Republic of) (44)

Brunei Darussalam (30)

Bulgaria (Republic of) (78)

Burkina Faso (14)

Burundi (Republic of) (21)

Cameroon (Republic of) (8)

Canada (43, 49)

Central African Republic (15)

Chad (Republic of) (38)

China (People's Republic of) (65)

Colombia (Republic of) (16)

Cuba (60)

Cyprus (Republic of) (58, 64)

Democratic People's Republic of Korea (11)

Denmark (20)

Ecuador (41)

Egypt (Arab Republic of) (53)

Ethiopia (Federal Democratic Republic of) (74)

Finland (20)

France (20, 50, 78)

Gabonese Republic (25)

Germany (Federal Republic of) (20, 64, 78)

Ghana (9)

Greece (20, 24, 85)

Guinea (Republic of) (5)

Hungary (Republic of) (57, 64)

India (Republic of) (62, 78)

Indonesia (Republic of) (19)

Iran (Islamic Republic of) (45, 47)

Ireland (20)

Israel (State of) (75)

Italy (20, 54, 78)

Japan (78)

Jordan (Hashemite Kingdom of) (53)

Kazakstan (Republic of) (66)

Kenya (Republic of) (10)

Korea (Republic of) (76)

Kuwait (State of) (28, 53)

Kyrgyz Republic (66)

Latvia (Republic of) (37)

Lebanon (47, 53, 71)

Lesotho (Kingdom of) (22)

Libya (Socialist People's Libyan Arab Jamahiriya) (47, 73)

Liechtenstein (Principality of) (78)

Luxembourg (20, 59, 64, 78)

Malaysia (29)

Maldives (Republic of) (1)

Mali (Republic of) (69)

Malta (12)

Mauritius (Republic of) (3)

Mexico (42)

Micronesia (Federated States of) (83)

Moldova (Republic of) (66)

Mongolia (27)

Morocco (Kingdom of) (53)

Netherlands (Kingdom of the) (20, 64, 78)

New Zealand (52, 78)

Nigeria (Federal Republic of) (84)

Norway (64, 78)

Oman (Sultanate of) (28, 53)

Pakistan (Islamic Republic of) (72)

Papua New Guinea (56)

Paraguay (Republic of) (2)

Peru (48)

Philippines (Republic of the) (63)

Poland (Republic of) (81)

Portugal (20, 64)

Qatar (State of) (28)

Russian Federation (66)

Saudi Arabia (Kingdom of) (28, 47, 53)

Senegal (Republic of) (18, 26)

Singapore (Republic of) (6)

Slovak Republic (80)

Slovenia (Republic of) (77)

South Africa (Republic of) (40)

Spain (20, 39, 51)

Suriname (Republic of) (70)

Sweden (20, 64)

Swaziland (Kingdom of) (33)

Switzerland (Confederation of) (78)

Syrian Arab Republic (46, 47, 53)

Tanzania (United Republic of) (17)

Thailand (23)

The Former Yugoslav Republic of Macedonia (31)

Togolese Republic (13)

Tunisia (53)

Turkey (7)

Ukraine (66)

United Arab Emirates (28)

United Kingdom of Great Britain and Northern Ireland (20, 68, 78)

United States of America (67, 68, 78, 82)

Uzbekistan (Republic of) (66)

Viet Nam (Socialist Republic of) (55)

Zambia (Republic of) (36)

Zimbabwe (Republic of) (32)

RESOLUTIONS

Page

RESOLUTION 13 (Rev.WRC-95): Formation of Call Signs and Allocation of New International Series 601

RESOLUTION 21 (Rev.WRC-95): Implementation of Changes in Frequency Allocations Between 5 900 kHz and 19 020 kHz..... 603

RESOLUTION 23 (WRC-95): Provisions Applicable to the Frequency Assignments in the Non-Planned Bands Below 28 000 kHz 606

RESOLUTION 24 (WRC-95): Review of the Provisions of the Constitution Relating to Revisions of the Radio Regulations 607

RESOLUTION 25 (WRC-95): Operation of Global Satellite Systems for Personal Communications 610

RESOLUTION 26 (WRC-95): Footnotes to the Table of Frequency Allocations 613

RESOLUTION 27 (WRC-95): References to ITU-R Recommendations in the Radio Regulations 615

RESOLUTION 28 (WRC-95): Revision of References to ITU-R Recommendations Incorporated by Reference in the Radio Regulations 618

RESOLUTION 46 (Rev.WRC-95): Interim Procedures for the Coordination and Notification of Frequency Assignments of Satellite Networks in Certain Space Services and the Other Services to Which Certain Bands are Allocated 620

RESOLUTION 47 (WRC-95): Implementation of Resolution 46 (Rev.WRC-95) 668

RESOLUTION 48 (WRC-95): Conditions for Recommencing the Procedures for the Advance Publication of Information 669

Page

RESOLUTION 71 (WRC-95): Further Studies Concerning Application of Article S19 (Identification of Stations) 670

RESOLUTION 114 (WRC-95): Use of the Band 5 091 - 5 150 MHz by the Fixed-Satellite Service (Earth-to-Space) (Limited to Feeder Links of the Non-Geostationary Mobile-Satellite Service) 671

RESOLUTION 115 (WRC-95): Calculation of the Power Flux-Density at the Geostationary-Satellite Orbit in the Band 6 700 - 7 075 MHz Used for Feeder Links of Non-Geostationary-Satellite Systems in the Mobile-Satellite Service in the Space-to-Earth Direction 674

RESOLUTION 116 (WRC-95): Allocation of Frequencies to the Fixed-Satellite Service (Space-to-Earth) in the Band 15.4 - 15.7 GHz for Feeder Links of Non-Geostationary Satellite Networks in the Mobile-Satellite Service 676

RESOLUTION 117 (WRC-95): Allocation of Frequencies to the Fixed-Satellite Service (Earth-to-Space) in the Band 15.45 - 15.65 GHz for Use by Feeder Links of Non-Geostationary Satellite Networks Operating in the Mobile-Satellite Service 678

RESOLUTION 118 (WRC-95): Use of the Bands 18.8 - 19.3 GHz and 28.6 - 29.1 GHz by Non-Geostationary Fixed-Satellite Service Systems 680

RESOLUTION 119 (WRC-95): Sharing Between the Fixed-Satellite Service and the Fixed Service in the 19.3 - 19.6 GHz Band When Used by the Fixed-Satellite Service to Provide Feeder Links for Non-Geostationary Satellite Systems in the Mobile-Satellite Service 684

RESOLUTION 120 (WRC-95): Use of the Bands 19.3 - 19.7 GHz and 29.1 - 29.5 GHz by Feeder Links for Non-GSO MSS Networks 686

Page

RESOLUTION 121 (WRC-95): Development of Interference Criteria and Methodologies for Coordination Between Feeder Links of Non-Geostationary Satellite Networks in the Mobile-Satellite Service and Geostationary-Satellite Networks in the Fixed-Satellite Service in the Bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz 688

RESOLUTION 212 (Rev.WRC-95): Implementation of Future Public Land Mobile Telecommunication Systems (FPLMTS) 691

RESOLUTION 213 (Rev.WRC-95): Sharing Studies Concerning Possible Use of the Band 1 675 - 1 710 MHz by the Mobile-Satellite Service 693

RESOLUTION 214 (WRC-95): Sharing Studies Relating to Consideration of the Allocation of Bands Below 1 GHz to the Non-Geostationary Mobile-Satellite Service 695

RESOLUTION 215 (WRC-95): Coordination Process Among Non-Geostationary Mobile-Satellite Systems 698

RESOLUTION 339 (WRC-95): Coordination of NAVTEX Services ... 700

RESOLUTION 529 (WRC-95): HF Broadcasting 704

RESOLUTION 530 (WRC-95): Simplification of Article 17 of the Radio Regulations 709

RESOLUTION 531 (WRC-95): Review of Appendices 30 (S30) and 30A (S30A) of the Radio Regulations. 716

RESOLUTION 643 (WRC-95): Inter-Satellite Links Between 50 and 70 GHz 744

RESOLUTION 712 (Rev.WRC-95): Consideration by a Future Competent World Radiocommunication Conference of Issues Dealing with Allocations to Space Services 746

RESOLUTION 713 (WRC-95): Consideration of Certain Operational Matters Concerning the Radio Regulations in the Aeronautical Mobile and Maritime Mobile Services 749

Page

RESOLUTION 714 (WRC-95): Power Flux-Density Level Applicable in the Frequency Band 137 - 138 MHz Shared by the Mobile-Satellite Service and Terrestrial Services 751

RESOLUTION 715 (WRC-95): Studies Concerning Sharing Between the Radionavigation-Satellite Service and the Mobile-Satellite Service in the Bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz .. 753

RESOLUTION 716 (WRC-95): Use of the Frequency Bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in All Three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 by the Fixed and Mobile-Satellite Services and Associated Transition Arrangements .. 755

RESOLUTION 717 (WRC-95): Review of Allocations to the Mobile-Satellite Service in the 2 GHz Range 760

RESOLUTION 718 (WRC-95): Agenda for the 1997 World Radiocommunication Conference 762

RESOLUTION 719 (WRC-95): Urgent Studies Required in Preparation for the 1997 World Radiocommunication Conference 768

RESOLUTION 720 (WRC-95): Preliminary Agenda for the 1999 World Radiocommunication Conference 772

RECOMMENDATIONS

Page

RECOMMENDATION 34 (WRC-95): Principles for the Allocation of Frequency Bands 775

RECOMMENDATION 35 (WRC-95): Procedures for Modification of a Frequency Allotment or Assignment Plan 777

RECOMMENDATION 100 (Rev.WRC-95): Preferred Frequency Bands for Systems Using Tropospheric Scatter 783

RECOMMENDATION 104 (WRC-95): Development of Power Flux-Density and equivalent Isotropically Radiated Power Limits to be Met by Feeder Links of Non-Geostationary Satellite Networks in the Mobile-Satellite Service for the Protection of Geostationary-Satellite Networks in the Fixed-Satellite Service in Bands Where No. 2613 (S22.2) of the Radio Regulations Applies 785

RECOMMENDATION 105 (WRC-95): Further Work by ITU-R on Determination of the Coordination Area Around Earth Stations Operating With Geostationary-Satellite Networks in the Fixed-Satellite Service and Earth Stations Providing Feeder Links to Non-Geostationary Satellite Networks in the Mobile-Satellite Service Operating in Opposite Directions of Transmission 787

RECOMMENDATION 521 (WRC-95): Technical Parameters for Use in the Revision of Appendices 30 (S30) and 30A (S30A) in Response to Resolution 524 (WARC-92) 789

RECOMMENDATION 717 (Rev.WRC-95): Frequency Sharing in Bands Shared by the Mobile-Satellite Service and the Fixed, Mobile and Other Terrestrial Services Below 3 GHz 791

Page

RECOMMENDATION 720 (WRC-95): The Flexible and Efficient Use of the Radio Spectrum by Fixed and Some Mobile Services in the MF and HF Bands Using Block Allocation for Adaptive Systems 793

RECOMMENDATION 721 (WRC-95): Frequency Sharing in the Bands 1 610.6 - 1 613.8 MHz and 1 660 - 1 660.5 MHz Between the Mobile-Satellite Service and the Radio Astronomy Service 795

FINAL ACTS

of the World Radiocommunication Conference (WRC-95) Geneva, 1995

PREAMBLE

The World Radiocommunication Conference, (Geneva, 1993), resolved to recommend to the Council that a world radiocommunication conference be held in Geneva in late 1995 for a period of four weeks.

The Council, at its 1994 session, by its Resolution 1065, established the agenda and resolved that the Conference be convened in Geneva from 23 October to 17 November 1995. The agenda, dates and place were approved by the required majority of the Members of the Union.

Accordingly, the Conference was included in the Union's calendar of conferences (Resolution **3** of the Plenipotentiary Conference, Kyoto, 1994).

The World Radiocommunication Conference (WRC-95) met in Geneva for the stipulated period; it considered and, in conformity with its agenda, adopted a revision of the Radio Regulations and Appendices thereto, as contained in the present Final Acts.

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

The revision of the Radio Regulations, as referred to in this Preamble, shall apply provisionally as from the dates stipulated in the Article **S59** of the revised Radio Regulations.

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

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

Done at Geneva, 17 November 1995

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ANNEX

Revision of the Radio Regulations and the Appendices thereto

PREAMBLE

RR	VGE proposal	VGE Report	WRC-95 decision
–	ADD	S0.1 – S0.10	ADD
1	MOD	S0.11	MOD

ADD **S0.1** These Regulations are founded on the following principles:

ADD **S0.2** Members shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible (No. **195** of the Constitution of the International Telecommunication Union (Geneva, 1992)).

ADD **S0.3** In using frequency bands for radio services, Members shall bear in mind that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of these Regulations, so that countries or groups of

countries may have equitable access to both, taking into account the special needs of the developing countries and the geographical situation of particular countries (No. **196** of the Constitution).

ADD **S0.4** All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Members or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of these Regulations (No. **197** of the Constitution).

ADD **S0.5** With a view to fulfilling the purposes of the International Telecommunication Union set out in Article **1** of the Constitution, these Regulations have the following objectives:

ADD **S0.6** to facilitate equitable access to and rational use of the natural resources of the radio-frequency spectrum and the geostationary-satellite orbit;

ADD **S0.7** to ensure the availability and protection from harmful interference of the frequencies provided for distress and safety purposes;

ADD **S0.8** to assist in the prevention and resolution of cases of harmful interference between the radio services of different administrations;

ADD **S0.9** to facilitate the efficient and effective operation of all radiocommunication services;

ADD **S0.10** to provide for and, where necessary, regulate new applications of radiocommunication technology.

MOD **S0.11** The application of the provisions of these Regulations by the International Telecommunication Union does not imply the expression of any opinion whatsoever on the part of the Union concerning the sovereignty or the legal status of any country, territory or geographical area.

CHAPTER SI

MOD

Terminology and Technical Characteristics

ARTICLE S1

NOC

Terms and Definitions

RR	VGE proposal	VGE Report	WRC-95 decision
2 – 3	MOD	S1.1 – S1.2	MOD
4 – 7	(MOD)	S1.3 – S1.6	(MOD)
8 – 14	NOC	S1.7 – S1.13	NOC
15	MOD	S1.14	MOD
16 – 22	NOC	S1.15 – S1.21	NOC
23	SUP	–	SUP
24 – 25	NOC	S1.22 – S1.23	NOC
26	(MOD)	S1.24	(MOD)
27 – 35B	NOC	S1.25 – S1.37	NOC
36	(MOD)	S1.38	(MOD)
37 – 55	NOC	S1.39 – S1.58	NOC
56	(MOD)	S1.59	(MOD)
57 – 63	NOC	S1.60 – S1.66	NOC
64	SUP	–	SUP
65 – 109	NOC	S1.67 – S1.115	NOC
110	(MOD)	S1.116	(MOD)
111	(MOD)	S1.117	MOD
112	(MOD)	S1.118	(MOD)
113 – 115	NOC	S1.119 – S1.121	NOC
116 – 117	MOD	S1.122 – S1.123	MOD
118 – 146	NOC	S1.124 – S1.152	NOC
147	(MOD)	S1.153	(MOD)
148 – 149	NOC	S1.154 – S1.155	NOC
150	(MOD)	S1.156	(MOD)
151 – 160	NOC	S1.157 – S1.166	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
161	(MOD)	S1.167	(MOD)
162	NOC	S1.168	NOC
163	(MOD)	S1.169	(MOD)
164 – 183	NOC	S1.170 – S1.191	NOC
FOOTNOTES			
15.1	SUP	–	SUP
–	ADD	S1.117.1	ADD
119.1 – 121.1	NOC	S1.125.1 – S1.127.1	NOC
161.1 – 162.1	NOC	S1.167.1 – S1.168.1	NOC

NOC **Introduction**

MOD **S1.1** For the purposes of these Regulations, the following terms shall have the meanings defined below. These terms and definitions do not, however, necessarily apply for other purposes. Definitions identical to those contained in the Annex to the Constitution or the Annex to the Convention of the International Telecommunication Union (Geneva, 1992) are marked "(CS)" or "(CV)" respectively.

Note: If, in the text of a definition below, a term is printed in italics, this means that the term itself is defined in this Article.

NOC **Section I. General Terms**

MOD **S1.2** *Administration:* Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations **(CS 1002)**.

(MOD) **S1.3** *Telecommunication:* Any transmission, *emission* or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, *radio*, optical or other electromagnetic systems (CS).

(MOD) **S1.4** *Radio:* A general term applied to the use of *radio waves.*

(MOD) **S1.5** *Radio Waves* or *Hertzian Waves:* Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.

(MOD) **S1.6** *Radiocommunication: Telecommunication* by means of *radio waves* (CS)(CV).

NOC **S1.7** to **S1.13**

MOD **S1.14** *Coordinated Universal Time (UTC):* Time scale, based on the second (SI), as defined in ITU-R Recommendation ITU-R **TF.460-4**.

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

NOC **S1.15** to **S1.23**

(MOD) **S1.24** *Mobile Service:* A *radiocommunication* service between *mobile* and *land stations*, or between *mobile stations* (CV).

NOC **S1.25** to **S1.37**

(MOD) **S1.38** *Broadcasting Service:* A *radiocommunication service* in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, *television* transmissions or other types of transmission (CS).

NOC **S1.39** to **S1.58**

(MOD) **S1.59** *Safety Service:* Any *radiocommunication service* used permanently or temporarily for the safeguarding of human life and property.

NOC **S1.60** to **S1.115**

(MOD) **S1.116** *Public Correspondence:* Any *telecommunication* which the offices and *stations* must, by reason of their being at the disposal of the public, accept for transmission (CS).

MOD **S1.117** *Telegraphy*[1]*:* A form of telecommunication in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use **(CS 1016)**.

ADD **S1.117.1** [1] A graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

(MOD) **S1.118** *Telegram:* Written matter intended to be transmitted by *telegraphy* for delivery to the addressee. This term also includes *radiotelegrams* unless otherwise specified (CS).

In this definition the term *telegraphy* has the same general meaning as defined in the Convention.

NOC **S1.119** to **S1.121**

MOD **S1.122** *Facsimile:* A form of *telegraphy* for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

MOD **S1.123** *Telephony:* A form of *telecommunication* primarily intended for the exchange of information in the form of speech **(CS 1017)**.

NOC **S1.124**
to
S1.152

(MOD) **S1.153** *Occupied Bandwidth:* The width of a frequency band such that, below the lower and above the upper frequency limits, the *mean powers* emitted are each equal to a specified percentage ß/2 of the total *mean power* of a given *emission*.

Unless otherwise specified in an ITU-R Recommendation for the appropriate *class of emission*, the value of ß/2 should be taken as 0.5%.

NOC **S1.154**

NOC **S1.155**

(MOD) **S1.156** *Power:* Whenever the power of a radio transmitter, etc. is referred to it shall be expressed in one of the following forms, according to the class of *emission*, using the arbitrary symbols indicated:

– *peak envelope power* (*P*X or *p*X);

– *mean power* (*P*Y or *p*Y);

– *carrier power* (*P*Z or *p*Z).

For different *classes of emission*, the relationships between *peak envelope power*, *mean power* and *carrier power*, under the conditions of normal operation and of no modulation, are contained in ITU-R Recommendations which may be used as a guide.

For use in formulae, the symbol *p* denotes power expressed in watts and the symbol *P* denotes power expressed in decibels relative to a reference level.

NOC **S1.157**
to
S1.166

(MOD) **S1.167** *Permissible Interference*[1]*:* Observed or predicted *interference* which complies with quantitative *interference* and sharing criteria contained in these Regulations or in ITU-R Recommendations or in special agreements as provided for in these Regulations.

NOC **S1.167.1** [1] The terms "permissible interference" and "accepted interference" are used in the coordination of frequency assignments between administrations.

NOC **S1.168**

(MOD) **S1.169** *Harmful Interference: Interference* which endangers the functioning of a *radionavigation service* or of other *safety services* or seriously degrades, obstructs, or repeatedly interrupts a *radiocommunication service* operating in accordance with these Regulations (CS).

NOC **S1.170** to **S1.191**

ARTICLE S2

MOD

Nomenclature

RR	VGE proposal	VGE Report	WRC-95 decision
208	MOD	S2.1	MOD
209	NOC	S2.2	(MOD)
235 – 238	NOC	S2.3 – S2.6	NOC
264	MOD	S2.7	MOD
265 – 273	SUP*	Ap. S1	Ap. S1
FOOTNOTES			
267.1	SUP*	Ap. S1	Ap. S1
271.1 – 273.1	SUP*	Ap. S1	Ap. S1

ADD

Section I. Frecuency and Wavelength Bands

MOD **S2.1** The radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table. As the unit of frequency is the hertz (Hz), frequencies shall be expressed:

- in kilohertz (kHz), up to and including 3 000 kHz;
- in megahertz (MHz), above 3 MHz, up to and including 3 000 MHz;
- in gigahertz (GHz), above 3 GHz, up to and including 3 000 GHz.

However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made.

Band Number	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Corresponding Metric Subdivision	Metric Abbreviations for the Bands
4	VLF	3 to 30 kHz	Myriametric waves	B.Mam
5	LF	30 to 300 kHz	Kilometric waves	B.km
6	MF	300 to 3 000 kHz	Hectometric waves	B.hm
7	HF	3 to 30 MHz	Decametric waves	B.dam
8	VHF	30 to 300 MHz	Metric waves	B.m
9	UHF	300 to 3 000 MHz	Decimetric waves	B.dm
10	SHF	3 to 30 GHz	Centimetric waves	B.cm
11	EHF	30 to 300 GHz	Millimetric waves	B.mm
12		300 to 3 000 GHz	Decimillimetric waves	

Note 1: "Band N" (N = band number) extends from $0{,}3 \times 10^N$ Hz to 3×10^N Hz.

Note 2: Prefix: k = kilo (10^3), M = mega (10^6), G = giga (10^9).

(MOD) **S2.2** In communications between administrations and the ITU, no names, symbols or abbreviations should be used for the various frequency bands other than those specified in No. **S2.1**.

ADD **Section II. Dates and Times**

NOC **S2.3** to **S2.6**

ADD **Section III. Designation of Emissions**

MOD **S2.7** Emissions shall be designated according to their necessary bandwidth and their classification in accordance with the method described in Appendix **S1**.

ARTICLE S3

NOC **Technical Characteristics of Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
299	NOC	S3.1	NOC
300	(MOD)	S3.2	(MOD)
301	NOC	S3.3	NOC
302	(MOD)	S3.4	(MOD)
303 – 304	MOD	S3.5 – S3.6	(MOD)
305	MOD	S3.7	MOD
306	NOC	S3.8	NOC
307	(MOD)	S3.9	(MOD)
308 – 311	NOC	S3.10 – S3.11	NOC
310	NOC	S3.12	(MOD)
311	NOC	S3.13	NOC
312	(MOD)	S3.14	(MOD)
313	NOC	S3.15	NOC

NOC **S3.1**

(MOD) **S3.2** Also, as far as is compatible with practical considerations, the choice of transmitting, receiving and measuring equipment shall be based on the most recent advances in the technique as indicated, *inter alia*, in ITU-R Recommendations.

NOC **S3.3**

(MOD) **S3.4** To the maximum extent possible, equipment to be used in a station should apply signal processing methods which enable the most efficient use of the frequency spectrum in accordance with the relevant ITU-R Recommendations. These methods include, *inter alia*, certain bandwidth expansion techniques, and in particular, in amplitude-modulation systems, the use of the single-sideband technique.

MOD **S3.5** Transmitting stations shall conform to the frequency tolerances specified in Appendix **S2**.

MOD **S3.6** Transmitting stations shall conform to the maximum permitted spurious emission power levels specified in Appendix **S3**.

MOD **S3.7** Transmitting stations shall conform to the maximum permitted power levels for out-of-band emissions specified for certain services and classes of emission in the present Regulations. In the absence of such specified maximum permitted power levels transmitting stations should, to the maximum extent possible, satisfy the requirements relating to the limitation of the out-of-band emissions specified in the most recent ITU-R Recommendations (see Resolution **27 (WRC-95)**).

NOC **S3.8**

(MOD) **S3.9** The bandwidths of emissions also shall be such as to ensure the most efficient utilization of the spectrum; in general this requires that bandwidths be kept at the lowest values which the state of the technique and the nature of the service permit. Appendix **S1** is provided as a guide for the determination of the necessary bandwidth.

NOC **S3.10**

NOC **S3.11**

(MOD) **S3.12** Receiving stations should use equipment with technical characteristics appropriate for the class of emission concerned; in particular, selectivity should be appropriate having regard to No. **S3.9** on the bandwidths of emissions.

NOC **S3.13**

(MOD) **S3.14** To ensure compliance with these Regulations, administrations shall arrange for frequent checks to be made of the emissions of stations under their jurisdiction. For this purpose, they shall use the means indicated in Article **S16**, if required. The technique of measurements and the intervals of measurements to be employed shall be, as far as is practicable, in accordance with the most recent ITU-R Recommendations.

NOC **S3.15**

[BLANK]

CHAPTER SII

NOC

Frequencies

ARTICLE S4

MOD

Assignment and Use of Frequencies

RR	VGE proposal	VGE Report	WRC-95 decision
339	MOD	S4.1	MOD
340	NOC	S4.2	NOC
341 – 342	MOD	S4.3 – S4.4	MOD
343 – 345	NOC	S4.5 – S4.7	NOC
346	NOC	S4.8	(MOD)
347	MOD	S4.9	MOD
348	SUP*	S4.9	S4.9
953 – 956	NOC	S4.10 – S4.13	NOC
957 – 958	NOC	S4.14 – S4.15	(MOD)
959 – 963	NOC	S4.16 – S4.20	NOC
–	ADD	S4.21	ADD
964	NOC	S4.22	NOC
FOOTNOTE			
339.1	(MOD)	S4.1.1	SUP

ADD

Section I. General Rules

MOD **S4.1** Members shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end they shall endeavour to apply the latest technical advances as soon as possible **(CS 195)**.

SUP **S4.1.1**

NOC **S4.2**

MOD **S4.3** Any new assignment or any change of frequency or other basic characteristic of an existing assignment (see Appendix **S4**) shall be made in such a way as to avoid causing harmful interference to services rendered by stations using frequencies assigned in accordance with the Table of Frequency Allocations in this Chapter and the other provisions of these Regulations, the characteristics of which assignments are recorded in the Master International Frequency Register.

MOD **S4.4** Administrations of the Members shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.

NOC **S4.5** to **S4.7**

(MOD) **S4.8** Where, in adjacent Regions or sub-Regions, a band of frequencies is allocated to different services of the same category (see Sections I and II of Article **S5**), the basic principle is the equality of right to operate. Accordingly, the stations of each service in one Region or sub-Region must operate so as not to cause harmful interference to services in the other Regions or sub-Regions.

MOD **S4.9** No provision of these Regulations prevents the use by a station in distress, or by a station providing assistance to it, of any means of radiocommunication at its disposal to attract attention, make known the condition and location of the station in distress, and obtain or provide assistance.

NOC **S4.10** to **S4.13**

(MOD) **S4.14** *a)* a station in the fixed service or an earth station in the fixed-satellite service may, under the conditions defined in Nos. **S5.28** to **S5.31**, transmit to mobile stations on its normal frequencies;

(MOD) **S4.15** *b)* a land station may communicate, under the conditions defined in Nos. **S5.28** to **S5.31**, with fixed stations in the fixed service or earth stations in the fixed-satellite service or other land stations of the same category.

NOC **S4.16** to **S4.20**

ADD **S4.21** In exceptional cases, land mobile earth stations in the land mobile-satellite service may communicate with stations in the maritime mobile-satellite and aeronautical mobile-satellite services. Such operations shall comply with the relevant provisions of the Radio Regulations relating to those services and shall be subject to agreement among administrations concerned, taking due account of No. **S4.10**.

NOC **S4.22**

ARTICLE S5

Frequency Allocations

RR	VGE proposal	VGE Report	WRC-95 decision
391 – 392	NOC	S5.1 – S5.2	(MOD)
393	NOC	S5.3	MOD
394	NOC	S5.4	NOC
395	NOC	S5.5	MOD
396 – 403	NOC	S5.6 – S5.13	NOC
404	NOC	S5.14	MOD
405	NOC	S5.15	NOC
406	NOC	S5.16	(MOD)
407 – 410	NOC	S5.17 –S5.20	NOC
411	NOC	S5.21	(MOD)
412	NOC	S5.22	NOC
413	MOD	S5.23	MOD
414 – 415	NOC	S5.24 – S5.25	NOC
416	SUP	–	SUP
417	(MOD)	S5.26	(MOD)
418	NOC	S5.27	NOC
419	SUP	–	SUP
420	(MOD)	S5.28	(MOD)
421 – 422	MOD	S5.29 – S5.30	MOD
423	NOC	S5.31	NOC
424	(MOD)	S5.32	(MOD)
425	MOD	S5.33	MOD
426	NOC	S5.34	NOC
427	NOC	S5.35	(MOD)
428 – 430	NOC	S5.36 – S5.38	NOC
431	NOC	S5.39	(MOD)
432 – 434	NOC	S5.40 – S5.42	NOC
435	NOC	S5.43	(MOD)
436	NOC	S5.44	NOC
–	ADD	S5.45	SUP S5.45

RR	VGE proposal	VGE Report	WRC-95 decision
437	NOC	S5.46	(MOD)
438	NOC	S5.47	NOC
439	NOC	S5.48	(MOD)
440 – 443	NOC	S5.49 – S5.52	NOC
444	(MOD)	S5.53	(MOD)
445	NOC	S5.54	NOC
446	MOD	S5.55	MOD
447	NOC	S5.56	MOD
448	NOC	S5.57	NOC
449	MOD	S5.58	MOD
450	(MOD)	S5.59	(MOD)
451	NOC	S5.60	NOC
452	MOD	S5.61	MOD
453 – 454	NOC	S5.62 – S5.64	NOC
455 – 456	(MOD)	S5.65 – S5.66	(MOD)
457	NOC	S5.67	MOD
458	SUP Mob-87	–	–
459	SUP	–	SUP
460 – 462	NOC	S5.68 – S5.70	NOC
463	SUP	–	SUP
464	NOC	S5.71	NOC
464A	SUP WARC-92	–	–
465 – 466	NOC	S5.72 – S5.73	NOC
466A – 467	MOD	S5.74 – S5.75	MOD
468	NOC	S5.76	NOC
469	MOD	S5.77	MOD
469A – 470A	NOC	S5.78 – S5.80	NOC
471 – 472A	(MOD)	S5.81 – S5.83	(MOD)
473	SUP Mob-87	–	–
474	(MOD)	S5.84	MOD
475	SUP WARC-92	–	–
476	NOC	S5.85	SUP
477 – 479	NOC	S5.86 – S5.88	NOC
480	MOD	S5.89	MOD
480A	NOC	S5.90	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
481	SUP WARC-92	–	–
482	NOC	S5.91	MOD
483	SUP	–	SUP
484 – 485	MOD	S5.92 – S5.93	MOD
486	NOC	S5.94	SUP
487	MOD	S5.95	SUP
488	NOC	S5.96	MOD
489	NOC	S5.97	NOC
490 – 492	NOC	S5.98 – S5.100	MOD
493 – 496	NOC	S5.101 – S5.104	NOC
497	(MOD)	S5.105	MOD
498	(MOD)	S5.106	(MOD)
499	NOC	S5.107	MOD
500 – 501	(MOD)	S5.108 – S5.111	(MOD)
502	MOD	S5.112	MOD
503	(MOD)	S5.113	(MOD)
504	MOD	S5.114	MOD
505	(MOD)	S5.115	(MOD)
506	NOC	S5.116	NOC
507	MOD	S5.117	MOD
508	NOC	S5.118	MOD
509 – 510	NOC	S5.119 – S5.120	NOC
511	NOC	S5.121	SUP
512	NOC	S5.122	NOC
513	MOD	S5.123	MOD
514 – 516	NOC	S5.124 – S5.126	NOC
517	(MOD)	S5.127	(MOD)
518	NOC	S5.128	MOD
519	NOC	S5.129	NOC
520	(MOD)	S5.130	(MOD)
520A – 520B	NOC	S5.131 – S5.132	(MOD)
521	(MOD)	S5.133	MOD
521A	(MOD)	S5.134	(MOD)
521B – 521C	NOC	S5.135 – S5.136	(MOD)
522	(MOD)	S5.137	(MOD)

RR	VGE proposal	VGE Report	WRC-95 decision
523	SUP Mob-83	–	–
524	MOD	S5.138	MOD
525	(MOD)	S5.139	MOD
526 – 527	NOC	S5.140 – S5.141	MOD
528	NOC	S5.142	NOC
528A	NOC	S5.143	(MOD)
529	NOC	S5.144	NOC
529A	(MOD)	S5.145	(MOD)
529B	NOC	S5.146	(MOD)
530 – 531	NOC	S5.147 – S5.148	NOC
532	SUP WARC-92	–	–
533 – 534	MOD	S5.149 – S5.150	MOD
534A	NOC	S5.151	(MOD)
535	NOC	S5.152	MOD
536	NOC	S5.153	NOC
537	SUP WARC-92	–	–
538	NOC	S5.154	MOD
539	MOD	S5.155	MOD
–	–	–	ADD S5.155A
–	–	–	ADD S5.155B
540	NOC	S5.156	NOC
–	–	–	ADD S5.156A
541	NOC	S5.157	NOC
542	NOC	S5.158	SUP
543 – 544	SUP WARC-92	–	–
545	MOD	S5.159	SUP
546 – 548	SUP	–	SUP
549	NOC	S5.160	MOD
550	(MOD)	S5.161	(MOD)
551	SUP WARC-92	–	–
552	NOC	S5.162	NOC
553	NOC	S5.163	MOD
554 – 555	MOD	S5.164 – S5.165	MOD
556	NOC	S5.166	NOC
557	NOC	S5.167	MOD

RR	VGE proposal	VGE Report	WRC-95 decision
558 – 560	NOC	S5.168 – S5.170	NOC
561	NOC	S5.171	MOD
562	(MOD)	S5.172	(MOD)
563	(MOD)	S5.173	MOD
564 – 565	NOC	S5.174 – S5.175	MOD
566	NOC	S5.176	NOC
567	MOD	S5.177	MOD
568	SUP	–	SUP
569	SUP WARC-92	–	–
570 – 571	NOC	S5.178 – S5.179	MOD
572	NOC	S5.180	NOC
572A	MOD	S5.181	MOD
573 – 574	NOC	S5.182 – S5.183	NOC
575	NOC	S5.184	MOD
576	(MOD)	S5.185	(MOD)
577	MOD	S5.186	MOD
578	NOC	S5.187	NOC
579	NOC	S5.188	MOD
580	NOC	S5.189	SUP
581	MOD	S5.190	MOD
582	SUP WARC-92	–	–
583	SUP Mob-87	–	–
584	NOC	S5.191	SUP
585	MOD	S5.192	MOD
586	NOC	S5.193	SUP
587	MOD	S5.194	MOD
588 – 589	MOD	S5.195 – S5.196	SUP
590	SUP Mob-87	–	–
590A –591	MOD	S5.197 – S5.198	MOD
592 – 593	(MOD)	S5.199 – S5.200	(MOD)
594 – 594A	MOD	S5.201 – S5.202	MOD
595	NOC	S5.203	MOD
596	(MOD)	S5.204	MOD
597	(MOD)	S5.205	(MOD)
598	(MOD)	S5.206	MOD

RR	VGE proposal	VGE Report	WRC-95 decision
599	NOC	S5.207	NOC
599A	NOC	S5.208	MOD
–	–	–	ADD S5.208A
599B – 601	NOC	S5.209 –S5.211	MOD
602 – 603	NOC	S5.212 – S5.213	NOC
604	NOC	S5.214	MOD
605	NOC	S5.215	SUP
606 – 607	NOC	S5.216 – S5.217	NOC
608	MOD	S5.218	MOD
608A – 608C	NOC	S5.219 – S5.221	MOD
609	NOC	S5.222	NOC
609A	(MOD)	S5.223	(MOD)
609B	NOC	S5.224	MOD
610	SUP	–	SUP
611	NOC	S5.225	NOC
612	SUP WARC-92	–	–
613 – 613A	(MOD)	S5.226 – S5.227	(MOD)
613B	MOD	S5.228	SUP
614	SUP WARC-92	–	–
615	NOC	S5.229	NOC
616	MOD	S5.230	MOD
617 – 618	NOC	S5.231 – S5.232	NOC
619	MOD	S5.233	MOD
620	(MOD)	S5.234	(MOD)
621	MOD	S5.235	MOD
–	–	S5.236	Not used
623	NOC	S5.237	MOD
624	NOC	S5.238	NOC
625	NOC	S5.239	SUP
626	NOC	S5.240	MOD
627 – 630	NOC	S5.241 – S5.245	NOC
631	MOD	S5.246	SUP
622	MOD	S5.236	MOD S5.246
632	MOD	S5.247	MOD
633 – 634	SUP WARC-92	–	–

RR	VGE proposal	VGE Report	WRC-95 decision
635	MOD	S5.248	Not used
636	NOC	S5.249	SUP
637	NOC	S5.250	NOC
638	MOD	S5.251	MOD
639 – 640	NOC	S5.252 – S5.253	SUP
635	MOD	S5.248	MOD S5.252
641	MOD	S5.254	MOD
641A	NOC	S5.255	MOD
642	(MOD)	S5.256	(MOD)
643	MOD	S5.257	MOD
644	SUP	–	SUP
645	NOC	S5.258	MOD
645A	MOD	S5.259	MOD
645B	(MOD)	S5.260	(MOD)
646	NOC	S5.261	NOC
647	NOC	S5.262	MOD
647A	NOC	S5.263	NOC
647B	NOC	S5.264	MOD
648	MOD	S5.265	SUP
649	(MOD)	S5.266	(MOD)
649A	NOC	S5.267	NOC
650	SUP	–	SUP
651A	NOC	S5.269	NOC S5.268
651	NOC	S5.268	(MOD) S5.269
652	NOC	S5.270	NOC
653	NOC	S5.271	MOD
654	(MOD)	S5.272	(MOD)
655	(MOD)	S5.273	MOD
656	NOC	S5.274	NOC
657 – 659	NOC	S5.275 – S5.277	MOD
660	(MOD)	S5.278	(MOD)
660A	MOD	S5.279	MOD
661	SUP	–	SUP
662	(MOD)	S5.280	MOD
663	NOC	S5.281	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
664	(MOD)	S5.282	(MOD)
665	NOC	S5.283	NOC
666	NOC	S5.284	MOD
667	(MOD)	S5.285	(MOD)
668	MOD	S5.286	MOD
–	–	–	ADD S5.286A
–	–	–	ADD S5.286B
–	–	–	ADD S5.286G
669 – 670	(MOD)	S5.287 – S5.288	MOD
671	NOC	S5.289	NOC
672 – 675	MOD	S5.290 – S5.293	MOD
676	NOC	S5.294	NOC
677	NOC	S5.295	SUP
677A	NOC	S5.296	(MOD)
678	MOD	S5.297	MOD
679	NOC	S5.298	NOC
680 – 681	SUP Mob-87	–	–
682	SUP WARC-92	–	–
683	NOC	S5.299	SUP
684	NOC	S5.300	NOC
685	NOC	S5.301	SUP
686	NOC	S5.302	(MOD)
686A	NOC	S5.303	SUP
687	MOD	S5.304	MOD
688	NOC	S5.305	NOC
689	MOD	S5.306	MOD
690	NOC	S5.307	NOC
691	NOC	S5.308	SUP
692 – 692A	MOD	S5.309 – S5.310	MOD
693	NOC	S5.311	NOC
694	MOD	S5.312	MOD
695 – 696	NOC	S5.313 – S5.315	NOC
697	NOC	S5.316	MOD
698 – 699	SUP Mob-87	–	–
700	MOD	S5.317	MOD

RR	VGE proposal	VGE Report	WRC-95 decision
700A	NOC	S5.318	NOC
700B	NOC	S5.319	(MOD)
701	MOD	S5.320	MOD
702	NOC	S5.321	NOC
703 – 704	MOD	S5.322 – S5.323	MOD
704A	MOD	S5.324	SUP
705	MOD	S5.325	MOD
706	(MOD)	S5.326	MOD
707	SUP	–	SUP
707A	MOD	S5.327	MOD
708	SUP WARC-92	–	–
709	NOC	S5.328	NOC
710	(MOD)	S5.329	(MOD)
711 – 712	NOC	S5.330 – S5.331	MOD
712A	MOD	S5.332	SUP
713 – 714	NOC	S5.333 – S5.334	NOC
715 – 716	NOC	S5.335 – S5.336	SUP
717	NOC	S5.337	NOC
718	SUP	–	SUP
719	NOC	S5.338	MOD
720	NOC	S5.339	NOC
721	MOD	S5.340	MOD
722	NOC	S5.341	NOC
723B	NOC	S5.347	(MOD) S5.342
722B	NOC	S5.343	MOD
722C	(MOD)	S5.344	(MOD)
722A	NOC	S5.342	NOC S5.345
723A	(MOD)	S5.346	SUP
722B	NOC	S5.343	MOD S5.347
723C	(MOD)	S5.348	MOD
–	–	–	ADD S5.348A
724	(MOD)	S5.349	MOD
725	NOC	S5.350	MOD
726	SUP WARC-92	–	–
726A – 726B	NOC	S5.351 – S5.352	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
726C	NOC	S5.353	(MOD)
726D	(MOD)	S5.354	MOD
727	NOC	S5.355	MOD
727A	(MOD)	S5.356	(MOD)
728	SUP Mob-87	–	–
729	NOC	S5.357	NOC
729A	(MOD)	S5.358	(MOD)
730	NOC	S5.359	MOD
730A – 731	NOC	S5.360 – S5.363	NOC
731A – 731D	SUP WARC-92	–	–
731E	(MOD)	S5.364	MOD
731F	NOC	S5.365	MOD
732 – 733	MOD	S5.366 – S5.367	MOD
733A	(MOD)	S5.368	MOD
733B	MOD	S5.369	MOD
733C	NOC	S5.370	NOC
733D	NOC	S5.371	SUP
733E	(MOD)	S5.372	(MOD)
733F	NOC	S5.373	MOD S5.371
–	–	S5.373	Not used
–	–	–	ADD S5.373A
734	SUP	–	SUP
734A – 734B	(MOD)	S5.374 – S5.375	(MOD)
735	NOC	S5.376	NOC
735A	NOC	S5.377	(MOD)
736	SUP	–	SUP
737	(MOD)	S5.378	SUP
738	NOC	S5.379	MOD
739	SUP	–	SUP
–	–	–	ADD S5.379A
740A	NOC	S5.381	NOC S5.380
740	NOC	S5.380	MOD S5.381
741	(MOD)	S5.382	MOD
742	NOC	S5.383	SUP
743	NOC	S5.384	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
743A	SUP WARC-92	–	–
744 – 746	MOD	S5.385 – S5.387	MOD
746A	NOC	S5.388	(MOD)
746B	(MOD)	S5.389	SUP
–	–	–	ADD S5.389A
–	–	–	ADD S5.389B
–	–	–	ADD S5.389C
–	–	–	ADD S5.389D
–	–	–	ADD S5.389E
–	–	–	ADD S5.389F
746C	NOC	S5.390	SUP
747	SUP WARC-92	–	–
747A	NOC	S5.391	NOC
748 – 750	SUP WARC-92	–	–
750A	NOC	S5.392	NOC
–	–	–	ADD S5.392A
750B	NOC	S5.393	NOC
751	NOC	S5.394	MOD
751A	NOC	S5.395	NOC
751B	(MOD)	S5.396	(MOD)
752	SUP	–	SUP
753 – 753B	(MOD)	S5.397 – S5.399	(MOD)
753C	MOD	S5.400	MOD
753D	NOC	S5.401	SUP
753E	SUP WARC-92	–	–
753F	(MOD)	S5.402	MOD
754 – 754A	MOD	S5.403 – S5.404	MOD
754B	NOC	S5.405	NOC
755	NOC	S5.406	SUP
755A – 756	NOC	S5.407 – S5.408	NOC
762	NOC	S5.416	NOC S5.409
763	MOD	S5.417	MOD S5.410
764	NOC	S5.418	NOC S5.411
759	NOC	S5.412	MOD
760	NOC	S5.413	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
760A	(MOD)	S5.414	MOD
761	MOD	S5.415	MOD
757	MOD	S5.409	MOD S5.416
757A	(MOD)	S5.410	MOD S5.418
758	NOC	S5.411	MOD S5.417
764A	NOC	S5.419	MOD
765	SUP	–	SUP
766	MOD	S5.420	MOD
767	NOC	S5.421	(MOD)
768	SUP	–	SUP
769	NOC	S5.422	MOD
770 – 773	NOC	S5.423 – S5.426	NOC
774 – 775	SUP Mob-87	–	–
775A	(MOD)	S5.427	(MOD)
776	SUP Mob-87	–	–
777	NOC	S5.428	MOD
778	SUP	–	SUP
779 – 780	NOC	S5.429 – S5.430	MOD
781	NOC	S5.431	(MOD)
782	SUP WARC-92	–	–
783	(MOD)	S5.432	MOD
784 – 786	NOC	S5.433 – S5.435	NOC
787	NOC	S5.436	SUP
788	NOC	S5.437	MOD
789	NOC	S5.438	NOC
790	NOC	S5.439	MOD
791	MOD	S5.440	MOD
792	SUP Orb-88	–	–
792A	NOC	S5.441	MOD
793	NOC	S5.442	NOC
794	MOD	S5.443	MOD
795	SUP	–	SUP
796	NOC	S5.444	MOD
–	–	–	ADD S5.444A
797	MOD	S5.445	SUP

RR	VGE proposal	VGE Report	WRC-95 decision
797A – 797B	MOD	S5.446 – S5447	MOD
–	–	–	ADD S5.447A
–	–	–	ADD S5.447B
–	–	–	ADD S5.447C
798	NOC	S5.448	MOD
799	NOC	S5.449	NOC
800	NOC	S5.450	MOD
801	(MOD)	S5.451	(MOD)
802	NOC	S5.452	NOC
803	NOC	S5.453	MOD
804	(MOD)	S5.454	MOD
805	NOC	S5.455	MOD
806	SUP	–	SUP
807	NOC	S5.456	(MOD)
808	NOC	S5.457	SUP
809	NOC	S5.458	MOD
–	–	–	ADD S5.458A
–	–	–	ADD S5.458B
–	–	–	ADD S5.458C
810 – 812	MOD	S5.459 – S5.461	MOD
813	(MOD)	S5.462	(MOD)
814	NOC	S5.463	NOC
815	MOD	S5.464	MOD
816	NOC	S5.465	NOC
817	(MOD)	S5.466	(MOD)
818	NOC	S5.467	NOC
819 – 820	NOC	S5.468 – S5.469	MOD
821	NOC	S5.470	NOC
822	NOC	S5.471	MOD
823	NOC	S5.472	NOC
824	NOC	S5.473	MOD
824A	(MOD)	S5.474	(MOD)
825 – 825A	NOC	S5.475 – S5.476	NOC
826	(MOD)	S5.477	MOD
827	NOC	S5.478	MOD

RR	VGE proposal	VGE Report	WRC-95 decision
828 – 829	NOC	S5.479 – S5.480	NOC
830	NOC	S5.481	MOD
831	MOD	S5.482	MOD
832 – 833	SUP	–	SUP
834	NOC	S5.483	MOD
835 – 836	NOC	S5.484 – S5.485	NOC
837	(MOD)	S5.486	MOD
838	NOC	S5.487	(MOD)
839	MOD	S5.488	MOD
840 – 841	SUP Orb-85	–	–
842	NOC	S5.489	MOD
843	SUP Orb-85	–	–
844	(MOD)	S5.490	(MOD)
845	(MOD)	S5.491	MOD
846 – 847	(MOD)	S5.492 – S5.493	(MOD)
848 – 849	NOC	S5.494 – S5.495	MOD
850	(MOD)	S5.496	MOD
851	NOC	S5.497	NOC
852	MOD	S5.498	MOD
853	NOC	S5.499	NOC
854 – 855A	NOC	S5.500 – S5.502	MOD
855B	(MOD)	S5.503	MOD
–	–	–	ADD S5.503A
856	NOC	S5.504	NOC
857	NOC	S5.505	MOD
858	NOC	S5.506	NOC
859	NOC	S5.507	SUP
860 – 861	NOC	S5.508 – S5.509	MOD
862	SUP	–	SUP
863	NOC	S5.510	NOC
864	SUP	–	SUP
865	NOC	S5.511	MOD
–	–	–	ADD S5.511A
–	–	–	ADD S5.511B
–	–	–	ADD S5.511C

RR	VGE proposal	VGE Report	WRC-95 decision
866	NOC	S5.512	MOD
867	(MOD)	S5.513	(MOD)
868	(MOD)	S5.514	MOD
868A – 869	(MOD)	S5.515 – S5.516	(MOD)
869A	NOC	S5.517	NOC
869B	NOC	S5.518	MOD
870	(MOD)	S5.519	MOD
870A	NOC	S5.520	NOC
870B	(MOD)	S5.521	MOD
871 – 872	NOC	S5.522 – S5.523	NOC
–	–	–	ADD S5.523A
–	–	–	ADD S5.523B
–	–	–	ADD S5.523C
–	–	–	ADD S5.523D
873	NOC	S5.524	MOD
873A – 873B	NOC	S5.525 – S5.526	NOC
873C – 873E	(MOD)	S5.527 – S5.529	(MOD)
873F – 873G	NOC	S5.530 – S5.531	NOC
874 – 875	SUP	–	SUP
876	NOC	S5.532	NOC
877 – 878	SUP WARC-92	–	–
879 –881	SUP	–	SUP
881A	NOC	S5.533	NOC
881B	(MOD)	S5.534	(MOD) S5.537
882	NOC	S5.535	NOC S5.543
–	–	–	ADD S5.535A
882A	(MOD)	S5.536	(MOD) S5.538
882B	NOC	S5.537	NOC S5.540
882C	NOC	S5.538	NOC S5.541
882D	NOC	S5.539	NOC
882E	NOC	S5.540	NOC S5.533
882F	NOC	S5.541	NOC S5.534
–	–	–	ADD S5.541A
882G	NOC	S5.542	NOC S5.535
883	(MOD)	S5.543	MOD S5.542

RR	VGE proposal	VGE Report	WRC-95 decision
884	(MOD)	S5.544	(MOD)
885	(MOD)	S5.545	MOD
886 – 888	SUP	–	SUP
889	(MOD)	S5.546	MOD
890 – 891	SUP WARC-92	–	–
892	MOD	S5.547	SUP
893	NOC	S5.548	NOC
894	NOC	S5.549	MOD
895	SUP WARC-92	–	–
896	(MOD)	S5.550	MOD
897	NOC	S5.551	NOC
898	SUP	–	SUP
899	SUP WARC-92	–	–
900	SUP	–	SUP
901	NOC	S5.552	NOC
902	(MOD)	S5.553	(MOD)
903	NOC	S5.554	NOC
904	MOD	S5.555	MOD
905	SUP	–	SUP
906	NOC	S5.556	MOD
907	SUP	–	SUP
908	NOC	S5.557	MOD
909 –910	(MOD)	S5.558 – S5.559	(MOD)
911	SUP	–	SUP
912 – 913	NOC	S5.560 – S5.561	NOC
914	SUP	–	SUP
915	NOC	S5.562	SUP
916 – 919	SUP	–	SUP
920	NOC	S5.563	NOC
921 – 924	SUP	–	SUP
925	MOD	S5.564	MOD
926	SUP	–	SUP
927	NOC	S5.565	NOC
FOOTNOTE 392.1	NOC	S5.2.1	NOC

NOC **Introduction**

(MOD) **S5.1** In all documents of the Union where the terms *allocation*, *allotment* and *assignment* are to be used, they shall have the meaning given them in Nos. **17/S1.16** to **19/S1.18**, the terms used in the three working languages being as follows:

Frequency distribution to:	French	English	Spanish
Services	Attribution (attribuer)	Allocation (to allocate)	Atribución (atribuir)
Areas or countries	Allotissement (allotir)	Allotment (to allot)	Adjudicación (adjudicar)
Stations	Assignation (assigner)	Assignment (to assign)	Asignación (asignar)

(MOD) **S5.2** For the allocation of frequencies the world has been divided into three Regions[1] as shown on the following map and described in Nos. **S5.3** to **S5.9**:

NOC **S5.2.1**

MOD **S5.3** *Region 1:*

Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russia which lies between lines A and C.

NOC **S5.4**

MOD **S5.5** *Region 3:*

Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, Georgia, Kazakstan, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russia. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

NOC **S5.6** to **S5.13**

MOD **S5.14** The "European Broadcasting Area" is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Iraq, Jordan and that part of the territory of Syria, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area.

NOC **S5.15**

(MOD) **S5.16** (1) The "Tropical Zone" (see map in No. **S5.2**) is defined as:

NOC **S5.17** to **S5.20**

(MOD) **S5.21** (2) In Region 2, the Tropical Zone may be extended to parallel 33° North, subject to special agreements between the countries concerned in that Region (see Article **7/S6**).

NOC **S5.22**

NOC **Section II. Categories of Services and Allocations**

MOD **S5.23** *Primary and Secondary Services*

NOC **S5.24**

NOC **S5.25**

(MOD) **S5.26** *b)* services the names of which are printed in "normal characters" (example: Mobile); these are called "secondary" services (see Nos. **S5.28** to **S5.31**).

NOC **S5.27**

(MOD) **S5.28** (3) Stations of a secondary service:

MOD **S5.29** *a)* shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;

MOD **S5.30** *b)* cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;

NOC **S5.31**

(MOD) **S5.32** (4) Where a band is indicated in a footnote of the Table as allocated to a service "on a secondary basis" in an area smaller than a Region, or in a particular country, this is a secondary service (see Nos. **S5.28** to **S5.31**).

MOD **S5.33** (5) Where a band is indicated in a footnote of the Table as allocated to a service "on a primary basis", in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.

NOC **S5.34**

(MOD) **S5.35** (1) Where a band is indicated in a footnote of the Table as "also allocated" to a service in an area smaller than a Region, or in a particular country, this is an "additional" allocation, i.e. an allocation which is added in this area or in this country to the service or services which are indicated in the Table (see No. **S5.36**).

NOC **S5.36** to **S5.38**

(MOD) **S5.39** (1) Where a band is indicated in a footnote of the Table as "allocated" to one or more services in an area smaller than a Region, or in a particular country, this is an "alternative" allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table (see No. **S5.40**).

NOC **S5.40** to **S5.42**

(MOD) **S5.43** (1) Where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter **III/SII** of these Regulations.

NOC **S5.44**

SUP **S5.45**

(MOD) **S5.46** (1) The heading of the Table in Section IV of this Article includes three columns, each of which corresponds to one of the Regions (see No. **S5.2**). Where an allocation occupies the whole of the width of the Table or only one or two of the three columns, this is a worldwide allocation or a Regional allocation, respectively.

NOC **S5.47**

(MOD) **S5.48** (3) Within each of the categories specified in Nos. **S5.25** and **S5.26**, services are listed in alphabetical order according to the French language. The order of listing does not indicate relative priority within each category.

NOC **S5.49** to **S5.52**

(MOD) **Section IV. Table of Frequency Allocations**
(See No. **208/S2.1**)

(MOD) **kHz**
9 – 70

Allocation to Services		
Region 1	Region 2	Region 3
Below 9	(not allocated) S5.53 S5.54	
9 – 14	RADIONAVIGATION	
14 – 19.95	FIXED MARITIME MOBILE S5.57 S5.55 S5.56	
19.95 – 20.05	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	
20.05 – 70	FIXED MARITIME MOBILE S5.57 S5.56 S5.58	

(MOD) **S5.53** Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

NOC **S5.54**

MOD **S5.55** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 14 - 17 kHz is also allocated to the radionavigation service on a primary basis.

MOD **S5.56** The stations of services to which the bands 14 - 19.95 kHz and 20.05 - 70 kHz and in Region 1 also the bands 72 - 84 kHz and 86 - 90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions.

NOC **S5.57**

MOD **S5.58** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 67 - 70 kHz is also allocated to the radionavigation service on a primary basis.

(MOD)

kHz
70 – 110

Allocation to Services		
Region 1	Region 2	Region 3
70 – 72 RADIONAVIGATION S5.60	**70 – 90** FIXED MARITIME MOBILE S5.57 MARITIME RADIO-NAVIGATION S5.60 Radiolocation	**70 – 72** RADIONAVIGATION S5.60 Fixed Maritime Mobile S5.57 S5.59
72 – 84 FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.60 S5.56		**72 – 84** FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.60
84 – 86 RADIONAVIGATION S5.60		**84 – 86** RADIONAVIGATION S5.60 Fixed Maritime Mobile S5.57 S5.59
86 – 90 FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.56	S5.61	**86 – 90** FIXED MARITIME MOBILE S5.57 RADIONAVIGATION S5.60
90 – 110	RADIONAVIGATION S5.62 Fixed S5.63 S5.64	

(MOD) **S5.59** *Different category of service:* in Bangladesh, the Islamic Republic of Iran and Pakistan, the allocation of the bands 70 - 72 kHz and 84 - 86 kHz to the fixed and maritime mobile service is on a primary basis (see No. **S5.33**).

NOC **S5.60**

MOD **S5.61** In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70 - 90 kHz and 110 - 130 kHz shall be subject to agreement obtained under Article **14**/No. **S9.21** with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

NOC **S5.62** to **S5.64**

(MOD)

kHz
110 – 130

Allocation to Services		
Region 1	Region 2	Region 3
110 – 112 FIXED MARITIME MOBILE RADIONAVIGATION S5.64	**110 – 130** FIXED MARITIME MOBILE MARITIME RADIO-NAVIGATION S5.60 Radiolocation	**110 – 112** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64
112 – 115 RADIONAVIGATION S5.60		**112 – 117.6** RADIONAVIGATION S5.60 Fixed Maritime Mobile S5.64 S5.65
115 – 117.6 RADIONAVIGATION S5.60 Fixed Maritime Mobile S5.64 S5.66		
117.6 – 126 FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64		**117.6 – 126** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5,64
126 – 129 RADIONAVIGATION S5.60		**126 – 129** RADIONAVIGATION S5.60 Fixed Maritime Mobile S5.64 S5.65
129 – 130 FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64	S5.61 S5.64	**129 – 130** FIXED MARITIME MOBILE RADIONAVIGATION S5.60 S5.64

(MOD) **S5.65** *Different category of service:* in Bangladesh, the Islamic Republic of Iran and Pakistan, the allocation of the bands 112 - 117.6 kHz and 126 - 129 kHz to the fixed and maritime mobile services is on a primary basis (see No. **S5.33**).

(MOD) **S5.66** *Different category of service:* in Germany, the allocation of the band 115 - 117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. **S5.33**) and to the radionavigation service on a secondary basis (see No. **S5.32**).

MOD

kHz
130 – 315

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>130 – 148.5
FIXED
MARITIME MOBILE
S5.64 S5.67</td><td>130 – 160
FIXED
MARITIME MOBILE
S5.64</td><td>130 – 160
FIXED
MARITIME MOBILE
RADIONAVIGATION
S5.64</td></tr>
<tr><td rowspan="2">148.5 – 255
BROADCASTING
S5.68 S5.69 S5.70</td><td>160 – 190
FIXED</td><td>160 – 190
FIXED
Aeronautical Radionavigation</td></tr>
<tr><td colspan="2">190 – 200
AERONAUTICAL RADIONAVIGATION</td></tr>
<tr><td rowspan="2">255 – 283.5
BROADCASTING
AERONAUTICAL RADIONAVIGATION
S5.70 S5.71</td><td>200 – 275
AERONAUTICAL RADIONAVIGATION
Aeronautical Mobile</td><td rowspan="2">200 – 285
AERONAUTICAL RADIONAVIGATION
Aeronautical Mobile</td></tr>
<tr><td>275 – 285
AERONAUTICAL RADIONAVIGATION
Aeronautical Mobile
Maritime Radionavigation (radiobeacons)</td></tr>
<tr><td rowspan="2">283.5 – 315
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) S5.73
S5.72 S5.74</td><td colspan="2">285 – 315
AERONAUTICAL RADIONAVIGATION
MARITIME RADIONAVIGATION (radiobeacons) S5.73</td></tr>
</table>

MOD **S5.67** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Kyrgyzstan, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 130 - 148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate.

NOC **S5.68** to **S5.73**

MOD **S5.74** *Additional Allocation:* in Region 1, the frequency band 285.3 - 285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.

MOD

kHz
315 – 495

Allocation to Services		
Region 1	Region 2	Region 3
315 – 325 AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) S5.73 S5.72 S5.75	**315 – 325** MARITIME RADIONAVIGATION (radiobeacons) S5.73 Aeronautical Radionavigation	**315 – 325** AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) S5.73
325 – 405 AERONAUTICAL RADIONAVIGATION S5.72	**325 – 335** AERONAUTICAL RADIONAVIGATION Aeronautical Mobile Maritime Radionavigation (radiobeacons) **335 – 405** AERONAUTICAL RADIONAVIGATION Aeronautical Mobile	**325 – 405** AERONAUTICAL RADIONAVIGATION Aeronautical Mobile
405 – 415 RADIONAVIGATION S576 S5.72	**405 – 415** RADIONAVIGATION S5.76 Aeronautical Mobile	
415 – 435 MARITIME MOBILE S5.79 AERONAUTICAL RADIONAVIGATION S5.72 **435 – 495** MARITIME MOBILE S5.79 Aeronautical Radionavigation S5.72 S5.81 S5.82	**415 – 495** MARITIME MOBILE S5.79 Aeronautical Radionavigation S5.80 S5.77 S5.78 S5.81 S5.82	

MOD **S5.75** *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Moldova, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Bulgaria and Romania, the allocation of the band 315 - 325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned.

NOC **S5.76**

MOD **S5.77** *Different category of service:* in Australia, China, the French Overseas Territories of Region 3, India, Indonesia, the Islamic Republic of Iran, Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415 - 495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435 - 495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a worldwide basis (see No. **4237/S52.39**).

NOC **S5.78** to **S5.80**

(MOD) **S5.81** The bands 490 - 495 kHz and 505 - 510 kHz shall be subject to the provisions of No. **3018/**Appendix **S13** until the entry into force of the reduced guardband in accordance with Resolution **210 (Mob-87)**.

(MOD) **S5.82** In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution **331 (Mob-87)**), to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **N38/S31** and **60/S52**, and Resolution **339 (WRC-95)**. In using the band 415 - 495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.

MOD

kHz
495 – 1 606.5

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>495 – 505</td><td colspan="2">MOBILE (distress and calling)
S5.83</td></tr>
<tr><td rowspan="3">505 – 526.5
MARITIME MOBILE S5.79
AERONAUTICAL RADIONAVIGATION

S5.72 S5.81 S5.84</td><td>505 – 510
MARITIME MOBILE S5.79
S5.81</td><td rowspan="2">505 – 526.5
MARITIME MOBILE S5.79 S5.84
AERONAUTICAL RADIONAVIGATION
Aeronautical Mobile
Land Mobile

S5.81</td></tr>
<tr><td>510 – 525
MOBILE S5.84
AERONAUTICAL RADIONAVIGATION</td></tr>
<tr><td rowspan="2">526.5 – 1 606.5
BROADCASTING

S5.87</td><td>525 – 535
BROADCASTING S5.86
AERONAUTICAL RADIONAVIGATION</td><td>526.5 – 535
BROADCASTING
Mobile
S5.88</td></tr>
<tr><td>535 – 1 605
BROADCASTING</td><td>535 – 1 606.5
BROADCASTING</td></tr>
</table>

(MOD) **S5.83** The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **N38/S31** and **60/S52,** and in Articles **37** and **38/**Appendix **S13**.

MOD **S5.84** The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **N38/S31** and **60/S52** and in Article **38/**Appendix **S13** (see Resolution **339 (WRC-95)**).

SUP **S5.85**

NOC **S5.86** to **S5.88**

MOD

kHz
1 605 – 1 800

Allocation to Services		
Region 1	Region 2	Region 3
	1 605 – 1 625 BROADCASTING S5.89 S5.90	
1 606.5 – 1 625 FIXED MARITIME MOBILE S5.90 LAND MOBILE S5.92		**1 606.5 – 1 800** FIXED MOBILE RADIOLOCATION RADIONAVIGATION
1 625 – 1 635 RADIOLOCATION S5.93	**1 625 – 1 705** FIXED MOBILE BROADCASTING S5.89 Radiolocation S5.90	
1 635 – 1 800 FIXED MARITIME MOBILE S5.90 LAND MOBILE S5.92 S5.96	**1 705 – 1 800** FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	S5.91

MOD **S5.89** In Region 2, the use of the band 1 605 - 1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

The examination of frequency assignments to stations of the fixed and mobile services in the band 1 625 - 1 705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

NOC **S5.90**

MOD **S5.91** *Additional allocation:* in Australia, the Philippines, Singapore and Sri Lanka, the band 1 606.5 - 1 705 kHz is also allocated to the broadcasting service on a secondary basis.

MOD **S5.92** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5 - 1 625 kHz, 1 635 - 1 800 kHz, 1 850 - 2 160 kHz, 2 194 - 2 300 kHz, 2 502 - 2 850 kHz and 3 500 - 3 800 kHz, subject to agreement obtained under Article **14**/No. **S9.21**. The radiated mean power of these stations shall not exceed 50 W.

MOD **S5.93** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1 625 - 1 635 kHz, 1 800 - 1 810 kHz and 2 160 - 2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

SUP **S5.94**

SUP **S5.95**

MOD **S5.96** In Germany, Armenia, Azerbaijan, Belarus, Denmark, Estonia, Finland, Georgia, Hungary, Ireland, Israel, Jordan, Kazakstan, Latvia, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, the United Kingdom, Russia, Sweden, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1 715 - 1 800 kHz and 1 850 - 2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W.

MOD

kHz
1 800 – 2 065

Allocation to Services		
Region 1	Region 2	Region 3
1 800 – 1 810 RADIOLOCATION S5.93	**1 800 – 1 850** AMATEUR	**1 800 – 2 000** AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation
1 810 – 1 850 AMATEUR S5.98 S5.99 S5.100 S5.101		
1 850 – 2 000 FIXED MOBILE except aeronautical mobile S5.92 S5.96 S5.103	**1 850 – 2 000** AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION S5.102	S5.97
2 000 – 2 025 FIXED MOBILE except aeronautical mobile (R) S5.92 S5.103	**2 000 – 2 065** FIXED MOBILE	
2 025 – 2 045 FIXED MOBILE except aeronautical mobile (R) Meteorological Aids S5.104 S5.92 S5.103		

NOC **S5.97**

MOD **S5.98** *Alternative allocation:* in Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Cameroon, the Congo, Denmark, Egypt, Eritrea, Spain, Ethiopia, France, Georgia, Greece, Italy, Kazakstan, Lebanon, Lithuania, Luxembourg, Malawi, Moldova, Uzbekistan, the Netherlands, Syria, Kyrgyzstan, Russia, Somalia, Tajikistan, Tanzania, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1 810 - 1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD **S5.99** *Additional allocation:* in Saudi Arabia, Bosnia and Herzegovina, Iraq, The Former Yugoslav Republic of Macedonia, Libya, Slovakia, the Czech Republic, Romania, Slovenia, Chad, Togo and Yugoslavia, the band 1 810 - 1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD **S5.100** In Region 1, the authorization to use the band 1 810 - 1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **S5.98** and **S5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **S5.98** and **S5.99**.

NOC **S5.101** to **S5.104**

MOD

kHz
2 045 – 2 501

Allocation to Services		
Region 1	Region 2	Region 3
2 045 – 2 160 FIXED MARITIME MOBILE LAND MOBILE S5.92	**2 065 – 2 107** MARITIME MOBILE S5.105 S5.106	
2 160 – 2 170 RADIOLOCATION S5.93 S5.107	**2 107 – 2 170** FIXED MOBILE	
2 170 – 2 173.5	MARITIME MOBILE	
2 173.5 – 2 190.5	MOBILE (distress and calling) S5.108 S5.109 S5.110 S5.111	
2 190.5 – 2 194	MARITIME MOBILE	
2 194 – 2 300 FIXED MOBILE except aeronautical mobile (R) S5.92 S5.103 S5.112	**2 194 – 2 300** FIXED MOBILE S5.112	
2 300 – 2 498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING S5.113 S5.103	**2 300 – 2 495** FIXED MOBILE BROADCASTING S5.113	
2 498 – 2 501 STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	**2 495 – 2 501** STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	

MOD **S5.105** In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065 - 2 107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072 - 2 075.5 kHz are used as provided in No. **4323BD/S52.165**.

(MOD) **S5.106** In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

MOD **S5.107** *Additional allocation:* in Saudi Arabia, Botswana, Eritrea, Ethiopia, Iraq, Lesotho, Libya, Malawi, Somalia, Swaziland and Zambia, the band 2 160 - 2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.

(MOD) **S5.108** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5 - 2 190.5 kHz are prescribed in Articles **N38/S31** and **60/S52** and in Articles **37** and **38**/Appendix **S13**.

(MOD) **S5.109** The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article **N38/S31**.

(MOD) **S5.110** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article **N38/S31**.

(MOD) **S5.111** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **N38/S31** and in Article **38**/Appendix **S13**.

The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ±3 kHz about the frequency.

MOD **S5.112** *Alternative allocation:* in Belgium, Bosnia and Herzegovina, Cyprus, Denmark, Spain, France, Greece, Iceland, Italy, Malta, Norway, the United Kingdom, Singapore, Sri Lanka, Turkey and Yugoslavia, the band 2 194 - 2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

(MOD) **S5.113** For the conditions for the use of the bands 2 300 - 2 495 kHz (2 498 kHz in Region 1), 3 200 - 3 400 kHz, 4 750 - 4 995 kHz and 5 005 - 5 060 kHz by the broadcasting service, see Nos. **S5.16** to **S5.20**, **S5.21** and **2666/S23.3** to **2673/S23.10**.

(MOD)

kHz
2 501 – 3 230

Allocation to Services		
Region 1	Region 2	Region 3
2 501 – 2 502	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
2 502 – 2 625 FIXED MOBILE except aeronautical mobile (R) S5.92 S5.103 S5.114	**2 502 – 2 505** STANDARD FREQUENCY AND TIME SIGNAL	
2 625 – 2 650 MARITIME MOBILE MARITIME RADIONAVIGATION S5.92	**2 505 – 2 850** FIXED MOBILE	
2 650 – 2 850 FIXED MOBILE except aeronautical mobile (R) S5.92 S5.103		
2 850 – 3 025	AERONAUTICAL MOBILE (R) S5.111 S5.115	
3 025 – 3 155	AERONAUTICAL MOBILE (OR)	
3 155 – 3 200	FIXED MOBILE except aeronautical mobile (R) S5.116 S5.117	
3 200 – 3 230	FIXED MOBILE except aeronautical mobile (R) BROADCASTING S5.113 S5.116	

MOD **S5.114** *Alternative allocation:* in Belgium, Bosnia and Herzegovina, Cyprus, Denmark, Spain, France, Greece, Iraq, Italy, Malta, Norway, the United Kingdom, Turkey and Yugoslavia, the band 2 502 - 2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

(MOD) **S5.115** The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **N38/S31** and Article **38**/Appendix **S13** by stations of the maritime mobile service engaged in coordinated search and rescue operations.

NOC **S5.116**

MOD **S5.117** *Alternative allocation:* in Belgium, Bosnia and Herzegovina, Cameroon, Cyprus, Côte d'Ivoire, Denmark, Egypt, Spain, France, Greece, Iceland, Italy, Liberia, Malta, Norway, the United Kingdom, Singapore, Sri Lanka, Togo, Turkey and Yugoslavia, the band 3 155 - 3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD

kHz
3 230 – 4 063

Allocation to Services		
Region 1	Region 2	Region 3
3 230 – 3 400	FIXED MOBILE except aeronautical mobile BROADCASTING S5.113 S5.116 S5.118	
3 400 – 3 500	AERONAUTICAL MOBILE (R)	
3 500 – 3 800 AMATEUR S5.120 FIXED MOBILE except aeronautical mobile S5.92	**3 500 – 3 750** AMATEUR S5.120 S5.119	**3 500 – 3 900** AMATEUR S5.120 FIXED MOBILE
3 800 – 3 900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	**3 750 – 4 000** AMATEUR S5.120 FIXED MOBILE except aeronautical mobile (R)	
3 900 – 3 950 AERONAUTICAL MOBILE (OR) S5.123		**3 900 – 3 950** AERONAUTICAL MOBILE BROADCASTING
3 950 – 4 000 FIXED BROADCASTING	S5.122 S5.124 S5.125	**3 950 – 4 000** FIXED BROADCASTING S5.126
4 000 – 4 063	FIXED MARITIME MOBILE S5.127 S5.126	

MOD **S5.118** *Additional allocation:* in the United States, Japan, Mexico, Peru and Uruguay, the band 3 230 - 3 400 kHz is also allocated to the radiolocation service on a secondary basis.

NOC **S5.119**

NOC **S5.120**

SUP **S5.121**

NOC **S5.122**

MOD **S5.123** *Additional allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900 - 3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.124** to **S5.126**

(MOD) **S5.127** The use of the band 4 000 - 4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **4374/S52.220** and Appendix **16/S17**).

(MOD)

kHz
4 063 – 5 450

Allocation to Services		
Region 1	Region 2	Region 3
4 063 – 4 438	MARITIME MOBILES S5.109 S5.110 S5.130 S5.131 S5.132 S5.128 S5.129	
4 438 – 4 650 FIXED MOBILE except aeronautical mobile (R)		**4 438 – 4 650** FIXED MOBILE except aeronautical mobile
4 650 – 4 700	AERONAUTICAL MOBILE (R)	
4 700 – 4 750	AERONAUTICAL MOBILE (OR)	
4 750 – 4 850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING S5.113	**4 750 – 4 850** FIXED MOBILE except aeronautical mobile (R) BROADCASTING S5.113	**4 750 – 4 850** FIXED BROADCASTING S5.113 Land Mobile
4 850 – 4 995	FIXED LAND MOBILE BROADCASTING S5.113	
4 995 – 5 003	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	
5 003 – 5 005	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
5 005 – 5 060	FIXED BROADCASTING S5.113	
5 060 – 5 250	FIXED Mobile except aeronautical mobile S5.133	
5 250 – 5 450	FIXED MOBILE except aeronautical mobile	

MOD **S5.128** In Afghanistan, Argentina, Armenia, Australia, Azerbaijan, Belarus, Botswana, Burkina Faso, Central African Republic, China, Georgia, India, Kazakstan, Mali, Moldova, Niger, Kyrgyzstan, Russia, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063 - 4 123 kHz, 4 130 - 4 133 kHz and 4 408 - 4 438 kHz, stations of limited power in the fixed service which are situated at least 600 km from the coast may operate on condition that harmful interference is not caused to the maritime mobile service.

NOC **S5.129**

(MOD) **S5.130** The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **N38/S31** and **60/S52** and in Articles **37** and **38/**Appendix **S13**.

(MOD) **S5.131** The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques (see Resolution **339 WRC-95**).

(MOD) **S5.132** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of Maritime Safety Information (MSI) (see Resolution **333 (Mob-87)** and Appendix **31/S17**).

MOD **S5.133** *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130 - 5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **S5.33**).

(MOD)

kHz
5 450 – 7 100

Allocation to Services		
Region 1	Region 2	Region 3
5 450 – 5 480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	**5 450 – 5 480** AERONAUTICAL MOBILE (R)	**5 450 – 5 480** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
5 480 – 5 680	AERONAUTICAL MOBILE (R) S5.111 S5.115	
5 680 – 5 730	AERONAUTICAL MOBILE (OR) S5.111 S5.115	
5 730 – 5 900 FIXED LAND MOBILE	**5 730 – 5 900** FIXED MOBILE except aeronautical mobile (R)	**5 730 – 5 900** FIXED Mobile except aeronautical mobile (R)
5 900 – 5 950	BROADCASTING S5.134 S5.135 S5.136	
5 950 – 6 200	BROADCASTING	
6 200 – 6 525	MARITIME MOBILE S5.109 S5.110 S5.130 S5.132 S5.137	
6 525 – 6 685	AERONAUTICAL MOBILE (R)	
6 685 – 6 765	AERONAUTICAL MOBILE (OR)	
6 765 – 7 000	FIXED Land Mobile S5.139 S5.138	
7 000 – 7 100	AMATEUR S5.120 AMATEUR-SATELLITE S5.140 S5.141	

(MOD) **S5.134** The use of the bands 5 900 - 5 950 kHz, 7 300 - 7 350 kHz, 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz, 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz by the broadcasting service is limited to single-sideband emissions with the characteristics specified in Appendix **45/S11** to the Radio Regulations.

(MOD) **S5.135** The use of the bands 5 900 - 5 950 kHz, 7 300 - 7 350 kHz, 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz, 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz by the broadcasting service shall be subject to the planning procedures to be drawn up by a competent world radio conference.

(MOD) **S5.136** The band 5 900 - 5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

(MOD) **S5.137** On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200 - 6 213.5 kHz and 6 220.5 - 6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

MOD **S5.138** The following bands:

6 765 - 6 795 kHz	(centre frequency 6 780 kHz),
433.05 - 434.79 MHz	(centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **S5.280**,
61 - 61.5 GHz	(centre frequency 61.25 GHz),
122 - 123 GHz	(centre frequency 122.5 GHz), and
244 - 246 GHz	(centre frequency 245 GHz)

are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other

administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

MOD **S5.139** *Different category of service:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6 765 - 7 000 kHz to the land mobile service is on a primary basis (see No. **S5.33**).

MOD **S5.140** *Additional allocation:* in Angola, Iraq, Rwanda, Somalia and Togo, the band 7 000 - 7 050 kHz is also allocated to the fixed service on a primary basis.

MOD **S5.141** *Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya, Madagascar and Malawi, the band 7 000 - 7 050 kHz is allocated to the fixed service on a primary basis.

(MOD)

kHz
7 100 – 10 003

Allocation to Services		
Region 1	Region 2	Region 3
7 100 – 7 300 BROADCASTING	**7 100 – 7 300** AMATEUR S5.120 S5.142	**7 100 – 7 300** BROADCASTING
7 300 – 7 350	BROADCASTING S5.134 S5.135 S5.143	
7 350 – 8 100	FIXED Land Mobile S5.144	
8 100 – 8 195	FIXED MARITIME MOBILE	
8 195 – 8 815	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145 S5.111	
8 815 – 8 965	AERONAUTICAL MOBILE (R)	
8 965 – 9 040	AERONAUTICAL MOBILE (OR)	
9 040 – 9 400	FIXED	
9 400 – 9 500	BROADCASTING S5.134 S5.135 S5.146	
9 500 – 9 900	BROADCASTING S5.147 S5.148	
9 900 – 9 995	FIXED	
9 995 – 10 003	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) S5.111	

NOC **S5.142**

(MOD) **S5.143** The band 7 300 - 7 350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution **21** **(Rev.WRC-95)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

NOC **S5.144**

(MOD) **S5.145** The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **N38/S31** and **60/S52** and in Article **38/**Appendix **S13**.

(MOD) **S5.146** The bands 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution **21** **(Rev.WRC-95)**. After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

NOC **S5.147**

NOC **S5.148**

(MOD)

kHz
10 003 – 13 410

Allocation to Services		
Region 1	Region 2	Region 3
10 003 – 10 005	STANDARD FREQUENCY AND TIME SIGNAL Space Research S5.111	
10 005 – 10 100	AERONAUTICAL MOBILE (R) S5.111	
10 100 – 10 150	FIXED Amateur S5.120	
10 150 – 11 175	FIXED Mobile except aeronautical mobile (R)	
11 175 – 11 275	AERONAUTICAL MOBILE (OR)	
11 275 – 11 400	AERONAUTICAL MOBILE (R)	
11 400 – 11 600	FIXED	
11 600 – 11 650	BROADCASTING S5.134 S5.135 S5.146	
11 650 – 12 050	BROADCASTING S5.147 S5.148	
12 050 – 12 100	BROADCASTING S5.134 S5.135 S5.146	
12 100 – 12 230	FIXED	
12 230 – 13 200	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
13 200 – 13 260	AERONAUTICAL MOBILE (OR)	
13 260 – 13 360	AERONAUTICAL MOBILE (R)	
13 360 – 13 410	FIXED RADIO ASTRONOMY S5.149	

MOD **S5.149** In making assignments to stations of other services to which the bands:

13 360 - 13 410 kHz,
25 550 - 25 670 kHz,
37.5 - 38.25 MHz,
73 - 74.6 MHz in Regions 1 and 3,
79.75 - 80.25 MHz in Region 3,
150.05 - 153 MHz in Region 1,
322 - 328.6 MHz*,
406.1 - 410 MHz,
608 - 614 MHz in Regions 1 and 3,
1 330 - 1 400 MHz*,
1 610.6 - 1 613.8 MHz*,
1 660 - 1 670 MHz,
1 718.8 - 1 722.2 MHz*,
2 655 - 2 690 MHz,
3 260 - 3 267 MHz*,
3 332 - 3 339 MHz*,
3 345.8 - 3 352.5 MHz*,
4 825 - 4 835 MHz*,
4 950 - 4 990 MHz,
4 990 - 5 000 MHz,
6 650 - 6 675.2 MHz*,
10.6 - 10.68 GHz,
14.47 - 14.5 GHz*,
22.01 - 22.21 GHz*,
22.21 - 22.5 GHz,
22.81 - 22.86 GHz*,
23.07 - 23.12 GHz*,
31.2 - 31.3 GHz,
31.5 - 31.8 GHz in Regions 1 and 3,
36.43 - 36.5 GHz*,
42.5 - 43.5 GHz,
42.77 - 42.87 GHz*,
43.07 - 43.17 GHz*,
43.37 - 43.47 GHz*,
48.94 - 49.04 GHz*,
72.77 - 72.91 GHz*,
93.07 - 93.27 GHz*,
97.88 - 98.08 GHz*,
140.69 - 140.98 GHz*,
144.68 - 144.98 GHz*,
145.45 - 145.75 GHz*,
146.82 - 147.12 GHz*,
150 - 151 GHz*,
174.42 - 175.02 GHz*,
177 - 177.4 GHz*,
178.2 - 178.6 GHz*,
181 - 181.46 GHz*,
186.2 - 186.6 GHz*,
250 - 251 GHz*,
257.5 - 258 GHz*,
261 - 265 GHz,
262.24 - 262.76 GHz*,
265 - 275 GHz,
265.64 - 266.16 GHz*,
267.34 - 267.86 GHz*,
271.74 - 272.26 GHz*

are allocated (* indicates radio astronomy use for spectral line observations), administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **343/S4.5** and **344/S4.6** and Article **36/S29**).

(MOD)

kHz
13 410 – 15 600

Allocation to Services		
Region 1	Region 2	Region 3
13 410 – 13 570	FIXED Mobile except aeronautical mobile (R) S5.150	
13 570 – 13 600	BROADCASTING S5.134 S5.135 S5.151	
13 600 – 13 800	BROADCASTING S5.148	
13 800 – 13 870	BROADCASTING S5.134 S5.135 S5.151	
13 870 – 14 000	FIXED Mobile except aeronautical mobile (R)	
14 000 – 14 250	AMATEUR S5.120 AMATEUR-SATELLITE	
14 250 – 14 350	AMATEUR S5.120 S5.152	
14 350 – 14 990	FIXED Mobile except aeronautical mobile (R)	
14 990 – 15 005	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) S5.111	
15 005 – 15 010	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
15 010 – 15 100	AERONAUTICAL MOBILE (OR)	
15 100 – 15 600	BROADCASTING S5.148	

MOD **S5.150** The following bands:

13 553 - 13 567 kHz	(centre frequency 13 560 kHz),
26 957 - 27 283 kHz	(centre frequency 27 120 kHz),
40.66 - 40.70 MHz	(centre frequency 40.68 MHz),
902 - 928 MHz	in Region 2 (centre frequency 915 MHz),
2 400 - 2 500 MHz	(centre frequency 2 450 MHz),
5 725 - 5 875 MHz	(centre frequency 5 800 MHz), and
24 - 24.25 GHz	(centre frequency 24.125 GHz)

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **1815/S15.13**.

(MOD) **S5.151** The bands 13 570 - 13 600 kHz and 13 800 - 13 870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (Rev.WRC-95)**. After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

MOD **S5.152** *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, Côte d'Ivoire, Georgia, the Islamic Republic of Iran, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 14 250 - 14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.

(MOD)

kHz
15 600 – 19 800

Allocation to Services		
Region 1	Region 2	Region 3
15 600 – 15 800	BROADCASTING S5.134 S5.135 S5.146	
15 800 – 16 360	FIXED S5.153	
16 360 – 17 410	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
17 410 – 17 480	FIXED	
17 480 – 17 550	BROADCASTING S5.134 S5.135 S5.146	
17 550 – 17 900	BROADCASTING S5.148	
17 900 – 17 970	AERONAUTICAL MOBILE (R)	
17 970 – 18 030	AERONAUTICAL MOBILE (OR)	
18 030 – 18 052	FIXED	
18 052 – 18 068	FIXED Space Research	
18 068 – 18 168	AMATEUR S5.120 AMATEUR-SATELLITE S5.154	
18 168 – 18 780	FIXED Mobile except aeronautical mobile	
18 780 – 18 900	MARITIME MOBILE	
18 900 – 19 020	BROADCASTING S5.134 S5.135 S5.146	
19 020 – 19 680	FIXED	
19 680 – 19 800	MARITIME MOBILE S5.132	

NOC **S5.153**

MOD **S5.154** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 18 068 - 18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW.

MOD

kHz
19 800 – 23 350

Allocation to Services		
Region 1	Region 2	Region 3
19 800 – 19 990	FIXED	
19 990 – 19 995	STANDARD FREQUENCY AND TIME SIGNAL Space Research S5.111	
19 995 – 20 010	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) S5.111	
20 010 – 21 000	FIXED Mobile	
21 000 – 21 450	AMATEUR S5.120 AMATEUR-SATELLITE	
21 450 – 21 850	BROADCASTING S5.148	
21 850 – 21 870	FIXED S5.155A S5.155	
21 870 – 21 924	FIXED S5.155B	
21 924 – 22 000	AERONAUTICAL MOBILE (R)	
22 000 – 22 855	MARITIME MOBILE S5.132 S5.156	
22 855 – 23 000	FIXED S5.156	
23 000 – 23 200	FIXED Mobile except aeronautical mobile (R) S5.156	
23 200 – 23 350	FIXED S5.156A AERONAUTICAL MOBILE (OR)	

MOD **S5.155** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the band 21 850 - 21 870 kHz is also allocated to the aeronautical mobile (R) services on a primary basis.

ADD **S5.155A** In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21 850 - 21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

ADD **S5.155B** The band 21 870 - 21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

NOC **S5.156**

ADD **S5.156A** The use of the band 23 200 - 23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

MOD

kHz
23 350 – 27 500

Allocation to Services		
Region 1	Region 2	Region 3
23 350 – 24 000	FIXED MOBILE except aeronautical mobile S5.157	
24 000 – 24 890	FIXED LAND MOBILE	
24 890 – 24 990	AMATEUR S5.120 AMATEUR-SATELLITE	
24 990 – 25 005	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	
25 005 – 25 010	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
25 010 – 25 070	FIXED MOBILE except aeronautical mobile	
25 070 – 25 210	MARITIME MOBILE	
25 210 – 25 550	FIXED MOBILE except aeronautical mobile	
25 550 – 25 670	RADIO ASTRONOMY S5.149	
25 670 – 26 100	BROADCASTING	
26 100 – 26 175	MARITIME MOBILE S5.132	
26 175 – 27 500	FIXED MOBILE except aeronautical mobile S5.150	

(MOD)

MHz
27.5 – 40.98

Allocation to Services		
Region 1	Region 2	Region 3
27.5 – 28	METEOROLOGICAL AIDS FIXED MOBILE	
28 – 29.7	AMATEUR AMATEUR-SATELLITE	
29.7 – 30.005	FIXED MOBILE	
30.005 – 30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
30.01 – 37.5	FIXED MOBILE	
37.5 – 38.25	FIXED MOBILE Radio Astronomy S5.149	
38.25 – 39.986	FIXED MOBILE	
39.986 – 40.02	FIXED MOBILE Space Research	
40.02 – 40.98	FIXED MOBILE S5.150	

NOC **S5.157**
SUP **S5.158**
SUP **S5.159**

(MOD)

MHz
40.98 – 68

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>40.98 – 41.015</td><td colspan="2">FIXED
MOBILE
Space Research
S5.160 S5.161</td></tr>
<tr><td>41.015 – 44</td><td colspan="2">FIXED
MOBILE
S5.160 S5.161</td></tr>
<tr><td>44 – 47</td><td colspan="2">FIXED
MOBILE
S5.162</td></tr>
<tr><td rowspan="3">47 – 68
BROADCASTING

S5.163 S5.164 S5.165
S5.169 S5.171</td><td>47 – 50
FIXED
MOBILE</td><td>47 – 50
FIXED
MOBILE
BROADCASTING</td></tr>
<tr><td colspan="2">50 – 54
AMATEUR
S5.166 S5.167 S5.168 S5.170</td></tr>
<tr><td>54 – 68
BROADCASTING
Fixed
Mobile

S5.172</td><td>54 – 68
FIXED
MOBILE
BROADCASTING</td></tr>
</table>

MOD **S5.160** *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Rwanda, South Africa, Swaziland and Zaire, the band 41 - 44 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

(MOD) **S5.161** *Additional allocation:* in the Islamic Republic of Iran and Japan, the band 41 - 44 MHz is also allocated to the radiolocation service on a secondary basis.

NOC **S5.162**

MOD **S5.163** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 47 - 48.5 MHz and 56.5 - 58 MHz are also allocated to the fixed and land mobile services on a secondary basis.

MOD **S5.164** *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Côte d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syria, the United Kingdom, Senegal, Slovenia, Sweden, Switzerland, Swaziland, Togo, Tunisia, Turkey and Yugoslavia, the band 47 - 68 MHz and in Romania, the band 47 - 58 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

MOD **S5.165** *Additional allocation:* in Angola, Cameroon, the Congo, Madagascar, Mozambique, Somalia, Sudan, Tanzania and Chad, the band 47 - 68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

NOC **S5.166**

MOD **S5.167** *Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Indonesia, the Islamic Republic of Iran, Malaysia, Pakistan, Singapore and Thailand, the band 50 - 54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis.

NOC **S5.168** to **S5.170**

MOD **S5.171** *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Mali, Namibia, Rwanda, South Africa, Swaziland, Zaire and Zimbabwe, the band 54 - 68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

(MOD) **S5.172** *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54 - 68 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

(MOD)

MHz
68 – 75.2

Allocation to Services		
Region 1	Region 2	Region 3
68 – 74.8 FIXED MOBILE except aeronautical mobile S5.149 S5.174 S5.175 S5.177 S5.179	**68 – 72** BROADCASTING Fixed Mobile S5.173	**68 – 74.8** FIXED MOBILE S5.149 S5.176 S5.179
	72 – 73 FIXED MOBILE	
	73 – 74.6 RADIO ASTRONOMY S5.178	
	74.6 – 74.8 FIXED MOBILE	
74.8 – 75.2	AERONAUTICAL RADIONAVIGATION S5.180 S5.181	

MOD **S5.173** *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68 - 72 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

MOD **S5.174** *Alternative allocation:* in Bulgaria, Hungary, Poland, Romania and Slovakia, the band 68 - 73 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions in the Final Acts of the Special Regional Conference (Geneva, 1960).

MOD **S5.175** *Alternative allocation:* in Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 68 - 73 MHz and 76 - 87.5 MHz are allocated to the broadcasting service on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned.

NOC **S5.176**

MOD **S5.177** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 73 - 74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.178** *Additional allocation:* in Colombia, Costa Rica, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73 - 74.6 MHz is also allocated to the fixed and mobile services on a secondary basis.

MOD **S5.179** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6 - 74.8 MHz and 75.2 - 75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only.

NOC **S5.180**

MOD **S5.181** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Syria, the United Kingdom, Sweden, and Switzerland, the band 74.8 - 75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under Article **14**/No. **S9.21**.

MOD

MHz
75.2 – 137

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="4">75.2 – 87.5
FIXED
MOBILE except aeronautical mobile

S5.175 S5.179 S5.184 S5.187</td><td colspan="2">75.2 – 75.4
FIXED
MOBILE
S5.179</td></tr>
<tr><td>75.4 – 76
FIXED
MOBILE</td><td>75.4 – 87
FIXED
MOBILE

S5.149 S5.182 S5.183 S5.186 S5.188</td></tr>
<tr><td rowspan="2">76 – 88
BROADCASTING
Fixed
Mobile

S5.185</td><td rowspan="2">87 – 100
FIXED
MOBILE
BROADCASTING</td></tr>
<tr><td>87.5 – 100
BROADCASTING

S5.190</td></tr>
<tr><td>88 – 100
BROADCASTING</td></tr>
<tr><td>100 – 108</td><td colspan="2">BROADCASTING
S5.192 S5.194</td></tr>
<tr><td>108 – 117.975</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
S5.197</td></tr>
<tr><td>117.975 – 136</td><td colspan="2">AERONAUTICAL MOBILE (R)
S5.111 S5.198 S5.199 S5.200 S5.201</td></tr>
<tr><td>136 – 137</td><td colspan="2">AERONAUTICAL MOBILE (R)
Fixed
Mobile except aeronautical mobile (R)
S5.198 S5.202 S5.203</td></tr>
</table>

NOC **S5.182**

NOC **S5.183**

MOD **S5.184** *Additional allocation:* in Bulgaria, Hungary and Romania, the band 76 - 87.5 MHz is also allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).

(MOD) **S5.185** *Different category of service:* in the United States, the French Overseas Departments in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76 - 88 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

MOD **S5.186** *Additional allocation:* in Region 3 (except in the Republic of Korea, India, Japan, Malaysia, the Philippines and Singapore), the band 79.75 - 80.25 MHz is also allocated to the radio astronomy service on a primary basis.

NOC **S5.187**

MOD **S5.188** *Additional allocation:* in Australia, the band 85 - 87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.

SUP **S5.189**

MOD **S5.190** *Additional allocation:* in France, Ireland, Israel, Italy and Monaco, the band 87.5 - 88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

SUP **S5.191**

MOD **S5.192** *Additional allocation:* in China, the Republic of Korea, the Philippines and Singapore, the band 100 - 108 MHz is also allocated to the fixed and mobile services on a primary basis.

SUP **S5.193**

MOD **S5.194** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Lebanon, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Syria, Russia, Somalia, Tajikistan, Turkmenistan, Turkey and Ukraine, the band 104 - 108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis.

SUP **S5.195**

SUP **S5.196**

MOD **S5.197** *Additional allocation:* in Germany, Austria, Cyprus, Denmark, Egypt, Spain, France, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Pakistan, Syria, the United Kingdom, and Sweden, the band 108 - 111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under Article **14**/No. **S9.21**.

MOD **S5.198** *Additional allocation:* the band 117.975 - 137 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

(MOD) **S5.199** The bands 121.45 - 121.55 MHz and 242.95 - 243.05 MHz are also allocated to the mobile-satellite service for the reception on board satellites of emissions from emergency position-indicating radiobeacons transmitting at 121.5 MHz and 243 MHz (see Nos. **3259** and **3267**/Appendix **S13**).

(MOD) **S5.200** In the band 117.975 - 136 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **N38/S31** and Article **38**/Appendix **S13** for distress and safety purposes with stations of the aeronautical mobile service.

(MOD) **S5.201** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, Georgia, Hungary, the Islamic Republic of Iran, Iraq, Japan, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 132 - 136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service.

MOD **S5.202** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan, Turkey and Ukraine, the allocation of the band 136 - 137 MHz to the aeronautical mobile (OR) service is on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service.

MOD **S5.203** *Additional allocation:* the band 136 - 137 MHz is also allocated to the space operation service (space-to-Earth), meteorological-satellite service (space-to-Earth) and the space research service (space-to-Earth) on a secondary basis (see Resolution **408 (Mob-87)**).

MOD

MHz
137 – 138

Allocation to Services		
Region 1	Region 2	Region 3
137 – 137.025	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	
137.025 – 137.175	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	
137.175 – 137.825	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	
137.825 – 138	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	

MOD **S5.204** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Malaysia, Oman, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Thailand, Yemen and Yugoslavia, the band 137 - 138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **S5.33**).

(MOD) **S5.205** *Different category of service:* in Israel and Jordan, the allocation of the band 137 - 138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **S5.33**).

MOD **S5.206** *Different category of service:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Egypt, Finland, France, Georgia, Greece, Hungary, Kazakstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Syria, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137 - 138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. **S5.33**).

NOC **S5.207**

MOD **S5.208** The use of the band 137 - 138 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. The power flux-density limit indicated in Annex 2 of Resolution **46 (Rev. WRC-95)**/ Annex 1 of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it. Additionally, until that time, the provisions of Resolution **714 (WRC-95)** apply.

ADD **S5.208A** In making assignments to space stations in the mobile-satellite service in the bands 137 - 138 MHz, 387 - 390 MHz and 400.15 - 401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05 - 153 MHz, 322 - 328.6 MHz, 406.1 - 410 MHz and 608 - 614 MHz from harmful interference from unwanted emissions. For information, the threshold levels of interference detrimental to the radio astronomy service to be protected are shown in Table 1 of Recommendation ITU-R **RA.769-1**.

MOD **S5.209** The use of the bands 137 - 138 MHz, 148 - 149.9 MHz, 400.15 - 401 MHz, 455 - 456 MHz and 459 - 460 MHz by the mobile-satellite service and the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the land mobile-satellite service is limited to non-geostationary-satellite systems.

MOD

MHz
138 – 148

Allocation to Services		
Region 1	Region 2	Region 3
138 – 143.6 AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	**138 – 143.6** FIXED MOBILE RADIOLOCATION Space Research (space-to-Earth)	**138 – 143.6** FIXED MOBILE Space Research (space-to-Earth) S5.207 S5.213
143.6 – 143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) S5.211 S5.212 S5.214	**143.6 – 143.65** FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	**143.6 – 143.65** FIXED MOBILE SPACE RESEARCH (space-to-Earth) S5.207 S5.213
143.65 – 144 AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	**143.65 – 144** FIXED MOBILE RADIOLOCATION Space Research (space-to-Earth)	**143.65 – 144** FIXED MOBILE Space Research (space-to-Earth) S5.207 S5.213
144 – 146	AMATEUR S5.120 AMATEUR-SATELLITE S5.216	
146 – 148 FIXED MOBILE except aeronautical mobile (R)	**146 – 148** AMATEUR S5.217	**146 – 148** AMATEUR FIXED MOBILE S5.217

MOD **S5.210** *Additional allocation:* in Austria, Belgium, France, Italy, Liechtenstein, Luxembourg, Slovakia, the Czech Republic, the United Kingdom and Switzerland, the bands 138 - 143.6 MHz and 143.65 - 144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis.

MOD **S5.211** *Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Bosnia and Herzegovina, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Malta, Norway, the Netherlands, Qatar, the United Kingdom, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia, Turkey and Yugoslavia, the band 138 - 144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.

NOC **S5.212**

NOC **S5.213**

MOD **S5.214** *Additional allocation:* in Bosnia and Herzegovina, Croatia, Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Slovenia, Somalia, Sudan, Tanzania and Yugoslavia, the band 138 - 144 MHz is also allocated to the fixed service on a primary basis.

SUP **S5.215**

NOC **S5.216**

NOC **S5.217**

MOD

MHz
148 – 156.8375

Allocation to Services		
Region 1	Region 2	Region 3
148 – 149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	**148 – 149.9** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	
149.9 – 150.05	LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.223	
150.05 – 153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	**150.05 – 156.7625** FIXED MOBILE	
153 – 154 FIXED MOBILE except aeronautical mobile (R) Meteorological Aids		
154 – 156.7625 FIXED MOBILE except aeronautical mobile (R) S5.226 S5.227	S5.225 S5.226 S5.227	
156.7625 – 156.8375	MARITIME MOBILE (distress and calling) S5.111 S5.226	

MOD **S5.218** *Additional allocation:* the band 148 - 149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

MOD **S5.219** The use of the band 148 - 149.9 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148 - 149.9 MHz.

MOD **S5.220** The use of the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz by the land mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. The land mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz.

MOD **S5.221** Stations of the mobile-satellite service in the band 148 - 149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Burkina Faso, Cameroon, Canada, China, Cyprus, Colombia, Congo, the Republic of Korea, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Ecuador, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Honduras, Hungary, India, Indonesia, the Islamic Republic of Iran, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Russia, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Suriname, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe.

NOC **S5.222**

(MOD) **S5.223** Recognizing that the use of the band 149.9 - 150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. **342/S4.4**.

MOD **S5.224** In the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz, the allocation to the land mobile-satellite service shall be on a secondary basis until 1 January 1997.

NOC **S5.225**

(MOD) **S5.226** The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article **N38/S31** and Article **38/**Appendix **S13**.

In the bands 156 - 156.7625 MHz, 156.8375 - 157.45 MHz, 160.6 - 160.975 MHz and 161.475 - 162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **N38/S31** and **60/S52** and Article **38/**Appendix **S13**).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequency 156.8 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

(MOD) **S5.227** In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling (see Resolution **323** (**Mob-87**)). The conditions for the use of this frequency are prescribed in Articles **N38/S31** and **60/S52** and Article **38/**Appendix **S13** and Appendix **18/S18**.

SUP **S5.228**

MOD

MHz
156.8375 – 230

Allocation to Services		
Region 1	Region 2	Region 3
156.8375 – 174 FIXED MOBILE except aeronautical mobile S5.226 S5.229	**156.8375 – 174** FIXED MOBILE S5.226 S5.230 S5.231 S5.232	
174 – 223 BROADCASTING S5.235 S5.237 S5.243 S5.244	**174 – 216** BROADCASTING Fixed Mobile S5.234	**174 – 223** FIXED MOBILE BROADCASTING S5.233 S5.238 S5.240 S5.245
	216 – 220 FIXED MARITIME MOBILE Radiolocation S5.241 S5.242	
	220 – 225 AMATEUR FIXED MOBILE Radiolocation S5.241	
223 – 230 BROADCASTING Fixed Mobile S5.243 S5.244 S5.246 S5.247		**223 – 230** FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation S5.250

NOC **S5.229**

MOD **S5.230** *Additional allocation:* in China, the band 163 - 167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.231**

NOC **S5.232**

MOD **S5.233** *Additional allocation:* in China, the band 174 - 184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.

(MOD) **S5.234** *Different category of service:* in Mexico, the allocation of the band 174 - 216 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**).

MOD **S5.235** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174 - 223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

S5.236 *(Not used)*

MOD **S5.237** *Additional allocation:* in the Congo, Eritrea, Ethiopia, Gambia, Guinea, Libya, Malawi, Mali, Uganda, Senegal, Sierra Leone, Somalia, Tanzania and Zimbabwe, the band 174 - 223 MHz is also allocated to the fixed and mobile services on a secondary basis.

NOC **S5.238**

SUP **S5.239**

MOD **S5.240** *Additional allocation:* in China and India, the band 216 - 223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

NOC **S5.241** to **S5.245**

MOD **S5.246** *Alternative allocation:* in Spain, France, Israel and Monaco, the band 223 - 230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. **S5.33**) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause

harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.

MOD **S5.247** *Additional allocation:* in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syria, the band 223 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

S5.248 *(Not used)*

SUP **S5.249**

MOD

MHz
225 – 322

Allocation to Services		
Region 1	Region 2	Region 3
	225 – 235 FIXED MOBILE	
230 – 235 FIXED MOBILE S5.244 S5.247 S5.251 S5.252		**230 – 235** FIXED MOBILE AERONAUTICAL RADIONAVIGATION S5.250
235 – 267	FIXED MOBILE S5.111 S5.199 S5.252 S5.254 S5.256	
267 – 272	FIXE MOBILE Space Operation (space-to-Earth) S5.254 S5.257	
272 – 273	SPACE OPERATION (space-to-Earth) FIXED MOBILE S5.254	
273 – 312	FIXED MOBILE S5.254	
312 – 315	FIXED MOBILE Mobile-Satellite (Earth-to-space) S5.254 S5.255	
315 – 322	FIXED MOBILE S5.254	

NOC **S5.250**

MOD **S5.251** *Additional allocation:* in Nigeria, the band 230 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.252** *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230 - 238 MHz and 246 - 254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

SUP **S5.253**

MOD **S5.254** The bands 235 - 322 MHz and 335.4 - 399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under Article **14**/No. **S9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations.

MOD **S5.255** The bands 312 - 315 MHz (Earth-to-space) and 387 - 390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

(MOD) **S5.256** The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes (see Article **38**/ Appendix **S13**).

MOD **S5.257** The band 267 - 272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD

MHz
322 – 400.15

Allocation to Services		
Region 1	Region 2	Region 3
322 – 328.6	FIXED MOBILE RADIO ASTRONOMY S5.149	
328.6 – 335.4	AERONAUTICAL RADIONAVIGATION S5.258 S5.259	
335.4 – 387	FIXED MOBILE S5.254	
387 – 390	FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.208A S5.254 S5.255	
390 – 399.9	FIXED MOBILE S5.254	
399.9 – 400.05	LAND MOBILE-SATELLITE (Earth-to-space) S5.209 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.224 S5.260	
400.05 – 400.15	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) S5.261 S5.262	

MOD **S5.258** The use of the band 328.6 - 335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).

MOD **S5.259** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Syria, the United Kingdom, Sweden and Switzerland, the band 328.6 - 335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under Article **14/** No. **S9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under Article **14/** No. **S9.21**.

(MOD) **S5.260** Recognizing that the use of the band 399.9 - 400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. **342/S4.4**.

NOC **S5.261**

MOD **S5.262** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, Estonia, Georgia, Hungary, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kazakstan, Kuwait, Liberia, Malaysia, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, Russia, Singapore, Somalia, Sri Lanka, Tajikistan, Turkmenistan, Ukraine and Yugoslavia, the band 400.05 - 401 MHz is also allocated to the fixed and mobile services on a primary basis.

MOD

MHz
400.15 – 410

Allocation to Services		
Region 1	Region 2	Region 3
400.15 – 401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264	
401 – 402	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) Earth Exploration-Satellite (Earth-to-space) Fixed Meteorological-Satellite (Earth-to-space) Mobile except aeronautical mobile	
402 – 403	METEOROLOGICAL AIDS Earth Exploration-Satellite (Earth-to-space) Fixed Meteorological-Satellite (Earth-to-space) Mobile except aeronautical mobile	
403 – 406	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	
406 – 406.1	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267	
406.1 – 410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	

NOC **S5.263**

MOD **S5.264** The use of the band 400.15 - 401 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. The power flux-density limit indicated in Annex 2 of Resolution **46 (Rev. WRC-95)**/Annex 1 of Appendix **S5** shall apply until such time as a competent world radiocommunication conference revises it.

SUP **S5.265**

(MOD) **S5.266** The use of the band 406 - 406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **N38/S31** and Article **38**/Appendix **S13**).

NOC **S5.267**

MOD

MHz
410 – 455

Allocation to Services		
Region 1	Region 2	Region 3
410 – 420	FIXED MOBILE except aeronautical mobile Space Research (space-to-space) S5.268	
420 – 430	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271	
430 – 440 AMATEUR RADIOLOCATION S5.138 S5.271 S5.272 S5.273 S5.274 S5.275 S5.276 S5.277 S5.280 S5.281 S5.282 S5.283	**430 – 440** RADIOLOCATION Amateur S5.271 S5.276 S5.277 S5.278 S5.279 S5.281 S5.282	
440 – 450	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271 S5.284 S5.285 S5.286	
450 – 455	FIXED MOBILE S5.271 S5.286	

NOC **S5.268**

(MOD) **S5.269** *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420 - 430 MHz and 440 - 450 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

NOC **S5.270**

MOD **S5.271** *Additional allocation:* in Armenia, Azerbaijan, Belarus, China, Estonia, Georgia, India, Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, the United Kingdom, Russia, Tajikistan, Turkmenistan and Ukraine, the band 420 - 460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

(MOD) **S5.272** *Different category of service:* in France, the allocation of the band 430 - 434 MHz to the amateur service is on a secondary basis (see No. **S5.32**).

MOD **S5.273** *Different category of service:* in Denmark, Libya and Norway, the allocation of the bands 430 - 432 MHz and 438 - 440 MHz to the radiolocation service is on a secondary basis (see No. **S5.32**).

NOC **S5.274**

MOD **S5.275** *Additional allocation:* in Bosnia and Herzegovina, Croatia, Finland, The Former Yugoslav Republic of Macedonia, Libya, Slovenia and Yugoslavia, the bands 430 - 432 MHz and 438 - 440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD **S5.276** *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Liechtenstein, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430 - 440 MHz is also allocated to the fixed service on a primary basis and the bands 430 - 435 MHz and 438 - 440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis.

MOD **S5.277** *Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Cameroon, the Congo, Djibouti, Estonia, Gabon, Georgia, Hungary, Kazakstan, Latvia, Malawi, Mali, Moldova, Mongolia, Niger, Uzbekistan, Pakistan, Poland, Kyrgyzstan, Democratic People's Republic of Korea, Slovakia, the Czech Republic, Romania, Russia, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430 - 440 MHz is also allocated to the fixed service on a primary basis.

(MOD) **S5.278** *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430 - 440 MHz to the amateur service is on a primary basis (see No. **S5.33**).

MOD **S5.279** *Additional allocation:* in Mexico, the bands 430 - 435 MHz and 438 - 440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.280** In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Portugal, Slovenia, Switzerland and Yugoslavia, the band 433.05 - 434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **1815/S15.13**.

NOC **S5.281**

(MOD) **S5.282** In the bands 435 - 438 MHz, 1 260 - 1 270 MHz, 2 400 - 2 450 MHz, 3 400 - 3 410 MHz (in Regions 2 and 3 only) and 5 650 - 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **S5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **2741/S25.11**. The use of the bands 1 260 - 1 270 MHz and 5 650 - 5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

NOC **S5.283**

MOD **S5.284** *Additional allocation:* in Canada, the band 440 - 450 MHz is also allocated to the amateur service on a secondary basis.

(MOD) **S5.285** *Different category of service:* in Canada, the allocation of the band 440 - 450 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

MOD **S5.286** The band 449.75 - 450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under Article **14**/No. **S9.21**.

MOD

MHz
455 – 470

Allocation to Services		
Region 1	Region 2	Region 3
455 – 456 FIXED MOBILE S5.271 S5.286C	**455 – 456** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.271 S5.286A S5.286B S5.286C	**455 – 456** FIXED MOBILE S5.271 S5.286C
456 – 459	FIXED MOBILE S5.271 S5.287 S5.288	
459 – 460 FIXED MOBILE S5.271 S5.286C	**459 – 460** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.271 S5.286A S5.286B S5.286C	**459 – 460** FIXED MOBILE S5.271 S5.286C
460 – 470	FIXED MOBILE Meteorological-Satellite (space-to-Earth) S5.287 S5.288 S5.289 S5.290	

MOD **S5.286A** The use of the bands 455 - 456 MHz and 459 - 460 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev. WRC-95)**/No. **S9.11A**.

ADD **S5.286B** Stations in the mobile-satellite service in the bands 455 - 456 MHz and 459 - 460 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services.

ADD **S5.286C** Stations in the mobile-satellite service in the bands 455 - 456 MHz and 459 - 460 MHz shall not constrain the development and use of the fixed and mobile services.

MOD **S5.287** In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R **M.1174**.

MOD **S5.288** In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R **M.1174**.

NOC **S5.289**

MOD **S5.290** *Different category of service:* in Afghanistan, Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Japan, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460 - 470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. **S5.33**), subject to agreement obtained under Article **14**/No. **S9.21**.

MOD

MHz
470 – 890

Allocation to Services		
Region 1	Region 2	Region 3
470 – 790 BROADCASTING S5.149 S5.294 S5.296 S5.300 S5.302 S5.304 S5.306 S5.311 S5.312	**470 – 512** BROADCASTING Fixed Mobile S5.292 S5.293	**470 – 585** FIXED MOBILE BROADCASTING S5.291 S5.298
	512 – 608 BROADCASTING S5.297	**585 – 610** FIXED MOBILE BROADCASTING RADIONAVIGATION S5.149 S5.305 S5.306 S5.307
	608 – 614 RADIO ASTRONOMY Mobile-Satellite except aeronautical mobile-satellite (Earth-to-space)	
	614 – 806 BROADCASTING Fixed Mobile S5.293 S5.309 S5.310 S5.311	**610 – 890** FIXED MOBILE BROADCASTING
790 – 862 FIXED BROADCASTING S5.312 S5.313 S5.314 S5.315 S5.316 S5.319 S5.321	**806 – 890** FIXED MOBILE BROADCASTING	
862 – 890 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 S5.319 S5.323	S5.310 S5.317 S5.318	S5.149 S5.305 S5.306 S5.307 S5.311 S5.320

MOD **S5.291** *Additional allocation:* in China, the band 470 - 485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under Article **14**/No. **S9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.

MOD **S5.292** *Different category of service:* in Mexico and Venezuela, the allocation of the band 470 - 512 MHz to the fixed and mobile services, and in Argentina and Uruguay to the mobile service, is on a primary basis (see No. **S5.33**), subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.293** *Different category of service:* in Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico and Panama, the allocation of the bands 470 - 512 MHz and 614 - 806 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**), subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.294**

SUP **S5.295**

(MOD) **S5.296** *Additional allocation:* in Germany, Austria, Belgium, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libya, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland, Swaziland, Tunisia and Turkey, the band 470 - 790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries mentioned in this footnote, shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote.

MOD **S5.297** *Additional allocation:* in Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica, Mexico and Venezuela, the band 512 - 608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.298**

SUP **S5.299**

NOC **S5.300**

SUP **S5.301**

(MOD) **S5.302** *Additional allocation:* in the United Kingdom, the band 590 - 598 MHz is also allocated to the aeronautical radionavigation service on a primary basis. All new assignments to stations in the aeronautical radionavigation service, including those transferred from the adjacent bands, shall be subject to coordination with the Administrations of the following countries: Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

SUP **S5.303**

MOD **S5.304** *Additional allocation:* in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**), the band 606 - 614 MHz is also allocated to the radio astronomy service on a primary basis.

NOC **S5.305**

MOD **S5.306** *Additional allocation:* in Region 1, except in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**), and in Region 3, the band 608 - 614 MHz is also allocated to the radio astronomy service on a secondary basis.

NOC **S5.307**

SUP **S5.308**

MOD **S5.309** *Different category of service:* in Costa Rica, El Salvador and Honduras, the allocation of the band 614 - 806 MHz to the fixed service is on a primary basis (see No. **S5.33**), subject to agreement obtained under Article **14**/ No. **S9.21**.

MOD **S5.310** *Additional allocation:* in Cuba, the band 614 - 890 MHz is also allocated to the radionavigation service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.311**

MOD **S5.312** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 645 - 862 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

NOC **S5.313** to **S5.315**

MOD **S5.316** *Additional allocation:* in Germany, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Israel, Kenya, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Portugal, Sweden, Switzerland and Yugoslavia, the band 790 - 830 MHz, and in these same countries and in Spain, France, Gabon, Malta and Syria, the band 830 - 862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.

MOD **S5.317** *Additional allocation:* in Region 2 (except Brazil and the United States), the band 806 - 890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. The use of this service is intended for operation within national boundaries.

NOC **S5.318**

(MOD) **S5.319** *Additional allocation:* in Belarus, Russia and Ukraine, the bands 806 - 840 MHz (Earth-to-space) and 856 - 890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.

MOD **S5.320** *Additional allocation:* in Region 3, the bands 806 - 890 MHz and 942 - 960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

NOC **S5.321**

MOD **S5.322** In Region 1, in the band 862 - 960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **S5.10** to **S5.13**) excluding Algeria, Egypt, Spain, Libya and Morocco, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.323** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 862 - 960 MHz is also allocated to the aeronautical radionavigation service on a primary basis until 1 January 1998. Up to this date, the aeronautical radionavigation service may use the band, subject to agreement obtained under Article **14**/No. **S9.21**. After this date, the aeronautical radionavigation service may continue to operate on a secondary basis.

SUP **S5.324**

MOD

MHz
890 – 1 240

Allocation to Services		
Region 1	Region 2	Region 3
890 – 942 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 Radiolocation S5.323	**890 – 902** FIXED MOBILE except aeronautical mobile Radiolocation S5.318 S5.325 **902 – 928** FIXED Amateur Mobile except aeronautical mobile Radiolocation S5.150 S5.325 S5.326 **928 – 942** FIXED MOBILE except aeronautical mobile Radiolocation S5.325	**890 – 942** FIXED MOBILE BROADCASTING Radiolocation S5.327
942 – 960 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 S5.323	**942 – 960** FIXED MOBILE	**942 – 960** FIXED MOBILE BROADCASTING S5.320
960 – 1 215	AERONAUTICAL RADIONAVIGATION S5.328	
1 215 – 1 240	RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329 S5.330 S5.331 S5.333	

MOD **S5.325** *Different category of service:* in the United States, the allocation of the band 890 - 942 MHz to the radiolocation service is on a primary basis (see No. **S5.33**), subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.326** *Different category of service:* in Chile, the band 903 - 905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.327** *Different category of service:* in Australia, the allocation of the band 915 - 928 MHz to the radiolocation service is on a primary basis (see No. **S5.33**).

NOC **S5.328**

(MOD) **S5.329** Use of the radionavigation-satellite service in the band 1 215 - 1 260 MHz shall be subject to the condition that no harmful interference is caused to the radionavigation service authorized under No. **S5.331**.

MOD **S5.330** *Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guinea, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Malawi, Morocco, Mozambique, Nepal, Nigeria, Pakistan, the Philippines, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Thailand, Togo and Yemen, the band 1 215 - 1 300 MHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.331** *Additional allocation:* in Algeria, Germany, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burundi, Cameroon, China, Croatia, Denmark, the United Arab Emirates, France, Greece, India, the Islamic Republic of Iran, Iraq, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, Pakistan, the Netherlands, Portugal, Qatar, Senegal, Slovenia, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Turkey and Yugoslavia, the band 1 215 - 1 300 MHz is also allocated to the radionavigation service on a primary basis.

SUP **S5.332**

NOC **S5.333**

MOD

MHz
1 240 – 1 452

Allocation to Services		
Region 1	Region 2	Region 3
1 240 – 1 260	RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.329 Amateur S5.330 S5.331 S5.333 S5.334	
1 260 – 1 300	RADIOLOCATION Amateur S5.282 S5.330 S5.331 S5.333 S5.334	
1 300 – 1 350	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.149	
1 350 – 1 400 FIXED MOBILE RADIOLOCATION S5.149 S5.338 S5.339	**1 350 – 1 400** RADIOLOCATION S5.149 S5.334 S5.339	
1 400 – 1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	
1 427 – 1 429	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile S5.341	
1 429 – 1 452 FIXED MOBILE except aeronautical mobile S5.341 S5.342	**1 429 – 1 452** FIXED MOBILE S5.343 S5.341	

NOC **S5.334**

SUP **S5.335**

SUP **S5.336**

NOC **S5.337**

MOD **S5.338** In Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the existing installations of the radionavigation service may continue to operate in the band 1 350 - 1 400 MHz.

NOC **S5.339**

MOD **S5.340** All emissions are prohibited in the following bands:

1 400 - 1 427 MHz,	
2 690 - 2 700 MHz	except those provided for by Nos. **S5.421** and **S5.422**,
10.68 - 10.7 GHz	except those provided for by No. **S5.483**,
15.35 - 15.4 GHz	except those provided for by No. **S5.511**,
23.6 - 24 GHz,	
31.3 - 31.5 GHz,	
31.5 - 31.8 GHz	in Region 2,
48.94 - 49.04 GHz	from airborne stations,
51.4 - 54.25 GHz,	
58.2 - 59 GHz,	
64 - 65 GHz,	
86 - 92 GHz,	
105 - 116 GHz,	
140.69 - 140.98 GHz	from airborne stations and from space stations in the space-to-Earth direction,
182 - 185 GHz	except those provided for by No. **S5.563**,
217 - 231 GHz.	

NOC **S5.341**

(MOD) **S5.342** *Additional allocation:* in Belarus, Russia and Ukraine, the band 1 429 - 1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452 - 1 492 MHz is subject to agreement between the administrations concerned.

MOD **S5.343** In Region 2, the use of the band 1 435 - 1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

MOD

MHz
1 452 – 1 530

Allocation to Services		
Region 1	Region 2	Region 3
1 452 – 1 492 FIXED MOBILE except aeronautical mobile BROADCASTING S5.345 S5.347 BROADCASTING-SATELLITE S5.345 S5.347 S5.341 S5.342	**1 452 – 1 492** FIXED MOBILE S5.343 BROADCASTING S5.345 S5.347 BROADCASTING-SATELLITE S5.345 S5.347 S5.341 S5.344	
1 492 – 1 525 FIXED MOBILE except aeronautical mobile S5.341 S5.342	**1 492 – 1 525** FIXED MOBILE S5.343 MOBILE-SATELLITE (space-to-Earth) S5.348A S5.341 S5.344 S5.348	**1 492 – 1 525** FIXED MOBILE S5.341 S5.348A
1 525 – 1 530 SPACE OPERATION (space-to-Earth) FIXED MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Mobile except aeronautical mobile S5.349 Land Mobile-Satellite (space-to-Earth) S5.352 S5.341 S5.342 S5.350 S5.351 S5.354	**1 525 – 1 530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile S5.343 S5.341 S5.351 S5.354	**1 525 – 1 530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Mobile S5.349 S5.341 S5.351 S5.354

(MOD)

MHz
1 530 – 1 535

Allocation to Services		
Region 1	Region 2	Region 3
1 530 – 1 533 SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) LAND MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile except aeronautical mobile S5.341 S5.342 S5.351 S5.354	**1 530 – 1 533** SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) LAND MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile S5.343 S5.341 S5.351 S5.353 S5.354	
1 533 – 1 535 SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile except aeronautical mobile Land Mobile-Satellite (space-to-Earth) S5.352 S5.341 S5.342 S5.351 S5.354	**1 533 – 1 535** SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile S5.343 Land Mobile-Satellite (space-to-Earth) S5.352 S5.341 S5.351 S5.353 S5.354	

(MOD) **S5.344** *Alternative allocation:* in the United States, the band 1 452 - 1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **S5.343**).

NOC **S5.345**

SUP **S5.346**

MOD **S5.347** *Different category of service:* in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Colombia, Cuba, Denmark, Egypt, Spain, Greece, Hungary, Ireland, Italy, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Malawi, Mozambique, Panama, Portugal, Sri Lanka, Sweden, Swaziland, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1 452 - 1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

MOD **S5.348** The use of the band 1 492 - 1 525 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)/** No. **S9.11A**. However, no coordination threshold in Article **S21** for space stations of the mobile-satellite service with respect to terrestrial services shall apply to the situation referred to in No. **S5.343**. With respect to the situation referred to in No. **S5.343**, the requirement for coordination in the band 1 492 - 1 525 MHz will be determined by band overlap.

ADD **S5.348A** In the band 1 492 - 1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of Resolution **46 (Rev.WRC-95)/S.9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Annex 2 to Resolution **46 (Rev.WRC-95)**/Table **S5-2** of Appendix **S5**. The above threshold level of the power flux-density shall apply until it is changed by a competent world radiocommunication conference.

MOD **S5.349** *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Cameroon, Egypt, the United Arab Emirates, France, Georgia, the Islamic Republic of Iran, Iraq, Israel, Kazakstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Moldova, Mongolia, Oman, Uzbekistan, Qatar, Syria, Kyrgyzstan, Romania, Russia, Tajikistan, Turkmenistan, Ukraine, Yemen and Yugoslavia, the allocation of the band 1 525 - 1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **S5.33**).

MOD **S5.350** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Georgia, Kazakstan, Moldova, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 1 525 - 1 530 MHz is also allocated to the aeronautical mobile service on a primary basis.

NOC **S5.351**

NOC **S5.352**

(MOD) **S5.353** *Additional allocation:* in Argentina, Australia, Brazil, Canada, the United States, Malaysia and Mexico, the band 1 530 - 1 544 MHz is also allocated to the mobile-satellite service (space-to-Earth), and the band 1 631.5 - 1 645.5 MHz is also allocated to the mobile-satellite service (Earth-to-space), on a primary basis subject to the following conditions: maritime mobile-satellite distress and safety communications shall have priority access and immediate availability over all other mobile-satellite communications operating under this provision. Communications of mobile-satellite system stations not participating in the global maritime distress and safety system (GMDSS) shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

MOD **S5.354** The use of the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz by the mobile-satellite services is subject to coordination under Resolution **46 (Rev. WRC-95)**/No. **S9.11A**.

MOD

MHz
1 535 – 1 610.6

Allocation to Services		
Region 1	Region 2	Region 3
1 535 – 1 544	MARITIME MOBILE-SATELLITE (space-to-Earth) Land Mobile-Satellite (space-to-Earth) S5.352 S5.341 S5.351 S5.353 S5.354 S5.355	
1 544 – 1 545	MOBILE-SATELLITE (space-to-Earth) S5.341 S5.354 S5.355 S5.356	
1 545 – 1 555	AERONAUTICAL MOBILE-SATELLITE (R) (space-to-Earth) S5.341 S5.351 S5.354 S5.355 S5.357 S5.358 S5.359	
1 555 – 1 559	LAND MOBILE-SATELLITE (space-to-Earth) S5.341 S5.351 S5.354 S5.355 S5.359 S5.360 S5.361 S5.362	
1 559 – 1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) S5.341 S5.355 S5.359 S5.363	
1 610 – 1 610.6 MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610 – 1 610.6** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610 – 1 610.6** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372

MOD

MHz
1 610.6 – 1 631.5

Allocation to Services		
Region 1	Region 2	Region 3
1 610.6 – 1 613.8 MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION S5.149 S5.341 S5.355 S5.359 S5.363 S5.364 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 610.6 – 1 613.8** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) S5.149 S5.341 S5.364 S5.366 S5.367 S5.368 S5.370 S5.372	**1 610.6 – 1 613.8** MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space) S5.149 S5.341 S5.355 S5.359 S5.364 S5.366 S5.367 S5.368 S5.369 S5.372
1 613.8 – 1 626.5 MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-Satellite (space-to-Earth) S5.341 S5.355 S5.359 S5.363 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.371 S5.372	**1 613.8 – 1 626.5** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-Satellite (space-to-Earth) S5.341 S5.364 S5.365 S5.366 S5.367 S5.368 S5.370 S5.372	**1 613.8 – 1 626.5** MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-Satellite (space-to-Earth) Radiodetermination-Satellite (Earth-to-space) S5.341 S5.355 S5.359 S5.364 S5.365 S5.366 S5.367 S5.368 S5.369 S5.372
1 626.5 – 1 631.5 MARITIME MOBILE-SATELLITE (Earth-to-space) Land Mobile-Satellite (Earth-to-space) S5.352 S5.341 S5.351 S5.354 S5.355 S5.359	**1 626.5 – 1 631.5** MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353 S5.354 S5.355 S5.359 S5.373A	

MOD **S5.355** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Niger, Oman, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Togo, Yemen and Zambia, the bands 1 540 - 1 645.5 MHz and 1 646.5 - 1 660 MHz are also allocated to the fixed service on a secondary basis.

(MOD) **S5.356** The use of the band 1 544 - 1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **N38/S31**).

NOC **S5.357**

(MOD) **S5.358** Notwithstanding any other provisions of the Radio Regulations relating to restrictions in the use of the bands allocated to the aeronautical mobile-satellite (R) service for public correspondence, the bands 1 545 - 1 555 MHz and 1 646.5 - 1 656.5 MHz may be authorized by administrations for public correspondence with aircraft earth stations. Such communications must cease immediately, if necessary, to permit transmission of messages with priority 1 to 6 in Article **51/S44**.

MOD **S5.359** *Additional allocation:* in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Jordan, Kazakstan, Kuwait, Latvia, Libya, Mali, Mauritania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Syria, Kyrgyzstan, the Democratic People's Republic of Korea, Romania, Russia, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan, Ukraine, Zambia and Zimbabwe the bands 1 550 - 1 645.5 MHz and 1 646.5 - 1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in the bands 1 550 - 1 555 MHz, 1 610 - 1 645.5 MHz and 1 646.5 - 1 660 MHz.

NOC **S5.360** to **S5.363**

MOD **S5.364** The use of the band 1 610 - 1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under Resolution **46 (Rev.WRC-95)/** No. **S9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of –15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **S5.366** (to which No. **953/S4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation

service, stations operating in accordance with the provisions of No. **S5.366** and stations in the fixed service operating in accordance with the provisions of No. **S5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **S5.366**.

MOD **S5.365** The use of the band 1 613.8 - 1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under Resolution **46 (Rev. WRC-95)**/No. **S9.11A**.

MOD **S5.366** The band 1 610 - 1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.367** *Additional allocation*: the bands 1 610 - 1 626.5 MHz and 5 000 - 5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.368** With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. **953/S4.10** do not apply in the band 1 610 - 1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

MOD **S5.369** *Different category of service:* in Angola, Australia, Burundi, Côte d'Ivoire, Eritrea, Ethiopia, India, the Islamic Republic of Iran, Israel, Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syria, Senegal, Sudan, Swaziland, Togo, Zaire and Zambia the allocation of the band 1 610 - 1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. **S5.33**) subject to agreement obtained under Article **14**/No. **S9.21** from countries not listed in this provision.

NOC **S5.370**

MOD **S5.371** *Additional allocation:* in Region 1, the bands 1 610 - 1 626.5 MHz (Earth-to-space) and 2 483.5 - 2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

(MOD) **S5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **2904/S29.13** applies).

S5.373 *(Not used)*

ADD **S5.373A** In Argentina and the United States, the use of the band 1 626.5 - 1 631.5 MHz by the mobile-satellite service is subject to the conditions of No. **S5.353**.

MOD

MHz
1 631.5 – 1 670

Allocation to Services		
Region 1	Region 2	Region 3
1 631.5 – 1 634.5	MARITIME MOBILE-SATELLITE (Earth-to-space) LAND MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.353 S5.354 S5.355 S5.359 S5.374	
1 634.5 – 1 645.5	MARITIME MOBILE-SATELLITE (Earth-to-space) Land Mobile-Satellite (Earth-to-space) S5.352 S5.341 S5.351 S5.353 S5.354 S5.355 S5.359	
1 645.5 – 1 646.5	MOBILE-SATELLITE (Earth-to-space) S5.341 S5.354 S5.375	
1 646.5 – 1 656.5	AERONAUTICAL MOBILE-SATELLITE (R) (Earth-to-space) S5.341 S5.351 S5.354 S5.355 S5.358 S5.359 S5.376	
1 656.5 – 1 660	LAND MOBILE-SATELLITE (Earth-to-space) S5.341 S5.351 S5.354 S5.355 S5.359 S5.360 S5.361 S5.362 S5.374	
1 660 – 1 660.5	LAND MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY S5.149 S5.341 S5.351 S5.354 S5.360 S5.361 S5.362	
1 660.5 – 1 668.4	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.341 S5.379 S5.379A	
1 668.4 – 1 670	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149 S5.341	

MOD

MHz
1 670 – 1 700

Allocation to Services		
Region 1	Region 2	Region 3
1 670 – 1 675 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE S5.380 S5.341		
1 675 – 1 690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.341	**1 675 – 1 690** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) S5.341 S5.377	**1 675 – 1 690** METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.341
1 690 – 1 700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile S5.289 S5.341 S5.382	**1 690 – 1 700** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space) S5.289 S5.341 S5.377 S5.381	**1 690 – 1 700** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) S5.289 S5.341 S5.381

(MOD) **S5.374** Land earth stations and ship earth stations in the mobile-satellite service operating in the bands 1 631.5 - 1 634.5 MHz and 1 656.5 - 1 660 MHz shall not cause harmful interference to the stations in the fixed service operating in the countries listed in No. **S5.359**.

(MOD) **S5.375** The use of the band 1 645.5 - 1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article **N38/S31**).

NOC **S5.376**

(MOD) **S5.377** In the band 1 675 - 1 710 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, the meteorological-satellite and meteorological aids services (see Resolution **213 (Rev.WRC-95)**) and the use of this band shall be subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

SUP **S5.378**

MOD **S5.379** *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1 660.5 - 1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

ADD **S5.379A** Administrations are urged to give all practicable protection in the band 1 660.5 - 1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4 - 1 668.4 MHz as soon as practicable.

NOC **S5.380**

MOD **S5.381** *Additional allocation:* in Afghanistan, Costa Rica, Cuba, India, the Islamic Republic of Iran, Malaysia, Pakistan, Singapore and Sri Lanka, the band 1 690 - 1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD **S5.382** *Different category of service:* in Saudi Arabia, Armenia, Austria, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, the Congo, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Georgia, Guinea, Hungary, Iraq, Israel, Jordan, Kazakstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, Syria, Kyrgyzstan, Romania, Russia, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine, Yemen and Yugoslavia, the allocation of the band 1 690 - 1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **S5.33**).

SUP **S5.383**

MOD

MHz
1 700 – 2 010

Allocation to Services		
Region 1	Region 2	Region 3
1 700 – 1 710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.289 S5.341	**1 700 – 1 710** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) S5.289 S5.341 S5.377	**1 700 – 1 710** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.289 S5.341 S5.384
1 710 – 1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388	
1 930 – 1 970 FIXED MOBILE S5.388	**1 930 – 1 970** FIXED MOBILE Mobile-Satellite (Earth-to-space) S5.388	**1 930 – 1 970** FIXED MOBILE S5.388
1 970 – 1 980 FIXED MOBILE S5.388	**1 970 – 1 980** FIXED MOBILE S5.388	**1 970 – 1 980** FIXED MOBILE S5.388
1 980 – 2 010	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F	

MOD

MHz
2 010 – 2 170

Allocation to Services		
Region 1	Region 2	Region 3
2 010 – 2 025 FIXED MOBILE S5.388	**2 010 – 2 025** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E	**2 010 – 2 025** FIXED MOBILE S5.388
2 025 – 2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	
2 110 – 2 120	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388	
2 120 – 2 160 FIXED MOBILE S5.388	**2 120 – 2 160** FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.388	**2 120 – 2 160** FIXED MOBILE S5.388
2 160 – 2 170 FIXED MOBILE S5.388 S5.392A	**2 160 – 2 170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E	**2 160 – 2 170** FIXED MOBILE S5.388

NOC **S5.384**

MOD **S5.385** *Additional allocation:* the bands 1 718.8 - 1 722.2 MHz, 150 - 151 GHz, 174.42 - 175.02 GHz, 177 - 177.4 GHz, 178.2 - 178.6 GHz, 181 - 181.46 GHz, 186.2 - 186.6 GHz and 257.5 - 258 GHz are also allocated to the radio astronomy service on a secondary basis for spectral line observations.

MOD **S5.386** *Additional allocation:* the band 1 750 - 1 850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, India, Indonesia and Japan on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**, having particular regard to troposcatter systems.

MOD **S5.387** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Mali, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 1 770 - 1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

(MOD) **S5.388** The bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the future public land mobile telecommunication systems (FPLMTS). Such use does not preclude the use of these bands by other services to which these bands are allocated. The bands should be made available for FPLMTS in accordance with Resolution **212 (Rev.WRC-95)**.

SUP **S5.389**

ADD **S5.389A** The use of the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz by the mobile-satellite service is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A** and to the provisions of Resolution **716 (WRC-95)**. The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980 - 1 990 MHz in Region 2 shall not commence before 1 January 2005.

ADD **S5.389B** The use of the band 1 980 - 1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

ADD **S5.389C** The use of the bands 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 by the mobile-satellite service shall not commence before 1 January 2005 and is subject to coordination under Resolution **46 (Rev.WRC-95)**/ No. **S9.11A** and to the provisions of Resolution **716 (WRC-95)**.

ADD **S5.389D** In Canada and the United States the use of the bands 2 010 - 2 025 MHz and 2 160 - 2 170 MHz by the mobile-satellite service shall not commence before 1 January 2000.

ADD **S5.389E** The use of the bands 2 010 - 2 025 MHz and 2 160 - 2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

ADD **S5.389F** In Algeria, Benin, Cape Verde, Egypt, Mali, Syria and Tunisia, the use of the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

SUP **S5.390**

NOC **S5.391**

NOC **S5.392**

ADD **S5.392A** *Additional allocation:* in Russia, the band 2 160 - 2 200 MHz is also allocated to the space research service (space-to-Earth) on a primary basis until 1 January 2005. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services operating in this frequency band.

MOD

MHz
2 170 – 2 450

Allocation to Services		
Region 1	Region 2	Region 3
2 170 – 2 200	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A	
2 200 – 2 290	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) S5.392	
2 290 – 2 300	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	
2 300 – 2 450 FIXED MOBILE Amateur Radiolocation S5.150 S5.282 S5.395	**2 300 – 2 450** FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.393 S5.394 S5.396	

NOC **S5.393**

MOD **S5.394** In the United States, the use of the band 2 300 - 2 390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2 300 - 2 483.5 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services.

NOC **S5.395**

(MOD) **S5.396** Space stations of the broadcasting-satellite service in the band 2 310 - 2 360 MHz operating in accordance with No. **S5.393** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33**. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

MOD

MHz
2 450 – 2 520

Allocation to Services		
Region 1	Region 2	Region 3
2 450 – 2 483.5 FIXED MOBILE Radiolocation S5.150 S5.397	**2 450 – 2 483.5** FIXED MOBILE RADIOLOCATION S5.150 S5.394	
2 483.5 – 2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation S5.150 S5.371 S5.397 S5.398 S5.399 S5.400 S5.402	**2 483.5 – 2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) S5.398 S5.150 S5.402	**2 483.5 – 2 500** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION Radiodetermination-Satellite (space-to-Earth) S5.398 S5.150 S5.400 S5.402
2 500 – 2 520 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.405 S5.407 S5.408 S5.412 S5.414	**2 500 – 2 520** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) S5.403 S5.404 S5.407 S5.414	

(MOD) **S5.397** *Different category of service:* in France, the band 2 450 - 2 500 MHz is allocated on a primary basis to the radiolocation service (see No. **S5.33**). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

(MOD) **S5.398** In respect of the radiodetermination-satellite service in the band 2 483.5 - 2 500 MHz, the provisions of No. **953/S4.10** do not apply.

(MOD) **S5.399** In Region 1, in countries other than those listed in No. **S5.400**, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

MOD **S5.400** *Different category of service:* in Angola, Australia, Bangladesh, Burundi, China, Côte d'Ivoire, Eritrea, Ethiopia, India, the Islamic Republic of Iran, Jordan, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syria, Senegal, Sudan, Swaziland, Togo, Zaire and Zambia, the allocation of the band 2 483.5 - 2 500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. **S5.33**) subject to agreement obtained under Article **14**/No. **S9.21** from countries not listed in this provision.

SUP **S5.401**

MOD **S5.402** The use of the band 2 483.5 - 2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5 - 2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990 - 5 000 MHz band allocated to the radio astronomy service worldwide.

MOD **S5.403** Subject to agreement obtained under Article **14**/No. **S9.21**, the band 2 520 - 2 535 MHz (until 1 January 2005 the band 2 500 - 2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A** apply.

MOD **S5.404** *Additional allocation:* in India and the Islamic Republic of Iran, the band 2 500 - 2 516.5 MHz may also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.405**

SUP **S5.406**

NOC **S5.407**

NOC **S5.408**

NOC **S5.409**

MOD **S5.410** The band 2 500 - 2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.411**

MOD **S5.412** *Alternative allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 2 500 - 2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

NOC **S5.413**

MOD **S5.414** The allocation of the frequency band 2 500 - 2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

MOD **S5.415** The use of the bands 2 500 - 2 690 MHz in Region 2 and 2 500 - 2 535 MHz and 2 655 - 2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under Article **14**/No. **S9.21**, giving particular attention to the broadcasting-satellite service in Region 1. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table **S21-4**.

(MOD)

MHz
2 520 – 2 670

Allocation to Services		
Region 1	Region 2	Region 3
2 520 – 2 655 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403 S5.405 S5.408 S5.412 S5.417 S5.418	**2 520 – 2 655** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.403	**2 520 – 2 535** FIXED S5.409 S5.411 FIXED-SATELLITE (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.403 **2 535 – 2 655** FIXED S5.409 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 S5.339 S5.418
2 655 – 2 670 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.412 S5.417 S5.420	**2 655 – 2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.420	**2 655 – 2 670** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile BROADCASTING-SATELLITE S5.413 S5.416 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.420

(MOD)

MHz
2 670 – 3 300

Allocation to Services		
Region 1	Region 2	Region 3
2 670 – 2 690 FIXED S5.409 S5.410 S5.411 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.419 S5.420	**2 670 – 2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.419 S5.420	**2 670 – 2 690** FIXED S5.409 S5.411 FIXED-SATELLITE (Earth-to-space) S5.415 MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive) S5.149 S5.419 S5.420
2 690 – 2 700	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.421 S5.422	
2 700 – 2 900	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.423 S5.424	
2 900 – 3 100	RADIONAVIGATION S5.426 Radiolocation S5.425 S5.427	
3 100 – 3 300	RADIOLOCATION S5.149 S5.333 S5.428	

MOD **S5.416** The use of the band 2 520 - 2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under Article **14**/No. **S9.21**. The power flux-density at the Earth's surface shall not exceed the values given in Article **S21**, Table **S21-4**.

MOD **S5.417** *Alternative allocation:* in Germany and Greece, the band 2 520 - 2 670 MHz is allocated to the fixed service on a primary basis.

MOD **S5.418** *Additional allocation:* in Bangladesh, Belarus, China, Rep. of Korea, India, Japan, Pakistan, Russia, Singapore, Sri Lanka, Thailand and Ukraine the band 2 535 - 2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to provisions of Resolution **528 (WARC-92)**. The provisions of No. **S5.416** and Article **S21**, Table **S21-4**, do not apply to this additional allocation.

MOD **S5.419** The allocation of the frequency band 2 670 - 2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing systems of the mobile-satellite service in this band, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

MOD **S5.420** The band 2 655 - 2 670 MHz (until 1 January 2005 the band 2 655 - 2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under Article **14**/No. **S9.21**. The coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A** applies.

(MOD) **S5.421** *Additional allocation:* in Germany and Austria, the band 2 690 - 2 695 MHz is also allocated to the fixed service on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

MOD **S5.422** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kazakstan, Lebanon, Lithuania, Malaysia, Malawi, Mali, Morocco, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Romania, Russia, Singapore, Somalia, Tajikistan, Thailand, Tunisia, Turkmenistan, Ukraine, Yemen, Yugoslavia, Zaire and

Zambia, the band 2 690 - 2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

NOC **S5.423** to **S5.426**

(MOD) **S5.427** In the bands 2 900 - 3 100 MHz and 9 300 - 9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **347/S4.9** of these Regulations.

MOD **S5.428** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Kazakstan, Moldova, Mongolia, Poland, Kyrgyzstan, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 3 100 - 3 300 MHz is also allocated to the radionavigation service on a primary basis.

MOD

MHz
3 300 – 4 500

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>3 300 – 3 400
RADIOLOCATION

S5.149 S5.429 S5.430</td><td>3 300 – 3 400
RADIOLOCATION
Amateur
Fixed
Mobile
S5.149 S5.430</td><td>3 300 – 3 400
RADIOLOCATION
Amateur

S5.149 S5.429</td></tr>
<tr><td rowspan="2">3 400 – 3 600
FIXED
FIXED-SATELLITE (space-to-Earth)
Mobile
Radiolocation

S5.431 S5.434</td><td colspan="2">3 400 – 3 500
FIXED
FIXED-SATELLITE (space-to-Earth)
Amateur
Mobile
Radiolocation S5.433
S5.282 S5.432</td></tr>
<tr><td colspan="2">3 500 – 3 700
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile
Radiolocation S5.433
S5.435</td></tr>
<tr><td rowspan="2">3 600 – 4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
Mobile</td><td colspan="2">3 700 – 4 200
FIXED
FIXED-SATELLITE (space-to-Earth)
MOBILE except aeronautical mobile</td></tr>
<tr><td>4 200 – 4 400</td><td colspan="2">AERONAUTICAL RADIONAVIGATION S5.438
S5.437 S5.439 S5.440</td></tr>
<tr><td>4 400 – 4 500</td><td colspan="2">FIXED
MOBILE</td></tr>
</table>

MOD **S5.429** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, the Congo, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Malaysia, Oman, Pakistan, Qatar, Syria, Democratic People's Republic of Korea, Singapore and Yemen, the band 3 300 - 3 400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

MOD **S5.430** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Kazakstan, Moldova, Mongolia, Poland, Kyrgyzstan, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 3 300 - 3 400 MHz is also allocated to the radionavigation service on a primary basis.

(MOD) **S5.431** *Additional allocation:* in Germany, Israel, Nigeria and the United Kingdom, the band 3 400 - 3 475 MHz is also allocated to the amateur service on a secondary basis.

MOD **S5.432** *Different category of service:* in Indonesia, Japan and Pakistan, the allocation of the band 3 400 - 3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **S5.33**).

NOC **S5.433** to **S5.435**

SUP **S5.436**

MOD **S5.437** *Additional allocation:* in Germany, Denmark and Norway, the band 4 200 - 4 210 MHz is also allocated to the fixed service on a secondary basis.

NOC **S5.438**

MOD **S5.439** *Additional allocation:* in China, the Islamic Republic of Iran, Libya and the Philippines, the band 4 200 - 4 400 MHz is also allocated to the fixed service on a secondary basis.

MOD **S5.440** The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD

MHz
4 500 – 5 470

Allocation to Services		
Region 1	Region 2	Region 3
4 500 – 4 800	FIXED FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE	
4 800 – 4 990	FIXED MOBILE S5.442 Radio Astronomy S5.149 S5.339 S5.443	
4 990 – 5 000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space Research (passive) S5.149	
5 000 – 5 150	AERONAUTICAL RADIONAVIGATION S5.367 S5.444 S5.444A	
5 150 – 5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE SERVICE (Earth-to-space) S5.447A S5.446 S5.447 S5.447B S5.447C	
5 250 – 5 255	RADIOLOCATION Space Research S5.333 S5.448	
5 255 – 5 350	RADIOLOCATION S5.333 S5.448	
5 350 – 5 460	AERONAUTICAL RADIONAVIGATION S5.449 Radiolocation	
5 460 – 5 470	RADIONAVIGATION S5.449 Radiolocation	

MOD **S5.441** The use of the bands 4 500 - 4 800 MHz (space-to-Earth), 6 725 - 7 025 MHz (Earth-to-space), 10.7 - 10.95 GHz (space-to-Earth), 11.2 - 11.45 GHz (space-to-Earth) and 12.75 - 13.25 GHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B/S30B**.

NOC **S5.442**

MOD **S5.443** *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4 825 - 4 835 MHz and 4 950 - 4 990 MHz to the radio astronomy service is on a primary basis (see No. **S5.33**).

MOD **S5.444** The band 5 000 - 5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. **S5.444A** and Resolution **114 (WRC-95)** apply.

ADD **S5.444A** *Additional allocation:* the band 5 091 - 5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary mobile-satellite systems and is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

In the band 5 091 - 5 150 MHz, the following conditions also apply:

- prior to 1 January 2010, the use of the band 5 091 - 5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (WRC-95)**;
- prior to 1 January 2010, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000 - 5 091 MHz band, shall take precedence over other uses of this band;
- after 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2010, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

SUP **S5.445**

MOD **S5.446** *Additional allocation:* in the countries listed in Nos. **S5.369** and **S5.400**, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **S5.369** and **S5.400**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1 610 - 1 626.5 MHz and/or 2 483.5 - 2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed –159 dBW/m^2 in any 4 kHz band for all angles of arrival.

MOD **S5.447** *Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, Syria, the United Kingdom, Sweden, Switzerland and Tunisia, the band 5 150 - 5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

ADD **S5.447A** The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-95)**/ No. **S9.11A**.

ADD **S5.447B** *Additional allocation*: the band 5 150 - 5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of Resolution **46 (Rev.WRC-95)**/ No. **S9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150 - 5 216 MHz shall in no case exceed -164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

ADD **S5.447C** Administrations responsible for fixed-satellite service networks in the band 5 150 - 5 250 MHz operated under Nos. **S5.447A** and **S5.447B** shall coordinate on an equal basis in accordance with Resolution **46 (Rev. WRC-95)**/No. **S9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **S5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **S5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **S5.447A** and **S5.447B**.

MOD **S5.448** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Libya, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 5 250 - 5 350 MHz is also allocated to the radionavigation service on a primary basis.

NOC **S5.449**

MOD

MHz
5 470 – 5 850

Allocation to Services		
Region 1	Region 2	Region 3
5 470 – 5 650	MARITIME RADIONAVIGATION Radiolocation S5.450 S5.451 S5.452	
5 650 – 5 725	RADIOLOCATION Amateur Space Research (deep space) S5.282 S5.451 S5.453 S5.454 S5.455	
5 725 – 5 830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur S5.150 S5.451 S5.453 S5.455 S5.456	**5 725 – 5 830** RADIOLOCATION Amateur S5.150 S5.453 S5.455	
5 830 – 5 850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-Satellite (space-to-Earth) S5.150 S5.451 S5.453 S5.455 S5.456	**5 830 – 5 850** RADIOLOCATION Amateur Amateur-Satellite (space-to-Earth) S5.150 S5.453 S5.455	

MOD **S5.450** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Georgia, the Islamic Republic of Iran, Kazakstan, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 5 470 - 5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

(MOD) **S5.451** *Additional allocation:* in the United Kingdom, the band 5 470 - 5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **S21.2**, **S21.3**, **S21.4** and **S21.5** shall apply in the band 5 725 - 5 850 MHz.

NOC **S5.452**

MOD **S5.453** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Central African Republic, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Malawi, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Democratic People's Republic of Korea, Singapore, Swaziland, Tanzania, Chad, and Yemen, the band 5 650 - 5 850 MHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.454** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 670 - 5 725 MHz to the space research service is on a primary basis (see No. **S5.33**).

MOD **S5.455** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Hungary, Kazakstan, Latvia, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Russia, Tajikistan, Turkmenistan and Ukraine, the band 5 670 - 5 850 MHz is also allocated to the fixed service on a primary basis.

(MOD) **S5.456** *Additional allocation:* in Germany and in Cameroon, the band 5 755 - 5 850 MHz is also allocated to the fixed service on a primary basis.

SUP **S5.457**

MOD

MHz
5 850 – 7 450

Allocation to Services		
Region 1	Region 2	Region 3
5 850 – 5 925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.150	**5 850 – 5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation S5.150	**5 850 – 5 925** FIXED FIXE-SATELLITE (Earth-to-space) MOBILE Radiolocation S5.150
5 925 – 6 700	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.149 S5.440 S5.458	
6 700 – 7 075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) S5.441 MOBILE S5.458 S5.458A S5.458B S5.458C	
7 075 – 7 250	FIXED MOBILE S5.458 S5.459 S5.460	
7 250 – 7 300	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.461	
7 300 – 7 450	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile S5.461	

MOD **S5.458** In the band 6 425 - 7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075 - 7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425 - 7 025 MHz and 7 075 - 7 250 MHz.

ADD **S5.458A** In making assignments in the band 6 700 - 7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650 - 6 675.2 MHz from harmful interference from unwanted emissions.

ADD **S5.458B** The space-to-Earth allocation to the fixed-satellite service in the band 6 700 - 7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under Resolution **46 (Rev.WRC-95)**/No. **S9.11A**. The use of the band 6 700 - 7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to **S22.2**.

ADD **S5.458C** Administrations making submissions in the band 7 025 - 7 075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

MOD **S5.459** *Additional allocation:* in Region 2, the band 7 125 - 7 155 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

MOD **S5.460** *Additional allocation:* the band 7 145 - 7 235 MHz is also allocated to the space research (Earth-to-space) service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**. The use of the band 7 145 - 7 190 MHz is restricted to deep space; no emissions to deep space shall be effected in the band 7 190 - 7 235 MHz.

MOD **S5.461** *Additional allocation:* the bands 7 250 - 7 375 MHz (space-to-Earth) and 7 900 - 8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

(MOD)

MHz
7 450 – 8 175

Allocation to Services		
Region 1	Region 2	Region 3
7 450 – 7 550	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
7 550 – 7 750	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
7 750 – 7 900	FIXED MOBILE except aeronautical mobile	
7 900 – 8 025	FIXED FIXE-SATELLITE (Earth-to-space) MOBILE S5.461	
8 025 – 8 175 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464	**8 025 – 8 175** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.463	**8 025 – 8 175** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464

(MOD) **S5.462** In the band 8 025 - 8 400 MHz, the power flux-density limits specified in Article **S21**, Table **S21-4**, shall apply in Regions 1 and 3 to the earth exploration-satellite service.

NOC **S5.463**

(MOD)

MHz
8 175 – 8 750

Allocation to Services		
Region 1	Region 2	Region 3
8 175 – 8 215 FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464	**8 175 – 8 215** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE S5.463	**8 175 – 8 215** FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464
8 215 – 8 400 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464	**8 215 – 8 400** EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.463	**8 215 – 8 400** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) S5.462 S5.464
8 400 – 8 500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) S5.465 S5.466 S5.467	
8 500 – 8 750	RADIOLOCATION S5.333 S5.468 S5.469	

MOD **S5.464** *Different category of service:* in Bangladesh, Benin, Burkina Faso, Cameroon, China, the Central African Republic, Côte d'Ivoire, Egypt, France, Guinea, India, the Islamic Republic of Iran, Italy, Japan, Libya, Mali, Niger, Pakistan, Senegal, Somalia, Sudan, Sweden, Tanzania, Zaire and Zambia, the allocation of the band 8 025 - 8 400 MHz to the Earth exploration-satellite service (space-to-Earth) is on a primary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.465**

(MOD) **S5.466** *Different category of service:* in Belgium, Israel, Luxembourg, Malaysia, Singapore and Sri Lanka, the allocation of the band 8 400 - 8 500 MHz to the space research service is on a secondary basis (see No. **S5.32**).

NOC **S5.467**

MOD **S5.468** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guinea, Guyana, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, Qatar, Syria, Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Thailand, Togo, Tunisia and Yemen, the band 8 500 - 8 750 MHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.469** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 8 500 - 8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

(MOD)

MHz
8 750 – 10 000

Allocation to Services		
Region 1	Region 2	Region 3
8 750 – 8 850	RADIOLOCATION AERONAUTICAL RADIONAVIGATION S5.470 S5.471	
8 850 – 9 000	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473	
9 000 – 9 200	AERONAUTICAL RADIONAVIGATION S5.337 Radiolocation S5.471	
9 200 – 9 300	RADIOLOCATION MARITIME RADIONAVIGATION S5.472 S5.473 S5.474	
9 300 – 9 500	RADIONAVIGATION S5.476 Radiolocation S5.427 S5.474 S5.475	
9 500 – 9 800	RADIOLOCATION RADIONAVIGATION S5.333	
9 800 – 10 000	RADIOLOCATION Fixed S5.477 S5.478 S5.479	

NOC **S5.470**

MOD **S5.471** *Additional allocation:* in Algeria, Germany, Bahrain, Belgium, China, the United Arab Emirates, France, Greece, Indonesia, the Islamic Republic of Iran, Libya, the Netherlands, Qatar and Sudan, the bands 8 825 - 8 850 MHz and 9 000 - 9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only.

NOC **S5.472**

MOD **S5.473** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the bands 8 850 - 9 000 MHz and 9 200 - 9 300 MHz are also allocated to the radionavigation service on a primary basis.

(MOD) **S5.474** In the band 9 200 - 9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **N38/S31**).

NOC **S5.475**

NOC **S5.476**

MOD **S5.477** *Different category of service:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Singapore, Somalia, Sudan, Sweden, Thailand, Trinidad and Tobago, and Yemen, the allocation of the band 9 800 - 10 000 MHz to the fixed service is on a primary basis (see No. **S5.33**).

MOD **S5.478** *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Mongolia, Kyrgyzstan, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the band 9 800 - 10 000 MHz is also allocated to the radionavigation service on a primary basis.

NOC **S5.479**

(MOD)

GHz
10 – 10.7

Allocation to Services		
Region 1	Region 2	Region 3
10 – 10.45 FIXED MOBILE RADIOLOCATION Amateur S5.479	**10 – 10.45** RADIOLOCATION Amateur S5.479 S5.480	**10 – 10.45** FIXED MOBILE RADIOLOCATION Amateur S5.479
10.45 – 10.5	RADIOLOCATION Amateur Amateur-Satellite S5.481	
10.5 – 10.55 FIXED MOBILE Radiolocation	**10.5 – 10.55** FIXED MOBILE RADIOLOCATION	
10.55 – 10.6	FIXED MOBILE except aeronautical mobile Radiolocation	
10.6 – 10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation S5.149 S5.482	
10.68 – 10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.483	

NOC **S5.480**

MOD **S5.481** *Additional allocation:* in Germany, Angola, China, Ecuador, Spain, Japan, Morocco, Nigeria, Oman, Democratic People's Republic of Korea, Sweden, Tanzania and Thailand, the band 10.45 - 10.5 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.482** In the band 10.6 - 10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed –3 dBW. These limits may be exceeded subject to agreement obtained under Article **14**/No. **S9.21**. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, the Islamic Republic of Iran, Iraq, Japan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.

MOD **S5.483** *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Cameroon, China, Colombia, the Republic of Korea, Costa Rica, Cuba, Egypt, the United Arab Emirates, Georgia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kazakstan, Kuwait, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Democratic People's Republic of Korea, Romania, Russia, Tajikistan, Turkmenistan, Ukraine, Yemen and Yugoslavia, the band 10.68 - 10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

(MOD)

GHz
10.7 – 12.7

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>10.7 – 11.7
FIXED
FIXED-SATELLITE
(space-to-Earth)
(Earth-to-space)
S5.441 S5.484
MOBILE except
aeronautical mobile</td><td colspan="2">10.7 – 11.7
FIXED
FIXED-SATELLITE (space-to-Earth) S5.441
MOBILE except aeronautical mobile</td></tr>
<tr><td rowspan="3">11.7 – 12.5
FIXED
BROADCASTING
BROADCASTING-
SATELLITE
Mobile except
aeronautical mobile

S5.487</td><td>11.7 – 12.1
FIXED S5.486
FIXED-SATELLITE
(space-to-Earth)
Mobile except
aeronautical mobile
S5.485 S5.488</td><td rowspan="2">11.7 – 12.2
FIXED
MOBILE except
aeronautical mobile
BROADCASTING
BROADCASTING-
SATELLITE

S5.487</td></tr>
<tr><td>12.1 – 12.2
FIXED-SATELLITE
(space-to-Earth)
S5.485 S5.488 S5.489</td></tr>
<tr><td>12.2 – 12.7
FIXED
MOBILE except
aeronautical mobile
BROADCASTING
BROADCASTING-
SATELLITE
S5.488 S5.490 S5.492</td><td>12.2 – 12.5
FIXED
MOBILE except
aeronautical mobile
BROADCASTING

S5.487 S5.491</td></tr>
</table>

NOC **S5.484**

NOC **S5.485**

MOD **S5.486** *Different category of service:* in Mexico and the United States, the allocation of the band 11.7 - 12.1 GHz to the fixed service is on a secondary basis (see No. **S5.32**).

(MOD) **S5.487** In the band 11.7 - 12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix **30/S30**.

MOD **S5.488** The use of the bands 11.7 - 12.2 GHz by the fixed-satellite service in Region 2 and 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2 is limited to national and subregional systems. The use of the band 11.7 - 12.2 GHz by the fixed-satellite service in Region 2 is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles **11, 13** and **14/S9** and **S11**). For the use of the band 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2, see Article **15**/Appendix **S30**.

MOD **S5.489** *Additional allocation:* in Peru, the band 12.1 - 12.2 GHz is also allocated to the fixed service on a primary basis.

(MOD) **S5.490** In Region 2, in the band 12.2 - 12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the Broadcasting-Satellite Plan for Region 2 contained in Appendix **30/S30**.

MOD **S5.491** *Additional allocation:* in Region 3, the band 12.2 - 12.5 GHz is also allocated to the fixed-satellite (space-to-Earth) service on a primary basis, limited to national and sub-regional systems. The power flux-density limits in Article **S21**, Table **S21-4** shall apply to this frequency band. The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall follow the procedures specified in Article 7 of Appendix **30/S30**, with the applicable frequency band extended to cover 12.2 - 12.5 GHz.

(MOD) **S5.492** In Region 2, in the band 12.2 - 12.7 GHz, assignments to stations of the broadcasting-satellite service in the Plan for Region 2 contained in Appendix **30/S30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with the Region 2 Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.

(MOD) **S5.493** The broadcasting-satellite service in the band 12.5 - 12.75 GHz in Region 3 is limited to community reception with a power flux-density not exceeding –111 dB(W/m^2) as defined in Annex 5 of Appendix **30/S30**. See also Resolution **34**.

MOD **S5.494** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Niger, Nigeria, Qatar, Syria, Senegal, Somalia, Sudan, Chad, Togo, Yemen and Zaire, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

MOD **S5.495** *Additional allocation:* in Belgium, Bosnia and Herzegovina, Croatia, Denmark, Spain, France, Greece, The Former Yugoslav Republic of Macedonia, Liechtenstein, Luxembourg, Monaco, Norway, Uganda, Portugal, Romania, Slovenia, Switzerland, Tanzania, Tunisia and Yugoslavia, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

MOD

GHz
12.5 – 14.25

Allocation to Services		
Region 1	Region 2	Region 3
12.5 – 12.75 FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.494 S5.495 S5.496	**12.7 – 12.75** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	**12.5 – 12.75** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING- SATELLITE S5.493
12.75 – 13.25	FIXED FIXED-SATELLITE (Earth-to-space) S5.441 MOBILE Space Research (deep space) (space-to-Earth)	
13.25 – 13.4	AERONAUTICAL RADIONAVIGATION S5.497 S5.498 S5.499	
13.4 – 13.75	RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space-Research S5.333 S5.499 S5.500 S5.501	
13.75 – 14	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space Research S5.333 S5.499 S5.500 S5.501 S5.502 S5.503 S5.503A	
14 – 14.25	FIXED-SATELLITE (Earth-to-space) S5.506 RADIONAVIGATION S5.504 Land Mobile-Satellite (Earth-to-space) Space Research S5.505	

MOD **S5.496** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Kazakstan, Moldova, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the band 12.5 - 12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those mentioned in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries mentioned in this footnote. The power flux-density limit at the Earth's surface given in Article **S21**, Table **S21-4** for the fixed-satellite service shall apply on the territory of the countries mentioned in this footnote.

NOC **S5.497**

MOD **S5.498** The band 13.25 - 13.4 GHz may also be used in the space research service (Earth-to-space) on a secondary basis, subject to agreement obtained under Article **14**/No. **S9.21**.

NOC **S5.499**

MOD **S5.500** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guinea, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, the Lebanon, Madagascar, Malaysia, Malawi, Mali, Malta, Morocco, Mauritania, Niger, Nigeria, Pakistan, Qatar, Syria, Senegal, Singapore, Sudan, Chad and Tunisia, the band 13.4 - 14 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.501** *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Georgia, Hungary, Japan, Kazakstan, Moldova, Mongolia, Kyrgyzstan, Romania, the United Kingdom, Russia, Tajikistan, Turkmenistan and Ukraine, the band 13.4 - 14 GHz is also allocated to the radionavigation service on a primary basis.

MOD **S5.502** In the band 13.75 - 14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

MOD **S5.503** In the band 13.75 - 14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. The e.i.r.p. density of emissions from any earth station in the fixed-satellite service shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772 - 13.778 GHz until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band. Automatic power control may be used to increase the e.i.r.p. density above 71 dBW in any 6 MHz band in this frequency range to compensate for rain attenuation, to the extent that the power-flux density at the fixed-satellite service space station does not exceed the value resulting from use of an e.i.r.p. of 71 dBW in any 6 MHz band in clear sky conditions.

ADD **S5.503A** Until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services. After that date, these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service. Additionally, when planning earth stations in the fixed-satellite service to be brought into service between 1 January 2000 and 1 January 2001, in order to accommodate the needs of spaceborne precipitation radars operating in the band 13.793 - 13.805 GHz, advantage should be taken of the consultation process and the information given in Recommendation ITU-R **SA.1071**.

NOC **S5.504**

MOD **S5.505** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Australia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Malawi, Mali, Morocco, Mauritania, Niger, Oman, Pakistan, the Philippines, Qatar, Syria, the Democratic People's Republic of Korea, Senegal, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad and Yemen, the band 14 - 14.3 GHz is also allocated to the fixed service on a primary basis.

NOC **S5.506**

SUP **S5.507**

MOD

GHz
14.25 – 14.8

Allocation to Services		
Region 1	Region 2	Region 3
14.25 – 14.3	FIXED-SATELLITE (Earth-to-space) S5.506 RADIONAVIGATION S5.504 Land Mobile-Satellite (Earth-to-space) Space Research S5.505 S5.508 S5.509	
14.3 – 14.4 FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Land Mobile-Satellite (Earth-to-space) Radionavigation-Satellite	**14.3 – 14.4** FIXED-SATELLITE (Earth-to-space) S5.506 Land Mobile-Satellite (Earth-to-space) Radionavigation-Satellite	**14.3 – 14.4** FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Land Mobile-Satellite (Earth-to-space) Radionavigation-Satellite
14.4 – 14.47	FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Land Mobile-Satellite (Earth-to-space) Space Research (space-to-Earth)	
14.47 – 14.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.506 MOBILE except aeronautical mobile Land Mobile-Satellite (Earth-to-space) Radio Astronomy S5.149	
14.5 – 14.8	FIXED FIXED-SATELLITE (Earth-to-space) S5.510 MOBILE Space Research	

MOD **S5.508** *Additional allocation:* in Germany, Austria, Belgium, Bosnia and Herzegovina, Denmark, Spain, France, Greece, Ireland, Iceland, Italy, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Luxembourg, Norway, Portugal, the United Kingdom, Slovenia, Switzerland, Turkey and Yugoslavia, the band 14.25 - 14.3 GHz is also allocated to the fixed service on a primary basis.

MOD **S5.509** *Additional allocation:* in Japan and Pakistan the band 14.25 - 14.3 GHz is also allocated to the mobile, except aeronautical mobile, service on a primary basis.

NOC **S5.510**

MOD

GHz
14.8 – 17.3

Allocation to Services		
Region 1	Region 2	Region 3
14.8 – 15.35	FIXED MOBILE Space Research S5.339	
15.35 – 15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.511	
15.4 – 15.7	FIXED-SATELLITE (space-to-Earth) S5.511A S5.511C AERONAUTICAL RADIONAVIGATION S5.511B	
15.7 – 16.6	RADIOLOCATION S5.512 S5.513	
16.6 – 17.1	RADIOLOCATION Space Research (deep space) (Earth-to-space) S5.512 S5.513	
17.1 – 17.2	RADIOLOCATION S5.512 S5.513	
17.2 – 17.3	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active) S5.512 S5.513	

MOD **S5.511** *Additional allocation:* in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, the Islamic Republic of Iran, Iraq, Israel, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Pakistan, Qatar, Syria, Slovenia, Somalia and Yugoslavia, the band 15.35 - 15.4 GHz is also allocated to the fixed and mobile services on a secondary basis.

ADD **S5.511A** Use of the band 15.4 - 15.7 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under Resolution **46 (Rev. WRC-95)**/No. **S9.11A**. Emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2/MHz) in the bands 15.4 - 15.45 GHz and 15.65 - 15.7 GHz, and –111 dB(W/m^2/MHz) in the band 15.45 - 15.65 GHz, for all angles of arrival. These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions. In the band 15.45 - 15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed –146 dB(W/m^2/MHz) for all angles of arrival, it shall coordinate with affected administrations. Moreover, harmful interference shall not be caused to stations of the radio astronomy service using the band 15.35 - 15.4 GHz. The threshold levels of interference and associated power flux-density limits which are detrimental to the radio astronomy service are given in Recommendation ITU-R **RA.769**. The power flux-density limits and coordination threshold in this footnote shall apply, subject to review by ITU-R and based on the studies referred to in Resolution **116 (WRC-95)**, until changed by a future competent world radiocommunication conference.

ADD **S5.511B** Aircraft stations are not permitted to transmit in the band 15.45 - 15.65 GHz.

ADD **S5.511C** *Additional allocation:* the band 15.45 - 15.65 GHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. Such use is limited to feeder links of non-geostationary systems in the mobile-satellite service and is subject to coordination under Resolution **46 (Rev. WRC-95)**/ No. **S9.11A**. Until such time as the studies called for in Resolution **117 (WRC-95)** are completed: 1) administrations operating stations in the aeronautical radionavigation service are urged to limit the average e.i.r.p. to 42 dBW; 2) stations in the fixed-satellite service shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **953/ S4.10** applies).

MOD **S5.512** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, the Congo, Costa Rica, Egypt, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Indonesia, the Islamic Republic of Iran, Jordan, Kuwait, The Former Yugoslav Republic of Macedonia, Libya, Malaysia, Malawi, Morocco, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Singapore, Slovenia, Somalia, Sudan, Sweden, Swaziland, Tanzania, Chad, Thailand, Yemen and Yugoslavia, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis.

(MOD) **S5.513** *Additional allocation:* in Israel, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **S5.512**.

(MOD)

GHz
17.3 – 18.6

Allocation to Services		
Region 1	Region 2	Region 3
17.3 – 17.7 FIXED-SATELLITE (Earth-to-space) S5.516 Radiolocation S5.514	**17.3 – 17.7** FIXED-SATELLITE (Earth-to-space) S5.516 BROADCASTING-SATELLITE Radiolocation S5.514 S5.515 S5.517	**17.3 – 17.7** FIXED-SATELLITE (Earth-to-space) S5.516 Radiolocation S5.514
17.7 – 18.1 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.516 MOBILE	**17.7 – 17.8** FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.516 BROADCASTING-SATELLITE Mobile S5.518 S5.515 S5.517	**17.7 – 18.1** FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.516 MOBILE
	17.8 – 18.1 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.516 MOBILE	
18.1 – 18.4	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.520 MOBILE S5.519 S5.521	
18.4 – 18.6	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	

MOD **S5.514** *Additional allocation:* in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, The Former Yugoslav Republic of Macedonia, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden, and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **S21.3** and **S21.5** shall apply.

(MOD) **S5.515** In the band 17.3 - 17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of section 1 of Annex 4 of Appendix **30/S30A**.

(MOD) **S5.516** The use of the band 17.3 - 18.1 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3 - 17.8 GHz in Region 2 by the feeder links for the broadcasting-satellite service in the band 12.2 - 12.7 GHz, see Article **15A/S11**.

NOC **S5.517**

MOD **S5.518** *Different category of service:* in Region 2, the allocation of the band 17.7 - 17.8 GHz to the mobile service is on a primary basis until 31 March 2007.

MOD **S5.519** *Additional allocation:* the band 18.1 - 18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article **S21**, Table **S21-4**.

NOC **S5.520**

MOD **S5.521** *Alternative allocation:* in Germany, Denmark, the United Arab Emirates, Greece, Poland, Slovakia, the Czech Republic and the United Kingdom, the band 18.1 - 18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis. The provisions of No. **S5.519** also apply.

MOD

GHz
18.6 – 20.2

Allocation to Services		
Region 1	Region 2	Region 3
18.6 – 18.8 FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile Earth Exploration-Satellite (passive) Space Research (passive) S5.522	**18.6 – 18.8** EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile SPACE RESEARCH (passive) S5.522	**18.6 – 18.8** FIXED FIXED-SATELLITE (space-to-Earth) S5.523 MOBILE except aeronautical mobile Earth Exploration-Satellite (passive) Space Research (passive) S5.522
18.8 – 19.3	FIXED FIXED-SATELLITE (space-to-Earth) S5.523A MOBILE	
19.3 – 19.7	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) S5.523B S5.523D MOBILE S5.523C	
19.7 – 20.1 FIXED-SATELLITE (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.524	**19.7 – 20.1** FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.524 S5.525 S5.526 S5.527 S5.528 S5.529	**19.7 – 20.1** FIXED-SATELLITE (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.524
20.1 – 20.2	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.524 S5.525 S5.526 S5.527 S5.528	

NOC **S5.522**

NOC **S5.523**

ADD **S5.523A** The use of the bands 18.8 - 19.3 GHz and 28.6 - 29.1 GHz by the FSS shall be in accordance with Resolution **118 (WRC-95)**.

ADD **S5.523B** The use of the band 19.3 - 19.6 GHz (Earth-to-space) by the FSS is limited to feeder links for non-GSO systems in the MSS. Such use is subject to the application of the provisions of Resolution **46 (Rev.WRC-95)**/ No. **S9.11A**, and No. **S22.2** does not apply.

ADD **S5.523C** The use of the bands 19.3 - 19.7 GHz and 29.1 - 29.5 GHz by the FSS shall be in accordance with Resolution **120 (WRC-95)**.

ADD **S5.523D** The use of the band 19.3 - 19.6 GHz (space-to-Earth) by GSO/FSS systems and by the feeder links for non-geostationary satellite systems in the MSS is subject to the application of the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A**, but not subject to the provisions of No. **S22.2**. The use of this band for other non-GSO/FSS systems is not subject to the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A** and shall continue to be subject to Articles **11/S9** (except No. **S9.11A**) and **13/S11** procedures, and to the provisions of No. **S22.2**.

MOD **S5.524** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Singapore, Somalia, Sudan, Tanzania, Chad, Thailand, Togo, Tunisia and Zaire, the band 19.7 - 21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7 - 21.2 GHz and of space stations in the mobile-satellite service in the band 19.7 - 20.2 GHz where such allocation to the mobile-satellite service is on a primary basis in the latter band.

NOC **S5.525**

NOC **S5.526**

(MOD) **S5.527** In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz, the provisions of No. **953/S4.10** do not apply with respect to the mobile-satellite service.

(MOD) **S5.528** The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7 - 20.1 GHz in Region 2 and in the band 20.1 - 20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **S5.524**.

(MOD) **S5.529** The use of the bands 19.7 - 20.1 GHz and 29.5 - 29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. **S5.526**.

MOD

GHz
20.2 – 22.55

Allocation to Services		
Region 1	Region 2	Region 3
20.2 – 21.2	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard Frequency and Time Signal (space-to-Earth) S5.524	
21.2 – 21.4	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
21.4 – 22 FIXED MOBILE BROADCASTING-SATELLITE S5.530	**21.4 – 22** FIXED MOBILE	**21.4 – 22** FIXED MOBILE BROADCASTING-SATELLITE S5.530 S5.531
22 – 22.21	FIXED MOBILE except aeronautical mobile S5.149	
22.21 – 22.5	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) S5.149 S5.532	
22.5 – 22.55	FIXED MOBILE	

NOC **S5.530**
NOC **S5.531**
NOC **S5.532**

(MOD)

GHz
22.55 – 24.45

Allocation to Services		
Region 1	Region 2	Region 3
22.55 – 23	FIXED INTER-SATELLITE MOBILE S5.149	
23 – 23.55	FIXED INTER-SATELLITE MOBILE S5.149	
23.55 – 23.6	FIXED MOBILE	
23.6 – 24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
24 – 24.05	AMATEUR AMATEUR-SATELLITE S5.150	
24.05 – 24.25	RADIOLOCATION Amateur Earth Exploration-Satellite (active) S5.150	
24.25 – 24.45 FIXED	**24.25 – 24.45** RADIONAVIGATION	**24.25 – 24.45** RADIONAVIGATION FIXED MOBILE

(MOD)

GHz
24.45 – 27

Allocation to Services		
Region 1	Region 2	Region 3
24.45 – 24.65 FIXED INTER-SATELLITE	**24.45 – 24.65** INTER-SATELLITE RADIONAVIGATION S5.533	**24.45 – 24.65** FIXED INTER-SATELLITE MOBILE RADIONAVIGATION S5.533
24.65 – 24.75 FIXED INTER-SATELLITE	**24.65 – 24.75** INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	**24.65 – 24.75** FIXED INTER-SATELLITE MOBILE S5.533 S5.534
24.75 – 25.25 FIXED	**24.75 – 25.25** FIXED-SATELLITE (Earth-to-space) S5.535	**24.75 – 25.25** FIXED FIXED-SATELLITE (Earth-to-space) S5.535 MOBILE S5.534
25.25 – 25.5	FIXED INTER-SATELLITE S5.536 MOBILE Standard Frequency and Time Signal-Satellite (Earth-to-space)	
25.5 – 27	FIXED INTER-SATELLITE S5.536 MOBILE Earth Exploration-Satellite (space-to-Earth) Standard Frequency and Time Signal-Satellite (Earth-to-space)	

MOD

GHz
27 – 29.9

Allocation to Services		
Region 1	Region 2	Region 3
27 – 27.5 FIXED INTER-SATELLITE S5.536 MOBILE	**27 – 27.5** FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE S5.536 S5.537 MOBILE	
27.5 – 28.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.539 MOBILE S5.538 S5.540	
28.5 – 29.1	FIXED FIXED-SATELLITE (Earth-to-space) S5.523A S5.539 MOBILE Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540	
29.1 – 29.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.523C S5.535A S5.539 S5.541A MOBILE Earth Exploration-Satellite (Earth-to-space) S5.541 S5.540	
29.5 – 29.9 FIXED-SATELLITE (Earth-to-space) S5.539 Earth Exploration-Satellite (Earth-to-space) S5.541 Mobile-Satellite (Earth-to-space) S5.540 S5.542	**29.5 – 29.9** FIXED-SATELLITE (Earth-to-space) S5.539 MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) S5.541 S5.525 S5.526 S5.527 S5.529 S5.540 S5.542	**29.5 – 29.9** FIXED-SATELLITE (Earth-to-space) S5.539 Earth Exploration-Satellite (Earth-to-space) S5.541 Mobile-Satellite (Earth-to-space) S5.540 S5.542

NOC **S5.533** to **S5.535**

ADD **S5.535A** The use of the band 29.1 - 29.4 GHz (Earth-to-space) by the FSS is limited to GSO satellite systems and feeder links to non-GSO satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A**, but not subject to the provisions of No. **S22.2**.

NOC **S5.536**

(MOD) **S5.537** Space services using non-geostationary satellites operating in the inter-satellite service in the band 27 - 27.5 GHz are exempt from the provisions of No. **S22.2**.

(MOD) **S5.538** *Additional allocation:* the bands 27.500 - 27.501 GHz and 29.999 - 30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500 - 27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article **S21**, Table **S21-4** on the Earth's surface.

NOC **S5.539** to **S5.541**

ADD **S5.541A** Feeder links of non-GSO MSS networks and GSO FSS networks operating in the band 29.1 - 29.4 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **S4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until it is changed by a future competent world radiocommunication conference. Administrations submitting Appendix **S4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. These methods are also subject to review by the ITU-R (see Resolution **121 (WRC-95)**).

MOD **S5.542** *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, the Islamic Republic of Iran, Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Pakistan, Qatar, Syria, Singapore, Somalia, Sudan, Sri Lanka, Chad and Thailand, the band 29.5 - 31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **S21.3** and **S21.5** shall apply.

(MOD)

GHz
29.9 – 31.8

Allocation to Services		
Region 1	Region 2	Region 3
29.9 – 30	FIXED-SATELLITE (Earth-to-space) S5.539 MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) S5.541 S5.525 S5.526 S5.527 S5.538 S5.540 S5.542 S5.543	
30 – 31	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard Frequency and Time Signal-Satellite (space-to-Earth) S5.542	
31 – 31.3	FIXED MOBILE Standard Frequency and Time Signal-Satellite (space-to-Earth) Space Research S5.544 S5.149 S5.545	
31.3 – 31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
31.5 – 31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149 S5.546	**31.5 – 31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	**31.5 – 31.8** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile S5.149

NOC **S5.543**

(MOD) **S5.544** In the band 31 - 31.3 GHz the power flux-density limits specified in Article **S21**, Table **S21-4** shall apply to the space research service.

MOD **S5.545** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Poland, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 31 - 31.3 GHz to the space research service is on a primary basis (see No. **S5.33**).

MOD **S5.546** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 31.5 - 31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **S5.33**).

SUP **S5.547**

MOD

GHz
31.8 – 37

Allocation to Services		
Region 1	Region 2	Region 3
31.8 – 32	RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.548	
32 – 32.3	INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.548	
32.3 – 33	INTER-SATELLITE RADIONAVIGATION S5.548	
33 – 33.4	RADIONAVIGATION	
33.4 – 34.2	RADIOLOCATION S5.549	
34.2 – 34.7	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) S5.549	
34.7 – 35.2	RADIOLOCATION Space Research S5.550 S5.549	
35.2 – 36	METEOROLOGICAL AIDS RADIOLOCATION S5.549 S5.551	
36 – 37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.149	

NOC **S5.548**

MOD **S5.549** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Spain, Gabon, Guinea, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Malawi, Mali, Malta, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Senegal, Singapore, Somalia, Sudan, Sri Lanka, Tanzania, Thailand, Togo, Tunisia, Yemen and Zaire, the band 33.4 - 36 GHz is also allocated to the fixed and mobile services on a primary basis.

MOD **S5.550** *Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 34.7 - 35.2 GHz to the space research service is on a primary basis (see No. **S5.33**).

NOC **S5.551**

MOD)

GHz
37 – 42.5

Allocation to Services		
Region 1	Region 2	Region 3
37 – 37.5	FIXED MOBILE SPACE RESEARCH (space-to-Earth)	
37.5 – 38	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	
38 – 39.5	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth Exploration-Satellite (space-to-Earth)	
39.5 – 40	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	
40 – 40.5	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth Exploration-Satellite (space-to-Earth)	
40.5 – 42.5	BROADCASTING BROADCASTING-SATELLITE Fixed Mobile	

MOD

GHz
42.5 – 54.25

Allocation to Services		
Region 1	Region 2	Region 3
42.5 – 43.5	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149	
43.5 – 47	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	
47 – 47.2	AMATEUR AMATEUR-SATELLITE	
47.2 – 50.2	FIXED FIXED-SATELLITE (Earth-to-space) S5.552 MOBILE S5.149 S5.340 S5.555	
50.2 – 50.4	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
50.4 – 51.4	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-Satellite (Earth-to-space)	
51.4 – 54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	

NOC **S5.552**

(MOD) **S5.553** In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **S5.43**).

NOC **S5.554**

MOD **S5.555** *Additional allocation:* the bands 48.94 - 49.04 GHz, 97.88 - 98.08 GHz, 140.69 - 140.98 GHz, 144.68 - 144.98 GHz, 145.45 - 145.75 GHz, 146.82 - 147.12 GHz, 250 - 251 GHz and 262.24 - 262.76 GHz are also allocated to the radio astronomy service on a primary basis.

MOD **S5.556** In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz, 72.77 - 72.91 GHz and 93.07 - 93.27 GHz, radio astronomy observations may be carried out under national arrangements.

(MOD)

GHz
54.25 – 71

Allocation to Services		
Region 1	Region 2	Region 3
54.25 – 58.2	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.557	
58.2 – 59	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	
59 – 64	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559 S5.138	
64 – 65	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.340 S5.556	
65 – 66	EARTH EXPLORATION-SATELLITE SPACE RESEARCH Fixed Mobile	
66 – 71	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.554	

MOD **S5.557** *Additional allocation:* in Japan and the United Kingdom, the band 54.25 - 58.2 GHz is also allocated to the radiolocation service on a primary basis.

(MOD) **S5.558** In the bands 54.25 - 58.2 GHz, 59 - 64 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).

(MOD) **S5.559** In the bands 59 - 64 GHz and 126 - 134 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **S5.43**).

(MOD)

GHz
71 – 86

Allocation to Services		
Region 1	Region 2	Region 3
71 – 74	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) S5.149 S5.556	
74 – 75.5	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Space Research (space-to-Earth)	
75.5 – 76	AMATEUR AMATEUR-SATELLITE Space Research (space-to-Earth)	
76 – 81	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-to-Earth) S5.560	
81 – 84	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Space Research (space-to-Earth)	
84 – 86	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE S5.561	

NOC **S5.560**
NOC **S5.561**
SUP **S5.562**

MOD

GHz
86 – 116

Allocation to Services		
Region 1	Region 2	Region 3
86 – 92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340	
92 – 95	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION S5.149 S5.556	
95 – 100	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.554 S5.555	
100 – 102	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341	
102 – 105	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE S5.341	
105 – 116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	

MOD

GHz
116 – 142

Allocation to Services		
Region 1	Region 2	Region 3
116 – 119.98	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.138 S5.341	
119.98 – 120.02	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) Amateur S5.138 S5.341	
120.02 – 126	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.138 S5.341	
126 – 134	FIXED INTER-SATELLITE MOBILE S5.558 RADIOLOCATION S5.559	
134 – 142	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation S5.149 S5.340 S5.554 S5.555	

(MOD)

GHz
142 – 168

Allocation to Services		
Region 1	Region 2	Region 3
142 – 144	AMATEUR AMATEUR-SATELLITE	
144 – 149	RADIOLOCATION Amateur Amateur-Satellite S5.149 S5.555	
149 – 150	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
150 – 151	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) S5.149 S5.385	
151 – 156	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
156 – 158	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
158 – 164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
164 – 168	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	

(MOD)

GHz
168 – 190

Allocation to Services		
Region 1	Region 2	Region 3
168 – 170	FIXED MOBILE	
170 – 174.5	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
174.5 – 176.5	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE S5.558 SPACE RESEARCH (passive) S5.149 S5.385	
176.5 – 182	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	
182 – 185	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.563	
185 – 190	FIXED INTER-SATELLITE MOBILE S5.558 S5.149 S5.385	

NOC **S5.563**

(MOD)

GHz
190 – 238

Allocation to Services		
Region 1	Region 2	Region 3
190 – 200	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.341 S5.554	
200 – 202	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.341	
202 – 217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE S5.341	
217 – 231	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) S5.340 S5.341	
231 – 235	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235 – 238	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive)	

(MOD)

GHz
238 – 400

Allocation to Services		
Region 1	Region 2	Region 3
238 – 241	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
241 – 248	RADIOLOCATION Amateur Amateur-Satellite S5.138	
248 – 250	AMATEUR AMATEUR-SATELLITE	
250 – 252	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) S5.149 S5.555	
252 – 265	MOBILE S5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE S5.149 S5.385 S5.554 S5.555 S5.564	
265 – 275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY S5.149	
275 – 400	(Not allocated) S5.565	

MOD **S5.564** *Additional allocation:* in Germany, Argentina, Spain, Finland, France, India, Italy, the Netherlands and Sweden, the band 261 - 265 GHz is also allocated to the radio astronomy service on a primary basis.

NOC **S5.565**

ARTICLE S6

NOC

Special Agreements

RR	VGE proposal	VGE Report	WRC-95 decision
374 – 377	(MOD)	S6.1 – S6.4	(MOD)
378	NOC	S6.5	NOC
379	MOD	S6.6	MOD
380	(MOD)	S6.7	(MOD)

(MOD) **S6.1** § 1. Two or more Members may, under the provisions for special arrangements in the Constitution, conclude special agreements regarding the sub-allocation of bands of frequencies to the appropriate services of the participating countries.

(MOD) **S6.2** § 2. Two or more Members may, under the provisions for special arrangements in the Constitution, conclude special agreements, as a result of a conference to which all those Members concerned have been invited, regarding the assignment of frequencies to those of their stations which participate in one or more specific services within the frequency bands allocated to these services by Article **S5**, either below 5 060 kHz or above 27 500 kHz, but not between those limits.

(MOD) **S6.3** § 3. Members may, under the provisions for special arrangements in the Constitution, conclude, on a worldwide basis, and as a result of a conference to which all Members have been invited, special agreements concerning the assignment of frequencies to those of their stations participating in a specific service, on condition that such assignments are within the frequency bands allocated exclusively to that service in Article **S5**.

(MOD) **S6.4** § 4. Special agreements concluded in accordance with the provisions of Nos. **S6.1** to **S6.3** shall not be in conflict with any of the provisions of these Regulations.

NOC **S6.5**

MOD **S6.6** § 6. The Director of the Radiocommunication Bureau and the Chairman of the Radio Regulations Board may be invited to send representatives to participate in an advisory capacity in the preparation of these agreements and in the proceedings of the conferences, it being recognized that in the majority of cases such participation is desirable.

(MOD) **S6.7** § 7. If, besides the action they may take in accordance with No. **S6.2**, two or more Members coordinate the use of individual frequencies in any of the frequency bands covered by Article **S5** before notifying the frequency assignments concerned, they shall in all appropriate cases inform the Bureau of such coordination.

CHAPTER SIII

ADD

Coordination, Notification and Recording of Frequency Assignments and Plan Modifications

ARTICLE S7

NOC

Application of the Procedures

ADD **S7.1** The procedures of this Chapter shall be applied by administrations, the Radio Regulations Board (the Board) and the Radiocommunication Bureau (the Bureau) for the purposes of:

ADD **S7.2** *a)* obtaining coordination with, or the agreement of, other administrations whenever such a requirement is specified in one or more provisions of these Regulations (see Article **S9**);

SUP **S7.3**

ADD **S7.4** *b)* notifying to the Bureau frequency assignments for the purposes of examination and recording in the Master Register (see Article **S11**).

ADD **S7.5** Any administration may request the assistance of the Board or the Bureau in the application of any part of the procedures of this Chapter (see Articles **S13** and **S14**).

ADD **S7.5A** If a frequency assignment is brought into use before commencement of the coordination procedure under Article **S9** when coordination is required, or before notification when coordination is not required, the operation in advance of the application of the procedure shall, in no way, afford any priority.

ADD **S7.6** If requested by any administration, particularly by the administration of a country in need of special assistance, the Bureau and, when necessary, the Board shall, using such means at their

disposal as are appropriate in the circumstances, render the assistance requested in the application of the procedures of this Chapter.

ADD **S7.7** The Board shall, in accordance with the relevant provisions of the Constitution, the Convention and these Regulations, approve the Rules of Procedure which are to be applied by the Bureau (see Article **S13**, Section **III**).

ADD **S7.8** In a case of harmful interference involving the application of the provisions of Article **S15**, Section **VI**, except when there is an obligation to eliminate harmful interference under the provisions of this Chapter, administrations are urged to exercise the utmost goodwill and mutual cooperation taking into account all the relevant technical and operational factors of the case.

ARTICLE S8

ADD

Status of Frequency Assignments Recorded in the Master International Frequency Register

ADD **S8.1** The international rights and obligations of administrations in respect of their own and other administrations' frequency assignments[1] shall be derived from the recording of those assignments in the Master International Frequency Register (the Master Register) or from their conformity, where appropriate, with a plan. Such rights shall be conditioned by the provisions of these Regulations and those of any relevant frequency allotment or assignment plan.

ADD **S8.1.1** [1] The expression "frequency assignment", wherever it appears in this Chapter, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register. Additionally, wherever the expression relates to a space station in the geostationary-satellite orbit, it shall be associated with a nominal location in that orbit.

SUP **S8.2**

ADD **S8.3** Any frequency assignment recorded in the Master Register with a favourable finding under Nos. **S11.31** to **S11.34** and **S11.41**, as appropriate, shall have the right to international recognition. For such an assignment, this right means that other administrations, recognizing Nos. **S4.2** and **S4.3** in particular, shall take it into account when making their own assignments, in order to avoid harmful interference.

ADD **S8.4** A frequency assignment shall be known as a non-conforming assignment when it is not in accordance with the Table of Frequency Allocations or the other[2] provisions of these Regulations. Such an assignment shall be recorded for information purposes, only when the notifying administration states that it will be operated in accordance with No. **S8.5** (See also No. **S4.4**).

ADD **S8.4.1** [2] The "other provisions" shall be identified and included in the Rules of Procedure.

ADD **S8.5** If harmful interference to the reception of any station whose assignment is in accordance with No. **S11.31** is actually caused by the use of a frequency assignment which is not in conformity with No. **S11.31**, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

ARTICLE S9

ADD **Procedure for Effecting Coordination With or Obtaining Agreement of Other Administrations**[1, 2, 3]

ADD **AS9.1** [1] For the application of the provisions of this Article with respect to stations in a space radiocommunication service using frequency bands covered by the fixed-satellite service allotment plan, see also Appendix **S30B** and Resolution **107 (Orb-88)**.

ADD **A.S9.2** [2] These procedures may be applicable to stations on board satellite launching vehicles.

ADD **A.S9.3** [3] See Appendices **S30** and **S30A** for the coordination of frequency assignments of other services in relation to stations of the broadcasting-satellite service and to stations of feeder links for this service in the bands covered by those Appendices.

ADD **Section I. Advance Publication of Information on Planned Satellite Networks or Satellite Systems**

ADD **S9.1** Before initiating any action under this Article in respect of frequency assignments for a satellite network or a satellite system, an administration, or one[1] acting on behalf of a group of named administrations, shall, prior to the coordination procedure described in Section **II** of Article **S9** below, where applicable, send to the Bureau a general description of the network or system for advance publication in the Weekly Circular not earlier than six years and preferably not later than two years before the planned date of bringing into use of the network or system (see also No. **S11.44**). The characteristics to be provided for this purpose are listed in Appendix **S4**. The coordination or notification information may also be communicated to the Bureau at the same time; it shall be considered as having been received by the Bureau not earlier than six months after the date of receipt of the information for advance publication where coordination is required by Section **II** of Article **S9**. Where coordination is not required by Section **II**, notification shall be considered as having been received by the Bureau not earlier than six months after the date of publication of the advance publication information.

ADD **S9.1.1** [1] Whenever, under this provision, an administration acts on behalf of a group of named administrations, all members of that group retain the right to respond in respect of their own networks or systems.

ADD **S9.2** Amendments to the information sent in accordance with the provisions of No. **S9.1** shall also be sent to the Bureau as soon as they become available. For geostationary-satellite networks and non-geostationary-satellite networks which are subject to Section **II** of Article **S9**, the use of an additional frequency band will require the application of the advance publication procedure for this band. For non-geostationary-satellite networks which are not subject to Section **II** of Article **S9**, the use of an additional frequency band or an extension of the service area will require the application or recommencing, respectively, of the advance publication procedures for these modifications (see Resolution **48 (WRC-95)**).

ADD **S9.2A** If the information is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

ADD **S9.2B** On receipt of the complete information sent under Nos. **S9.1** and **S9.2**, the Bureau shall publish it in a Special Section of its Weekly Circular within three months. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

ADD **S9.3** If, upon receipt of the Weekly Circular containing information published under No. **S9.2B**, an administration believes that interference which may be unacceptable may be caused to its existing or planned satellite networks or systems or terrestrial stations[2], it shall within four months of the date of the Weekly Circular communicate to the publishing administration its comments on the particulars of the anticipated interference to its existing or planned systems. A copy of these comments shall also be sent to the Bureau. Thereafter, both administrations shall endeavour to cooperate

in joint efforts to resolve any difficulties, with the assistance of the Bureau, if so requested by either of the parties, and shall exchange any additional relevant information that may be available. If no such comments are received from an administration within the aforementioned period, it may be assumed that the administration concerned has no basic objections to the planned satellite network(s) of the system on which details have been published.

ADD **S9.3.1** [2] The only terrestrial stations to be taken into account are those for which the requirement to coordinate is under Nos. **S9.11**, **S9.11A** and **S9.21**.

ADD **S9.4** In the case of difficulties, the administration responsible for the planned satellite network shall explore all possible means to resolve the difficulties without considering the possibility of adjustment to networks of other administrations. If no such means can be found, it may request the other administrations to explore all possible means to meet its requirements. The administrations concerned shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks. An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of No. **S9.2B** shall, after the period of four months, inform the Bureau of the progress made in resolving any difficulties. If necessary, a further report shall be provided prior to the commencement of coordination or the submission of notices to the Bureau.

ADD **S9.5** The Bureau shall inform all administrations of the list of administrations which have sent comments under No. **S9.3** and provide a summary of the comments received.

ADD **S9.5A** The procedure of Section **I** shall be considered solely for the purposes of informing all administrations of developments in the use of space radiocommunications and minimizing any difficulties that might otherwise arise during the coordination stage.

ADD **Section II. Coordination Procedure**[1, 2]

ADD **S9.II.1** [1] These procedures are also applicable for earth stations of the Earth exploration-satellite, space research, space operation and radio-determination-satellite services intended to be used while in motion or during halts at unspecified points.

ADD **S9.II.2** [2] The word "coordination" as used throughout this Article refers also to the process of seeking an agreement of other administrations when required under No. **S9.21**.

ADD **Sub-Section IIA. Requirement and Request for Coordination**

ADD **S9.6** Before an administration[1] notifies to the Bureau or brings into use a frequency assignment in any of the cases listed below, it shall effect coordination, as required, with other administrations identified under No. **S9.27**:

ADD **S9.6.1** [1] In the case of coordination of an assignment in a satellite network in relation to another satellite network, an administration may act on behalf of a group of named administrations. Whenever, under this provision, an administration acts on behalf of a group of named administrations, all members of the group retain the right to respond in respect of their own networks or systems.

ADD **S9.7** *a)* for a station in a satellite network using the geostationary-satellite orbit, in respect of any other satellite network using that orbit, for any space radiocommunication services and frequency bands except those covered by the Plans of Appendices **S30**, **S30A** and **S30B**;

ADD **S9.8** *b)*[2] for a transmitting space station of the fixed-satellite service using the geostationary-satellite orbit in a frequency band shared on an equal primary basis with the broadcasting-satellite service, in respect of stations of the latter service which are subject to the Appendix **S30** Plan;

ADD **S9.9** *c)*[2] for a transmitting space station of the fixed-satellite service using the geostationary-satellite orbit in a frequency band shared on an equal primary basis with the feeder links of the broadcasting-satellite service which are subject to the Appendix **S30A** Plan;

[2] Application of these provisions is suspended pending the decision of the 1997 World Radiocommunication Conference on revision of Appendices **30 (S30)** and **30A (S30A)** with respect to Articles **6** and **7** of those two Appendices.

SUP **S9.10**

ADD **S9.11** *d)* for a space station in the broadcasting-satellite service in any band shared on an equal primary basis with terrestrial services and in which there is no plan for the broadcasting-satellite service, in respect of terrestrial services;

ADD **S9.11A** *e)* for a station for which the requirement to coordinate is included in a footnote of the Table of Frequency Allocations referring to this provision:

ADD **S9.12** i) in a satellite network using a non-geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit, and in respect of any other satellite network using the geostationary-satellite orbit, with the exception of the coordination under No. **S9.17A**;

ADD **S9.13** ii) in a satellite network using the geostationary-satellite orbit, in respect of any other satellite network using a non-geostationary-satellite orbit;

ADD **S9.14** iii) which is a space station of a satellite network, in respect of stations of terrestrial services where the threshold value is exceeded;

ADD **S9.15** iv) which is either a specific earth station or typical earth station of a non-geostationary satellite network, in respect of terrestrial stations in frequency bands allocated with equal rights to space and terrestrial services and where the coordination area of the earth station includes the territory of another country;

ADD **S9.16** v) which is a transmitting station of a terrestrial service located within the coordination area of an earth station in a non-geostationary-satellite network;

ADD **S9.17** *f)*[3] for any specific earth station or typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **S9.15**;

[3] Application of these provisions is suspended pending the decision of the 1997 World Radiocommunication Conference on revision of Appendices **30 (S30)** and **30A (S30A)** with respect to Articles **6** and **7** of those two Appendices.

ADD **S9.17A** *g)* for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country;

ADD **S9.18** *h)* for any transmitting station of a terrestrial service in the bands referred to in No. **S9.17** within the coordination area of an earth station, with the exception of the coordination under No. **S9.16**;

ADD **S9.19** *i)*[4] for any transmitting station of a terrestrial service in a frequency band shared on an equal primary basis with the broadcasting-satellite service;

[4] The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendices **30** (**S30**) and **30A** (**S30A**) is suspended pending the decision fo the 1997 World Radiocommunication Conference on revision of those two Appendices.

SUP **S9.20**

ADD **S9.21** *j)* for any station of a service for which the requirement to seek the agreement of other administrations is included in a footnote of the Table of Frequency Allocations referring to this provision.

SUP **S9.22**

ADD **S9.23** Whenever there is a requirement to effect more than one form of coordination in accordance with No. **S9.30**, the 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.

SUP **S9.24**

SUP **S9.25**

ADD **S9.26** Coordination may be effected for a satellite network using the information relating to the space station, including its service area, and the parameters of one or more typical earth stations located in all or part of the service area of the space station. Coordination may also be effected for terrestrial stations using the information relating to typical terrestrial stations, except for those mentioned in Nos. **S11.18** to **S11.23**.

ADD **S9.27** Frequency assignments to be taken into account in effecting coordination are identified using Appendix **S5**.

ADD **S9.28** In the case of requests for coordination under No. **S9.29**, the requesting administration shall, by applying the calculation method and criteria contained in Appendix **S5** to those frequency assignments, identify, to the extent possible, the administrations with which coordination is to be effected.

ADD **S9.29** Requests for coordination made under Nos. **S9.15** to **S9.19** shall be sent by the requesting administration to the identified administrations, together with the appropriate information listed in Appendix **S4** to these Regulations.

ADD **S9.30** Requests for coordination made under Nos. **S9.7** to **S9.14** and **S9.21** shall be sent by the requesting administration to the Bureau, together with the appropriate information listed in Appendix **S4** to these Regulations.

ADD **S9.31** The information sent under No. **S9.29** shall also, in the cases covered by Nos. **S9.15**, **S9.17** or **S9.17A**, include a copy of diagrams drawn to appropriate scale indicating, for both transmission and reception, the location of the earth station and its associated coordination area, or the coordination area related to the service area in which it is intended to operate the mobile earth station, and the data on which the diagrams are based. In respect of terrestrial stations, in the cases covered by Nos. **S9.16**, **S9.18** and **S9.19** the information shall include the locations of terrestrial stations within the coordination area of the relevant earth station.

ADD **S9.32** If the responsible administration concludes that coordination is not required under Nos. **S9.7** to **S9.9**, it shall send the relevant information pursuant to Appendix **S4** to the Bureau for action under No. **S9.34**.

ADD **S9.32A** If the responsible administration, following the application of Nos. **S9.15** to **S9.19**, concludes that coordination is not required, it may send the relevant information pursuant to Appendix **S4** to the Bureau for action under Section **I** of Article **S11**.

ADD **S9.33** If for any reason an administration cannot act in accordance with No. **S9.29**, it shall seek the assistance of the Bureau. The Bureau shall then send the request for coordination to the administration concerned and take any necessary further action as appropriate under Nos. **S9.45** and **S9.46**.

ADD **S9.34** On receipt of the complete information sent under No. **S9.30** or No. **S9.32** the Bureau shall promptly:

ADD **S9.35** *a)* examine that information with respect to its conformity with No. **S11.31**;

ADD **S9.36** *b)* identify in accordance with No. **S9.27** any administrations with which coordination may need to be effected[5];

ADD **S9.36.1** [5] The list of administrations identified by the Bureau under Nos. **S9.11** to **S9.14** and **S9.21** is only for information purposes, to help administrations comply with this procedure.

ADD **S9.37** *c)* include their names in the publication under No. **S9.38**;

ADD **S9.38** *d)* publish, as appropriate, the complete information in the Weekly Circular within four months. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

SUP **S9.39**

ADD **S9.40** *e)* inform the administrations concerned of its actions and communicate the results of its calculations, drawing attention to the relevant Weekly Circular.

ADD **S9.40A** If the information is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification required and information not provided.

ADD **S9.41** Following receipt of the Weekly Circular referring to requests for coordination under Nos. **S9.7** to **S9.9**, an administration believing that it should have been included in the request shall, within four months of the date of publication of the relevant Weekly Circular, inform the initiating administration and the Bureau, giving its technical reasons for doing so, and shall request that its name be included.

ADD **S9.42** The Bureau shall study this information on the basis of Appendix **S5** and shall inform both administrations of its conclusions. Should the Bureau agree to include the administration in the request, it shall publish an addendum to the publication under No. **S9.38**.

ADD **S9.43** Following action under No. **S9.41**, those administrations not responding within the time limit specified in No. **S9.41** shall be regarded as unaffected and the provisions of Nos. **S9.48** and **S9.49** shall apply.

ADD **S9.44** The administration requesting coordination and those with which it is requested, or the Bureau when acting pursuant to No. **S7.6**, may request any additional information they consider necessary.

ADD **Sub-Section IIB. Acknowledgement of Receipt of a Request for Coordination**

ADD **S9.45** An administration receiving a request for coordination under No. **S9.29** shall, within 30 days from the date of the request, acknowledge receipt by telegram to the requesting administration. In the absence of an acknowledgement of receipt of its request within the 30 days, the requesting administration shall send a telegram requesting an acknowledgement.

ADD **S9.46** If there is no acknowledgement of receipt within 15 days of its second request sent under No. **S9.45**, the requesting administration may seek the assistance of the Bureau. In this event, the Bureau shall

forthwith send a telegram to the administration which has failed to reply requesting an immediate acknowledgement.

ADD **S9.47** If there is no acknowledgement of receipt within 30 days after the Bureau's action under No. **S9.46**, it shall be deemed that the administration which has failed to acknowledge receipt has undertaken:

ADD **S9.48** *a)* that no complaint will be made in respect of any harmful interference affecting its own assignments which may be caused by the assignment for which coordination was requested; and

ADD **S9.49** *b)* that the use of its own assignments will not cause harmful interference to the assignment for which coordination was requested.

ADD **Sub-Section IIC. Action Upon a Request for Coordination**

ADD **S9.50** An administration having received a request for coordination under Nos. **S9.7** to **S9.21**, or having been included in the procedure following action under No. **S9.41**, shall promptly examine the matter with regard to interference which may be caused to, or in certain cases, by its own assignments[1], in accordance with Appendix **S5**[2].

ADD **S9.50.1** [1] In the absence of specific provisions in these Regulations relating to the evaluation of interference, the calculation methods and the criteria should be based on relevant ITU-R Recommendations agreed by the administrations concerned. In the event of disagreement on a Recommendation or in the absence of such a Recommendation, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

ADD **S9.50.2** [2] Where Appendix **S5** specifies a period for which planned assignments may be taken into account, that period may be extended by agreement between the administrations concerned.

ADD **S9.51** Following its action under No. **S9.50**, the administration with which coordination was sought under Nos. **S9.7** to **S9.9** shall, within four months of the date of the relevant Weekly Circular, either inform the requesting administration and the Bureau of its agreement or act under No. **S9.52**.

ADD **S9.51A** Following its action under No. **S9.50**, the administration with which coordination was sought under Nos. **S9.15** to **S9.19** shall, within four months of the date of dispatch of the coordination data, either inform the requesting administration of its agreement or act under No. **S9.52**.

ADD **S9.52** If an administration, following its action under Nos. **S9.50**, does not agree to the request for coordination, it shall, within the same four-month period, inform the requesting administration of its disagreement and shall provide information concerning its own assignments upon which that disagreement is based. It shall also make such suggestions as it is able to offer with a view to satisfactory resolution of the matter. A copy of that information shall be sent to the Bureau. Where the 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 to 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 Nos. **S11.2** or **S11.9**.

ADD **S9.52A** In the case of coordination requested under No. **S9.14**, on receipt of the special section of the weekly circular referred to in No. **S9.38**, and within the same four-month period from the publication of that special section, an administration in need of assistance may inform the Bureau that it has existing or planned terrestrial stations which might be affected by the planned satellite network, and may request the Bureau to determine the need for coordination by applying the Appendix **S5** criteria. The Bureau shall

inform the administration seeking coordination of this request, indicating the date by which it may be able to provide the results of its analysis. When these results are available, the Bureau shall inform both administrations. This request shall be considered as a disagreement, pending the results of the analysis by the Bureau of the need for coordination.

ADD **S9.52B** When an agreement on coordination is reached, the administration responsible for the terrestrial stations or the earth station operating in the opposite direction of transmission may send to the Bureau the information concerning those stations covered by the agreement which are intended to be notified under Nos. **S11.2** or **S11.9**. The Bureau shall consider as notifications only that information relating to existing terrestrial or earth stations operating in the opposite direction of transmission or to those to be brought into use within the next three years.

ADD **S9.52C** For coordination requests under Nos. **S9.11** to **S9.14** and **S9.21**, an administration not responding under No. **S9.52** within the same four-month period shall be regarded as unaffected and, in the cases of **S9.11** to **S9.14**, the provisions of Nos. **S9.48** and **S9.49** shall apply.

ADD **S9.52D** For coordination requests under Nos. **S9.12** to **S9.14**, forty-five days prior to the expiry of the same four-month period the Bureau shall dispatch a circular-telegram to all administrations, bringing the matter to their attention. Upon receipt of the aforementioned circular-telegram, an administration shall acknowledge receipt immediately by telegram. If no acknowledgement is received within thirty days, the Bureau shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days.

ADD **S9.53** Thereafter, the requesting and responding administrations shall make every possible mutual effort to overcome the difficulties, in a manner acceptable to the parties concerned.

ADD **S9.54** Either the administration seeking coordination or one whose assignments may be affected thereby may request additional information which it may require in order to assess the interference to its own assignments or to assist in resolving the matter.

ADD **S9.55** All administrations may use correspondence, any appropriate means of telecommunication or meetings, as necessary, to assist in resolving the matter. The results thereof shall be communicated to the Bureau, which shall publish them in the Weekly Circular, as appropriate.

SUP **S9.56**

SUP **S9.57**

ADD **S9.58** An administration which has initiated coordination, as well as any administration with which coordination is sought, shall communicate to the Bureau any modifications to the published characteristics of their respective networks that were required to reach agreement on the coordination. The Bureau shall publish this information in accordance with No. **S9.38**, indicating that these modifications resulted from the joint effort of the administrations concerned to reach agreement on coordination and that, for this reason, they should be given special consideration. These modifications may involve the application of Sub-Section **IIA** of Article **S9** with respect to other administrations.

ADD **S9.59** If there is disagreement between the administration seeking coordination and an administration with which coordination is sought concerning the level of acceptable interference, either may seek the assistance of the Bureau; in such a case, it shall provide the necessary information to enable the Bureau to endeavour to effect such coordination.

ADD **Sub-Section IID. Action in the Event of No Reply, No Decision or Disagreement on a Request for Coordination**

ADD **S9.60** If, within the same four-month period specified in No. **S9.51**, an administration with which coordination is sought fails to reply or to give a decision under No. **S9.51** or, following its action under No. **S9.52**, fails to reply, to give a decision or to provide information concerning its own assignments on which its disagreement is based, the requesting administration may seek the assistance of the Bureau.

ADD **S9.61** The Bureau, acting on a request for assistance under No. **S9.60**, shall forthwith request the administration concerned to give an early decision in the matter or provide the relevant information.

ADD **S9.62** If the administration concerned still fails to respond within thirty days of the Bureau's action under No. **S9.61**, the provisions of Nos. **S9.48** and **S9.49** shall apply.

ADD **S9.63** If there is continuing disagreement, or if any administration involved in the matter has requested the assistance of the Bureau, the Bureau shall seek any necessary information to enable it to assess the interference. It shall communicate its conclusions to the administrations involved.

ADD **S9.64** If the disagreement remains unresolved after the Bureau has communicated its conclusions to the administrations involved, the administration which requested coordination shall, having regard to the other provisions of this Section, defer the submission of its notice of frequency assignments under Article **S11** to the Bureau for six months from the date of the request or the Weekly Circular containing the request for coordination, as appropriate.

ADD **S9.65** If, at the date of receipt of a notice under No. **S9.64** above, the Bureau has been informed of a continuing disagreement, the Bureau shall examine the notice under Nos. **S11.32A** or **S11.33**[1] and shall act in accordance with No. **S11.38**.

ADD **S9.65.1** [1] A notice of a frequency assignment for which coordination was requested under No. **S9.21** and in respect of which there is continuing disagreement shall not be examined under Nos. **S11.32A** or **S11.33**; it shall, however, be examined under No. **S11.31**.

ARTICLE S10 *(number not used)*

ARTICLE S11

ADD **Notification and Recording of Frequency Assignments**[1]

ADD **A.S11.1** [1] For the notification and recording of assignments in the following Regions and frequency bands see the appropriate appendices:

Region 1	Region 2	Region 3	Appendix
11.7 - 12.5 GHz	12.2 - 12.7 GHz	11.7 - 12.2 GHz	**S30**
14.5 - 14.8 GHz 17.3 - 18.1 GHz	 17.3 - 17.8 GHz	14.5 - 14.8 GHz 17.3 - 18.1 GHz	**S30A**
All Regions, fixed-satellite service only 4 500 - 4 800 MHz (space-to-Earth) 6 725 - 7 025 MHz (Earth-to-space) 10.7 - 10.95 GHz (space-to-Esarth) 11.2 - 11.45 GHz (space-to-Earth) 12.75 - 13.25 GHz (Earth-to-space)			**S30B**

ADD **Section I. Notification**

ADD **S11.1** The expression "frequency assignment", wherever it appears in this Article, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called the *Master Register*).

ADD **S11.2** Any frequency assignment to a transmitting station and to its associated receiving stations except for those mentioned in Nos. **S11.13** and **S11.14** shall be notified to the Bureau:

ADD **S11.3** *a)* if the use of that assignment is capable of causing harmful interference to any service of another administration; or

ADD **S11.4** *b)* if that assignment is to be used for international radiocommunication; or

ADD **S11.5** *c)* if that assignment is subject to a world or regional frequency allotment or assignment plan which does not have its own notification procedure; or

ADD **S11.6** *d)* if that assignment is subject to the coordination procedure of Article **S9** or is involved in such a case; or

ADD **S11.7** *e)* if it is desired to obtain international recognition for that assignment; or

ADD **S11.8** *f)* if it is a non-conforming assignment under No. **S8.4** and if the administration wishes to have it recorded for information.

ADD **S11.9** Similar notification shall be made for a frequency assignment to a receiving earth station or space station, or to a land station for reception from mobile stations, when:

ADD **S11.10** *a)* any of the conditions in Nos. **S11.4**, **S11.5** or **S11.7** apply to the receiving station; or

ADD **S11.11** *b)* any of the conditions in No. **S11.2** apply to the associated transmitting station.

ADD **S11.12** Any frequency to be used for reception by a particular radio astronomy station may be notified if it is desired that such data be included in the Master Register.

ADD **S11.13** Assignments involving specific frequencies which are prescribed by these Regulations for common use by terrestrial stations of a given service shall not be notified. They shall be entered in the Master Register and a consolidated table shall also be published in the Preface to the International Frequency List (IFL).

ADD **S11.14** Frequency assignments for ship stations and for mobile stations of other services, for stations in the amateur service, for earth stations in the amateur-satellite service, and those for broadcasting stations in the high frequency bands 5 950 - 6 200 kHz, 7 100 - 7 300 kHz (Regions 1 and 3), 9 500 - 9 900 kHz, 11 650 - 12 050 kHz, 13 600 - 13 800 kHz, 15 100 - 15 600 kHz, 17 550 - 17 900 kHz, 21 450 - 21 850 kHz, 25 670 - 26 100 kHz, for which Article **S12A** applies shall not be notified under this Article.

ADD **S11.15** When notifying a frequency assignment, the administration[1] shall provide the relevant characteristics listed in Appendix **S4**. Alternatively, if an administration has already communicated information to the Bureau under No. **S9.30**, it may identify that communication as a notification and send to the Bureau only the changes thereto.

ADD **S11.15.1** [1] A frequency assignment to a space station or typical earth station as part of the satellite network may be notified by one administration acting on behalf of a group of named administrations. Any further notice (modification or deletion) relating to such an assignment shall, in the absence of information to the contrary, be regarded as having been submitted on behalf of the entire group.

SUP **S11.16**

ADD **S11.17** Frequency assignments relating to a number of stations or earth stations may be notified in the form of the characteristics of a typical station or a typical earth station and the intended geographical

area of operation. Except for mobile earth stations, individual notices of frequency assignments are however necessary in the following cases (see also No. **S11.14**):

ADD **S11.18** *a)* stations covered by the allotment or assignment plan of Appendices **S25**, **S26** and **S27**;

ADD **S11.19** *b)* broadcasting stations;

ADD **S11.20** *c)* terrestrial stations within the coordination area of an earth station;[2]

ADD **S11.21** *d)* any terrestrial stations, in bands shared with space services, which exceed the limits specified in No. **S21.3**, in accordance with No. **S21.7**;[2]

ADD **S11.22** *e)* earth stations whose coordination area extends to the territory of another administration;[2]

ADD **S11.23** *f)* earth stations whose interference potential is greater than that of a coordinated typical earth station.[2]

ADD **S11.20.1** to **S11.23.1** [2] In these cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to terrestrial and space services where coordination is required under Appendix **S5**, Table **S5-1**.

ADD **S11.24** Notices relating to assignments for stations of terrestrial services, except for those referred to in No. **S11.25**, shall reach the Bureau not earlier than three months before, preferably not later than one month before, and in no case later than one month after the assignments are brought into use.

ADD **S11.25** Notices relating to assignments for stations in space services, and for terrestrial stations involved in the coordination of a satellite network, shall reach the Bureau not earlier than three years before and not later than three months before the assignments are brought into use.

SUP **S11.26**

ADD **Section II. Examination of Notices and Recording of Frequency Assignments in the Master Register**

ADD **S11.27** Notices not containing the basic characteristics specified in Appendix **S4** shall be returned with comments to help the notifying administration to complete and submit them again.

ADD **S11.28** Complete notices shall be marked by the Bureau with their date of receipt and shall be examined in the date order of their receipt. On receipt of a complete notice the Bureau shall, within no more than two months, publish its contents, with any diagrams and maps and the date of receipt, in the Weekly Circular which shall constitute the acknowledgement to the notifying administration of receipt of its notice. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

ADD **S11.29** The Bureau shall not postpone the formulation of a finding on a complete notice unless it lacks sufficient data to reach a conclusion thereon. Moreover, the Bureau shall not act upon any notice having a technical bearing on an earlier notice which is still under consideration by the Bureau until it has reached a finding with respect to the earlier notice.

ADD **S11.30** Each notice shall be examined:

ADD **S11.31** *a)* with respect to its conformity with the Table of Frequency Allocations[1] and the other provisions[2] of these Regulations, except those relating to conformity with the procedures for obtaining coordination or the probability of harmful interference, or those relating to conformity with a plan, as appropriate, which are the subject of the following sub-paragraphs;[3]

ADD **S11.31.1** [1] Conformity with the Table of Frequency Allocations implies the successful application of No. **S9.21**, when necessary.

ADD **S11.31.2** [2] The "other provisions" shall be identified and included in the Rules of Procedure.

ADD **S11.31.3** [3] Notices relating to radio astronomy stations are only examined with respect to No. **S11.31**.

ADD **S11.32** *b)* with respect to its conformity with the procedures relating to coordination with other administrations applicable to the radiocommunication service and the frequency band concerned; or

ADD **S11.32A** *c)* with respect to the probability of harmful interference that may be caused to or by assignments recorded with a favourable finding under Nos. **S11.36** and **S11.37** or **S11.38**, or recorded in application of No. **S11.41**, or published under Nos. **S9.38** or **S9.58** but not yet notified, as appropriate, for those cases for which the notifying administration states that the procedure for coordination under No. **S9.7** could not be successfully completed (see also No. **S9.65**);[4] or

ADD **S11.32A.1** [4] The examination of such notices with respect to any other frequency assignment for which a request for coordination under **S9.7** has been published under No. **S9.38** but not yet notified shall be effected by the Bureau in the order of their publication under the same number using the most recent information available.

ADD **S11.33** *d)* with respect to the probability of harmful interference that may be caused to or by other assignments recorded with a favourable finding in application of Nos. **S11.36** and **S11.37** or **S11.38** or in application of No. **S11.41**, as appropriate, for those cases for which the notifying administration states that the procedure for coordination or prior agreement under Nos. **S9.17**[5], **S9.17A** or **S9.18**[5] could not be successfully completed (see also No. **S9.65**);[6] or

ADD **S11.33.2** [5] When typical earth stations are involved, administrations are required to furnish the necessary information to enable the Bureau to effect the examination.

ADD **S11.33.3** [6] The examination under No. **S11.33** shall also take into account assignments for terrestrial services which are in use or which are to be brought into use within the next three years and have been communicated to the Bureau as a result of continuing disagreement in coordination.

ADD **S11.34** *e)* where appropriate, with respect to its conformity with a world or regional allotment or assignment plan and the associated provisions.

SUP **S11.35**

ADD **S11.36** When the examination with respect to No. **S11.31** leads to a favourable finding, the assignment shall be recorded in the Master Register or examined further with respect to Nos. **S11.32** to **S11.34**, as appropriate. When the finding with respect to No. **S11.31** is unfavourable, the assignment shall be recorded in the Master Register only if it includes a reference to No. **S4.4**, otherwise the notice shall be returned with an indication of the appropriate action.

ADD **S11.37** When the examination with respect to No. **S11.32** leads to a favourable finding, the assignment shall be recorded in the Master Register indicating the administrations with which the coordination procedure has been completed. When the finding is unfavourable, the notice shall be returned to the notifying administration, with an indication of the appropriate action, if Nos. **S11.32A** or **S11.33** do not apply.

ADD **S11.38** When the examination with respect to Nos. **S11.32A** or **S11.33** leads to a favourable finding, the assignment shall be recorded in the Master Register indicating the names of the administrations with which coordination was completed and those with which it was not completed but in respect of which the finding was favourable. When the finding is unfavourable, the notice shall be returned with an indication of the appropriate action.

ADD **S11.39** When the examination with respect to No. **S11.34** leads 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. However, notices under Appendices **S26** and **S27** shall be treated as follows:

ADD **S11.39A** In the case of a notice in conformity with the technical principles of Appendix **S27**, but not in conformity with the Allotment Plan, the Bureau shall examine whether the protection specified in Appendix **S27** is afforded to the allotments in the Plan and to assignments already recorded in the Master Register with a favourable finding.

ADD **S11.39B** When the examination under **S11.39A** leads to a favourable finding, the assignment shall be recorded in the Master Register. When the finding is unfavourable, the assignment shall be recorded in the Master Register with a symbol indicating that it shall cause no harmful interference to any frequency assignment which is either in conformity with the Allotment Plan or recorded in the Master Register with a favourable finding with respect to **S11.39A**.

ADD **S11.39C** A notice in conformity with the technical principles of Appendix **S26**, but not in conformity with the Allotment Plan, shall be examined with respect to the allotments in Part **III** of Appendix **S26**.

ADD **S11.39D** When the examination under **S11.39C** leads to a favourable finding, the assignment shall be recorded in the Master Register. When the finding is unfavourable, the assignment shall be recorded in the Master Register with a symbol indicating that it shall cause no harmful interference to any frequency assignment which is either in conformity with the Allotment Plan or recorded in the Master Register with a favourable finding with respect to **S11.39C**.

SUP **S11.40**

ADD **S11.41** After a notice is returned under No. **S11.38**, should the notifying administration resubmit the notice and insist upon its reconsideration, the Bureau shall enter the assignment provisionally in the Master Register with an indication of those administrations whose assignments were the basis of the unfavourable finding[7]. The entry shall be changed from provisional to definitive recording in the Master Register only if the Bureau is informed that the new assignment has been in use, together with the assignment which was the basis for the unfavourable finding, for at least four months without any complaint of harmful interference being made (see Nos. **S11.47** and **S11.49**).

ADD **S11.41.1** [7] The entry shall be definitive in the case of a frequency assignment to a receiving station, under the condition that the notifying administration has undertaken that no complaint will be made in respect of any harmful interference which may be caused to that assignment by the assignment which was the basis for the unfavourable finding.

ADD **S11.41A** Should the assignments that were the basis of the unfavourable finding under Nos. **S11.32A** or **S11.33** not be brought into use within the period specified in Nos. **S11.24**, **S11.25** or **S11.44**, as appropriate, then the finding of the assignments resubmitted under **S11.41** shall be reviewed accordingly.

ADD **S11.42** Should harmful interference be caused by an assignment recorded under No. **S11.41** to any recorded assignment which was the basis of the unfavourable finding, the station using the frequency assignment recorded under No. **S11.41** shall, upon receipt of advice thereof, immediately eliminate this harmful interference.

ADD **S11.43** In every case when a new assignment is recorded in the Master Register it shall, in accordance with the provisions of Article **S8** of this Chapter, include an indication of the finding and of the consequent status of the assignment. This information shall also be published in the Weekly Circular.

ADD **S11.43A** A notice of a change in the characteristics of an assignment already recorded, as specified in Appendix **S4**, shall be examined by the Bureau under Nos. **S11.31** to **S11.34**, as appropriate.

ADD **S11.43B** In the case of a change in the characteristics of an assignment which is in conformity with No. **S11.31**, should the Bureau reach a favourable finding with respect to Nos. **S11.32** to **S11.34**, as appropriate, or find that the changes do not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date of entry in the Master Register. The date of receipt by the Bureau of the notice relating to the change shall be entered in the Master Register.

ADD **S11.43C** Where the notifying administration resubmits the notice and the Bureau finds that the coordination procedures specified in **S11.32** have been successfully completed with all administrations whose space or terrestrial radiocommunication stations may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Bureau of the original notice shall be entered in the appropriate column of the Master Register. The date of receipt by the Bureau of the resubmitted notice shall be entered in the "Remarks" column.

ADD **S11.43D** Where the notifying administration resubmits the notice with a request that the Bureau effect the required coordination under **S9.7** to **S9.19**, the Bureau shall take the necessary action in accordance with the relevant provisions of Articles **S9** and **S11**, as appropriate. However, in any subsequent recording of the assignment, the date of receipt by the Bureau of the resubmitted notice shall be entered in the "Remarks" column.

ADD **S11.44** The notified date of bringing into use of any assignment to a space station of a satellite network shall be no later than six years following the date of publication of the relevant Weekly Circular

referred to in No. **S9.2B**. The notified date of bringing into use will be extended at the request of the notifying administration by not more than three years.

ADD **S11.45** The notified date of bringing into use of an assignment to a terrestrial station will be extended at the request of the notifying administration by not more than six months.

ADD **S11.46** In applying the provisions of this Article, any resubmitted notice which is received by the Bureau more than six months after the date on which the original notice was returned by the Bureau shall be considered to be a new notice.

ADD **S11.47** All frequency assignments notified in advance of their being brought into use shall be entered provisionally in the Master Register. Within thirty days of such an assignment being brought into use, the notifying administration shall so inform the Bureau. If the Bureau does not receive that confirmation within the above period it shall cancel the entry. The Bureau shall however consult the administration concerned before taking such action.

ADD **S11.48** If after the expiry of the period of six years, plus the extension specified in No. **S11.44**, as appropriate, from the date of publication of the relevant Weekly Circular, the administration responsible for the satellite network has not submitted the Appendix **S4** information for notification under No. **S11.2** and has not brought the frequency assignments to stations of the network into use, the information published under Nos. **S9.2B** and **S9.38** shall be cancelled only after the administration concerned has been informed, at least three months before the expiry date referred to in **S11.44**.

ADD **S11.49** Where the use of a recorded assignment to a space station is suspended for a period not exceeding eighteen months, the notifying administration shall, as soon as possible, inform the Bureau of the date on which such use was suspended and the date on which the assignment is to be brought back into regular use. This latter date shall not exceed two years from the date of suspension.

ARTICLE S12 *(number not used)*

ARTICLE S12A

(MOD) **Planning and Procedures for the Bands Allocated Exclusively to the Broadcasting Service Between 5 950 kHz and 26 100 kHz**

RR	VGE proposal	VGE Report	WRC-95 decision
1736 – 1737	NOC	S12A.1 – S12A.2	NOC
1738	(MOD)	S12A.3	(MOD)
1739 – 1746	NOC	S12A.4 – S12A.11	NOC
1747 – 1749	(MOD)	S12A.12 – S12A.14	(MOD)
1750 – 1751	NOC	S12A.15 – S12A.16	NOC
1752 – 1754	(MOD)	S12A.17 – S12A.19	(MOD)
1755	NOC	S12A.20	NOC
1756 – 1768	(MOD)	S12A.21 – S12A.33	(MOD)
1769	SUP HFBC–87	–	–
1770 – 1772	(MOD)	S12A.34 – S12A.36	(MOD)
FOOTNOTE 1739.1	NOC	S12A.4.1	NOC

NOC **S12A.1**

NOC **S12A.2**

(MOD) **S12A.3** (2) All the broadcasting requirements, current or future, formulated by the administrations, shall be taken into account and be treated on an equitable basis, so as to guarantee the equality of rights referred to in No. **S12A.2**, and to enable each administration to provide a satisfactory service.

NOC **S12A.4** to **S12A.11**

NOC **S12A.4.1**

(MOD) **S12A.12** § 3. The Planning System developed in accordance with the principles set out in Section **II** of this Article and the decisions of the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987), shall be improved and tested in accordance with the instructions contained in Resolution **511 (HFBC-87)** for adoption, if acceptable to a competent world radio conference.

(MOD) **S12A.13** § 4. Periodically, administrations shall submit to the Radiocommunication Bureau the projected seasonal schedules of their broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 kHz and 26 100 kHz. These schedules shall cover each of the following seasonal propagation periods and shall be implemented at 0100 UTC on the first Sunday of the period concerned:

March Schedule	–	March and April
May Schedule	–	May, June, July and August
September Schedule	–	September and October
November Schedule	–	November, December, January and February.

(MOD) **S12A.14** § 5. The closing dates for the receipt of schedules are set by the Bureau in order to permit the advance period to be reduced gradually to the minimum found practicable by the Bureau. Those assignments in a schedule the characteristics of which are not expected to change may be submitted up to a limit of one year in advance. Each such assignment shall be confirmed by the closing date for the submission of the schedules for the respective seasonal periods. The Bureau shall take appropriate steps to send reminders to administrations in carrying out this procedure.

NOC **S12A.15**

NOC **S12A.16**

(MOD) **S12A.17** § 8. The schedules shall be submitted in the form prescribed in Appendix **S4**, which specifies the data to be furnished for each assignment.

(MOD) **S12A.18** § 9. The frequencies included in the schedules shall be in conformity with No. **S11.31** of these Regulations.

(MOD) **S12A.19** § 10. (1) On receipt of the seasonal schedules, including confirmation in appropriate cases of the continuing validity of assignments included in preceding schedules, the Bureau shall incorporate the proposed frequency usage of all administrations into a combined schedule and make the appropriate preliminary examination required to prepare the "Tentative High Frequency Broadcasting Schedule" (hereafter called the *Tentative Schedule*) for the particular seasonal period. This Tentative Schedule shall include:

NOC **S12A.20**

(MOD) **S12A.21** *b)* the selections made by the Board in cases where alternatives were given by the administration concerned;

(MOD) **S12A.22** *c)* frequencies suggested by the Bureau in respect of all services for which no specific frequency was included in the submitted schedule, such suggestions to be made with due overall consideration for No. **S12A.24**, for compatibility within the Tentative Schedule, and for possible changes to the projected frequency usage which might be desirable to achieve more equitable satisfaction of administrations' requirements;

(MOD) **S12A.23** *d)* such apparent incompatibilities between frequency assignments which the Bureau can indicate within the time available.

(MOD) **S12A.24** (2) At the request of administrations, particularly those of countries in need of special assistance and which have no suitable listings in the Master Register, the Bureau shall give special consideration to the requirements of those administrations in preparing the Tentative Schedule.

(MOD) **S12A.25** (3) The Bureau shall begin the work outlined in Nos. **S12A.19** to **S12A.23** early enough for the Tentative Schedule to be issued to administrations not later than two months before the date when the particular seasonal period begins.

(MOD) **S12A.26** § 11. (1) The Bureau shall continue its technical examination of the Tentative Schedule with a view not only to identifying further incompatibilities between frequency assignments which become apparent in the technical examination and correcting them where possible, but also to improving the technical aspects of the Tentative Schedule by amendments to be agreed upon in consultation with the administrations concerned.

(MOD) **S12A.27** (2) In preparing its recommendations to administrations, the Bureau shall take into account monitoring observations and all other available data. However, when actual frequency usage is apparently not in conformity with the assignments in a submitted schedule, the Bureau shall seek from the administration concerned confirmation of this information.

(MOD) **S12A.28** (3) Administrations, having considered the Tentative Schedule together with such recommendations as may have been furnished by the Bureau, should notify, as soon as possible, preferably before the date of commencement of the seasonal period concerned, any amendments to the Tentative Schedule which are intended for implementation.

(MOD) **S12A.29** (4) Changes in the assignments of broadcasting stations which are implemented after the date on which the seasonal period begins shall be notified to the Bureau as soon as they can be forecast.

(MOD) **S12A.30** (5) For changes notified in accordance with Nos. **S12A.28** and **S12A.29**, the Board shall apply the same procedure as that specified in Nos. **S12A.24, S12A.26** and **S12A.27**. Such revisions to the Tentative Schedule as result from the application of the procedure in this Section shall be published in the BR weekly circulars in order that administrations can keep up to date their copies of the Tentative Schedule.

(MOD) **S12A.31** § 12. After the end of each seasonal period, the Bureau shall publish the High Frequency Broadcasting Schedule, which shall reflect the Tentative Schedule as amended by all the changes notified to the Bureau since the publication of the Tentative Schedule. This High Frequency Broadcasting Schedule shall indicate by appropriate symbols:

(MOD) **S12A.32** *a)* those assignments which administrations found in practice to be unsatisfactory and so notified to the Bureau;

(MOD) **S12A.33** *b)* those assignments not included in the Tentative Schedule which were taken into account by the Bureau in the examination under Section **VI** of this Article.

(MOD) **S12A.34** § 13. The technical standards used by the Bureau when applying the provisions of this Article should be based, not only on the factors listed in No. **S13.19**, but also on past experience in broadcasting planning and on the experience gained by the Bureau in the application of the provisions of this Article.

(MOD) **S12A.35** § 14. With a view to the ultimate evolution of compatible technical plans for the frequency bands concerned, the Bureau shall take all necessary steps to carry out engineering studies on a long-term basis. For this purpose, the Bureau shall use all information made available to it on frequency usage in the application of the procedure prescribed in this Article. The Bureau shall also keep administrations informed of the progress and results of such studies at regular intervals.

(MOD) **S12A.36** § 15. In applying the provisions of Section **VI** of Article **S15** of these Regulations, problems of harmful interference which may arise in frequency usage in the bands concerned shall be resolved by administrations by exercising the utmost goodwill and mutual cooperation and by giving due consideration to all the relevant technical and operational factors involved.

ARTICLE S13

ADD **Instructions to the Bureau**

ADD **Section I. Assistance to Administrations by the Bureau**

ADD **S13.1** When an administration has difficulty in applying the procedures of Article **S9** the Bureau shall, upon request, endeavour to assist in cases where:

ADD **S13.2** *a)* there is disagreement about the level of interference that may result from a proposed modification of a plan or from a request for coordination; or

ADD **S13.3** *b)* agreement to a proposed modification of a plan or a decision on a request for coordination cannot be reached for any other reason; or

ADD **S13.4** *c)* a special study of the case is required.

SUP **S13.5** to **S13.8**

ADD **S13.9** When an administration has difficulty in resolving a case of harmful interference and seeks the assistance of the Bureau, the latter shall, as appropriate, help in identifying the source of the interference and seek the cooperation of the responsible administration in order to resolve the matter, and prepare a report for consideration by the Board, including draft recommendations to the administrations concerned.

ADD **S13.10** When an administration so requests, the Bureau shall, using such means at its disposal as are appropriate in the circumstances, conduct a study of reported cases of alleged contravention or non-observance of these Regulations and shall prepare a report for consideration by the Board, including draft recommendations to the administrations concerned.

ADD **Section II. Maintenance of the Master Register and of World Plans by the Bureau**

ADD **S13.11** The Bureau shall be solely responsible for maintenance of the Master Register in accordance with the Rules of Procedure, and shall:

ADD **S13.12** *a)* following consultation with administrations, from time to time make any necessary adjustments to the format, structure and presentation of data in the Master Register;

SUP **S13.13**

ADD **S13.14** *b)* enter in the Master Register and publish in the Preface to the International Frequency List (IFL) all frequencies prescribed by these Regulations for common use;

ADD **S13.15** *c)* make appropriate entries in the Master Register resulting from its examinations of frequency assignment notices in accordance with Article **S11**;

ADD **S13.16** *d)* maintain and periodically update the Preface to the IFL.

ADD **S13.17** The Bureau shall also compile, for publication by the Secretary-General in the form of the IFL, comprehensive listings of entries extracted from the Master Register and such other extracts as may periodically be required.

ADD **S13.17A** The Bureau shall maintain master copies of all world frequency allotment or assignment plans contained in appendices to these Regulations, or adopted by world conferences convened by the Union, incorporating any agreed modifications, and shall provide such copies in an appropriate form for publication by the Secretary-General when justified by circumstances.

ADD **Section III. Maintenance of the Rules of Procedure by the Bureau**

ADD **S13.18** The Board shall approve a set of Rules of Procedure to govern its own activities and those of the Radiocommunication Bureau in the application of the Radio Regulations, to ensure the impartial, accurate and consistent processing of frequency assignment notices and to assist in the application of these Regulations.

ADD **S13.19** The Rules of Procedure shall include, inter alia, calculation methods and other data required for the application of these Regulations. These shall be based upon the decisions of world radiocommunication conferences and the Recommendations of the Radiocommunication Sector. Where requirements arise for new data for which there are no such decisions or Recommendations the Bureau shall develop such data in accordance with Nos. **S13.20** and **S13.21**, and shall revise them when appropriate decisions or Recommendations are available.

ADD **S13.20** The Bureau shall, when appropriate, prepare draft modifications or additions to the Rules of Procedure which shall be made available for comment before being submitted to the Board.

ADD **S13.21** The Bureau shall submit to the Board the final drafts of all proposed changes to the Rules of Procedure. The Rules of Procedure approved by the Board shall be published and shall be open for comment by administrations. In case of continuing disagreement, the matter shall be submitted by the Director in his report, with the agreement of the concerned administration, to the next world radiocommunication conference. The Director of the Bureau shall also inform the appropriate study groups of this matter. Pending resolution of the matter, the Board and the Bureau shall continue to use the particular Rule of Procedure in dispute but, following resolution of the matter by a decision of a world radiocommunication conference, the Board shall promptly review and revise as necessary the Rules of Procedure and the Bureau shall review all relevant findings.

ADD **S13.22** If an administration, or the Board or the Bureau identifies a need for a special study, in relation to the Rules of Procedure, of any provisions of these Regulations or of a regional agreement with an associated frequency allotment or assignment plan, the case shall be handled under Nos. **S13.20** and **S13.21**. The same shall apply if as a consequence of the review of a finding or other action by the Board it is necessary to re-examine the Rules of Procedure.

ADD **S13.23** The Rules of Procedure shall be maintained and published in a form that will facilitate easy modification and maximize their value to administrations and other users.

ARTICLE S14

ADD **Procedure for the Review of a Finding or Other Decision of the Bureau**

ADD **S14.1** Any administration may request a review of a finding, a review of the results of a special study under these Regulations or under a regional agreement and plan, or a review of any other decision of the Bureau. The review of a finding may also be undertaken on the initiative of the Bureau itself when it considers this is justified.

ADD **S14.2** For this purpose, the administration concerned shall submit a request for a review to the Bureau; it shall also cite the relevant provisions of the Radio Regulations and other references and shall state the redress or other action it seeks.

ADD **S14.3** The Bureau shall promptly acknowledge receipt of the request and shall consider the matter forthwith. Thereafter, every effort shall be made with the administration concerned to resolve the matter without adversely affecting the interests of other administrations.

ADD **S14.4** If the outcome of the review successfully resolves the matter with the requesting administration without adversely affecting the interests of other administrations, the Bureau shall publish an outline of the review, the arguments, the settlement and any implications affecting other administrations for the information of all Members of the Union.

ADD **S14.5** If the outcome of the review does not successfully resolve the matter, or if it would adversely affect the interests of other administrations, the Bureau shall prepare a report and send it in advance to the administration which requested the review and to any others concerned in order to enable them, if they so desire, to address the Board. The Bureau shall then send the report with all supporting documentation to the Board.

ADD **S14.6** The decision of the Board on the review, to be taken in accordance with the Convention, shall be regarded as final in so far as the Bureau and the Board are concerned. That decision, together with the supporting information, shall be published as under No. **S14.4**. However, if the administration which requested the review disagrees with the Board's decision it may raise the matter at a world radiocommunication conference.

ADD **S14.7** The Bureau shall then initiate all other necessary action decided by the Board.

ADD **S14.7A** Following resolution of the matter by a decision at a world radiocommunication conference, the Bureau shall promptly take the consequential actions, including a request to the Board for reviewing all relevant findings, if necessary.

ADD **S14.8** The minutes of the meetings of the Board shall be published and circulated to the Members of the Union by means of circular-letters of the Bureau.

ADD **S14.9** A copy of all documents of the Board, including its minutes, shall be available for public inspection in the offices of the Bureau.

CHAPTER SIV

MOD

Interferences

ARTICLE S15

NOC

Interferences

RR	VGE proposal	VGE Report	WRC-95 decision
1798	SUP*	S15.25	S15.25
1799	MOD	S15.1	MOD
1800 – 1803	SUP	–	SUP
1804 – 1805	MOD	S15.2 – S15.3	MOD
1806 – 1807	NOC	S15.4 – S15.5	NOC
1808 –1810	(MOD)	S15.6 – S15.8	(MOD)
1811	NOC	S15.9	NOC
1812 – 1813	(MOD)	S15.10 – S15.11	(MOD)
1814 – 1815	NOC	S15.12 – S15.13	NOC
1816	SUP	–	SUP
1842	NOC	S15.14	NOC
1843	(MOD)	S15.15	(MOD)
1844 – 1845	NOC	S15.16 – S15.17	NOC
1846	MOD	S15.18	MOD
1915	MOD	S15.19	MOD
1916 – 1917	NOC	S15.20 – S15.21	NOC
1943	MOD	S15.22	MOD
1944	NOC	S15.23	NOC
1947	(MOD)	S15.24	(MOD)
1798	(MOD)	S15.25	(ADD) (MOD)

RR	VGE proposal	VGE Report	WRC-95 decision
1946	NOC	S15.26	NOC
1958	(MOD)	S15.27	(MOD)
1957	(MOD)	S15.28	(MOD)
1956	NOC	S15.29	NOC
1945	NOC	S15.30	NOC
1948 – 1949	NOC	S15.31 – S15.32	NOC
1955	NOC	S15.33	NOC
1950	NOC	S15.34	NOC
1954	NOC	S15.35	NOC
1951 – 1953	NOC	S15.36 – S15.38	NOC
1959	(MOD)	S15.39	(MOD)
1960	NOC	S15.40	NOC
1961 – 1962	(MOD)	S15.41 – S15.42	(MOD)
1963	(MOD)	S15.43	MOD
1964 – 1966	(MOD)	S15.44 – S15.46	(MOD)
FOOTNOTES 1814.1–1815.1	(MOD)	S15.12.1–S15.13.1	(MOD)

MOD **Section I. Interference from Radio Stations**

MOD **S15.1** § 1. All stations are forbidden to carry out unnecessary transmissions, or the transmission of superfluous signals, or the transmission of false or misleading signals, or the transmission of signals without identification (except as provided for in Article **S19**).

MOD **S15.2** § 2. Transmitting stations shall radiate only as much power as is necessary to ensure a satisfactory service.

MOD **S15.3** § 3. In order to avoid interference (see also Article **S3** and No. **S22.1**):

NOC **S15.4**

NOC **S15.5**

(MOD) **S15.6** *c)* the choice and use of transmitters and receivers shall be in accordance with the provisions of Article **S3**;

(MOD) **S15.7** *d)* the conditions specified under No. **S22.1** shall be fulfilled.

(MOD) **S15.8** § 4. Special consideration shall be given to avoiding interference on distress and safety frequencies and those related to distress and safety identified in Appendix **S13**.

NOC **S15.9**

(MOD) **S15.10** § 6. The out-of-band emissions of transmitting stations should not cause harmful interference to services which operate in adjacent bands in accordance with these Regulations and which use receivers in conformity with Nos. **S3.3**, **S3.11**, **S3.12**, **S3.13** and relevant ITU-R Recommendations.

(MOD) **S15.11** § 7. If, while complying with the provisions of Article **S3**, a station causes harmful interference through its spurious emissions, special measures shall be taken to eliminate such interference.

NOC **S15.12** to **S15.14**

(MOD) **S15.12.1** [1] In this matter, administrations should be guided by the latest relevant ITU-R Recommendation.

(MOD) **S15.13.1** [2] In this matter, administrations should be guided by the latest relevant ITU-R Recommendation.

(MOD) **S15.15** (2) For the identification of transmissions made during tests, adjustments or experiments, see Article **S19**.

NOC **S15.16**

NOC **S15.17**

MOD **S15.18** (5) For testing stations in the mobile service see No. **S57.9**.

MOD **S15.19** § 11. Infringements of the Constitution, Convention or Radio Regulations shall be reported to their respective administrations by the control organization, stations or inspectors detecting them. For this purpose they shall use forms similar to the specimen given in Appendix **S9**.

NOC **S15.20**

NOC **S15.21**

MOD **S15.22** § 14. It is essential that Members exercise the utmost goodwill and mutual assistance in the application of the provisions of Article **34** of the Constitution and of this Section to the settlement of problems of harmful interference.

NOC **S15.23**

(MOD) **S15.24** § 16. For the purpose of this Section, the term "administration" may include the centralizing office designated by the administration, in accordance with No. **S16.3**.

(MOD) **S15.25** § 17. Administrations shall cooperate in the detection and elimination of harmful interference, employing where appropriate the facilities described in Article **S16** and the procedures detailed in this Section.

NOC **S15.26**

(MOD) **S15.27** § 19. Full particulars relating to harmful interference shall, whenever possible, be given in the form indicated in Appendix **S10**.

(MOD) **S15.28** § 20. Recognizing that transmissions on the distress and safety frequencies (see Article **S31** and Appendix **S13**) require absolute international protection and that the elimination of harmful interference to such transmissions is imperative, administrations undertake to act immediately when their attention is drawn to any such harmful interference.

NOC **S15.29** to **S15.38**

(MOD) **S15.39** § 31. If the harmful interference persists in spite of the action taken in accordance with the procedures outlined above, the administration having jurisdiction over the transmitting station whose service is being interfered with may address to the administration having jurisdiction over the interfering station a report of irregularity or infraction in accordance with the provisions of Section **V**.

NOC **S15.40**

(MOD) **S15.41** § 33. (1) If it is considered necessary, and particularly if the steps taken in accordance with the procedures described above have not produced satisfactory results, the administration concerned shall forward details of the case to the Bureau for its information.

(MOD) **S15.42** (2) In such a case, the administration concerned may also request the Bureau to act in accordance with the provisions of Section I of Article **S13**; but it shall then supply the Bureau with the full facts of the case, including all the technical and operational details and copies of the correspondence.

MOD **S15.43** In the case where an administration has difficulty in identifying a source of harmful interference in the HF bands and urgently wishes to seek the assistance of the Bureau, it shall promptly inform the Bureau.

(MOD) **S15.44** (2) On receipt of this information, the Bureau shall immediately request the cooperation of appropriate administrations or specially designated stations of the international monitoring system that may be able to help in identifying the source of harmful interference.

(MOD) **S15.45** (3) The Bureau shall consolidate all reports received in response to requests under No. **S15.44** and, using such other information as it has available, shall promptly attempt to identify the source of harmful interference.

(MOD) **S15.46** (4) The Bureau shall thereafter forward its conclusions and recommendations to the administration reporting the case of harmful interference. These shall also be forwarded to the administration believed to be responsible for the source of harmful interference, together with a request for prompt action.

ARTICLE S16

NOC **International Monitoring**

RR	VGE proposal	VGE Report	WRC-95 decision
1872	MOD	S16.1	MOD
1873	(MOD)	S16.2	MOD
1875	(MOD)	S16.3	(MOD)
1876	SUP*	An.20	SM.1139
1877	NOC	S16.4	NOC
1874	MOD	S16.5	MOD
–	ADD	S16.6	ADD
1878 – 1881	SUP*	An.20	SM.1139
1882	SUP	–	SUP
1883	SUP*	An.20	SM.1139
1884	SUP	–	SUP
1885 – 1886	(MOD)	S16.7 – S16.8	(MOD)
FOOTNOTE			
–	ADD	S16.1.1	ADD

MOD **S16.1** To assist to the extent practicable in the implementation of these Regulations, in particular to help ensure efficient and economical use of the radio-frequency spectrum and to help in the prompt elimination of harmful interference, administrations agree to continue the development of monitoring facilities and, to the extent

practicable, to cooperate in the continued development of the international monitoring system, taking into account the relevant ITU-R Recommendations.[1]

ADD **S16.1.1** [1] Information on this subject is also provided in the ITU-R Handbook on Spectrum Monitoring.

MOD **S16.2** The international monitoring system comprises only those monitoring stations which have been so nominated by administrations in the information sent to the Secretary-General in accordance with Recommendation ITU-R **SM.1138**. These stations may be operated by an administration or, in accordance with an authorization granted by the appropriate administration, by a public or private enterprise, by a common monitoring service established by two or more countries, or by an international organization.

(MOD) **S16.3** Each administration or common monitoring service established by two or more countries, or international organizations participating in the international monitoring system, shall designate a centralizing office to which all requests for monitoring information shall be addressed and through which monitoring information will be forwarded to the Bureau or to centralizing offices of other administrations.

NOC **S16.4**

MOD **S16.5** Administrations shall, as far as they consider practicable, conduct such monitoring as may be requested of them by other administrations or by the Bureau.

ADD **S16.6** Administrative and procedural requirements for use and operation of the international monitoring system should be in accordance with the provisions of Recommendation ITU-R **SM.1138**.

(MOD) **S16.7** The Bureau shall record the results supplied by the monitoring stations participating in the international monitoring system, and shall prepare periodically, for publication by the Secretary-General, summaries of the useful monitoring data received by it including a list of the stations contributing the data.

(MOD) **S16.8** When an administration, in supplying monitoring observations from one of its monitoring stations taking part in the international monitoring system, states to the Bureau that a clearly identified emission is not in conformity with these Regulations, the Bureau shall draw the attention of the administration concerned to those observations.

CHAPTER SV

MOD

Administrative Provisions

ARTICLE S17

NOC

Secrecy

RR	VGE proposal	VGE Report	WRC-95 decision
1992	NOC	S17.1	MOD
1993	NOC	S17.2	NOC
1994	(MOD)	S17.3	(MOD)

MOD **S17.1** In the application of the appropriate provisions of the Constitution and the Convention, administrations bind themselves to take the necessary measures to prohibit and prevent:

NOC **S17.2**

(MOD) **S17.3** *b)* the divulgence of the contents, simple disclosure of the existence, publication or any use whatever, without authorization of information of any nature whatever obtained by the interception of the radiocommunications mentioned in No. **S17.2**.

ARTICLE S18

NOC **Licences**

RR	VGE proposal	VGE Report	WRC-95 decision
2020	(MOD)	S18.1	MOD
2021	(MOD)	S18.2	(MOD)
2022	NOC	S18.3	NOC
2023	NOC	S18.4	MOD
2024 – 2026	NOC	S18.5 – S18.7	NOC
2027	(MOD)	S18.8	(MOD)
2028 – 2029	NOC	S18.9 – S18.10	NOC
2030	(MOD)	S18.11	(MOD)

MOD **S18.1** § 1. (1) No transmitting station may be established or operated by a private person or by any enterprise without a licence issued in an appropriate form and in conformity with the provisions of these Regulations by or on behalf of the government of the country to which the station in question is subject (however, see Nos. **S18.2**, **S18.8** and **S18.11**).

(MOD) **S18.2** (2) However, the government of a country may conclude with the government of one or more neighbouring countries a special agreement concerning one or several stations of its broadcasting service or of its land mobile services, operating on frequencies above 41 MHz, situated in the territory of a neighbouring country and intended to improve national coverage. This agreement, which shall be compatible with the provisions of the present Regulations as well as of those regional agreements to which the countries concerned are signatories, may allow exceptions to the provisions of No. **S18.1** and shall be communicated to the Secretary-General in order that it may be brought to the notice of administrations for their information.

NOC **S18.3**

MOD **S18.4** § 2. The holder of a licence is required to preserve the secrecy of telecommunications, as provided in the relevant provisions of the Constitution and the Convention. Moreover, the licence shall mention, specifically or by reference, that if the station includes a receiver, the interception of radiocommunication correspondence, other than that which the station is authorized to receive, is forbidden, and that in cases where such correspondence is involuntarily received, it shall not be reproduced, nor communicated to third parties, nor used for any purpose, and even its existence shall not be disclosed.

NOC **S18.5** to **S.18.7**

(MOD) **S18.8** § 5. (1) In the case of a new registration of a ship or aircraft in circumstances where delay is likely to occur in the issue of a licence by the country in which it is to be registered, the administration of the country from which the mobile station or mobile earth station wishes to make its voyage or flight may, at the request of the operating company, issue a certificate to the effect that the station complies with these Regulations. This certificate, drawn up in a form determined by the issuing administration, shall give the particulars mentioned in No. **S18.6** and shall be valid only for the duration of the voyage or flight to the country in which the registration of the ship or aircraft will be effected, or for a period of three months, whichever is less.

NOC **S18.9**

NOC **S18.10**

(MOD) **S18.11** § 6. In the case of hire, lease or interchange of aircraft, the administration having authority over the aircraft operator receiving an aircraft under such an arrangement may, by agreement with the administration of the country in which the aircraft is registered, issue a licence in conformity with that specified in No. **S18.6** as a temporary substitute for the original licence.

ARTICLE S19

NOC **Identification of Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
2055 – 2056	NOC	S19.1 – S19.2	NOC
2057	MOD	S19.3	MOD
2058	(MOD)	S19.4	(MOD)
2059 – 2067	NOC	S19.5 – S19.14	NOC
2068	(MOD)	S19.15	(MOD)
2069	MOD	S19.16	MOD
2070 – 2074	NOC	S19.17 – S19.21	NOC
2075 – 2077	(MOD)	S19.22 – S19.24	(MOD)
2078	NOC	S19.25	NOC
2079 – 2080	(MOD)	S19.26 – S19.27	(MOD)
2081	NOC	S19.28	NOC
2082 – 2083	MOD	S19.29 – S19.30	MOD
2084	(MOD)	S19.31	(MOD)
2085	MOD	S19.32	(MOD)
2086	(MOD)	S19.33	(MOD)
2087 – 2087A	MOD	S19.34 – S19.35	MOD
–	ADD	S19.36	ADD
2088	(MOD)	S19.37	(MOD)
2089	MOD	S19.38	MOD
2090	(MOD)	S19.39	(MOD)
2091 – 2098	NOC	S19.40 – S19.47	NOC
2099	NOC	S19.48	(MOD)
2100	NOC	S19.49	NOC
2101	(MOD)	S19.50	(MOD)
2102 – 2114	NOC	S19.51 – S19.63	NOC
2115	(MOD)	S19.64	(MOD)
2116 – 2118	NOC	S19.65 – S19.67	NOC
2119	(MOD)	S19.68	(MOD)
2120 – 2122	NOC	S19.69 – S19.71	NOC
2123 – 2127	(MOD)	S19.72 – S19.76	(MOD)

RR	VGE proposal	VGE Report	WRC-95 decision
2128	NOC	S19.77	NOC
2129	(MOD)	S19.78	(MOD)
2130	NOC	S19.79	NOC
2131 – 2133	(MOD)	S19.80 – S19.82	(MOD)
2134	NOC	S19.83	(MOD)
2135 – 2137	NOC	S19.84 – S19.86	NOC
2138 – 2139	(MOD)	S19.87 – S19.88	(MOD)
2140 – 2142	NOC	S19.89 – S19.91	NOC
2143	NOC	S19.92	(MOD)
2144 – 2145	NOC	S19.93 – S19.94	NOC
2146	(MOD)	S19.95	(MOD)
2147 – 2148	NOC	S19.96 – S19.97	NOC
–	ADD	S19.98	ADD
2149	MOD	S19.99	MOD
Ap. 43	(ADD)	S19.100 – S19.126	(ADD)
2150	NOC	S19.127	NOC
2151 – 2153	(MOD)	S19.128 – S19.130	(MOD)
2154	NOC	S19.131	NOC
FOOTNOTES			
2055.1	NOC	S19.1.1	NOC
2069.1	SUP Mob-87	–	–
2083.1	SUP Mob-87	–	–
2087.1	SUP Mob-87	–	–
2087.2	(MOD)	S19.34.1	(MOD)
2087A.1	(MOD)	S19.35.1	(MOD)
–	ADD	S19.35.2	ADD
2095.1	NOC	S19.44.1	NOC
2101.1	NOC	S19.50.1	MOD
Ap. 43	(ADD)	S19.99.1	(ADD)

NOC **Section I. General Provisions**

NOC **S19.1**

NOC **S19.1.1**

NOC **S19.2**

MOD **S19.3** (2) Where practicable and in appropriate services, identification signals should be automatically transmitted in accordance with relevant ITU-R Recommendations.

(MOD) **S19.4** (3) All transmissions in the following services should, except as provided in Nos. **S19.13** to **S19.15**, carry identification signals:

NOC **S19.5** to **S.19.14**

(MOD) **S19.15** *b)* emergency position-indicating radiobeacons (except for those in No. **S19.11**).

MOD **S19.16** § 3. In transmissions carrying identification signals a station shall be identified by a call sign, by a maritime mobile service identity or by other recognized means of identification which may be one or more of the following: name of station, location of station, operating agency, official registration mark, flight identification number, selective call number or signal, selective call identification number or signal, characteristic signal, characteristic of emission or other clearly distinguishing features readily recognized internationally.

NOC **S19.17** to **S.19.21**

(MOD) **S19.22** *d)* any other form recommended by the Radiocommunication Sector.

(MOD) **S19.23** § 6. To the extent possible the identification signal should be transmitted in accordance with relevant ITU-R Recommendations.

(MOD) **S19.24** § 7. Administrations should ensure that wherever practicable superimposed identification methods be employed in accordance with ITU-R Recommendations.

NOC **S19.25**

(MOD) **S19.26** § 9. Administrations shall ensure, except in the cases mentioned in Nos. **S19.13** to **S19.15**, that all transmissions not carrying identification signals can be identified by other means when they are capable of causing harmful interference to the services of another administration operating in accordance with these Regulations.

(MOD) **S19.27** § 10. Administrations shall, having regard to the provisions of these Regulations relating to the notification of assignments for recording in the Master Register, adopt their own measures to ensure compliance with the provisions of No. **S19.26**.

NOC **S19.28**

NOC

Section II. Allocation of International Series and Assignment of Call Signs

MOD **S19.29** § 12. (1) All stations open to international public correspondence, all amateur stations, and other stations which are capable of causing harmful interference beyond the boundaries of the country to which they belong, shall have call signs from the international series allocated to each country as given in the Table of Allocation of International Call Sign Series in Appendix **S42**.

MOD **S19.30** (2) As the need arises, ship stations and ship earth stations to which the provisions of Chapter **SIX** apply, and coast stations or coast earth stations capable of communicating with such ship stations,

shall have assigned to them maritime mobile service identities in accordance with Section **VI** of this Article.

(MOD) **S19.31** (3) It is not compulsory to assign call signs from the international series to stations identified by maritime mobile service identities or which are easily identified by other means (see No. **S19.16**) and whose signals of identification or characteristics of emission are published in international documents.

(MOD) **S19.32** § 13. Should the available call sign series in Appendix **S42** be exhausted, new call sign series may be allocated according to the principles set out in Resolution **13** relating to the formation of call signs and the allocation of new international series.

(MOD) **S19.33** § 14. Between radio conferences, the Secretary-General is authorized to deal with questions relating to changes in the allocation of series of call signs, on a provisional basis, and subject to confirmation by the following conference (see also No. **S19.32**).

MOD **S19.34** § 15. The Secretary-General shall be responsible for allocating maritime identification digits to countries[1] and shall regularly publish information regarding allocated maritime identification digits (MID).

(MOD) **S19.34.1** [1] The word "country" is used with the meaning attributed to it in No. **S20.17**.

MOD **S19.35** § 15A. The Secretary-General shall be responsible for allocating additional maritime identification digits to countries[1] within the limits specified[2], provided that he is satisfied that the possibilities offered by the MIDs allocated to an administration will soon be exhausted despite judicious ship station identity assignment as outlined in Section **VI** and in conformity with the guidelines contained in the relevant ITU-R and ITU-T Recommendations (see Resolution **27 (WRC-95)**).

(MOD) **S19.35.1** [1] The word "country" is used with the meaning attributed to it in No. **S20.17**.

ADD **S19.35.2** [2] In no circumstances may a country claim more MIDs than the total number of its ship stations shown in the ITU List of Ship Stations (List V) divided by 1000.

ADD **S19.36** § 15B. A single MID has been allocated initially to each country. A second MID should not be requested unless the MID first allocated is more than 80% exhausted in the basic category of three trailing zeros and the rate of assignments is such that 90% exhaustion is foreseen. The same criteria should be applied to subsequent requests for MIDs.

(MOD) **S19.37** § 16. The Secretary-General shall be responsible for supplying series of selective call numbers or signals (see Nos. **S19.92** to **S19.95**) at the request of the administrations concerned.

MOD **S19.38** § 17. (1) Each country shall choose the call signs and, if the selective calling system used is in accordance with Recommendation ITU-R **M.257-3**, the ship station selective call numbers and the coast station identification numbers of its stations from the international series allocated or supplied to it; and shall notify this information to the Secretary-General together with the information which is to appear in Lists I, II, IV, V, VI and VIIIA. These notifications do not include call signs assigned to amateur and experimental stations.

(MOD) **S19.39** (2) Each country shall choose the maritime mobile service identities of its stations from the maritime identification digits allocated to it and notify this information to the Secretary-General for inclusion in the relevant lists, as provided for in Article **S20**.

NOC **S19.40** to **S.19.47**

(MOD) **S19.48** b) combinations reserved for the abbreviations to be used in the radiocommunication services (see Recommendation ITU-R **M.1172**).

NOC **S19.49**

NOC **S19.44.1**

(MOD) **S19.50** § 20. Call signs in the international series are formed as indicated in Nos. **S19.51** to **S19.71**. The first two characters shall be two letters or a letter followed by a digit or a digit followed by a letter. The first two characters or in certain cases the first character of a call sign constitute the nationality identification[1].

MOD **S19.50.1** [1] For call sign series beginning with B, F, G, I, K, M, N, R and W, only the first character is required for nationality identification. In the cases of half series, the first three characters are required for nationality identification.

NOC **S19.51** to **S19.63**

(MOD) **S19.64** § 26. – the complete call sign of the parent aircraft (see No. **S19.58**), followed by a single digit other than 0 or 1.

NOC **S19.65** to **S.19.67**

(MOD) **S19.68** § 28. (1) – one character (see No. **S19.50.1**) and a single digit (other than 0 or 1), followed by a group of not more than three letters, *or*

– two characters and a single digit (other than 0 or 1), followed by a group of not more than three letters.

NOC **S19.69** to **S.19.71**

(MOD) **S19.72** § 30. Stations using radiotelephony shall be identified as indicated in Nos. **S19.73** to **S19.82**.

(MOD) **S19.73** § 31. (1) *Coast stations*

– a call sign (see No. **S19.52**); *or*

– the geographical name of the place as it appears in the List of Coast Stations, followed preferably by the word RADIO or by any other appropriate indication.

(MOD) **S19.74** (2) *Ship stations*

– a call sign (see Nos. **S19.55** and **S19.56**); *or*

– the official name of the ship preceded, if necessary, by the name of the owner on condition that there is no possible confusion with distress, urgency and safety signals; *or*

– its selective call number or signal.

(MOD) **S19.75** (3) *Ship's survival craft stations*

– a call sign (see No. **S19.60**); *or*

– a signal of identification consisting of the name of the parent ship followed by two digits.

(MOD) **S19.76** (4) *Emergency position-indicating radiobeacon stations*

When speech transmission is used (see Appendix **S13**):

– the name and/or the call sign of the parent ship to which the radiobeacon belongs.

NOC **S19.77**

(MOD) **S19.78** (2) *Aircraft stations*

– a call sign (see No. **S19.58**), which may be preceded by a word designating the owner or the type of aircraft; *or*

– a combination of characters corresponding to the official registration mark assigned to the aircraft; *or*

– a word designating the airline, followed by the flight identification number.

NOC **S19.79**

(MOD) **S19.80** (4) *Aircraft survival craft stations*

– a call sign (see No. **S19.64**).

(MOD) **S19.81** § 33. (1) *Base stations*

– a call sign (see No. **S19.52**); *or*

– the geographical name of the place followed, if necessary, by any other appropriate indication.

(MOD) **S19.82** (2) *Land mobile stations*

– a call sign (see No. **S19.66**); *or*

– the identity of the vehicle or any other appropriate indication.

(MOD) **S19.83** § 34. When stations of the maritime mobile service use selective calling devices in accordance with Recommendations ITU-R **M.476-5**, **M.625-3**, **M.627-1** and **M.257-3**, their call numbers shall be assigned by the responsible administrations in accordance with the provisions below.

NOC **S19.84** to **S19.86**

(MOD) **S19.87** (3) Ship station selective call numbers and coast station identification numbers in the series are formed as indicated in Nos. **S19.88**, **S19.89** and **S19.90**.

(MOD) **S19.88** (4) *Coast station identification numbers*

– four digits (see No. **S19.86**).

NOC **S19.89** to **S19.91**

(MOD) **S19.92** § 36. (1) In cases where selective call numbers for ship stations and identification numbers for coast stations are required for use in the maritime mobile service and the selective calling system is in accordance with Recommendation ITU-R **M.257-3**, the selective call numbers and identification numbers shall be supplied by the Secretary-General on request. Upon notification by an administration of the introduction of selective calling for use in the maritime mobile service:

NOC **S19.93**

NOC **S19.94**

(MOD) **S19.95** *c)* selective call numbers for selective calling of predetermined groups of ship stations in accordance with No. **S19.90** will be supplied as required as single numbers.

NOC **S19.96**

NOC **S19.97**

NOC **Section VI. Maritime Mobile Service Identities in the Maritime Mobile Service and the Maritime Mobile-Satellite Service**

ADD **S19.98** *A. General*

MOD **S19.99** § 37. When a station[1] in the maritime mobile service or the maritime mobile-satellite service is required to use maritime mobile service identities, the responsible administration shall assign the identity to the station in accordance with the provisions described in Nos. **S19.100** to **S19.126**, in accordance with relevant ITU-R and ITU-T Recommendations (see Resolution **27(WRC-95)**).

ADD **S19.99.1** [1] In this Section a reference to a ship station or a coast station may include the respective earth stations.

(ADD) **S19.100** Maritime mobile service identities are formed of a series of nine digits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations and group calls.

(ADD) **S19.101** These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network principally to call ships automatically in the shore-to-ship direction.

(ADD) **S19.102** There are four kinds of maritime mobile service identities:

(ADD) **S19.103** i) ship station identities;

(ADD) **S19.104** ii) group ship station call identities

(ADD) **S19.105** iii) coast station identities;

(ADD) **S19.106** iv) group coast station call identities.

(ADD) **S19.107** In this Section, the word "country" is used with the meaning attributed to it in No. **S20.17** of the Radio Regulations.

(ADD) **S19.108** *B. Maritime Identification Digits (MID)*

(ADD) **S19.109** These provisions do not require an administration to assign numerical identities until it determines that such identities are necessary. They do not concern the assignment of ship station identities without trailing zeros, since it is assumed that there is enough capacity inherent in the system to provide for the assignment of such identities to all ship stations which an administration may wish to identify in this manner.

(ADD) **S19.110** *C. Ship Station Identities*

(ADD) **S19.111** Administrations should:

(ADD) **S19.112** *a)* follow the guidelines contained in the relevant ITU-R and ITU-T Recommendations for the assignment of ship station identities;

(ADD) **S19.113** *b)* make optimum use of the possibilities of forming identities from the single MID allocated to them;

(ADD) **S19.114** *c)* take particular care in assigning ship station identities with six significant digits (three-trailing-zero identities), which should be assigned only to ship stations which can reasonably be expected to require such an identity for automatic access on a world-wide basis for public switched networks;

(ADD) **S19.115** *d)* assign one-trailing-zero or two-trailing-zero identities to vessels when they require automatic access only on a national or regional level, as defined in the relevant ITU-T Recommendations;

(ADD) **S19.116** *e)* assign ship station identities without trailing zeros to all other vessels requiring a numerical identification.

(ADD) **S19.117** The 9-digit code constituting a ship station identity is formed as follows:

$$M_1I_2D_3X_4X_5X_6X_7X_8X_9$$

wherein

$$M_1I_2D_3$$

represent the Maritime Identification Digits and X is any figure from 0 to 9.

(ADD) **S19.118** *D. Group Ship Station Call Identities*

(ADD) **S19.119** Group ship station call identities for calling simultaneously more than one ship are formed as follows:

$$0_1M_2I_3D_4X_5X_6X_7X_8X_9$$

where the first figure is zero and X is any figure from 0 to 9.

(ADD) **S19.120** The particular MID represents only the country assigning the group ship station call identity and so does not prevent group calls to fleets containing more than one ship nationality.

(ADD) **S19.121** *E. Coast Station Identities*

(ADD) **S19.122** Coast station identities are formed as follows:

$$0_10_2M_3I_4D_5X_6X_7X_8X_9$$

where the first two figures are zeros and X is any figure from 0 to 9.

(ADD) **S19.123** The MID reflects the country in which the coast station or coast earth station is located.

(ADD) **S19.124** *F. Group Coast Station Call Identities*

(ADD) **S19.125** Group coast station call identities for calling simultaneously more than one coast station are formed as a subset of coast station identities, as follows:

$$0_1 0_2 M_3 I_4 D_5 X_6 X_7 X_8 X_9$$

where the first two figures are zeros and X is any figure from 0 to 9.

(ADD) **S19.126** The particular MID represents only the country assigning the group coast station call identity. The identity may be assigned to stations of one administration which are located in only one geographical region as indicated in the relevant ITU-T Recommendation.

NOC **S19.127**

(MOD) **S19.128** *a)* in radiotelegraphy, the first character and last two letters of the complete call sign (see No. **S19.58**);

(MOD) **S19.129** *b)* in radiotelephony:

– the first character of the complete call sign; *or*

– the abbreviation of the name of the owner of the aircraft (company or individual); *or*

– the type of aircraft;

followed by the last two letters of the complete call sign (see No. **S19.58**) or by the last two characters of the registration mark.

(MOD) **S19.130** (2) The provisions of Nos. **S19.127**, **S19.128** and **S19.129** may be amplified or modified by agreement between administrations concerned.

NOC **S19.131**

ARTICLE S20

NOC

Service Documents

RR	VGE proposal	VGE Report	WRC-95 decision
2180 – 2181	NOC	S20.1 – S20.2	NOC
2182	MOD	S20.3	MOD
2183 – 2184	NOC	S20.4 – S20.5	NOC
2185	(MOD)	S20.6	(MOD)
2186 – 2200	SUP	–	SUP
2201	NOC	S20.7	NOC
2201A – 2203	SUP	–	SUP
2204	NOC	S20.8	NOC
2205 – 2211	SUP	–	SUP
2212	NOC	S20.9	NOC
2213 – 2214	SUP	–	SUP
2215	NOC	S20.10	NOC
2216 – 2218	SUP	–	SUP
2219	NOC	S20.11	NOC
2220 – 2221	SUP	–	SUP
2222	NOC	S20.12	NOC
2223 – 2224	SUP	–	SUP
2225	NOC	S20.13	NOC
2226 – 2229	SUP	–	SUP
2230	NOC	S20.14	NOC
2231 – 2236	SUP	–	SUP
–	ADD	S20.15	ADD
2237	MOD	S20.16	MOD
2238 – 2245	SUP	–	SUP
2246	NOC	S20.17	NOC
FOOTNOTES			
2190.1	SUP	–	SUP
2202B.1	SUP	–	SUP

NOC **S20.1**

NOC **S20.2**

MOD **S20.3** (1) This list shall contain:

NOC **S20.4**

NOC **S20.5**

(MOD) **S20.6** *c)* the allotments in the Allotment Plans included in Appendices **S25**, **S26** and **S27**.

NOC **S20.7** to **S20.14**

ADD **S20.15** § 11. The form, the content and the periodicity of each publication shall be decided by the Bureau in consultation with administrations and the international organizations concerned.

MOD **S20.16** § 12. Administrations shall take all appropriate measures to notify the Bureau immediately of any changes in the operational information contained in Lists IV, V and VI, in view of the importance of this information, particularly with regard to safety. In the case of other documents, administrations shall communicate the changes in the information contained in them as soon as possible.

NOC **S20.17**

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CHAPTER SVI

MOD

Provisions for Services and Stations*

ARTICLE S21

MOD

Terrestrial and Space Services Sharing Frequency Bands Above 1 GHz

RR	VGE proposal	VGE Report	WRC-95 decision
2501 – 2502	MOD	S21.1 – S21.2	MOD
2503 – 2504A	SUP*	S21.2	S21.2
2505	NOC	S21.3	NOC
2506 – 2507	MOD	S21.4 – S21.5	MOD
2508	SUP*	S21.5	S21.5
2509	MOD	S21.6	MOD
2509A	(MOD)	S21.7	MOD
2510 – 2511	SUP*	S21.6	S21.6
2539	SUP*	S21.1	S21.1
2540	SUP	–	SUP

MOD

* For provisions governing the mobile services and the special services related to safety, see:

Special services related to safety (non-GMDSS):	Appendix **S13**
Special services related to safety (GMDSS):	Chapter **SVII**
Aeronautical mobile service and aeronautical mobile-satellite service:	Chapter **SVIII**
Maritime mobile service and maritime mobile-satellite service:	Chapter **SIX**

RR	VGE proposal	VGE Report	WRC-95 decision
2541	MOD	S21.8	MOD
2542	SUP*	S21.8	S21.8
2543	NOC	S21.9	NOC
2544	MOD	S21.10	MOD
2545	SUP*	S21.10	S21.10
2546	(MOD)	S21.11	(MOD)
2547	MOD	S21.12	MOD
2548	SUP*	S21.12	S21.12
2548A	NOC	S21.13	NOC
2549	SUP	–	SUP
2550	NOC	S21.14	NOC
2551	(MOD)	S21.15	(MOD)
–	ADD	S21.16	ADD
2552 – 2584	SUP*	S21.16	S21.16
2585	(MOD)	S21.17	(MOD)
FOOTNOTES			
2502.1	NOC	S21.2.1	NOC
2502.2	(MOD)	S21.2.2	MOD
2504A.1	MOD	S21.2.3	SUP
2504.1	MOD	S21.2.4	MOD
2503.1–2503.2	SUP*	S21.2	S21.2
2504.1	SUP*	S21.4	S21.4
2504A.1	SUP*	S21.3	S.21.3
2506.1	(MOD)	S21.4.1	MOD
2509.1	(MOD)	S21.6.1	(MOD)
2510.1	SUP	–	SUP
2510.2–2511.1	SUP Orb-88	–	–
2511.2	SUP WARC-92	–	–
2547.1	(MOD)	S21.12.1	(MOD)
2548.1	SUP*	Table AR27 ter	Table S21-3
2559.1	SUP*	Table AR28	Table S21-4

RR	VGE proposal	VGE Report	WRC-95 decision
2576.1–2576.2	SUP*	Table AR28	Table S21-4
2580.1	SUP*	Table AR28	Table S21-4
2582.1	SUP*	Table AR28	Table S21-4
2547.1–2548.1	(MOD)	S21.16.1	(MOD)
2559.1	(MOD)	S21.16.1	(MOD)
2576.1	(MOD)	S21.16.1	(MOD)
2580.1	(MOD)	S21.16.1	(MOD)
2576.2	(MOD)	S21.16.2	SUP
2560	(MOD)	S21.16.3	(MOD)
2564	(MOD)	S21.16.3	(MOD)
2582.1	(MOD)	S21.16.4	(MOD)
–	ADD	S21.16.5	ADD
–	–	–	ADD S21.16.6
–	–	–	ADD S21.16.7

Section I. Choice of Sites and Frequencies

MOD **S21.1** § 1. Sites and frequencies for terrestrial stations and earth stations, operating in frequency bands shared with equal rights between terrestrial radiocommunication and space radiocommunication services, shall be selected having regard to the relevant ITU-R Recommendations with respect to geographical separation between earth stations and terrestrial stations.

MOD **S21.2** § 2. (1) As far as practicable, sites for transmitting[1, 4] stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power (e.i.r.p.) exceeding the values given in Table **S21-1** in the frequency bands indicated, should be selected so that the direction of maximum radiation of any antenna will be separated from the geostationary-satellite orbit by at least the angle in degrees shown in the Table, taking into account the effect of atmospheric refraction[2]:

NOC **S21.2.1**

MOD **S21.2.2** [2] Information on this subject is given in the most recent version of Recommendation ITU-R **SF.765**.

SUP **S21.2.3**

MOD **S21.2.4** [4] For frequency bands above 15 GHz (except 25.25 - 27.5 GHz), there is no restriction on the angular separation for transmitting stations of the fixed or mobile service. This matter is being studied in ITU-R.

TABLE **S21-1**

Frequency band (GHz)	E.i.r.p. value (dBW) (see also Nos. **S21.2** and **S21.4**)	Minimum separation angle with respect to geostationary-satellite orbit (degrees)
1 - 10	+35	2
10 - 15	+45	1.5
25.25 - 27.5	+24 (in any 1 MHz band)	1.5
Other bands above 15 GHz	+ 55	No limit[4]

MOD **Section II. Power Limits for Terrestrial Stations**

NOC **S21.3**

MOD **S21.4** (2) Where compliance with No. **S21.2** for frequency bands between 1 GHz and 10 GHz is impracticable, the maximum equivalent isotropically radiated power (e.i.r.p.) of a station in the fixed or mobile service shall not exceed:

+47 dBW in any direction within 0.5° of the geostationary-satellite orbit; or

+47 dBW to +55 dBW, on a linear decibel scale (8 dB per degree), in any direction between 0.5° and 1.5° of the geostationary-satellite orbit, taking into account the effect of atmospheric refraction[1].

MOD **S21.4.1** [1] Information on this subject is given in the most recent version of Recommendation ITU-R **SF.765** (see Resolution **27 (WRC-95)**).

MOD **S21.5** (3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service shall not exceed +13 dBW in frequency bands between 1 GHz and 10 GHz, or +10 dBW in frequency bands above 10 GHz.

MOD **S21.6** (4) The limits given in Nos. **S21.2**, **S21.3**, **S21.4** and **S21.5** apply, where applicable, to the services and frequency bands indicated in Table **S21-2** for reception by space stations where the frequency bands are shared with equal rights with the fixed or mobile service:

TABLE **S21-2**

Frequency Band	Service	Limit as specified in Nos.
1 610 - 1 645.5 MHz (No. **S5.359**) 1 646.5 - 1 660 MHz (No. **S5.359**) 1 675 - 1 690 MHz (Region 2) 1 690 - 1 700 MHz (Region 2 countries listed in No. **S5.381**) 1 700 - 1 710 MHz (Region 2) 1 980 - 2 010 MHz 2 010 - 2 025 MHz (Region 2) 2 025 - 2 110 MHz 2 200 - 2 290 MHz 2 655 - 2 670 MHz[1] (Regions 2 and 3) 2 670 - 2 690 MHz 5 725 - 5 755 MHz[1] (Region 1 countries listed in Nos. **S5.453** and **S5.455**)	Fixed-Satellite Meteorological-Satellite Space Research Space Operation Earth Exploration-Satellite Mobile-Satellite	**S21.2, S21.3, S21.4** and **S21.5**

(MOD) **S21.6.1** [1] The equality of right to operate when a band of frequencies is allocated in different Regions to different services of the same category is established in No. **346/S4.8**. Therefore any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

TABLE **S21-2** (*cont.*)

Frequency Band	Service	Limit as specified in Nos.
5 755 - 5 850 MHz[1] (Region 1 countries listed in Nos. **S5.453**, **S5.455** and **S5.456**) 5 850 - 7 075 MHz 7 900 - 8 400 MHz		
10.7 - 11.7 GHz[1] (Region 1) 12.5 - 12.75 GHz[1] Nos. **S5.494** and **S5.496**) 12.7 - 12.75 GHz[1] (Region 2) 12.75 - 13.25 GHz 14.0 - 14.25 GHz (No. **S5.505**) 14.25 - 14.3 GHz (Nos. **S5.505**, **S5.508** and **S5.509**) 14.3 - 14.4 GHz[1] (Regions 1 and 3) 14.4 - 14.5 GHz 14.5 - 14.8 GHz	Fixed-Satellite	**S21.2**, **S21.3** and **S21.5**

(MOD) **S21.6.1** [1] The equality of right to operate when a band of frequencies is allocated in different Regions to different services of the same category is established in No. **346/S4.8**. Therefore any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

TABLE **S21-2** (*end*)

Frequency Band	Service	Limit as specified in Nos.
17.7 - 18.4 GHz 19.3 - 19.6 GHz 24.45 - 24.75 GHz 24.75 - 25.25 GHz (Region 3) 25.25 - 29.5 GHz	Fixed-Satellite Inter-Satellite	**S21.2**, **S21.3** and **S21.5**

MOD **S21.7** Trans-horizon systems in the 1 700 - 1 710 MHz, 1 970 - 2 010 MHz, 2 025 - 2 110 MHz and 2 200 - 2 290 MHz bands may exceed the limits given in Nos. **S21.3** and **S21.5**, but the provisions of Nos. **S21.2** and **S21.4** should be observed. Considering the difficult sharing conditions with other services, administrations are urged to keep the number of trans-horizon systems in these bands to a minimum.

MOD **Section III. Power Limits for Earth Stations**

MOD **S21.8** § 4. (1) The equivalent isotropically radiated power (e.i.r.p.) transmitted in any direction towards the horizon by an earth station shall not exceed the following limits except as provided in No. **S21.10** or **S21.11**:

a) in frequency bands between 1 GHz and 15 GHz

+40 dBW in any 4 kHz band for $\theta \leq 0°$

$+40 + 3\,\theta$ dBW in any 4 kHz band for $0° < \theta \leq 5°$; and

b) in frequency bands above 15 GHz

+64 dBW in any 1 MHz band for $\theta \leq 0°$

$+64 + 3\,\theta$ dBW in any 1 MHz band for $0° < \theta \leq 5°$,

where θ is the angle of elevation of the horizon viewed from the centre of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

NOC **S21.9**

MOD **S21.10** (3) As an exception to the limits given in No. **S21.8**, the equivalent isotropically radiated power (e.i.r.p.) towards the horizon for an earth station in the space research service (deep space) shall not exceed +55 dBW in any 4 kHz band in frequency bands between 1 GHz and 15 GHz, or +79 dBW in any 1 MHz band in frequency bands above 15 GHz.

(MOD) **S21.11** (4) The limits given in Nos. **S21.8** and **S21.10**, as applicable, may be exceeded by not more than 10 dB. However, when the resulting coordination area extends into the territory of another country, such increase shall be subject to agreement by the administration of that country.

MOD **S21.12** (5) The limits given in No. **S21.8** apply, where applicable, to the services and frequency bands indicated in Table **S21-3** below for transmission by earth stations where the frequency bands are shared with equal rights with the fixed or mobile service:

TABLE **S21-3**

Frequency band		Services
2 025 - 2 110 MHz		Fixed-satellite
5 670 - 5 725 MHz	(for the countries listed in No. **S5.454** with respect to the countries listed in Nos. **S5.453** and **S5.455**)	Earth-exploration-satellite Meteorological-satellite Mobile-satellite Space-operation Space-research
5 725 - 5 755 MHz[1]	(for Region 1 with respect to the countries listed in Nos. **S5.453** and **S5.455**)	
5 755 - 5 850 MHz[1]	(for Region 1 with respect to the countries listed in Nos. **S5.453**, **S5.455** and **S5.456**)	
5 850 - 7 075 MHz		
7 900 - 8 400 MHz		
10.7 - 11.7 GHz[1]	(for Region 1)	
12.5 - 12.75 GHz[1]	(for Region 1 with respect to the countries listed in No. **S5.494**)	
12.7 - 12.75 GHz[1]	(for Region 2)	
12.75 - 13.25 GHz		
14.0 - 14.25 GHz	(with respect to the countries listed in No. **S5.505**)	
14.25 - 14.3 GHz	(with respect to the countries listed in Nos. **S5.505**, **S5.508** and **S5.509**)	
14.3 - 14.4 GHz[1]	(for Regions 1 and 3)	
14.4 - 14.8 GHz		

(MOD) **S21.12.1** [1] The equality of right to operate when a band of frequencies is allocated in different Regions to different services of the same category is established in No. **346/S4.8**. Therefore any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

TABLE **S21-3** *(end)*

Frequency band		Services
17.7 - 18.1 GHz		Fixed-satellite
27.0 - 27.5 GHz[1]	(for Regions 2 and 3)	Earth exploration-satellite
27.5 - 29.5 GHz		Mobile-satellite
31.0 - 31.3 GHz	(for the countries listed in No. **S5.545**)	Space research
34.2 - 35.2 GHz	(for the countries listed in No. **S5.550** with respect to the countries listed in No. **S5.549**)	

(MOD) **S21.12.1** [1] The equality of right to operate when a band of frequencies is allocated in different Regions to different services of the same category is established in No. **346/S4.8**. Therefore any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

NOC **S21.13**

MOD **Section IV. Minimum Angle of Elevation of Earth Stations**

NOC **S21.14**

(MOD) **S21.15** (2) As an exception to No. **S21.14**, earth station antennae in the space research service (near Earth) shall not be employed for transmission at elevation angles of less than 5°, and earth station antennae in the space research service (deep space) shall not be employed for transmission at elevation angles of less than 10°, both angles being those measured from the horizontal plane to the direction of maximum radiation. In the case of reception by an earth station, the above values shall be used for coordination purposes if the operating angle of elevation is less than those values.

(MOD) **Section V. Limits of Power Flux-Density from Space Stations**

ADD **S21.16** § 6. (1) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the limit given in Table **S21-4**. The limit relates to the power flux-density which would be obtained under assumed free-space propagation conditions and applies to emissions by a space station of the service indicated where the frequency bands are shared with equal rights with the fixed or mobile service, unless otherwise stated.

TABLE **S21-4**

Frequency band	Service[a]	Limit in dB(W/m²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth
		0° - 5°	5° - 25°	25° - 90°	
1 670 - 1 700 MHz	Earth Exploration-Satellite Meteorological-Satellite	-133 (value based on sharing with meteorological aids service)			1.5 MHz
1 525 - 1 530 MHz[1] (R1, R3) 1 670 - 1 690 MHz[5] 1 690 - 1 700 MHz (Nos. **S5.381**, **S5.382** 1 700 - 1 710 MHz 2 025 - 2 110 MHz 2 200 - 2 300 MHz	Meteorological-Satellite (S-E) Space Research (S-E) (S-S) Space Operation (S-E) (S-S) Earth Exploration-Satellite (S-E) (S-S)	-154[3]	-154 + 0.5 (δ-5)[3]	-144[3]	4 kHz
2 500 - 2 690 MHz 2 520 - 2 670 MHz 2 500 - 2 516.5 MHz (No. **S5.404**)	Fixed-Satellite Broadcasting-Satellite Radiodetermination-Satellite	-152[3]	-152 + 0.75 (δ-5)[3]	-137[3]	4 kHz
3 400 - 4 200 MHz 4 500 - 4 800 MHz 5 670 - 5 725 MHz (Nos. **S5.453** and **S5.455**) 7 250 - 7 750 MHz	Fixed-Satellite (S-E) Meteorological-Satellite (S-E) Mobile-Satellite Space Research	-152	-152 + 0.5 (δ-5)	-142	4 kHz
5 150 - 5 216 MHz	Fixed-Satellite (S-E)	-164			4 kHz
6 700 - 6 825 MHz	Fixed-Satellite (S-E)	-137[7]	-137 + 0.5 (δ-5)	-127	1 MHz
6 825 - 7 075 MHz	Fixed-Satellite (S-E)	-154 and -134	-154 + 0.5 (δ-5) and -134 + 0.5 (δ-5)	-144 and -124	4 kHz 1 MHz

[a] The references to services are those services which have allocations in Article **S5**.

TABLE **S21-4** *(end)*

Frequency band	Service[a]	Limit in dB(W/m²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth
		0 - 5°	5° - 25°	25° - 90°	
8 025 - 8 500 MHz 10.7 - 11.7 GHz	Earth Exploration-Satellite (S-E) Space Research (S-E) Fixed-Satellite (S-E)	-150	-150 + 0.5 (δ-5)	-140	4 kHz
12.2 - 12.5 GHz[1] (R3) 12.5 - 12.75 GHz[1] (R1 and R3 countries listed in Nos. **S5.494** and **S5.496**)	Fixed-Satellite (S-E)	-148	-148 + 0.5 (δ-5)	-138	4 kHz
15.4 - 15.45 GHz 15.65 - 15.7 GHz	Fixed-Satellite (S-E)	-146			1 MHz
15.45 - 15.65 GHz	Fixed-Satellite (S-E)	-111			1 MHz
17.7 - 19.7 GHz[1, 6] 22.55 - 23.55 GHz 24.45 - 24.75 GHz 25.25 - 27.5 GHz	Fixed-Satellite (S-E) Earth Exploration-Satellite (S-E) Meteorological-Satellite (S-E) Inter-Satellite	-115	-115 + 0.5 (δ-5)	-105	1 MHz
31.0 - 31.3 GHz 34.7 - 35.2 GHz (S-E transmissions referred to in No. **S5.550** on the territories of countries listed in No. **S5.549**) 37.0 - 40.5 GHz	Fixed-Satellite Mobile-Satellite Space Research	-115[4]	-115 + 0.5 (δ-5)[4]	-105[4]	1 MHz

[a] The references to services are those services which have allocations in Article **S5**.

ADD **S21.16.1** [1] The equality of right to operate when a frequency band is allocated in different Regions to different services of the same category is established in No. **S4.8**. Therefore. any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

SUP **S21.16.2**

ADD **S21.16.3** [3] These power flux-density values are derived on the basis of protecting the fixed service using line-of-sight techniques. Where a fixed service using tropospheric scatter operates in the bands listed in the first column and there is insufficient frequency separation, there must be sufficient angular separation between the direction to the space station and the direction of maximum radiation of the antenna of the receiving station of the fixed service using tropospheric scatter, in order to ensure that the interference power at the receiver input of the fixed-service station does not exceed –168 dBW in any 4 kHz band.

ADD **S21.16.4** [4] The values given in this box shall apply until such time as modified by a competent world radiocommunication conference.

ADD **S21.16.5** [5] These values are applicable where this band is shared with equal rights with meteorological aids service.

ADD **S21.16.6** [6] In the bands 18.9 - 19.3 and 19.3 - 19.6 GHz, these values shall apply for non-geostationary satellite systems, subject to review by ITU-R, and shall apply until they are revised by a competent world radiocommunication conference (see Resolution **119 (WRC-95)**).

ADD **S21.16.7** [7] These power flux-density limits are subject to review by ITU-R and shall apply until they are revised by a competent world radiocommunication conference.

(MOD) **S21.17** (2) The limits given in Table **S21-4** may be exceeded on the territory of any country whose administration has so agreed.

ARTICLE S22

MOD **Space Services**[1]

RR	VGE proposal	VGE Report	WRC-95 decision
2612	NOC	S22.1	NOC
2613	MOD	S22.2	MOD
2613A – 2614	NOC	S22.3 – S22.4	NOC
2631	(ADD)	S22.5	(ADD) NOC
–	–	–	ADD S22.5A
2615	(MOD)	S22.6	(MOD)
2616 – 2617	NOC	S22.7 – S22.8	NOC
2618 – 2619	(MOD)	S22.9 – S22.10	(MOD)
2620 – 2622	NOC	S22.11 – S22.13	NOC
2623 – 2624	(MOD)	S22.14 – S22.15	(MOD)
2625 – 2626	NOC	S22.16 – S22.17	NOC
2627 – 2628	(MOD)	S22.18 – S22.19	(MOD)
2629	NOC	S22.20	NOC
2630	(MOD)	S22.21	(MOD)
2631	SUP*	S22.5	S22.5
2632	(MOD)	S22.22	(MOD)
2633 – 2634	NOC	S22.23 – S22.24	NOC
2635 – 2636	(MOD)	S22.25 – S22.26	(MOD)
FOOTNOTES			
–	ADD	A.S22.1	ADD

ADD **A.S22.1** [1] In applying the provisions of this Article, the level of accepted interference (see No. **162/S1.168**) shall be fixed by agreement between the administrations concerned, using the relevant ITU-R Recommendations as a guide.

RR	VGE proposal	VGE Report	WRC-95 decision
2613.1 – 2614.1	SUP	–	SUP
A.29S.III.1	NOC	A.S22.SIII.1	NOC
2615.1	(MOD)	S22.6.1	(MOD)
2619.1	SUP	–	SUP
2623.1	SUP	–	SUP
2624.1	(MOD)	S22.15.1	(MOD)
2627.1	SUP	–	SUP
2628.1	(MOD)	S22.19.1	(MOD)
2630.1	SUP	–	SUP
2632.1 – 2632.2	(MOD)	S22.22.1 – S22.22.2	(MOD)

NOC **Section I. Cessation of Emissions**

NOC **S22.1**

NOC **Section II. Control of Interference to Geostationary-Satellite Systems**

MOD **S22.2** § 2. Non-geostationary space stations shall cease or reduce to a negligible level their emissions, and their associated earth stations shall not transmit to them, whenever there is unacceptable interference to geostationary-satellite space systems in the fixed-satellite service operating in accordance with these Regulations.

NOC **S22.3** to **S22.5**

ADD **S22.5A** (1) In the frequency band 6 700 - 7 075 MHz, the maximum aggregate power flux-density produced at the geostationary-satellite orbit and within ±5° of inclination around the geostationary-satellite orbit by a non-geostationary-satellite system in the fixed-satellite service shall not exceed –168 dB(W/m^2) in any 4 kHz band.

NOC **A.S22.SIII.1**

(MOD) **S22.6** (1) Space stations on board geostationary satellites which use any frequency band allocated to the fixed-satellite service or the broadcasting-satellite service[2]:

(MOD) **S22.6.1** [2] Space stations in the broadcasting-satellite service on geostationary satellites operating in the band 11.7 - 12.7 GHz are exempted from these provisions but shall maintain their positions in accordance with Appendix **30/S30**.

NOC **S22.7**

NOC **S22.8**

(MOD) **S22.9** *c)* experimental stations on board geostationary satellites need not comply with No. **S22.7** nor No. **S22.8**, but shall maintain their positions within ± 0.5 degree of longitude of their nominal positions;

(MOD) **S22.10** *d)* however, space stations need not comply with No. **S22.8** nor No. **S22.9** as appropriate as long as the satellite network to which the space station belongs does not cause unacceptable interference to any other satellite network whose space station complies with the limits given in Nos. **S22.8** and **S22.9**.

NOC **S22.11** to **S22.13**

(MOD) **S22.14** *c)* need not comply with No. **S22.13** as long as the satellite network to which the space station belongs does not cause unacceptable interference to any other satellite network whose space station complies with the limits given in No. **S22.13**.

(MOD) **S22.15** (3) Space stations[3] on board geostationary satellites which are put into service prior to 1 January 1987, with the advance publication information for the network having been published before 1 January 1982, are exempted from the provisions of Nos. **S22.6** to **S22.14** inclusive; however they

(MOD) **S22.15.1** [3] Space stations in the broadcasting-satellite service on geostationary satellites operating in the band 11.7 - 12.7 GHz are exempted from these provisions but shall maintain their positions in accordance with Appendix **30/S30**.

NOC **S22.16**

NOC **S22.17**

(MOD) **S22.18** *c)* need not comply with No. **S22.17** as long as the satellite network to which the space station belongs does not cause unacceptable interference to any other satellite network whose space station complies with the limits given in No. **S22.17**.

NOC **Section IV. Pointing Accuracy of Antennae on Geostationary Satellites**

(MOD) **S22.19** § 6. (1) The pointing direction of maximum radiation of any earthward beam of antennae on geostationary satellites[1] shall be capable of being maintained within:

a) 10 % of the half power beamwidth relative to the nominal pointing direction, or

b) 0.3 degree relative to the nominal pointing direction,

whichever is greater. This position applies only when such a beam is intended for less than global coverage.

(MOD) **S22.19.1** [1] Transmitting antennae of space stations in the broadcasting-satellite service operating in the band 11.7 - 12.7 GHz are not subject to these provisions but shall maintain their pointing accuracy in accordance with paragraph 3.14.1 of Annex **8** to Appendix **30/S30**.

NOC **S22.20**

(MOD) **S22.21** (3) This accuracy shall be maintained only if it is required to avoid unacceptable interference to other systems.

(MOD) **Section V. Radio Astronomy in the Shielded Zone of the Moon**

(MOD) **S22.22** (1) In the shielded zone of the Moon[1] emissions causing harmful interference to radio astronomy observations[2] and to other users of passive services shall be prohibited in the entire frequency spectrum except in the following bands:

(MOD) **S22.22.1** [1] The shielded zone of the Moon comprises the area of the Moon's surface and an adjacent volume of space which are shielded from emissions originating within a distance of 100 000 km from the centre of the Earth.

(MOD) **S22.22.2** [2] The level of harmful interference is determined by agreement between the administrations concerned, with the guidance of the relevant ITU-R Recommendations.

NOC **S22.23**

NOC **S22.24**

(MOD) **S22.25** (2) In frequency bands in which emissions are not prohibited by Nos. **S22.22** to **S22.24**, radio astronomy observations and passive space research in the shielded zone of the Moon may be protected from harmful interference by agreement between administrations concerned.

(MOD) **Section VI. Earth Station Off-Axis Power Limitations**

(MOD) **S22.26** The level of equivalent isotropically radiated power (e.i.r.p.) emitted by an earth station at angles in the direction of the geostationary-satellite orbit off the main-beam axis has a significant impact on interference caused to other geostationary-satellite networks. Enhanced utilization of the geostationary-satellite orbit and easier coordination would be attained by minimizing such off-axis radiation and administrations are encouraged to achieve the lowest values practicable bearing in mind the latest ITU-R Recommendations. Minimizing such levels is particularly important in intensively used up-link bands.

ARTICLE S23

NOC **Broadcasting Services**

RR	VGE proposal	VGE Report	WRC-95 decision
2664 – 2667	NOC	S23.1 – S23.4	NOC
2668	(MOD)	S23.5	(MOD)
2669	NOC	S23.6	NOC
2670 – 2673	(MOD)	S23.7 – S23.10	(MOD)
2673A	NOC	S23.11	NOC
2673B	(MOD)	S23.12	(MOD)
2674	NOC	S23.13	NOC

NOC **S23.1** to **S23.4**

(MOD) **S23.5** § 2. (1) In these Regulations, the expression "broadcasting in the Tropical Zone" indicates a type of broadcasting for internal national use in countries in the zone defined in Nos. **S5.16** to **S5.21**, where it may be shown that because of the difficulty of high atmospheric noise level and propagation it is not possible to provide economically a more satisfactory service by using low, medium, or very high frequencies.

NOC **S23.6**

(MOD) **S23.7** (3) The carrier power of the transmitters operating in this service in the bands listed in No. **S23.6** shall not exceed 50 kW.

(MOD) **S23.8** (4) Within the Tropical Zone, the broadcasting service has priority over the other services with which it shares the bands listed in No. **S23.6**.

(MOD) **S23.9** (5) However, in that part of Libya north of parallel 30° North the broadcasting service in the bands listed in No. **S23.6** has equal rights to operate with other services in the Tropical Zone with which it shares these bands.

(MOD) **S23.10** (6) The broadcasting service operating inside the Tropical Zone, and other services operating outside this zone, are subject to the provisions of No. **S4.8**.

NOC **S23.11**

(MOD) **S23.12** § 2A. Double-sideband and single-sideband transmitting stations operating in the HF bands allocated exclusively to the Broadcasting Service shall meet the system specifications contained in Appendix **S11**.

NOC **S23.13**

ARTICLE S24

NOC **Fixed Service**

RR	VGE proposal	VGE Report	WRC-95 decision
2700 – 2701 2702 – 2705	NOC (MOD)	S24.1 – S24.2 S24.3 – S24.6	NOC (MOD)

NOC **S24.1**

NOC **S24.2**

(MOD) **S24.3** § 2. (1) The frequencies necessary for the international exchange of information to assist in the apprehension of criminals shall be selected from the bands allocated to the fixed service, if necessary by special agreement concluded between the administrations concerned under the provision for special arrangements in Article **42** of the Constitution.

(MOD) **S24.4** (2) To obtain economy in the use of frequencies, the Bureau should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or worldwide basis.

(MOD) **S24.5** § 3. (1) The frequencies necessary for the international exchange of synoptic meteorological information shall be selected from the bands allocated to the fixed service, if necessary by special agreement concluded between the administrations concerned under the provision for special arrangements in Article **42** of the Constitution.

(MOD) **S24.6** (2) To obtain economy in the use of frequencies, the Bureau should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or worldwide basis.

ARTICLE S25

NOC **Amateur Services**

RR	VGE proposal	VGE Report	WRC-95 decision
2731 – 2737	NOC	S25.1 – S25.7	NOC
2738	(MOD)	S25.8	(MOD)
2739 – 2740	NOC	S25.9 – S25.10	NOC
2741	(MOD)	S25.11	(MOD)

NOC **S25.1** to **S25.7**

(MOD) **S25.8** § 5. (1) All the general rules of the Constitution, the Convention and of these Regulations shall apply to amateur stations. In particular, the emitted frequency shall be as stable and as free from spurious emissions as the state of technical development for such stations permits.

NOC **S25.9**

NOC **S25.10**

(MOD) **S25.11** § 7. Space stations in the amateur-satellite service operating in bands shared with other services shall be fitted with appropriate devices for controlling emissions in the event that harmful interference is reported in accordance with the procedure laid down in Article **S15**. Administrations authorizing such space stations shall inform the Bureau and shall ensure that sufficient earth command stations are established before launch to guarantee that any harmful interference which might be reported can be terminated by the authorizing administration (see No. **S22.1**).

ARTICLE S26

NOC **Standard Frequency and Time Signal Service**

RR	VGE proposal	VGE Report	WRC-95 decision
2767	NOC	S26.1	NOC
2768	MOD	S26.2	MOD
2769	(MOD)	S26.3	(MOD)
2770	(MOD)	S26.4	MOD
2771 – 2772	(MOD)	S26.5 – S26.6	(MOD)

NOC **S26.1**

MOD **S26.2** (2) To this end, each administration shall take steps to coordinate, with the assistance of the Bureau, any new standard frequency or time signal transmission or any change in existing transmissions in the standard frequency bands. For this purpose, administrations shall exchange between themselves, and furnish to the Bureau, all relevant information. On this matter, the Bureau shall consult other international organizations having a direct and substantial interest in the subject.

(MOD) **S26.3** (3) In so far as is practicable, a new frequency assignment in the standard frequency bands should not be made or notified to the Bureau until appropriate coordination has been completed.

MOD **S26.4** § 2. Administrations shall cooperate in reducing interference in the frequency bands to which the standard frequency and time signal service is allocated.

(MOD) **S26.5** § 3. Administrations which provide this service shall cooperate through the Bureau in the collation and distribution of the results of the measurements of standard frequencies and time signals, as well as details concerning adjustments to the frequencies and time signals.

(MOD) **S26.6** § 4. In selecting the technical characteristics of standard frequency and time signal transmissions, administrations shall be guided by the relevant ITU-R Recommendations.

ARTICLE S27

NOC **Experimental Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
2798 – 2799	NOC	S27.1 – S27.2	NOC
2800	SUP	–	SUP
2801 – 2802	NOC	S27.3 – S27.4	NOC
2803 – 2804	(MOD)	S27.5 – S27.6	(MOD)
2805	NOC	S27.7	NOC

NOC **S27.1** to **S27.4**

(MOD) **S27.5** § 4. (1) All the general rules of the Constitution, the Convention and of these Regulations shall apply to experimental stations. In particular, experimental stations shall comply with the technical conditions imposed upon transmitters operating in the same frequency bands, except where the technical principles of the experiments prevent this. In such a case, the administration which authorizes the operation of these stations may grant a dispensation in an appropriate form.

(MOD) **S27.6** (2) During the course of their transmissions, experimental stations shall transmit, at short intervals, their call sign or any other recognized form of identification (see Article **S19**).

NOC **S27.7**

ARTICLE S28

MOD

Radiodetermination Services

RR	VGE proposal	VGE Report	WRC-95 decision
2831 – 2832	NOC	S28.1 – S28.2	NOC
2833	(MOD)	S28.3	(MOD)
2834 – 2838	NOC	S28.4 – S28.8	NOC
2839 – 2840A	(MOD)	S28.9 – S28.11	(MOD)
2841 – 2842	NOC	S28.12 – S28.13	NOC
2842A	(MOD)	S28.14	(MOD)
2843	(MOD)	S28.15	SUP
2844 – 2845	NOC	S28.16 – S28.17	NOC
2846	SUP	–	SUP
2847 – 2849	NOC	S28.18 – S28.20	NOC
2850	(MOD)	S28.21	(MOD)
2851	NOC	S28.22	NOC
2852	(MOD)	S28.23	(MOD)
–	ADD	S28.24	ADD
2853 – 2865	SUP*	Ap. S12	Ap. S12
2866	SUP Mob-83	–	–

NOC **S28.1**

NOC **S28.2**

(MOD) **S28.3** § 3. Administrations shall notify to the Bureau the characteristics of each radiodetermination station providing an international service of value to the maritime mobile service and, if considered necessary, for each station or group of stations, the sectors in which the information furnished is normally reliable. This information is published in the List of Radiodetermination and Special Service Stations, and the Bureau shall be notified of any change of a permanent nature.

NOC **S28.4** to **S28.8**

(MOD) **S28.9** § 7. (1) The provisions of Nos. **S28.1** to **S28.8**, excluding No. **S28.2**, shall be applied to the maritime radionavigation-satellite service.

(MOD) **S28.10** (2) The provisions of Nos. **S28.1** to **S28.8**, excluding Nos. **S28.2** and **S28.3**, shall be applied to the aeronautical radionavigation-satellite service.

(MOD) **S28.11** (3) The provisions of Nos. **S28.1** to **S28.8**, excluding Nos. **S28.2** and **S28.3**, shall be applied to the radiodetermination-satellite service.

NOC **S28.12**

NOC **S28.13**

(MOD) **S28.14** (2A) Where a radio direction-finding station as defined in No. **S1.12**, operates in the bands between 156 MHz and 174 MHz, it should be able to take bearings on the VHF distress and calling frequency 156.8 MHz and on the VHF digital selective calling frequency 156.525 MHz.

SUP **S28.15**

NOC **S28.16** to **S28.20**

(MOD) **S28.21** § 13. (1) Radiobeacons properly so-called shall use the frequency bands which are available to them under Chapter **SII**.

NOC **S28.22**

(MOD) **S28.23** (3) The power radiated by each radiobeacon properly so-called shall be adjusted to the value necessary to produce the stipulated field strength at the limit of the range required (see Appendix **S12**).

ADD **S28.24** Special rules applicable to aeronautical radio beacons operating in the bands between 160 kHz and 535 kHz and to the maritime radio beacons operating in the bands between 283.5 kHz and 335 kHz are given in Appendix **S12**.

ARTICLE S29

NOC **Radio Astronomy Service**

RR	VGE proposal	VGE Report	WRC-95 decision
2892 – 2895	NOC	S29.1 – S29.4	NOC
2896	(MOD)	S29.5	(MOD)
2897	NOC	S29.6	NOC
2898 – 2899	(MOD)	S29.7 – S29.8	(MOD)
2900	NOC	S29.9	NOC
2901 – 2902	(MOD)	S29.10 – S29.11	(MOD)
2903	NOC	S29.12	MOD
2904	(MOD)	S29.13	(MOD)

NOC **S29.1** to **S29.4**

(MOD) **S29.5** § 2. The locations of the radio astronomy stations to be protected and their frequencies of observation shall be notified to the Bureau in accordance with No. **S11.12** and published in accordance with No. **S20.16** for communication to Members.

NOC **S29.6**

(MOD) **S29.7** § 4. All practicable technical means shall be adopted at radio astronomy stations to reduce their susceptibility to interference. The development of improved techniques for reducing susceptibility to interference shall be pursued, including participation in cooperative studies through the Radiocommunication Sector.

(MOD) **S29.8** § 5. The status of the radio astronomy service in the various frequency bands is specified in the Table of Frequency Allocations, Article **S5**. Administrations shall provide protection from interference to stations in the radio astronomy service in accordance with the status of this service in those bands (see also Nos. **S4.6**, **S22.22** to **S22.24** and **S22.25**).

NOC **S29.9**

(MOD) **S29.10** § 7. In bands adjacent to those in which observations are carried out in the radio astronomy service, operating in accordance with these Regulations, administrations are urged, when assigning frequencies to stations of other services, to take all practicable steps to protect the radio astronomy service from harmful interference in accordance with No. **S4.5**. In addition to the measures referred to in No. **S29.9**, technical means for minimizing the power radiated at frequencies within the band used for radio astronomy should be given special consideration (see also No. **S4.6**).

(MOD) **S29.11** § 8. When assigning frequencies to stations in other bands, administrations are urged, as far as practicable, to take into consideration the need to avoid spurious emissions which could cause harmful interference to the radio astronomy service operating in accordance with these Regulations (see also No. **S4.6**).

MOD **S29.12** § 9. In applying the measures outlined in this Section, administrations are urged to bear in mind that the radio astronomy service is extremely susceptible to interference from space and airborne transmitters (for further information, see Recommendation ITU-R **RA.769**).

(MOD) **S29.13** § 10. Administrations shall take note of the relevant ITU-R Recommendations with the aim of limiting interference to the radio astronomy service from other services.

CHAPTER SVII

MOD

Distress and Safety Communications[1]

NOC **C.SVII**

ARTICLE S30

NOC

General Provisions

RR	VGE proposal	VGE Report	WRC-95 decision
N2929	MOD	S30.1	MOD
N2935 – N2936	(ADD)	S30.2 – S30.3	(ADD) (MOD)
N2930	MOD	S30.4	MOD
N2931	SUP*	S30.4	S30.4
N2932	NOC	S30.5	NOC
N2933 – N2934	SUP*	S30.12 – S30.13	S30.12 – S30.13
N2935 – N2937	SUP*	S30.2 – S30.3	S30.2 – S30.3
N2938	NOC	S30.6	NOC
N2939	SUP*	S32.6	S32.6
N2940	SUP*	S30.1	S30.1
N2941	SUP*	S32.7	S32.7
N2942	(MOD)	S30.7	(MOD)
–	–	–	ADD S30.8
–	–	–	ADD S30.9
N2943 – N2944	NOC	S30.10 – S30.11	NOC
–	–	–	ADD S30.12
–	–	–	ADD S30.13
FOOTNOTES			
C.NIX	NOC	C.SVII	NOC
N2938.1	NOC	S30.6.1	NOC
N2941.1	SUP*	S32.7.1	S32.7.1
N2942.1	NOC	S30.7.1	NOC

ADD **Section I. Introduction**

MOD **S30.1** § 1. This Chapter contains the provisions for the operational use of the Global Maritime Distress and Safety System (GMDSS). Distress, urgency and safety transmissions may also be made, using Morse telegraphy or radiotelephony techniques, in accordance with the provisions of Appendix **S13** and relevant ITU-R Recommendations. Stations of the maritime mobile service, when using frequencies and techniques in conformity with Appendix **S13**, shall comply with the appropriate provisions of that Appendix.

(MOD) **S30.2** § 2. No provision of these Regulations prevents the use by a mobile station or a mobile earth station in distress of any means at its disposal to attract attention, make known its position, and obtain help (see also No. **S4.9**).

(MOD) **S30.3** § 3. No provision of these Regulations prevents the use by stations on board aircraft, ships engaged in search and rescue operations, land stations, or coast earth stations, in exceptional circumstances, of any means at their disposal to assist a mobile station or a mobile earth station in distress (see also Nos. **S4.9** and **S4.16**).

ADD **Section II. Maritime Provisions**

MOD **S30.4** § 4. The provisions specified in this Chapter are obligatory (see Resolution **331 (Mob-87)**) in the maritime mobile service and the maritime mobile-satellite service for all stations using the frequencies and techniques prescribed for the functions set out herein (see also No. **S30.5**). However, stations of the maritime mobile service, when fitted with equipment used by stations operating in conformity with Appendix **S13**, shall comply with the appropriate provisions of that Appendix.

NOC **S30.5**

NOC **S30.6**

NOC **S30.6.1**

(MOD) **S30.7** § 7. Mobile stations[2] of the maritime mobile service may communicate, for safety purposes, with stations of the aeronautical mobile service. Such communications shall normally be made on the frequencies authorized, and under the conditions specified in Section **I** of Article **S31** (see also No. **S4.9**).

NOC **S30.7.1**

ADD

Section III. Aeronautical Provisions

ADD **S30.8** § 8. The procedure specified in this Chapter is obligatory for communications between stations on board aircraft and stations of the maritime mobile-satellite service, wherever this service or stations of this service are specifically mentioned.

ADD **S30.9** § 9. Certain provisions of this Chapter are applicable to the aeronautical mobile service, except in the case of special arrangements between the governments concerned.

NOC **S30.10**

NOC **S30.11**

Section IV. Land Mobile Provisions

ADD **S30.12** § 12. Stations of the land mobile service in uninhabited, sparsely populated or remote areas may, for distress and safety purposes, use the frequencies provided for in this Chapter.

ADD **S30.13** § 13. The procedure specified in this Chapter is obligatory for stations of the land mobile service when using frequencies provided in these Regulations for distress and safety communications.

ARTICLE S31

MOD

Frequencies for the Global Maritime Distress and Safety System (GMDSS)

RR	VGE proposal	VGE Report	WRC-95 decision
–	–	–	ADD S31.1 – S31.4
N2967 – N3058	SUP*	Ap. S15	Ap. S15
N3059	(MOD)	S31.5	(MOD)
N3060 – N3065	NOC	S31.6 – S31.11	NOC
N3066 – N3067	SUP*	Ap. S15	Ap. S15
N3068 – N3069	SUP*	S31.3 – S31.4	S31.3 – S31.4
N3070 – N3073	SUP*	Ap. S15	Ap. S15
N3074 – N3078	NOC	S31.12 – S31.16	NOC
N3079	(MOD)	S31.17	(MOD)
N3080 – N3082	NOC	S31.18 – S31.20	NOC

MOD

Section I. General

ADD **S31.1** § 1. The frequencies to be used for the transmission of distress and safety information under the GMDSS are contained in Appendix **S15**.

ADD **S31.2** § 2. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices **S13** and **S15** is prohibited.

ADD **S31.3** § 3. The number and duration of test transmissions shall be kept to a minimum on the frequencies identified in Appendix **S15**; they should be coordinated with a competent authority, as necessary, and, wherever practicable, be carried out on artificial antennas or with reduced power. However, testing on the distress and safety calling frequencies should be avoided, but where this is unavoidable, it should be indicated that these are test transmissions.

ADD **S31.4** § 4. Before transmitting for other than distress purposes on any of the frequencies identified in Appendix **S15** for distress and safety, a station shall, where practicable, listen on the frequency concerned to make sure that no distress transmission is being sent.

(MOD) **S31.5**

Section II. Survival Craft Stations

NOC **S31.6** to **S31.11**

MOD

Section III. Watchkeeping

NOC **S31.12**

A. Coast Stations

NOC **S31.13** to **S31.16**

(MOD) **S31.17** § 8. (1) Ship stations complying with the provisions of this Chapter shall, while at sea, maintain an automatic digital selective calling watch on the appropriate distress and safety calling frequencies in the frequency bands in which they are operating. Ship stations, where so equipped, should also maintain watch on the appropriate frequencies for the automatic reception of transmissions of meteorological and navigational warnings and other urgent information to ships. However, ship stations shall also continue to apply the appropriate watch-keeping provisions of Appendix **S13** (see Resolution **331 (Mob-87)**).

NOC **S31.18** to **S31.20**

ARTICLE S32

MOD **Operational Procedures for Distress and Safety Communications in the Global Maritime Distress and Safety System (GMDSS)**

RR	VGE proposal	VGE Report	WRC-95 decision
N3106	NOC	S32.1	NOC
N3107 – N3108	(MOD)	S32.2 – S32.3	(MOD)
N3109	NOC	S32.4	NOC
N3110	(MOD)	S32.5	(MOD)
N2939	(ADD)	S32.6	(ADD)
N2941	(ADD)	S32.7	(ADD) MOD
N3111 – N3121	NOC	S32.8 – S32.18	NOC
N3122	(MOD)	S32.19	(MOD)
N3123	NOC	S32.20	NOC
N3124 – N3125	(MOD)	S32.21 – S32.22	(MOD)
N3126 – N3132	NOC	S32.23 – S32.29	NOC
N3133 – N3135	(MOD)	S32.30 – S32.32	(MOD)
N3136 – N3137	NOC	S32.33 – S32.34	NOC
N3138	(MOD)	S32.35	(MOD)
N3139 – N3142	NOC	S32.36 – S32.39	NOC
N3143	(MOD)	S32.40	(MOD)
N3144 – N3145	NOC	S32.41 – S32.42	NOC
N3146	NOC	S32.43	(MOD)
N3147 – N3151	NOC	S32.44 – S32.48	NOC
N3152 – N3153	(MOD)	S32.49 – S32.50	(MOD)
N3154	NOC	S32.51	NOC
N3155 – N3156	(MOD)	S32.52 – S32.53	(MOD)
N3157 – N3165	NOC	S32.54 – S32.62	NOC
N3166	NOC	S32.63	MOD
N3167	(MOD)	S32.64	MOD
FOOTNOTES			
N2941.1	(ADD)	S32.7.1	(ADD) MOD

RR	VGE proposal	VGE Report	WRC-95 decision
N3112.1 – N3112.2	NOC	S32.9.1 – S32.9.2	NOC
N3112.3	(MOD)	S32.9.3	(MOD)
N3113.1	NOC	S32.10.1	NOC
N3149.1	NOC	S32.46.1	NOC
N3158.1 – N3159.1	NOC	S32.55.1 – S32.56.1	NOC
N3162.1	NOC	S32.59.1	NOC

NOC **Section I. General**

NOC **S32.1**

(MOD) **S32.2** § 2. (1) The distress alert (see No. **S32.9**) shall be sent through a satellite either with absolute priority in general communication channels or on exclusive distress and safety frequencies or, alternatively, on the distress and safety frequencies in the MF, HF and VHF bands using digital selective calling.

(MOD) **S32.3** (2) The distress alert (see No. **S32.9**) shall be sent only on the authority of the person responsible for the ship, aircraft or other vehicle carrying the mobile station or the mobile earth station.

NOC **S32.4**

(MOD) **S32.5** § 4. Digital selective calling shall be in accordance with the relevant ITU-R Recommendations.

(ADD) **S32.6** § 5. Transmissions by radiotelephony shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

MOD **S32.7** § 6. The Phonetic Alphabet and Figure Code in Appendix **S14** and the abbreviations and signals in accordance with Recommendation ITU-R **M.1172** should be used where applicable[1].

MOD **S32.7.1** [1] The use of the Standard Marine Communication Phrases and, where language difficulties exists, the International Code of Signals, both published by the International Maritime Organization (IMO), is also recommended.

NOC **Section II. Distress Alerting**

NOC **S32.8** *A. General*

NOC **S32.9** to **S32.18**

NOC **S32.9.1**

NOC **S32.9.2**

(MOD) **S32.9.3** [3] The format of distress calls and distress messages shall be in accordance with the relevant ITU-R Recommendations.

NOC **S32.10.1**

(MOD) **S32.19** § 12. A station transmitting a distress alert relay in accordance with Nos. **S32.16**, **S32.17**, **S32.18** and **S32.31** shall indicate that it is not itself in distress.

NOC **S32.20**

(MOD) **S32.21** § 13. Acknowledgement by digital selective calling of receipt of a distress alert in the terrestrial services shall be in accordance with relevant ITU-R Recommendations.

(MOD) **S32.22** § 14. Acknowledgement through a satellite of receipt of a distress alert from a ship earth station shall be sent immediately (see No. **S32.26**).

NOC **S32.23** to **S32.29**

(MOD) **S32.30** § 20. (1) Ship stations operating in areas where reliable communications with a coast station are not practicable which receive a distress alert from a ship station which is, beyond doubt, in their

vicinity, shall, as soon as possible and if appropriately equipped, acknowledge receipt and inform a Rescue Coordination Centre through a coast station or coast earth station (see No. **S32.18**).

(MOD) **S32.31** (2) However, a ship station receiving an HF distress alert shall not acknowledge it but shall observe the provisions of Nos. **S32.36** to **S32.38**, and shall, if the alert is not acknowledged by a coast station within 3 minutes, relay the distress alert.

(MOD) **S32.32** § 21. A ship station acknowledging receipt of a distress alert in accordance with No. **S32.29** or No. **S32.30** should:

NOC **S32.33**

NOC **S32.34**

(MOD) **S32.35** § 22. A ship station in receipt of a shore-to-ship distress alert (see No. **S32.14**) should establish communication as directed and render such assistance as required and appropriate.

NOC **S32.36** to **S32.39**

(MOD) **S32.40** § 25. Distress traffic consists of all messages relating to the immediate assistance required by the ship in distress, including search and rescue communications and on-scene communications. The distress traffic shall as far as possible be on the frequencies contained in Article **S31**.

NOC **S32.41**

NOC **S32.42**

(MOD) **S32.43** § 27. (1) Error correction techniques in accordance with relevant ITU-R Recommendations shall be used for distress traffic by direct-printing telegraphy. All messages shall be preceded by at least one carriage return, a line feed signal, a letter shift signal and the distress signal MAYDAY.

NOC **S32.44** to **S32.48**

NOC **S32.46.1**

(MOD) **S32.49** § 29. Until they receive the message indicating that normal working may be resumed (see No. **S32.51**), all stations which are aware of the distress traffic, and which are not taking part in it, and which are not in distress, are forbidden to transmit on the frequencies in which the distress traffic is taking place.

(MOD) **S32.50** § 30. A station of the mobile service which, while following distress traffic, is able to continue its normal service, may do so when the distress traffic is well established and on condition that it observes the provisions of No. **S32.49** and that it does not interfere with distress traffic.

NOC **S32.51**

(MOD) **S32.52** § 32. (1) In radiotelephony, the message referred to in No. **S32.51** consists of:

- the distress signal MAYDAY;
- the call "Hello all stations" or CQ (spoken as CHARLIE QUEBEC) spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in the case of language difficulties);
- the call sign or other identification of the station sending the message;

– the time of handing in of the message;

– the name and call sign of the mobile station which was in distress;

– the words SEELONCE FEENEE pronounced as the French words "silence fini".

(MOD) **S32.53** (2) In direct-printing telegraphy, the message referred to in No. **S32.51** consists of:

– the distress signal MAYDAY;

– the call CQ;

– the word DE;

– the call sign or other identification of the station sending the message;

– the time of handing in of the message;

– the name and call sign of the mobile station which was in distress; and

– the words SILENCE FINI.

NOC **S32.54** to **S32.62**

NOC **S32.55.1**

NOC **S32.56.1**

NOC **S32.59.1**

MOD **S32.63** (3) Locating signals may be transmitted in the following frequency bands:

117.975 - 136 MHz;

156 - 174 MHz;

406 - 406.1 MHz;

1 645.5 - 1 646.5 MHz; and

9 200 - 9 500 MHz.

MOD **S32.64** (4) Locating signals shall be in accordance with the relevant ITU-R Recommendations (see Resolution **27 (WRC-95)**).

ARTICLE S33

NOC **Operational Procedures for Urgency and Safety Communications in the Global Maritime Distress and Safety System (GMDSS)**

RR	VGE proposal	VGE Report	WRC-95 decision
N3196 – N3202	NOC	S33.1 – S33.7	NOC
N3203 – N3204	(MOD)	S33.8 – S33.9	(MOD)
N3205 – N3206	NOC	S33.10 – S33.11	NOC
N3207 – N3208	(MOD)	S33.12 – S33.13	(MOD)
N3209 – N3211	NOC	S33.14 – S33.16	NOC
N3212	(MOD)	S33.17	(MOD)
N3213 – N3215	NOC	S33.18 – S33.20	NOC
N3216	(MOD)	S33.21	(MOD)
N3217 – N3224	NOC	S33.22 – S33.29	NOC
N3225 – N3227	(MOD)	S33.30 – S33.32	(MOD)
N3228 – N3229	NOC	S33.33 – S33.34	NOC
N3230 – N3232	(MOD)	S33.35 – S33.37	(MOD)
N3233 – N3234	NOC	S33.38 – S33.39	NOC
N3235 – N3236	(MOD)	S33.40 – S33.41	(MOD)
N3237	NOC	S33.42	NOC
N3238	(MOD)	S33.43	(MOD)
N3239	NOC	S33.44	NOC
N3240	(MOD)	S33.45	(MOD)
N3241 – N3244	NOC	S33.46 – S33.49	NOC
N3245	(MOD)	S33.50	(MOD)
N3246	NOC	S33.51	NOC
N3247 – N3248	(MOD)	S33.52 – S33.53	(MOD)

NOC **S33.1** to **S33.7**

(MOD) **S33.8** § 2. In a terrestrial system the announcement of the urgency message shall be made on one or more of the distress and safety calling frequencies specified in Section **I** of Article **S31** using digital selective calling and the urgency call format. A separate announcement need not be made if the urgency message is to be transmitted through the maritime mobile-satellite service.

(MOD) **S33.9** § 3. The urgency signal and message shall be transmitted on one or more of the distress and safety traffic frequencies specified in Section **I** of Article **S31**, or via the maritime mobile-satellite service or on other frequencies used for this purpose.

NOC **S33.10**

NOC **S33.11**

(MOD) **S33.12** § 6. (1) In radiotelephony, the urgency message shall be preceded by the urgency signal (see No. **S33.10**), repeated three times, and the identification of the transmitting station.

(MOD) **S33.13** (2) In narrow-band direct-printing, the urgency message shall be preceded by the urgency signal (see No. **S33.10**) and the identification of the transmitting station.

NOC **S33.14** to **S33.16**

(MOD) **S33.17** § 9. (1) Error correction techniques in accordance with relevant ITU-R Recommendations shall be used for urgency messages by direct-printing telegraphy. All messages shall be preceded by at least one carriage return, a line feed signal, a letter shift signal and the urgency signal PAN PAN.

NOC **S33.18** to **S33.20**

(MOD) **S33.21** § 12. The use of the signals described in No. **S33.20** indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

NOC **S33.22** to **S33.29**

(MOD) **S33.30** § 14. The use of radiocommunications for announcing and identifying medical transports is optional; however, if they are used, the provisions of these Regulations and particularly of this Section and of Articles **S30** and **S31** shall apply.

Section IV. Safety Communications

(MOD) **S33.31** § 15. In a terrestrial system the announcement of the safety message shall be made on one or more of the distress and safety calling frequencies specified in Section **I** of Article **S31** using digital selective calling techniques. A separate announcement need not be made if the message is to be transmitted through the maritime mobile-satellite service.

(MOD) **S33.32** § 16. The safety signal and message shall normally be transmitted on one or more of the distress and safety traffic frequencies specified in Section **I** of Article **S31**, or via the maritime mobile-satellite service or on other frequencies used for this purpose.

NOC **S33.33**

NOC **S33.34**

(MOD) **S33.35** § 19. (1) In radiotelephony, the safety message shall be preceded by the safety signal (see No. **S33.33**) repeated three times, and the identification of the transmitting station.

(MOD) **S33.36** (2) In narrow-band direct-printing, the safety message shall be preceded by the safety signal (see No. **S33.33**), and the identification of the transmitting station.

(MOD) **S33.37** § 20. (1) Error correction techniques in accordance with relevant ITU-R Recommendations shall be used for safety messages by direct-printing telegraphy. All messages shall be preceded by at least one carriage return, a line feed signal, a letter shift signal and the safety signal SECURITE.

NOC **S33.38**

NOC **S33.39**

(MOD) **S33.40** § 21. The operational details of the stations transmitting maritime safety information in accordance with Nos. **S33.43**, **S33.45**, **S33.46**, **S33.48** and **S33.50** shall be indicated in the List of Radio-determination and Special Service Stations (see also Appendix **S13**).

(MOD) **S33.41** § 22. The mode and format of the transmissions mentioned in Nos. **S33.43**, **S33.45**, **S33.46** and **S33.48** shall be in accordance with the relevant ITU-R Recommendations.

NOC **S33.42**

(MOD) **S33.43** § 23. Maritime safety information shall be transmitted by means of narrow-band direct-printing telegraphy with forward error correction using the frequency 518 kHz in accordance with the international NAVTEX system (see Appendix **S15**).

NOC **S33.44**

(MOD) **S33.45** § 24. (1) The frequency 490 kHz may be used, after full implementation of the GMDSS, for the transmission of maritime safety information by means of narrow-band direct-printing telegraphy with forward error correction (see Appendix **S15** and Resolution **210** (**Mob-87**)).

NOC **S33.46** to **S33.49**

(MOD) **S33.50** § 26. Maritime safety information may be transmitted via satellite in the maritime mobile-satellite service using the band 1 530 - 1 545 MHz (see Appendix **S15**).

NOC **S33.51**

(MOD) **S33.52** (2) The frequency 156.650 MHz is used for intership navigation safety communications (see also Appendix **S15** and note *p)* in Appendix **S18**).

(MOD) **S33.53** § 28. Radiocommunications for distress and safety purposes may be conducted on any appropriate communications frequency, including those used for public correspondence. In the maritime mobile-satellite service, frequencies in the bands 1 530 - 1 544 MHz and 1 626.5 - 1 645.5 MHz are used for this function as well as for distress alerting purposes (see No. **S32.2**).

ARTICLE S34

MOD

Alerting Signals in the Global Maritime Distress and Safety System (GMDSS)

RR	VGE proposal	VGE Report	WRC-95 decision
N3276 – N3277	(MOD)	S34.1 – S34.2	MOD

NOC

Section I. Emergency Position-Indicating Radiobeacon (EPIRB) and Satellite EPIRB Signals

MOD **S34.1** § 1. The emergency position-indicating radiobeacon signal transmitted on 156.525 MHz and satellite EPIRB signals in the band 406 - 406.1 MHz or 1 645.5 - 1 646.5 MHz shall be in accordance with relevant ITU-R Recommendations (see Resolution **27 (WRC-95)**).

NOC

Section II. Digital Selective Calling

MOD **S34.2** § 2. The characteristics of the "distress call" (see No. **S32.9**) in the digital selective calling system shall be in accordance with relevant ITU-R Recommendations (see Resolution **27 (WRC-95)**).

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CHAPTER SVIII

MOD

Aeronautical Services

ARTICLE S35

NOC

Introduction

RR	VGE proposal	VGE Report	WRC-95 decision
3362 3363	(MOD) SUP Mob-87	S35.1 –	MOD –
FOOTNOTE 3362.1	NOC	S35.1.1	NOC

MOD **S35.1** § 1. With the exception of Articles **S36, S37, S39, S42, S43** and No. **S44.2**, the other provisions of this Chapter may be governed by special arrangements concluded pursuant to Article **42** of the Constitution of the International Telecommunication Union (Geneva, 1992), or by intergovernmental agreements[1] provided their implementation does not cause harmful interference to the radio services of other countries.

NOC **S35.1.1**

ARTICLE S36

MOD **Authority of the Person Responsible for the Station**

RR	VGE proposal	VGE Report	WRC-95 decision
3364 – 3366 3367	NOC (MOD)	S36.1 – S36.3 S36.4	NOC (MOD)

NOC **S36.1** to **S36.3**

(MOD) **S36.4** § 4. The provisions of Nos. **S36.1, S36.2** and **S36.3** shall also apply to personnel of aircraft earth stations.

ARTICLE S37

MOD **Operator's Certificates**

RR	VGE proposal	VGE Report	WRC-95 decision
3392	SUP Mob-87	–	–
3393 – 3393A	NOC	S37.1 – S37.2	NOC
3394	MOD	S37.3	MOD
3395	NOC	S37.4	NOC
3396	(MOD)	S37.5	(MOD)
3397	NOC	S37.6	NOC
3398	MOD	S37.7	MOD
3399 – 3401	NOC	S37.8 – S37.10	NOC
3402	(MOD)	S37.11	(MOD)
3403	SUP	–	SUP

RR	VGE proposal	VGE Report	WRC-95 decision
3404	NOC	S37.12	NOC
3405	SUP	–	SUP
3406	NOC	S37.13	NOC
3407 – 3409	SUP Mob-87	–	–
3410	NOC	S37.14	NOC
3411 – 3412	SUP	–	SUP
3413 – 3417	NOC	S37.15 – S37.19	NOC
3418 – 3421	SUP	–	SUP
3422	SUP Mob-87	–	–
3423 – 3425	SUP	–	SUP
3426 – 3427	SUP Mob-87	–	–
3428 – 3435	SUP	–	SUP
3436 – 3437	SUP Mob-87	–	–
3438 – 3443	SUP	–	SUP
3444	NOC	S37.20	NOC
3445	(MOD)	S37.21	(MOD)
3446 – 3453	NOC	S37.22 – S37.29	NOC
3454	(MOD)	S37.30	(MOD)
3455	SUP	–	SUP
3456	(MOD)	S37.31	(MOD)
3457	SUP Mob-83	–	–
FOOTNOTES			
3394.1	NOC	S37.3.1	NOC
3403.1 – 3404.1	SUP Mob-87	–	–
3423.1 – 3423.2	SUP	–	SUP
3434.1	SUP	–	SUP
3440.1	SUP	–	SUP
3441A.1	SUP	–	SUP

NOC **S37.1**

NOC **S37.2**

MOD **S37.3** (3) The service of automatic communication devices[1] installed in an aircraft station or aircraft earth station shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the devices are so controlled, they may be used by other persons.

NOC **S37.3.1**

NOC **S37.4**

(MOD) **S37.5** (5) The provisions of No. **S37.4** shall not, however, apply to any aircraft station or aircraft earth station working on frequencies assigned for international use.

NOC **S37.6**

MOD **S37.7** (2) When it is necessary to employ a person without a certificate or an operator not holding an adequate certificate as a temporary operator, his performance as such must be limited solely to signals of distress, urgency and safety, messages relating thereto, messages relating directly to the safety of life and essential messages relating to the navigation and safe movement of the aircraft.

NOC **S37.8** to **S37.10**

(MOD) **S37.11** § 4. Each administration shall take the necessary steps to place operators under the obligation to preserve the secrecy of correspondence as provided for in No. **S18.4**.

NOC **S37.12** to **S37.20**

(MOD) **S37.21** § 9. The radiotelephone operator's general certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below (see also No. **S37.13**):

NOC **S37.22** to **S37.29**

(MOD) **S37.30** (2) For aircraft radiotelephone stations and aircraft earth stations operating on frequencies allocated exclusively to the aeronautical mobile service or the aeronautical mobile-satellite service, each administration may itself fix the conditions for obtaining a radiotelephone operator's restricted certificate, provided that the operation of the transmitter requires only the use of simple external switching devices. The administration shall ensure that the operator has an adequate knowledge of radiotelephone operation and procedure particularly as far as distress, urgency and safety are concerned. This in no way contravenes the provisions of No. **S37.2**.

(MOD) **S37.31** § 11. A radiotelephone operator's certificate shall show whether it is a general certificate or a restricted certificate and, in the latter case, if it has been issued in conformity with the provisions of No. **S37.30**.

ARTICLE S38

MOD

Personnel

RR	VGE proposal	VGE Report	WRC-95 decision
3483	NOC	S38.1	NOC

NOC **S38.1**

ARTICLE S39

MOD **Inspection of Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
3509 – 3512	NOC	S39.1 – S39.4	NOC
3513	(MOD)	S39.5	MOD
3514 – 3515	NOC	S39.6 – S39.7	NOC
–	–	–	ADD S39.8

NOC **S39.1** to **S39.4**

MOD **S39.5** § 2. (1) When a government or administration has found it necessary to adopt the course indicated in No. **S39.3**, or when the operator's certificates cannot be produced, the government or administration to which the aircraft station or aircraft earth station is subject shall be so informed without delay. In addition, the procedure specified in Section **V** of Article **S15** is followed when necessary.

NOC **S39.6**

NOC **S39.7**

ADD **S39.8** § 4. The frequencies of emissions of aircraft stations shall be checked by the inspection service to which these stations are subject.

ARTICLE S40

MOD

Working Hours of Stations

RR	VGE proposal	VGE Report	WRC-95 decision
3541 – 3542A 3543	NOC SUP Mob-87	S40.1 – S40.3 –	NOC –

NOC **S40.1** to **S40.3**

ARTICLE S41

MOD

Communications with Stations in the Maritime Services

RR	VGE proposal	VGE Report	WRC-95 decision
3569 – 3570 3571	SUP Mob-83 (MOD)	– S41.1	– (MOD)
FOOTNOTE 3571.1	NOC	S41.1.1	NOC

(MOD) **S41.1** Stations on board aircraft may communicate, for purposes of distress, and for public correspondence[1], with stations of the maritime mobile or maritime mobile-satellite services. For these purposes, they shall conform to the relevant provisions of Chapter **SVII** and Chapter **SIX**, Articles **S51** (Section **III**), **S53, S54, S55, S57** and **S58** and Appendix **S13** (see also Nos. **S4.19, S4.20** and **S43.4**).

NOC **S41.1.1**

ARTICLE S42

MOD **Conditions to be Observed by Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
3597 – 3598	SUP	–	SUP
3599 – 3600	MOD	S42.1 – S42.2	MOD
3601 – 3602	SUP Mob-87	–	–
3603	SUP	–	ADD S42.4
3604	MOD	S42.3	MOD
3605	SUP	–	SUP

MOD **S42.1** § 1. The energy radiated by receiving apparatus shall be reduced to the lowest practical value and shall not cause harmful interference to other stations.

MOD **S42.2** § 2. Administrations shall take all practicable steps necessary to ensure that the operation of any electrical or electronic apparatus installed in mobile stations and mobile earth stations does not cause harmful interference to the essential radio services of stations which are operating in accordance with the provisions of these Regulations.

MOD **S42.3** § 3. Mobile stations and mobile earth stations other than survival craft stations shall be provided with the documents enumerated in the appropriate section of Appendix **S16** (Section **VI**, "Aircraft Stations").

(MOD) **S42.4** § 4. The operation of a broadcasting service (see No. **S1.38**) by an aircraft station at sea and over the sea is prohibited (see also No. **S23.2**).

ARTICLE S43

MOD **Special Rules Relating to the Use of Frequencies**

RR	VGE proposal	VGE Report	WRC-95 decision
3630 – 3631	NOC	S43.1 – S43.2	NOC
3632	(MOD)	S43.3	(MOD)
3633 – 3635	NOC	S43.4 – S43.6	NOC

NOC **S43.1**

NOC **S43.2**

(MOD) **S43.3** § 3. Frequencies in the bands allocated to the aeronautical mobile service between 2 850 kHz and 22 000 kHz (see Article **S5**) shall be assigned in conformity with the provisions of Appendices **S26** and **S27** and the other relevant provisions of these Regulations.

NOC **S43.4** to **S43.6**

ARTICLE S44

MOD **Order of Priority of Communications**

RR	VGE proposal	VGE Report	WRC-95 decision
3651 3652	NOC (MOD)	S44.1 S44.2	NOC (MOD)
FOOTNOTES 3651.1 3651.2	 NOC SUP Mob-87	 S44.1.1 –	 NOC –

NOC **S44.1**

NOC **S44.1.1**

(MOD) **S44.2** § 2. Categories 1 and 2 shall receive priority over all other communications irrespective of any agreement under the provisions of No. **S35.1**.

ARTICLE S45

MOD **General Communication Procedure**

RR	VGE proposal	VGE Report	WRC-95 decision
3653	NOC	S45.1	NOC
3654 – 3655	(MOD)	S45.2 – S45.3	(MOD)
3656 – 3658	NOC	S45.4 – S45.6	NOC
3659	SUP	–	SUP
3660	NOC	S45.7	NOC
3661 – 3676	SUP	–	SUP
3677 – 3767	SUP Mob-87	–	–
3793 – 3805	SUP Mob-87	–	–
FOOTNOTE 3653.1	NOC	S45.1.1	NOC

NOC **S45.1**

NOC **S45.1.1**

(MOD) **S45.2** § 2. An aeronautical station having traffic for an aircraft station may call this station if it has reason to believe that the aircraft station is keeping watch and is within the designated operational coverage area (see No. **S45.1.1**) of the aeronautical station.

(MOD) **S45.3** § 3. When an aeronautical station receives calls in close succession from several aircraft stations, it decides on the order in which these stations may transmit their traffic. Its decision shall be based on the priority in Article **S44**.

NOC **S45.4** to **S45.7**

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CHAPTER SIX

MOD

Maritime Services

ARTICLE S46

NOC

Authority of the Master

RR	VGE proposal	VGE Report	WRC-95 decision
3831 – 3833 3834	NOC (MOD)	S46.1 – S46.3 S46.4	NOC (MOD)

NOC **S46.1** to **S46.3**

(MOD) **S46.4** § 4. The provisions of Nos. **S46.1**, **S46.2** and **S46.3** shall also apply to personnel of ship earth stations.

ARTICLE S47

MOD

Operator's Certificates

RR	VGE proposal	VGE Report	WRC-95 decision
3860	NOC	S47.1	NOC
3861	(MOD)	S47.2	(MOD)
3862	SUP Mob-87	–	–
3863 – 3864	NOC	S47.3 – S47.4	NOC
3865	(MOD)	S47.5	(MOD)
3866	NOC	S47.6	NOC
3867	MOD	S47.7	MOD
3868 – 3876	NOC	S47.8 – S47.16	NOC
3877	NOC	S47.17	(MOD)
3877A	(MOD)	S47.18	MOD
3878 – 3890	SUP*	Ap. S13	Ap. S13
3890A	MOD	S47.19	MOD
3890B – 3890E	NOC	S47.20 – S47.23	NOC
3890F	(MOD)	S47.24	(MOD)
3891 – 3949	SUP*	Ap. S13	Ap. S13
–	ADD	S47.25	ADD
3949A – 3949DE	SUP*	Table AR55B	ADD
3950 – 3953	(MOD)	S47.26 – S47.29	MOD
FOOTNOTES			
3863.1	NOC	S47.3.1	NOC
3878.1	SUP*	Ap. S13	Ap. S13
3883.1	SUP*	Ap. S13	Ap. S13
3888.1–3889.1	SUP*	Ap. S13	Ap. S13

NOC **Section I. General Provisions**

NOC **S47.1**

(MOD) **S47.2** (2) The service of every ship radiotelephone station, ship earth station and ship station using the frequencies and techniques prescribed in Chapter **SVII** shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the station is so controlled, other persons besides the holder of the certificate may use the equipment.

NOC **S47.3**

NOC **S47.3.1**

NOC **S47.4**

(MOD) **S47.5** (5) The provisions of No. **S47.4** shall not, however, apply to any ship station working on frequencies assigned for international use.

NOC **S47.6**

MOD **S47.7** (2) When it is necessary to employ a person without a certificate or an operator not holding an adequate certificate as a temporary operator, his performance as such must be limited solely to signals of distress, distress alerting, urgency and safety, messages relating thereto, messages relating directly to the safety of life and urgent messages relating to the movement of the ship.

NOC **S47.8** to **S47.16**

(MOD) **S47.17** § 4. Each administration shall take the necessary steps to place operators under the obligation to preserve the secrecy of correspondence as provided for in No. **S18.4**.

MOD **S47.18** § 5. Each administration may determine the conditions under which personnel holding certificates specified in Appendix **S13** may be granted certificates specified in Nos. **S47.20** to **S47.23**.

MOD **Section II. Categories of Operator's Certificates**

MOD **S47.19** § 6. (1) There are four categories of certificates, shown in descending order of requirements, for personnel of ship stations and ship earth stations using the frequencies and techniques prescribed in Chapter **SVII**. An operator meeting the requirements of a certificate automatically meets all of the requirements of lower order certificates.

NOC **S47.20** to **S47.23**

(MOD) **S47.24** (2) The holder of one of the certificates specified in Nos. **S47.20**, **S47.21**, **S47.22** and **S47.23** may carry out the service of ship stations or ship earth stations using the frequencies and techniques prescribed in Chapter **SVII**.

MOD **Section III. Conditions for the Issue of Certificates**

ADD **S47.25** § 7. The requirements of the certificates of this section, for which candidates must show proof of the technical and professional knowledge and qualification, are shown in Table **S47-1.**

ADD

TABLE **S47-1**

Requirements for Radio Electronic and Operator's Certificates

The relevant certificate is issued to a candidate who has given proof of the technical and professional knowledge and qualifications enumerated below, as indicated by an asterisk in the appropriate box	**1st-Class Radio Electronic Certificate**	**2nd-Class Radio Electronic Certificate**	**General Operator's Certificate**	**Restricted Operator's Certificate**
Knowledge of the principles of electricity and the theory of radio and of electronics sufficient to meet the requirements specified below:	*	*		
Theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraph and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radiobeacons, marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of the principles of other equipment generally used for radionavigation, with particular reference to maintaining equipment in service.	*			

The relevant certificate is issued to a candidate who has given proof of the technical and professional knowledge and qualifications enumerated below, as indicated by an asterisk in the appropriate box	1st-Class Radio Electronic Certificate	2nd-Class Radio Electronic Certificate	General Operator's Certificate	Restricted Operator's Certificate
General theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraph and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radiobeacons, marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of the principles of other equipment generally used for radionavigation, with particular reference to maintaining equipment in service.		*		
Practical knowledge of the operation and knowledge of the preventive maintenance of the equipment indicated above.	*	*		
Practical knowledge necessary for the location and repair (using appropriate testing equipment and tools) of faults in the equipment mentioned above which may occur during a voyage.	*			

The relevant certificate is issued to a candidate who has given proof of the technical and professional knowledge and qualifications enumerated below, as indicated by an asterisk in the appropriate box	**1st-Class Radio Electronic Certificate**	**2nd-Class Radio Electronic Certificate**	**General Operator's Certificate**	**Restricted Operator's Certificate**
Practical knowledge necessary for effecting repairs in the case of faults in the equipment indicated above, using the means available on board and, if necessary, replacing modular units.		*		
Detailed practical knowledge of the operation of all the GMDSS sub-systems and equipment.	*	*	*	
Practical knowledge of the operation of all the GMDSS sub-systems and equipment which is required while the ship is within the range of VHF coast stations (see NOTE 1).				*
Ability to send and to receive correctly by radiotelephone and direct-printing telegraphy.	*	*	*	
Ability to send and to receive correctly by radiotelephone.				*

The relevant certificate is issued to a candidate who has given proof of the technical and professional knowledge and qualifications enumerated below, as indicated by an asterisk in the appropriate box	**1st-Class Radio Electronic Certificate**	**2nd-Class Radio Electronic Certificate**	**General Operator's Certificate**	**Restricted Operator's Certificate**
Detailed knowledge of the regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of those provisions of the International Convention for the Safety of Life at Sea which relate to radio.	*	*	*	
Knowledge of the regulations applying to radiotelephone communications and specifically of that part of those regulations relating to the safety of life.				*
Sufficient knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing.	*	*	*	

The relevant certificate is issued to a candidate who has given proof of the technical and professional knowledge and qualifications enumerated below, as indicated by an asterisk in the appropriate box	**1st-Class Radio Electronic Certificate**	**2nd-Class Radio Electronic Certificate**	**General Operator's Certificate**	**Restricted Operator's Certificate**
An elementary knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Administrations may waive the above language requirements for holders of a restricted operator's certificate when the ship station is confined to a limited area specified by the administration concerned. In such cases the certificate shall be suitably endorsed.				*

NOTE 1 – A restricted operator's certificate covers only the operation of GMDSS equipment required for GMDSS sea areas A1, and does not cover the operation of GMDSS A2/A3/A4 equipment fitted on a ship over and above the basic A1 requirements, even if the ship is in a sea area A1. GMDSS sea areas A1, A2, A3 and A4 are identified in the International Convention for the Safety of Life at Sea, 1974, as amended.

NOC

Section IV. Qualifying Service

MOD **S47.26** § 8. (1) The holder of a radiocommunication general operator's certificate or a first- or second-class radiotelegraph operator's certificate is authorized to embark as chief operator of a ship station of the fourth category (see Recommendation ITU-R **M.1169**).

MOD **S47.27** (2) However, before becoming chief or sole operator of a ship station of the fourth category (see Recommendation ITU-R **M.1169**) which is required by international agreements to carry a radiotelegraph operator, the holder of a radiocommunication general operator's certificate or a first- or second-class radiotelegraph operator's certificate shall have had adequate experience as operator on board ship at sea.

MOD **S47.28** (3) Before becoming chief operator of a ship station of the second or third category (see Recommendation ITU-R **M.1169**), the holder of a radiocommunication general operator's certificate or a first- or second-class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least six months' experience of which at least three months shall have been on board ship.

MOD **S47.29** (4) Before becoming chief operator of a ship station of the first category (see Recommendation ITU-R **M.1169**), the holder of a radiocommunication general operator's certificate or a first-class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least one year's experience of which at least six months shall have been on board ship.

ARTICLE S48

MOD

Personnel

RR	VGE proposal	VGE Report	WRC-95 decision
3979	NOC	S48.1	NOC
3980 – 3986	SUP*	Ap. S13	Ap. S13
3987 – 3988	NOC	S48.2 – S48.3	NOC
3989	(MOD)	S48.4	(MOD)
3990	NOC	S48.5	MOD
3991	SUP WARC-92	–	–
3992	MOD	S48.6	MOD
3993	(MOD)	S48.7	(MOD)

NOC **S48.1** to **S48.3**

(MOD) **S48.4** § 4. The personnel of ship stations and ship earth stations for which a radio installation is compulsory under international agreements and which use the frequencies and techniques prescribed in Chapter **SVII** shall, with respect to the provisions of Article **S47**, include:

MOD **S48.5** *a)* for stations on board ships which sail beyond the range of VHF coast stations, taking into account the provisions of the International Convention for the Safety of Life at Sea: a holder of a first- or second-class radio electronic certificate or a general operator's certificate;

MOD **S48.6** *b)* for stations on board ships which sail solely within the range of VHF coast stations, taking into account the provisions of the International Convention for the Safety

of Life at Sea: a holder of a first- or second-class radio electronic certificate or a general operator's certificate or a restricted operator's certificate.

(MOD) **S48.7** § 5. The personnel of ship stations and ship earth stations for which a radio installation is not compulsory under international agreements and which use the frequencies and techniques prescribed in Chapter **SVII** shall be adequately qualified and certificated in accordance with the administration's requirements.

ARTICLE S49

MOD

Inspection of Stations

RR	VGE proposal	VGE Report	WRC-95 decision
4012 – 4015	NOC	S49.1 – S49.4	NOC
4016	(MOD)	S49.5	(MOD)
4017 – 4018	NOC	S49.6 – S49.7	NOC
–	–	–	ADD S49.8

NOC **S49.1** to **S49.4**

(MOD) **S49.5** § 2. (1) When a government or an administration has found it necessary to adopt the course indicated in No. **S49.3**, or when the operators' certificates cannot be produced, the government or administration to which the ship station or ship earth station is subject shall be so informed without delay. In addition, the procedure specified in Article **S15** is followed when necessary.

NOC **S49.6**

NOC **S49.7**

ADD **S49.8** § 4. The frequencies of emissions of ship stations shall be checked by the inspection service to which these stations are subject.

ARTICLE S50

MOD **Working Hours of Stations**

RR	VGE proposal	VGE Report	WRC-95 decision
4044 – 4051 – 4052 – 4070	NOC ADD SUP*	S50.1 – S50.8 S50.9 An. 58	NOC ADD M.1169

NOC **S50.1**
to
S50.8

MOD **S50.9** § 5. The services of ship stations for international public correspondence shall be provided in accordance with the provisions of Recommendation ITU-R **M.1169**.

ARTICLE S51

MOD **Conditions to Be Observed in the Maritime Services**

RR	VGE proposal	VGE Report	WRC-95 decision
4096	NOC	S51.1	NOC
4097 – 4098	SUP	–	SUP
4099	MOD	S51.2	MOD
4100 – 4102	NOC	S51.3 – S51.5	NOC
4103	SUP	–	ADD S51.5A
4104 – 4105	(MOD)	S51.6 – S51.7	(MOD)
4106 – 4113	NOC	S51.8 – S51.15	NOC
4114	(MOD)	S51.16	(MOD)
4115 – 4118	NOC	S51.17 – S51.20	NOC
4119	(MOD)	S51.21	(MOD)
4120 – 4122	NOC	S51.22 – S51.24	NOC
4123	SUP Mob-87	–	–
4123A	MOD	S51.25	MOD
4123B – 4123I	NOC	S51.26 – S51.33	NOC
4123J	(MOD)	S51.34	(MOD)
4123K	(MOD)	S51.35	MOD
4123L – 4123P	NOC	S51.36 – S51.40	NOC
4123Q	(MOD)	S51.41	MOD
4123R – 4123T	NOC	S51.42 – S51.44	NOC
4123U	(MOD)	S51.45	(MOD)
4123V – 4126	NOC	S51.46 – S51.52	NOC
4127	(MOD)	S51.53	(MOD)
4128 – 4129	NOC	S51.54 – S51.55	NOC
4130	(MOD)	S51.56	(MOD)
4131	NOC	S51.57	NOC
4132	(MOD)	S51.58	(MOD)
4133	NOC	S51.59	NOC
4134	(MOD)	S51.60	(MOD)
4135 – 4137	NOC	S51.61 – S51.64	NOC
4138	SUP	–	SUP

RR	VGE proposal	VGE Report	WRC-95 decision
4139	SUP Mob-87	–	–
4140	NOC	S51.65	MOD
4141 – 4144	NOC	S51.66 – S51.69	NOC
4145	(MOD)	S51.70	(MOD)
4146	(MOD)	S51.71	MOD
4147	NOC	S51.72	NOC
4148	(MOD)	S51.73	(MOD)
4149 – 4150	NOC	S51.74 – S51.75	NOC
4151	(MOD)	S51.76	(MOD)
4152	(MOD)	S51.77	MOD
4153	NOC	S51.78	NOC
4154 – 4155	(MOD)	S51.79 – S51.80	(MOD)
FOOTNOTES			
4128.1	SUP Mob-87	–	–
4128.2	NOC	S51.54.1	NOC

NOC **Section I. Maritime Mobile Service**

NOC **S51.1** *A. General*

MOD **S51.2** § 1. The energy radiated by receiving apparatus shall be reduced to the lowest practical value and shall not cause harmful interference to other stations.

NOC **S51.3** to **S51.5**

ADD **S51.5A** The operation of a broadcasting service (see No. **S1.38**) by a ship station at sea is prohibited (see also No. **S23.2**).

(MOD) **S51.6** § 4. Ship stations and ship earth stations other than survival craft stations shall be provided with the documents enumerated in the appropriate section of Appendix **S16**.

(MOD) **S51.7** § 5. When any ship station transmitter itself cannot be controlled in such a way that its frequency satisfies the tolerance specified in Appendix **S2**, the ship station shall be provided with a device, having a precision equal to at least one-half of this tolerance, for measuring the frequency of the emission.

NOC **S51.8** to **S51.15**

(MOD) **S51.16** § 9. The provisions of Nos. **S51.14** and **S51.15** do not apply to apparatus provided solely for distress, urgency and safety purposes.

NOC **S51.17** to **S51.20**

(MOD) **S51.21** *a)* in each of the bands necessary to carry on the station's service, it shall have at least two working frequencies in addition to one in the calling band (see No. **S52.87**);

NOC **S51.22** to **S51.24**

MOD **S51.25** § 12. The characteristics of the digital selective calling equipment shall be in accordance with ITU-R Recommendations (see Resolution **27 (WRC-95)**).

NOC **S51.26** to **S51.33**

(MOD) **S51.34** *a)* send and receive class F1B or J2B emissions on the frequencies designated for digital selective distress calling in each of the maritime HF bands in which they are operating (see also No. **S32.9**);

MOD **S51.35** *b)* send and receive class F1B or J2B emissions on an international calling channel (see Recommendation ITU-R **M.541-6**) in each of the HF maritime mobile bands necessary for their service;

NOC **S51.36** to **S51.40**

MOD **S51.41** (2) The characteristics of the narrow-band direct-printing equipment shall be in accordance with Recommendations ITU-R **M.476-5**, **M.625-3** and **M.627-1**.

NOC **S51.42** to **S51.44**

(MOD) **S51.45** *b)* receive class F1B emissions on 518 kHz, if complying with the provisions of Chapter **SVII**.

NOC **S51.46** to **S51.52**

(MOD) **S51.53** *a)* send class J3E or H3E emissions on a carrier frequency of 2 182 kHz and receive class J3E or H3E emissions on a carrier frequency of 2 182 kHz, except for such apparatus as is referred to in No. **S51.56** (see also Appendix **S13**);

NOC **S51.54**

NOC **S51.54.1**

NOC **S51.55**

(MOD) **S51.56** § 14. The provisions of Nos. **S51.54** and **S51.55** do not apply to apparatus provided solely for distress, urgency and safety purposes.

NOC **S51.57**

(MOD) **S51.58** § 15. All ship stations equipped with radiotelephony to work in the authorized bands between 4 000 kHz and 27 500 kHz and which do not comply with the provisions of Chapter **SVII** should be able to send and receive on the carrier frequencies 4 125 kHz and 6 215 kHz (see Appendix **S13**). However, all ship stations which comply with the provisions of Chapter **SVII** shall be able to send and receive on the carrier frequencies designated in Article **S31** for distress and safety traffic by radiotelephony for the frequency bands in which they are operating.

NOC **S51.59**

(MOD) **S51.60** § 16. All ship stations equipped with radiotelephony to work in the authorized bands between 156 MHz and 174 MHz (see No. **S5.226** and Appendix **S18**) shall be able to send and receive class G3E emissions on:

NOC **S51.61** to **S51.64**

MOD **S51.65** §17. The energy radiated by receiving apparatus shall be reduced to the lowest practical value and shall not cause harmful interference to other stations.

NOC **S51.66** to **S51.69**

(MOD) **S51.70** (3) Stations on board aircraft, when handling public correspondence with stations of the maritime mobile service or of the maritime mobile-satellite service, shall comply with all the provisions applicable to the handling of public correspondence in the maritime mobile or maritime mobile-satellite services (see particularly Articles **S53**, **S54**, **S55**, **S57** and **S58**).

MOD **S51.71** § 20. In the case of communication between stations on board aircraft and stations of the maritime mobile service, radiotelephone calling may be renewed as specified in Recommendation ITU-R **M.1171** and radiotelegraph calling may be renewed after an interval of five minutes, notwithstanding Recommendation ITU-R **M.1170**.

NOC **S51.72**

(MOD) **S51.73** § 21. (1) Having regard to interference which may be caused by aircraft stations at high altitudes, frequencies in the maritime mobile bands above 30 MHz shall not be used by aircraft stations, with the exception of those frequencies between 156 MHz and 174 MHz specified in Appendix **S18** which may be used provided that the following conditions are observed:

NOC **S51.74**

NOC **S51.75**

(MOD) **S51.76** *c)* aircraft stations shall use the channels designated for this purpose in Appendix **S18**;

MOD **S51.77** *d)* except as provided in No. **S51.75**, aircraft station transmitters shall comply with the technical characteristics given in Recommendation ITU-R **M.489-2**;

NOC **S51.78**

(MOD) **S51.79** (2) The frequency 156.3 MHz may be used by stations on board aircraft for safety purposes. It may also be used for communication between ship stations and stations on board aircraft engaged in coordinated search and rescue operations (see Appendix **S13** and Appendix **S15**).

(MOD) **S51.80** (3) The frequency 156.8 MHz may be used by stations on board aircraft for safety purposes only (see Appendix **S13** and Appendix **S15**).

ARTICLE S52

MOD **Special Rules Relating to the Use of Frequencies**

RR	VGE proposal	VGE Report	WRC-95 decision
4180	NOC	S52.1	NOC
4181	SUP Mob-87	–	–
4181A – 4182	NOC	S52.2 – S52.4	NOC
4183	(MOD)	S52.5	(MOD)
4184	SUP Mob-83	–	–
4184A	(MOD)	S52.6	(MOD)
4184B	NOC	S52.7	NOC
4185 – 4186	SUP Mob-83	–	–
4187	NOC	S52.8	NOC
4188	(MOD)	S52.9	(MOD)
4188A	NOC	S52.10	NOC
4189	SUP Mob-87	–	–
4190 – 4192	SUP Mob-83	–	–
4193	NOC	S52.11	NOC
4194	SUP Mob-83	–	–
4195	NOC	S52.12	NOC
4196	MOD	S52.13	MOD
4197 – 4212A	SUP*	Ap. S17	Ap. S17
4213 – 4217	NOC	S52.14 – S52.19	NOC
4218	(MOD)	S52.20	(MOD)
4219	NOC	S52.21	NOC
4220	(MOD)	S52.22	(MOD)
4221	(MOD)	S52.23	MOD
4222	NOC	S52.24	NOC
4223	(MOD)	S52.25	MOD
4224	(MOD)	S52.26	(MOD)
4225	(MOD)	S52.27	MOD
4226	(MOD)	S52.28	(MOD)
4227 – 4228	NOC	S52.29 – S52.30	NOC
4229 – 4230	(MOD)	S52.31 – S52.32	MOD

RR	VGE proposal	VGE Report	WRC-95 decision
4231	NOC	S52.33	(MOD)
4232 – 4235	NOC	S52.34 – S52.37	NOC
4236	(MOD)	S52.38	(MOD)
4237	(MOD)	S52.39	MOD
4238 – 4244	NOC	S52.40 – S52.46	NOC
4245	SUP Mob-87	–	–
4246 – 4252	NOC	S52.47 – S52.53	NOC
4253	(MOD)	S52.54	(MOD)
4254	SUP Mob-87	–	–
4255	(MOD)	S52.55	(MOD)
4256	NOC	S52.56	NOC
4257	SUP Mob-87	–	–
4258 – 4260	(MOD)	S52.57 – S52.59	(MOD)
4261 – 4263	NOC	S52.60 – S52.62	NOC
4264	(MOD)	S52.63	MOD
4265	SUP Mob-87	–	–
4266	NOC	S52.64	NOC
4267	(MOD)	S52.65	(MOD)
4268 – 4270	NOC	S52.66 – S52.68	NOC
4271	(MOD)	S52.69	MOD
4272 – 4273	(MOD)	S52.70 – S52.71	(MOD)
4274 – 4276	NOC	S52.72 – S52.74	NOC
4277	(MOD)	S52.75	(MOD)
4278 – 4279	NOC	S52.76 – S52.77	NOC
4280 – 4281	(MOD)	S52.78 – S52.79	(MOD)
4282 – 4284	NOC	S52.80 – S52.82	NOC
4285	(MOD)	S52.83	(MOD)
4286	SUP Mob-87	–	–
4287	NOC	S52.84	NOC
4288 – 4290	SUP Mob-87	–	–

RR	VGE proposal	VGE Report	WRC-95 decision
4291	NOC	S52.85	NOC
4292 – 4304	SUP Mob-87	–	–
4305 – 4306A	NOC	S52.86 – S52.88	NOC
4307	(MOD)	S52.89	(MOD)
4308 – 4314	NOC	S52.90 – S52.96	NOC
4315	NOC	S52.97	(MOD)
4315A	SUP Mob-87	–	–
4316 – 4318	NOC	S52.98 – S52.100	NOC
4319	(MOD)	S52.101	(MOD)
4320	NOC	S52.102	NOC
4321	(MOD)	S52.103	(MOD)
4321A	SUP Mob-87	–	–
4321B	NOC	S52.104	NOC
4321C – 4321E	(MOD)	S52.105 – S52.107	(MOD)
4322	NOC	S52.108	NOC
4323	(MOD)	S52.109	(MOD)
4323A	NOC	S52.110	NOC
4323B	(MOD)	S52.111	(MOD)
4323C	(MOD)	S52.112	MOD
4323D – 4323T	NOC	S52.113 – S52.129	NOC
4323U	(MOD)	S52.130	(MOD)
4323V – 4323Y	NOC	S52.131 – S52.134	NOC
4323Z	(MOD)	S52.135	(MOD)
4323AA	NOC	S52.136	NOC
4323AB – 4323AC	(MOD)	S52.137 – S52.138	(MOD)
4323AD – 4323AL	NOC	S52.139 – S52.147	NOC
4323AM – 4323AN	(MOD)	S52.148 – S52.149	MOD
4323AO – 4323AP	NOC	S52.150 – S52.151	NOC
4323AQ – 4323AR	(MOD)	S52.152 – S52.153	MOD
4323AS	(MOD)	S52.154	(MOD)
4323AT – 4323AW	NOC	S52.155 – S52.158	NOC
4323AX	(MOD)	S52.159	MOD
4323AY	NOC	S52.160	NOC
4323AZ – 4323BA	(MOD)	S52.161 – S52.162	(MOD)
4323BB – 4323BC	NOC	S52.163 – S52.164	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
4323BD	(MOD)	S52.165	(MOD)
4323BE	NOC	S52.166	NOC
4323BF – 4323BG	(MOD)	S52.167 – S52.168	(MOD)
4323BH	NOC	S52.169	NOC
4323BI – 4323BJ	(MOD)	S52.170 – S52.171	(MOD)
4323BK – 4323BL	NOC	S52.172 – S52.173	NOC
4323BM – 4323BN	(MOD)	S52.174 – S52.175	(MOD)
4324	NOC	S52.176	NOC
4325	(MOD)	S52.177	(MOD)
4326 – 4327	NOC	S52.178 – S52.180	NOC
4328	(MOD)	S52.181	MOD
4329 – 4330	SUP Mob-87	–	–
4331	NOC	S52.182	NOC
4332 – 4334	SUP Mob-87	–	–
4335	(MOD)	S52.183	(MOD)
4336 – 4337	SUP Mob-87	–	–
4338 – 4341	NOC	S52.184 – S52.187	NOC
4342	(MOD)	S52.188	MOD
4343	(MOD)	S52.189	(MOD)
4344	NOC	S52.190	NOC
4345	(MOD)	S52.191	(MOD)
4346	(MOD)	S52.192	MOD
4347 – 4348	NOC	S52.193 – S52.194	NOC
4349	SUP Mob-87	–	–
4350	(MOD)	S52.195	MOD
4351	(MOD)	S52.196	(MOD)
4352	NOC	S52.197	NOC
4353	(MOD)	S52.198	(MOD)
4354	NOC	S52.199	NOC
4355	(MOD)	S52.200	(MOD)
4356 – 4360	NOC	S52.201 – S52.205	NOC
4361	SUP Mob-83	–	–
4362 – 4363	NOC	S52.206 – S52.207	NOC
4364	SUP Mob-83	–	–
4365 – 4367B	NOC	S52.208 – S52.212	NOC

RR	VGE proposal	VGE Report	WRC-95 decision
4368	(MOD)	S52.213	MOD
4368A	NOC	S52.214	NOC
4369	(MOD)	S52.215	(MOD)
4370 – 4375	NOC	S52.216 – S52.221	NOC
4376	(MOD)	S52.222	(MOD)
4377	SUP Mob-87	–	–
4378	NOC	S52.223	NOC
4379	(MOD)	S52.224	MOD
4380 – 4383	(MOD)	S52.225 – S52.228	(MOD)
4384	(MOD)	S52.229	MOD
4385	NOC	S52.230	NOC
4386	(MOD)	S52.231	MOD
4387	NOC	S52.232	NOC
4388	(MOD)	S52.233	(MOD)
4389 – 4390	(MOD)	S52.234 – S52.235	MOD
4391 – 4392	(MOD)	S52.236 – S52.237	(MOD)
4393 – 4394	NOC	S52.238 – S52.239	NOC
4395	(MOD)	S52.240	MOD
4396 – 4397	(MOD)	S52.241 – S52.242	(MOD)
4398 – 4404	NOC	S52.243 – S52.249	NOC
4405	(MOD)	S52.250	(MOD)
4406 – 4408	NOC	S52.251 – S52.253	NOC
4409 – 4410	(MOD)	S52.254 – S52.255	(MOD)
4411	SUP Mob-83	–	–
4412	NOC	S52.256	NOC
4413	(MOD)	S52.257	(MOD)
4414	NOC	S52.258	NOC
4415	(MOD)	S52.259	(MOD)
4416	NOC	S52.260	NOC
FOOTNOTES			
4197.1	SUP*	Ap. S17	Ap. S17
4203.1	SUP*	Ap. S17	Ap. S17
4205.1	SUP*	Ap. S17	Ap. S17
4237.1	NOC	S52.39.1	SUP
4280.1	SUP Mob-83	–	–
4315.1	SUP Mob-87	–	–

RR	VGE proposal	VGE Report	WRC-95 decision
4343.1	NOC	S52.189.1	NOC
4371.1 – 4374.1	SUP Mob-83	–	–
4375.1 – 4375.2	(MOD)	S52.221.1 – S52.221.2	(MOD)
4375.3	NOC	S52.221.3	NOC
4376.1 – 4376.2	(MOD)	S52.222.1 – S52.222.2	(MOD)
4393.1	SUP Mob-83	–	–

NOC

Section I. General Provisions

NOC **S52.1** to **S52.4**

(MOD) **S52.5** § 2. Ship stations authorized to work in the bands between 415 kHz and 535 kHz shall transmit on the frequencies indicated in this Article (see No. **S52.39**).

(MOD) **S52.6** § 3A. In the maritime mobile service, no assignments shall be made on the frequency 518 kHz other than for transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of automatic narrow-band direct-printing telegraphy (International NAVTEX System) (see Article **S11**).

NOC **S52.7**

NOC **S52.8**

(MOD) **S52.9** § 4. (1) In Region 1, frequencies assigned to stations operating in the bands between 1 850 kHz and 3 800 kHz (see Article **S5**) should, whenever possible, be in accordance with the following subdivision:

– 1 850 - 1 950 kHz:	Coast stations, single-sideband radiotelephony.
– 1 950 - 2 045 kHz:	Ship stations, single-sideband radiotelephony.
– 2 194 - 2 262.5 kHz:	Ship stations, single-sideband radiotelephony.
– 2 262.5 - 2 498 kHz:	Intership, single-sideband radiotelephony.
– 2 502 - 2 578 kHz:	Ship stations, narrow-band direct-printing telegraphy.
– 2 578 - 2 850 kHz:	Coast stations, narrow-band direct-printing telegraphy and single-sideband radiotelephony.
– 3 155 - 3 200 kHz:	Ship stations, narrow-band direct-printing telegraphy.
– 3 200 - 3 340 kHz:	Ship stations, single-sideband radiotelephony.
– 3 340 - 3 400 kHz:	Intership, single-sideband radiotelephony.

– 3 500 - 3 600 kHz:	Intership, single-sideband radiotelephony.
– 3 600 - 3 800 kHz:	Coast stations, single-sideband radiotelephony.

NOC **S52.10** to **S52.12**

MOD **S52.13** § 6. (1) Bands exclusively allocated to the maritime mobile service between 4 000 kHz and 27 500 kHz (see Article **S5**) are subdivided into categories and sub-bands as indicated in Appendix **S17**.

NOC **S52.14** to **S52.19**

(MOD) **S52.20** § 10. (1) The frequency 500 kHz is the international distress frequency for Morse radiotelegraphy (see Appendix **S13** for details of its use for distress, urgency and safety purposes).

NOC **S52.21**

(MOD) **S52.22** *a)* for call and reply using Morse telegraphy (see Nos. **S52.27** and **S52.31**);

MOD **S52.23** *b)* by coast stations to announce by means of Morse telegraphy the transmission of their traffic lists under the conditions provided for in Recommendation ITU-R **M.1170**.

NOC **S52.24**

MOD **S52.25** (4) Before transmitting on 500 kHz, stations must listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see Recommendation ITU-R **M.1170**).

(MOD) **S52.26** (5) The provisions of No. **S52.25** do not apply to stations in distress.

MOD **S52.27** § 11. (1) The general calling frequency which, except as provided under Recommendation ITU-R **M.492-6**, shall be used by any ship station or coast station engaged in radiotelegraphy in the authorized bands between 415 kHz and 535 kHz, and by aircraft stations desiring to enter into communication with a station of the maritime mobile service using frequencies in these bands, is the frequency 500 kHz.

(MOD) **S52.28** (2) However, in order to reduce interference in regions of heavy traffic, administrations may consider the requirements of No. **S52.27** as satisfied when the calling frequencies assigned to coast stations open to public correspondence are not separated by more than 2 kHz from the general calling frequency 500 kHz.

NOC **S52.29**

NOC **S52.30**

MOD **S52.31** § 13. (1) The frequency for replying to a call sent on the general calling frequency (see No. **S52.27**) shall be as follows:

- either 500 kHz,
- or the frequency specified by the calling station (see No. **S52.29** and Recommendation ITU-R **M.1170**).

MOD **S52.32** (2) In regions of heavy traffic, coast stations may answer calls made by ship stations of their own nationality in accordance with special arrangements made by the administration concerned (see Recommendation ITU-R **M.1170**).

(MOD) **S52.33** § 14. Selective calling under the provisions of Section II of Article **S54** may be carried out on the frequency 500 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions.

NOC **S52.34** to **S52.37**

(MOD) **S52.38** § 16. As an exception to the provisions of Appendix **S13** and Nos. **S52.21**, **S52.22** and **S52.23** and on condition that signals of distress, urgency and safety, and calls and replies are not interfered with, 500 kHz may be used outside regions of heavy traffic for direction-finding but with discretion.

MOD **S52.39** § 17. (1) Ship stations operating in the authorized bands between 415 kHz and 535 kHz shall use working frequencies chosen from the following: 425 kHz in Regions 2 and 3, 458 kHz in Region 1, 454 kHz, 468 kHz, 480 kHz and 512 kHz, except as permitted by No. **S4.18**. However, when a regional radiocommunication conference has established a frequency plan, the frequencies specified in that plan may be used in the Region concerned.

SUP **S52.39.1**

NOC **S52.40** to **S52.53**

(MOD) **S52.54** § 19. (1) Ship Morse radiotelegraph stations equipped to operate in the bands specified in Appendix **S17** shall employ only the classes of emission mentioned in No. **S52.2** for Morse telegraphy at speeds not exceeding 40 bauds. Survival craft stations may use class A2A or H2A emissions in these bands (see Appendix **S13**).

(MOD) **S52.55** (2) Except as provided for in No. **S52.222.1**, coast Morse radiotelegraph stations operating in the bands exclusively allocated to the maritime mobile service between 4 000 kHz and 27 500 kHz shall not use Type 2 emissions (see No. **S52.18**).

NOC **S52.56**

(MOD) **S52.57** § 20. Provisions of Appendix **S17** show those parts of the band exclusively allocated to the maritime mobile service between 4 000 kHz and 27 500 kHz which are to be used by coast stations and ship stations for Morse radiotelegraphy.

D2. Call and Reply

(MOD) **S52.58** § 21. (1) In order to establish communication with a coast station, each ship station shall use an appropriate Morse radiotelegraphy calling frequency in one of the bands listed in Appendix **S17**.

(MOD) **S52.59** (2) Frequencies in the A1A Morse telegraphy calling bands are assigned to each ship station in accordance with the provisions of Nos. **S52.75** to **S52.83**.

NOC **S52.60** to **S52.62**

MOD **S52.63** (2) So far as is practicable, a coast station shall transmit its calls at specified times in the form of traffic lists on the frequency or frequencies indicated in the List of Coast Stations (see Recommendation ITU-R **M.1170**).

NOC **S52.64**

(MOD) **S52.65** *a)* for a ship station, one of its assigned calling frequencies in the same band, with due regard to No. **S52.61**;

NOC **S52.66** to **S52.68**

MOD **S52.69** § 28. In order to reduce interference on Morse radiotelegraphy calling frequencies, a coast station shall take adequate steps to ensure, under normal conditions, the prompt receipt of Morse radiotelegraphy calls (see Recommendation ITU-R **M.1170**).

D3. Traffic

(MOD) **S52.70** § 29. (1) A ship station, after establishing communication on a Morse radiotelegraphy calling frequency (see No. **S52.58**), shall change to a Morse radiotelegraphy working frequency for the

transmission of traffic. The use of frequencies in the Morse radiotelegraphy calling bands for any purpose other than Morse radiotelegraphy calling shall be prohibited.

(MOD) **S52.71** (2) Morse radiotelegraphy working frequencies shall be assigned to ship stations in accordance with the provisions of Nos. **S52.85** and **S52.87**.

NOC **S52.72** to **S52.74**

E1. Calling Frequencies of Ship Stations

(MOD) **S52.75** § 31. Each Morse radiotelegraphy calling band between 4 000 kHz and 27 500 kHz indicated in Appendix **S17** is divided into four groups of channels and two common channels. The 25 MHz band is divided into three channels of which one is a common channel.

NOC **S52.76**

NOC **S52.77**

(MOD) **S52.78** § 33. In the bands between 4 000 kHz and 27 500 kHz, the administration to which a ship station is subject shall assign to it at least two Morse radiotelegraphy calling frequencies in each band in which the station is equipped to transmit. One of the calling frequencies in each band shall be within one of the common coast station receiving channels contained in Appendix **S17**; another in each band shall be selected from within the other channels listed in Appendix **S17**, taking account of the receiving channel or channels of the coast station with which the ship station most frequently communicates. In the 25 MHz band, administrations shall assign to

ship stations under their control a frequency within the common channel. Another calling frequency in this band shall be selected from within channel A or B of Appendix **S17**, taking account of the receiving channel of the coast station with which the ship station most frequently communicates.

(MOD) **S52.79** § 34. A ship station should, wherever possible, be assigned additional Morse radiotelegraphy calling frequencies (see No. **S52.61**).

NOC **S52.80** to **S52.82**

(MOD) **S52.83** § 38. Administrations shall ensure, as far as possible, that ship stations under their jurisdiction are capable of keeping their transmission within the limits of the assigned Morse radiotelegraphy channels (see Appendix **S2**).

NOC **S52.84** to **S52.88**

(MOD) **S52.89** § 42. For the exclusive purpose of communication by Morse radiotelegraphy with stations of the maritime mobile service, an aircraft station may be assigned one or more Morse radiotelegraphy working frequencies in the bands shown in Appendix **S17**. These frequencies shall be assigned in accordance with the same principles of uniform distribution as for ship stations.

NOC **S52.90** to **S52.96**

(MOD) **S52.97** § 45. (1) All ship stations equipped with narrow-band direct-printing apparatus to work in the authorized bands between 415 kHz and 535 kHz shall be able to send and receive class F1B emissions as specified in No. **S51.44**. Additionally, ship stations complying with

the provisions of Chapter **SVII** shall be able to receive class F1B emissions on 518 kHz (see No. **S51.45**).

NOC **S52.98** to **S52.100**

(MOD) **S52.101** (2) Narrow-band direct-printing telegraphy is forbidden in the band 2 170 - 2 194 kHz except as provided for in Appendix **S13.**

NOC **S52.102**

(MOD) **S52.103** § 47. All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorized bands between 4 000 kHz and 27 500 kHz shall be able to send and receive class F1B emissions as specified in No. **S51.49**. The assignable frequencies are indicated in Appendix **S17**.

NOC **S52.104**

(MOD) **S52.105** (1) In all bands, the working frequencies for ship stations using narrow-band direct-printing telegraphy at speeds not exceeding 100 bauds for FSK and 200 bauds for PSK, including those paired with the working frequencies assignable to coast stations (see Appendix **S17**), are spaced 0.5 kHz apart. The frequencies assignable to ship stations which are paired with those used by coast stations are shown in Appendix **S17**. The frequencies assignable to ship stations which are not paired with those used by coast stations are shown in Appendix **S17**.

(MOD) **S52.106** (2) When assigning pairs of frequencies listed in Appendix **S17** for narrow-band direct-printing telegraphy, administrations shall apply the procedure described in Resolution **300 (Rev.Mob-87)**.

(MOD) **S52.107** (3) Each administration shall, if necessary, assign to each ship station under its jurisdiction and employing non-paired narrow-band direct-printing telegraphy one or more frequencies reserved for this purpose and shown in Appendix **S17**.

NOC **S52.108**

(MOD) **S52.109** § 49. All ship stations equipped with direct-printing telegraph apparatus may work in the authorized bands between 156 MHz and 174 MHz and shall conform to the provisions of Appendix **S18**.

NOC **S52.110**

(MOD) **S52.111** § 50. The provisions described in this section are applicable to calling and acknowledgement, when digital selective-calling techniques are used, except in cases of distress, urgency and safety, to which the provisions of Chapter **SVII** apply.

MOD **S52.112** § 51. The characteristics of the digital selective-calling equipment shall be in accordance with the relevant ITU-R Recommendations (see Resolution **27 (WRC-95)**).

NOC **S52.113** to **S52.129**

(MOD) **S52.130** *b)* subject to the provisions of No. **S52.131**, the international digital selective-calling frequency 2 189.5 kHz.

NOC **S52.131** to **S52.134**

(MOD) **S52.135** *b)* subject to the provisions of No. **S52.136**, the international digital selective-calling frequency 2 177 kHz.

NOC **S52.136**

(MOD) **S52.137** § 63. The frequency to be used for transmission of an acknowledgement shall normally be the frequency paired with the frequency used for the call received, as indicated in the List of Coast Stations (see also No. **S52.113**).

C3. Watch

(MOD) **S52.138** § 64. (1) The provisions detailed in this sub-section are applicable to watch-keeping by digital selective-calling, except for distress, urgency and safety purposes, to which the provisions of Section **III** of Article **S31** apply.

NOC **S52.139** to **S52.147**

MOD **S52.148** *b)* subject to the provisions of No. **S52.149**, one of the international digital selective-calling frequencies indicated in Recommendation ITU-R **M.541-6**.

MOD **S52.149** (2) The international digital selective-calling frequencies indicated in Recommendation ITU-R **M.541-6** may be used by any ship station. In order to reduce interference on these frequencies, they shall only be used when calling cannot be made on nationally assigned frequencies.

NOC **S52.150**

NOC **S52.151** —

MOD **S52.152** *b)* subject to the provisions of No. **S52.153**, one of the international digital selective-calling frequencies indicated in Recommendation ITU-R **M.541-6**.

MOD **S52.153** (2) The international digital selective-calling frequencies indicated in Recommendation ITU-R **M.541-6** may be assigned to any coast station. In order to reduce interference on these frequencies, they may be used as a general rule by coast stations to call ships of another nationality, or in cases where it is not known on which digital selective-calling frequencies within the bands concerned the ship station is maintaining watch.

D3. Watch

(MOD) **S52.154** § 69. (1) The provisions detailed in this sub-section are applicable to watch-keeping by digital selective-calling, except for distress, urgency and safety purposes, to which the provisions of Section **III** of Article **S31** apply.

NOC **S52.155** to **S52.158**

NOC E2. Call and Acknowledgement

MOD **S52.159** § 71. (1) The frequency 156.525 MHz is an international frequency in the maritime mobile service used for distress, urgency, safety and calling by digital selective-calling techniques (see Nos. **S33.8** and **S33.31**, Appendix **S15** and Recommendation ITU-R **M.541-6**).

NOC **S52.160**

D3. Watch

(MOD) **S52.161** § 72. Information concerning watch-keeping by automatic digital selective-calling on the frequency 156.525 MHz by coast stations shall be given in the List of Coast Stations (see also No. **S31.13**).

(MOD) **S52.162** § 73. Ship stations equipped with apparatus for digital selective-calling to work in the authorized bands between 156 MHz and 174 MHz should, while at sea, maintain an automatic digital selective-calling watch on the frequency 156.525 MHz (see also No. **S31.17**).

NOC **S52.163**

NOC **S52.164**

(MOD) **S52.165** § 74. In Region 2, the frequencies in the band 2 068.5 - 2 078.5 kHz are assigned to ship stations using wide-band telegraphy, facsimile and special transmission systems. The provisions of No. **S52.171** apply.

NOC **S52.166**

(MOD) **S52.167** § 75. In all bands, the working frequencies for ship stations equipped to use wide-band telegraphy, facsimile and special transmission systems are spaced 4 kHz apart. The assignable frequencies are shown in Appendix **S17**.

(MOD) **S52.168** § 76. (1) Each administration shall assign to each ship station under its jurisdiction and employing wide-band telegraphy, facsimile and special transmission systems one or more series of the working frequencies reserved for this purpose shown in Appendix **S17**. The total number of series assigned to each ship station shall be determined by traffic requirements.

NOC **S52.169**

(MOD) **S52.170** (3) However, within the limits of the bands given in Appendix **S17**, administrations may, to meet the needs of specific systems, assign frequencies in a different manner from that shown in Appendix **S17**. Nevertheless administrations shall take into account, as far as possible, the provisions of Appendix **S17**, concerning channelling and the 4 kHz spacing.

(MOD) **S52.171** § 77. Ship stations equipped for wide-band telegraphy, facsimile and special transmission systems may, in the frequency bands reserved for such use, employ any class of emission provided that such emissions can be contained within the wide-band channels indicated in Appendix **S17**. However, the use of A1A Morse telegraphy and telephony is excluded except for circuit alignment purposes.

NOC **S52.172**

NOC **S52.173**

(MOD) **S52.174** § 79. In all bands, the assignable frequencies for oceanographic data transmissions are spaced 0.3 kHz apart. The assignable frequencies are shown in Appendix **S17**.

(MOD) **S52.175** § 80. The frequency bands for oceanographic data transmission systems (see Appendix **S17**) may also be used by buoy stations for oceanographic data transmission and by stations interrogating these buoys.

NOC **S52.176**

(MOD) **S52.177** § 81. Except with regard to the provisions of Article **S11** concerning notification and recording of frequencies, when designating frequencies for single-sideband radiotelephony the carrier frequency is always to be designated. The assigned frequency shall be 1 400 Hz higher than the carrier frequency.

NOC **S52.178** to **S52.180**

MOD **S52.181** § 85. Single-sideband apparatus in radiotelephone stations of the maritime mobile service operating in the bands allocated to this service between 1 605 kHz and 4 000 kHz and in the bands allocated exclusively to this service between 4 000 kHz and 27 500 kHz shall satisfy the technical and operational conditions specified in Recommendation ITU-R **M.1173**.

NOC **S52.182**

(MOD) **S52.183** § 86. (1) Unless otherwise specified in the present Regulations (see Nos. **S51.53**, **S52.188**, **S52.189**, **S52.199** and Appendix **S13**), the class of emission to be used in the bands between 1 605 kHz and 4 000 kHz shall be J3E.

NOC **S52.184** to **S52.187**

MOD **S52.188** (4) Transmissions in the bands 2 170 - 2 173.5 kHz and 2 190.5 - 2 194 kHz with the carrier frequency 2 170.5 kHz and the carrier frequency 2 191 kHz, respectively, are limited to class J3E emissions and are limited to a peak envelope power of 400 W. However, on the frequency 2 170.5 kHz and with the same power limit, coast stations may also use class H2B emissions when using the selective calling system defined in Recommendation ITU-R **M.489-2** and exceptionally, in Regions 1 and 3 and in Greenland, may also use class H3E for safety messages.

B2. Call and Reply

(MOD) **S52.189** § 87. (1) The frequency 2 182 kHz[1] is an international distress frequency for radiotelephony (see Appendix **S13** for details of its use for distress, urgency, safety and emergency position-indicating radio-beacon (EPIRB) purposes). The class of emission to be used for radiotelephony on the frequency 2 182 kHz shall be J3E or H3E (see No. **S51.53**) except for such apparatus as is referred to in No. **S51.56**.

NOC **S52.189.1**

NOC **S52.190**

(MOD) **S52.191** *a)* for call and reply in accordance with the provisions of Article **S57**;

MOD **S52.192** *b)* by coast stations to announce the transmission, on another frequency, of traffic lists (see Recommendation ITU-R **M.1171**).

NOC **S52.193**

NOC **S52.194**

MOD **S52.195** § 89. (1) Before transmitting on the carrier frequency 2 182 kHz, a station shall listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see Recommendation ITU-R **M.1171**).

(MOD) **S52.196** (2) The provisions of No. **S52.195** do not apply to stations in distress.

NOC **S52.197**

(MOD) **S52.198** (2) Coast stations authorized to use radiotelephony on one or more frequencies other than 2 182 kHz in the authorized bands between 1 605 kHz and 2 850 kHz shall use class J3E emissions on those frequencies (see also No. **S52.188**).

NOC **S52.199**

(MOD) **S52.200** (4) One of the frequencies which coast stations are required to be able to use (see No. **S52.197**) is printed in heavy type in the List of Coast Stations to indicate that it is the normal working frequency of the stations. Supplementary frequencies, if assigned, are shown in ordinary type.

NOC **S52.201** to **S52.212**

MOD **S52.213** (2) In exceptional circumstances, if frequency usage according to Nos. **S52.203**, **S52.204**, **S52.205**, **S52.206**, **S52.207** and **S52.208** or No. **S52.210** is not possible, a ship station may use one of its own assigned national ship-to-shore frequencies for communication with a coast station of another nationality, under the express condition that the coast station as well as the ship station take precautions (see Recommendation ITU-R **M.1171**) to ensure that the use of such a frequency will not cause harmful interference to the service for which the frequency in question is authorized.

NOC **S52.214**

(MOD) **S52.215** § 95. All stations on ships making international voyages should, if required by their service, be able to use the intership carrier frequencies:

2 635 kHz (assigned frequency 2 636.4 kHz)

2 638 kHz (assigned frequency 2 639.4 kHz)

The conditions of use of these frequencies are specified in No. **S52.11**.

NOC **S52.216** to **S52.221**

(MOD) **S52.221.1** [1] In the United States, the carrier frequency 4 125 kHz is also authorized for common use by coast and ship stations for single-sideband radiotelephony on a simplex basis, provided the peak envelope power of such stations does not exceed 1 kW (see also No. **S52.222.2**).

(MOD) **S52.221.2** [2] The carrier frequencies 4 125 kHz and 6 215 kHz are also authorized for common use by coast and ship stations for single-sideband radiotelephony on a simplex basis for call and reply purposes, provided that the peak envelope power of such stations does not exceed 1 kW. The use of these frequencies for working purposes is not permitted (see also Appendix **S13** and No. **S52.221.1**).

NOC **S52.221.3**

(MOD) **S52.222** (2) Coast stations may use the following carrier frequencies for calling in radiotelephony[1]:

4 417 kHz[2]

6 516 kHz[2]

8 779 kHz

13 137 kHz

17 302 kHz

19 770 kHz

22 756 kHz

26 172 kHz

MOD **S52.222.1** [1] These frequencies may also be used by coast stations with class H2B emission, when using the selective calling system defined in Recommendation ITU-R **M.489-2**.

(MOD) **S52.222.2** [2] The carrier frequencies 4 417 kHz and 6 516 kHz are also authorized for common use by coast and ship stations for single-sideband radiotelephony on a simplex basis, provided that the peak envelope power of such stations does not exceed 1 kW. The use of 6 516 kHz for this purpose should be limited to daytime operation (see also No. **S52.221.1**).

NOC **S52.223**

MOD **S52.224** § 99. (1) Before transmitting on the carrier frequencies 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz or 16 420 kHz a station shall listen on the frequency for a reasonable period to make sure that no distress traffic is being sent (see Recommendation ITU-R **M.1171**).

(MOD) **S52.225** (2) The provisions of No. **S52.224** do not apply to stations in distress.

C3. Traffic

(MOD) **S52.226** § 100. (1) For the conduct of duplex telephony, the transmitting frequencies of the coast stations and of the corresponding ship stations shall be associated in pairs, as indicated in Appendix **S17**, except temporarily in cases where working conditions prohibit the use of paired frequencies in order to meet operational needs.

(MOD) **S52.227** (2) The frequencies to be used for the conduct of simplex radiotelephony are shown in Appendix **S17**, Section B. In these cases, the peak envelope power of the coast station transmitter shall not exceed 1 kW.

(MOD) **S52.228** (3) The frequencies indicated in Appendix **S17** for ship station transmissions may be used by ships of any category according to traffic requirements.

MOD **S52.229** (4) The technical characteristics of transmitters used for radiotelephony in the bands between 4 000 kHz and 27 500 kHz are specified in Recommendation ITU-R **M.1173**.

NOC **S52.230**

MOD **S52.231** § 101. (1) The frequency 156.8 MHz is the international frequency for distress traffic and for calling by radiotelephony when using frequencies in the authorized bands between 156 MHz and 174 MHz (see Appendix **S13** for details of use). The class of emission to be used for radiotelephony on the frequency 156.8 MHz shall be G3E (see Recommendation ITU-R **M.489-2**).

NOC **S52.232**

(MOD) **S52.233** *a)* by coast and ship stations for call and reply in accordance with the provisions of Articles **S54** and **S57**;

MOD **S52.234** *b)* by coast stations to announce the transmission on another frequency of traffic lists and important maritime information (see Recommendation ITU-R **M.1171**).

MOD **S52.235** (3) The frequency 156.8 MHz may be used by ship stations and coast stations for selective calling as defined in Recommendation ITU-R **M.257-3**.

(MOD) **S52.236** (4) Any one of the channels designated in Appendix **S18** for public correspondence may be used as a calling channel if an administration so desires. Such use shall be indicated in the List of Coast Stations.

(MOD) **S52.237** (5) Ship and coast stations in the public correspondence service may use a working frequency, for calling purposes, as provided in Articles **S54** and **S57**.

NOC **S52.238**

NOC **S52.239**

MOD **S52.240** (8) Before transmitting on the frequency 156.8 MHz, a station shall listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see Recommendation ITU-R **M.1171**).

(MOD) **S52.241** (9) The provisions of No. **S52.240** do not apply to stations in distress.

D2. Watch

(MOD) **S52.242** § 102. (1) In addition to the watch referred to in Appendix **S13**, a coast station open to the international public correspondence service should, during its hours of service, maintain watch on its receiving frequency or frequencies indicated in the List of Coast Stations.

NOC **S52.243** to **S52.249**

(MOD) **S52.250** (2) The method of working (single-frequency or two-frequency) specified in Appendix **S18** for each channel should be used in the international services.

NOC **S52.251** to **S52.253**

(MOD) **S52.254** (2) In the band 156 - 174 MHz administrations shall, where practicable, assign frequencies to coast and ship stations in accordance with the Table of Transmitting Frequencies given in Appendix **S18** for such international services as administrations consider necessary.

(MOD) **S52.255** (3) The normal sequence in which channels should be put into use in the band 156 - 174 MHz is indicated by the figures in the relevant columns of Appendix **S18**.

NOC **S52.256**

(MOD) **S52.257** (5) Channels are designated by numbers in the Table of Transmitting Frequencies given in Appendix **S18**.

NOC **S52.258**

(MOD) **S52.259** (2) The use of channels for maritime mobile purposes other than those indicated in the Table of Transmitting Frequencies given in Appendix **S18** shall not cause harmful interference to services which operate in accordance with that table and shall not prejudice the future development of such services.

NOC **S52.260**

ARTICLE S53

MOD **Order of Priority of Communications**

RR	VGE proposal	VGE Report	WRC-95 decision
4441	NOC	S53.1	NOC
FOOTNOTES 4441.1 – 4441.2	NOC	S53.1.1 – S53.1.2	NOC

NOC **S53.1**
NOC **S53.1.1**
NOC **S53.1.2**

ARTICLE S54

MOD

Selective Calling

RR	VGE proposal	VGE Report	WRC-95 decision
4665	SUP Mob-83	–	–
4665A	NOC	S54.1	NOC
4666	SUP Mob-83	–	–
4666A	MOD	S54.2	MOD
4667 – 4679A	SUP*	S54.2	S54.2
4679B – 4679C	SUP Mob-87	–	–
4680	SUP Mob-83	–	–
4680A – 4688H	SUP*	S54.2	S54.2
FOOTNOTES			
4679A.1	SUP*	S54.2	S54.2
4680.1 – 4680.2	SUP Mob-83	–	–
4681A.1	SUP Mob-87	–	–
4681A.2	SUP*	S54.2	S54.2
4683.1 – 4683.2	SUP*	S54.2	S54.2
4684.1	SUP*	S54.2	S54.2

NOC **S54.1**

MOD **S54.2** (2) Selective calling may be carried out using a sequential single-frequency code system in accordance with Recommendation ITU-R **M.257-3** or a digital selective-calling system in accordance with Recommendations ITU-R **M.493-6**, **M.541-6**, **M.821** and **M.825** in the shore-to-ship, ship-to-shore and ship-to-ship directions.

ARTICLE S55

MOD **Morse Radiotelegraphy**

RR	VGE proposal	VGE Report	WRC-95 decision
4710	MOD	S55.1	MOD
4711 – 4815	SUP*	An. 63	M.1170

MOD **S55.1** § 1. The radiotelegraph procedure detailed in Recommendation ITU-R **M.1170** is obligatory, except in cases of distress, urgency, or safety, to which the provisions of Appendix **S13** are applicable.

ARTICLE S56

MOD **Narrow-Band Direct-Printing Telegraphy**

RR	VGE proposal	VGE Report	WRC-95 decision
4841	(MOD)	S56.1	(MOD)
4842	(MOD)	S56.2	MOD
4842A	(MOD)	S56.3	(MOD)
4843	SUP Mob-87	–	–
4844 – 4846	NOC	S56.4 – S56.6	NOC
4847	(MOD)	S56.7	(MOD)
4848 – 4873	SUP*	An. 64	M.492-6
4874 – 4875	SUP Mob-87	–	–
4876 – 4881	SUP*	An. 64	M.492-6
FOOTNOTE			
A.64	SUP	–	SUP

(MOD) **S56.1** § 1. Stations using narrow-band direct-printing telegraphy shall comply with the provisions of Articles **S51** and **S52**.

MOD **S56.2** § 2. The procedures specified in Recommendation ITU-R **M.492-6** should be employed except in cases of distress, urgency, or safety, in which case alternate or non-standard procedures may be used.

(MOD) **S56.3** § 2A. Before transmitting, a station shall take precautions to ensure that its emissions will not interfere with transmissions already in progress; if such interference is likely, the station shall await an appropriate break in the communications in progress. This obligation does not apply to stations where unattended operation is possible through automatic means (see No. **S47.3**).

NOC **S56.4** to **S56.6**

(MOD) **S56.7** § 5. Where transmission over the telecommunication channels open to public correspondence (excluding the telecommunication channels of the mobile service and of the mobile-satellite service and its feeder links) is involved, the provisions of the International Telecommunication Regulations and the relevant ITU-T Recommendations should be taken into account.

ARTICLE S57

MOD

Radiotelephony

RR	VGE proposal	VGE Report	WRC-95 decision
4903	(MOD)	S57.1	MOD
4904 – 4905	SUP	–	SUP
4906 – 4909	NOC	S57.2 – S57.5	NOC
4910	(MOD)	S57.6	(MOD)
4911 – 4913	SUP*	An. 65A	M.1171
4914	(MOD)	S57.7	(MOD)
4915 – 5054	SUP*	An. 65A	M.1171
5055	(MOD)	S57.8	(MOD)
5056 – 5057	SUP*	An. 65A	M.1171
5058	NOC	S57.9	NOC
5059	MOD	S57.10	MOD
5060	SUP	–	SUP
5061	SUP Mob-87	–	–
5062 – 5069	SUP*	An. 65B	M.541-6

MOD **S57.1** § 1. The procedure detailed in Recommendation ITU-R **M.1171** is applicable to radiotelephone stations, except in cases of distress, urgency or safety, to which the provisions of Appendix **S13** are applicable.

NOC **S57.2** to **S57.5**

(MOD) **S57.6** (4) A station shall not emit any carrier wave between calls. However, stations in an automatically operated radiotelephone system may emit marking signals under the conditions provided for in No. **S52.179**.

(MOD) **S57.7** (5) When it is necessary to spell out certain expressions, difficult words, service abbreviations, figures, etc., the phonetic spelling tables in Appendix **S14** shall be used.

(MOD) **S57.8** § 4. Calling, and signals preparatory to traffic, shall not exceed one minute when made on the carrier frequency 2 182 kHz or on 156.8 MHz, except in cases of distress, urgency or safety to which the provisions of Appendix **S13** apply.

NOC **S57.9**

MOD **S57.10** § 6. When it is necessary for a station to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall be kept to a minimum but in any event, shall not exceed ten seconds, and shall include the call sign or other identification of the station emitting the test signals. This call sign or other identification shall be spoken slowly and distinctly.

ARTICLE S58

MOD **Charging and Accounting for Maritime Radiocommunications**

RR	VGE proposal	VGE Report	WRC-95 decision
5085 5086 – 5099	MOD SUP	S58.1 –	MOD SUP
FOOTNOTES A66.1 – A66.2	NOC	S58.1.1 – S58.1.2	SUP

MOD **S58.1** The provisions of the International Telecommunications Regulations, taking into account ITU-T Recommendations, shall apply.

SUP **A.S58.1**

SUP **A.S58.2**

ADD ARTICLE S59

ADD **Provisional Application of the Radio Regulations**

RR	VGE proposal	VGE Report	WRC-95 decision
–	–	–	ADD S59.1
–	–	–	ADD S59.2

ADD **S59.1** These Regulations, which complement the provisions of the Constitution and Convention of the International Telecommunication Union (Geneva, 1992), and as revised and contained in the Final Acts of the World Radiocommunication Conference (Geneva, 1995) shall have provisional application, pursuant to Article **54** of the Constitution, on the following basis.

ADD **S59.2** All revised provisions of these Regulations shall apply provisionally as of 1 June 1998, except for those revised provisions concerning new or modified frequency allocations (including any new or modified conditions applying to existing allocations) and the related provisions of **S21**, **S22** and Appendix **S4**, which shall apply provisionally as of 1 January 1997.

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APPENDIX S1

Classification of Emissions and Necessary Bandwidths

(see Article **S2**)

§ 1. (1) Emissions shall be designated according to their necessary bandwidth and their classification as explained in this Appendix.

(2) Formulae and examples of emissions designated in accordance with this Appendix are given in Recommendation ITU-R **SM.1138**. Further examples may be provided in other ITU-R Recommendations. These examples may also be published in the Preface to the International Frequency List.

Section I. Necessary Bandwidth

§ 2. (1) The necessary bandwidth, as defined in No. **S1.152** and determined in accordance with the formulae and examples, shall be expressed by three numerals and one letter. The letter occupies the position of the decimal point and represents the unit of bandwidth. The first character shall be neither zero nor K, M or G.

(2) Necessary bandwidths[1]:

between 0.001 and 999 Hz shall be expressed in Hz (letter H);
between 1.00 and 999 kHz shall be expressed in kHz (letter K);
between 1.00 and 999 MHz shall be expressed in MHz (letter M);
between 1.00 and 999 GHz shall be expressed in GHz (letter G).

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[1] Examples:

0.002	Hz	= H002	6	kHz	= 6K00	1.25	MHz	= 1M25
0.1	Hz	= H100	12.5	kHz	= 12K5	2	MHz	= 2M00
25.3	Hz	= 25H3	180.4	kHz	= 180K	10	MHz	= 10M0
400	Hz	= 400H	180.5	kHz	= 181K	202	MHz	= 202M
2.4	kHz	= 2K40	180.7	kHz	= 181K	5.65	GHz	= 5G65

(3) For the full designation of an emission, the necessary bandwidth, indicated in four characters, shall be added just before the classification symbols. When used, the necessary bandwidth shall be determined by one of the following methods:

(3.1) use of the formulae and examples of necessary bandwidths and designation of corresponding emissions given in Recommendation ITU-R **SM.1138**;

(3.2) computation, in accordance with other ITU-R Recommendations;

(3.3) measurement, in cases not covered by (3.1) or (3.2) above.

Section II. Classification

§ 3. The class of emission is a set of characteristics conforming to § 4 below.

§ 4. Emissions shall be classified and symbolized according to their basic characteristics as given in Sub-Section **IIA** and any optional additional characteristics as provided for in Sub-Section **IIB**.

§ 5. The basic characteristics (see Sub-Section **IIA**) are:

(1) first symbol – type of modulation of the main carrier;

(2) second symbol – nature of signal(s) modulating the main carrier;

(3) third symbol – type of information to be transmitted.

Modulation used only for short periods and for incidental purposes (such as, in many cases, for identification or calling) may be ignored provided that the necessary bandwidth as indicated is not thereby increased.

Sub-Section IIA. Basic Characteristics

§ 6. (1) First symbol – type of modulation of the main carrier

(1.1)	Emission of an unmodulated carrier	N
(1.2)	Emission in which the main carrier is amplitude-modulated (including cases where sub-carriers are angle-modulated)	
(1.2.1)	Double-sideband	A
(1.2.2)	Single-sideband, full carrier	H
(1.2.3)	Single-sideband, reduced or variable level carrier	R
(1.2.4)	Single-sideband, suppressed carrier	J
(1.2.5)	Independent sidebands	B
(1.2.6)	Vestigial sideband	C
(1.3)	Emission in which the main carrier is angle-modulated	
(1.3.1)	Frequency modulation	F
(1.3.2)	Phase modulation	G
(1.4)	Emission in which the main carrier is amplitude- and angle-modulated either simultaneously or in a pre-established sequence	D

(1.5) Emission of pulses[1]

(1.5.1) Sequence of unmodulated pulses P

(1.5.2) A sequence of pulses

(1.5.2.1) modulated in amplitude K

(1.5.2.2) modulated in width/duration L

(1.5.2.3) modulated in position/phase M

(1.5.2.4) in which the carrier is angle-modulated during the angle-period of the pulse Q

(1.5.2.5) which is a combination of the foregoing or is produced by other means V

(1.6) Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse W

(1.7) Cases not otherwise covered X

(2) Second symbol – nature of signal(s) modulating the main carrier

(2.1) No modulating signal 0

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[1] Emissions where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation) should be designated under (1.2) or (1.3).

(2.2)	A single channel containing quantized or digital information without the use of a modulating sub-carrier[1]	1
(2.3)	A single channel containing quantized or digital information with the use of a modulating sub-carrier[1]	2
(2.4)	A single channel containing analogue information	3
(2.5)	Two or more channels containing quantized or digital information	7
(2.6)	Two or more channels containing analogue information	8
(2.7)	Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information	9
(2.8)	Cases not otherwise covered	X

(3) Third symbol - type of information to be transmitted[2]

(3.1)	No information transmitted	N
(3.2)	Telegraphy – for aural reception	A
(3.3)	Telegraphy – for automatic reception	B
(3.4)	Facsimile	C

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1 This excludes time-division multiplex.

2 In this context the word "information" does not include information of a constant, unvarying nature such as is provided by standard frequency emissions, continuous wave and pulse radars, etc.

(3.5)	Data transmission, telemetry, telecommand	D
(3.6)	Telephony (including sound broadcasting)	E
(3.7)	Television (video)	F
(3.8)	Combination of the above	W
(3.9)	Cases not otherwise covered	X

Sub-Section IIB. Optional Characteristics for the Classification of Emissions

§ 7. Two optional characteristics should be added for a more complete description of an emission. These are (see also Recommendation **62**):

Fourth symbol – Details of signal(s)

Fifth symbol – Nature of multiplexing

Where the fourth or fifth symbol is used it shall be as indicated below.

Where the fourth or the fifth symbol is not used this should be indicated by a dash where each symbol would otherwise appear.

(1) *Fourth symbol* – Details of signal(s)

(1.1)	Two-condition code with elements of differing numbers and/or durations	A
(1.2)	Two-condition code with elements of the same number and duration without error-correction	B

(1.3)	Two-condition code with elements of the same number and duration with error-correction	C
(1.4)	Four-condition code in which each condition represents a signal element (or one or more bits)	D
(1.5)	Multi-condition code in which each condition represents a signal element (of one or more bits)	E
(1.6)	Multi-condition code in which each condition or combination of conditions represents a character	F
(1.7)	Sound of broadcasting quality (monophonic)	G
(1.8)	Sound of broadcasting quality (stereophonic or quadraphonic)	H
(1.9)	Sound of commercial quality (excluding categories given in sub-paragraphs 1.10 and 1.11)	J
(1.10)	Sound of commercial quality with the use of frequency inversion or band-splitting	K
(1.11)	Sound of commercial quality with separate frequency-modulated signals to control the level of demodulated signal	L
(1.12)	Monochrome	M
(1.13)	Colour	N
(1.14)	Combination of the above	W
(1.15)	Cases not otherwise covered	X

(2) *Fifth symbol* – Nature of multiplexing

(2.1)	None	N
(2.2)	Code-division multiplex[1]	C
(2.3)	Frequency-division multiplex	F
(2.4)	Time-division multiplex	T
(2.5)	Combination of frequency-division multiplex and time-division multiplex	W
(2.6)	Other types of multiplexing	X

[1] This includes bandwidth expansion techniques.

APPENDIX S2

Table of Transmitter Frequency Tolerances

(See Article **S3**)

1. Frequency tolerance is defined in Article **S1** and is expressed in parts in 10^6, unless otherwise indicated.

2. The power shown for the various categories of stations is the peak envelope power for single-sideband transmitters and the mean power for all other transmitters, unless otherwise indicated. The term "power of a radio transmitter" is defined in Article **S1**.

3. For technical and operational reasons, certain categories of stations may need more stringent tolerances than those shown in the table.

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **9 kHz to 535 kHz**	
1. *Fixed Stations:*	
– 9 kHz to 50 kHz	100
– 50 kHz to 535 kHz	50
2. *Land Stations:*	
a) Coast Stations:	100[1) 2)]
– power 200 W or less	
– power above 200 W	
b) Aeronautical Stations	100
3. *Mobile Stations:*	
a) Ship Stations	200[3) 4)]
b) Ship's Emergency Transmitters	500[5)]
c) Survival Craft Stations	500
d) Aircraft Stations	100
4. *Radiodetermination Stations*	100
5. *Broadcasting Stations*	10 Hz
Band: **535 kHz to 1 606.5 kHz (1 605 kHz in Region 2)**	
Broadcasting Stations	10 Hz[6)]
Band: **1 606.5 kHz (1 605 kHz in Region 2) to 4 000 kHz**	
1. *Fixed Stations:*	
– power 200 W or less	100[7) 8)]
– power above 200 W	50[7) 8)]
2. *Land Stations:*	
– power 200 W or less	100[1) 2) 7) 9) 10)]
– power above 200 W	50[1) 2) 7) 9) 10)]

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **1 606.5 kHz (1 605 kHz in Region 2) to 4 000 kHz** *(cont.)*	
3. *Mobile Stations:*	
a) Ship Stations	40 Hz [3) 4) 12)]
b) Survival Craft Stations	100
c) Emergency Position-Indicating Radiobeacons	100
d) Aircraft Stations	100[10)]
e) Land Mobile Stations	50[13)]
4. *Radiodetermination Stations:*	
– power 200 W or less	20[14)]
– power above 200 W	10[14)]
5. *Broadcasting Stations*	10 Hz[15)]
Band: **4 MHz to 29.7 MHz**	
1. *Fixed Stations:*	
– power 500 W or less	
– power above 500 W	
a) Single-sideband and independent-sideband emissions:	
– power 500 W or less	50 Hz
– power above 500 W	20 Hz
b) Class F1B emissions	10 Hz
c) Other classes of emission:	
– power 500 W or less	20
– power above 500 W	10
2. *Land Stations:*	
a) Coast Stations:	20 Hz[1) 2) 16)]
– power 500 W or less	
– power above 500 W and less than or equal to 5 kW	
– power above 5 kW	

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **4 MHz to 29.7 MHz** *(cont.)*	
2. *Land Stations:*	
b) Aeronautical Stations:	
– power 500 W or less	100[10)]
– power above 500 W	50[10)]
c) Base Stations:	20[7)]
– power 500 W or less	
– power above 500 W	
3. *Mobile Stations:*	
a) Ship Stations:	
1) Class A1A emissions	10
2) Emissions other than Class A1A	50 Hz[3) 4) 19)]
b) Survival Craft Stations	50
c) Aircraft Stations	100[10)]
d) Land Mobile Stations	40[20)]
4. *Broadcasting Stations*	10 Hz[15) 21)]
5. *Space Stations*	20
6. *Earth Stations*	20
Band: **29.7 MHz to 100 MHz**	
1. *Fixed Stations:*	
– power 200 W or less	
– power above 200 W	
– power 50 W or less	30
– power above 50 W	20
2. *Land Stations:*	20
– power 15 W or less	
– power above 15 W	
3. *Mobile Stations:*	20[22)]
– power 5 W or less	
– power above 5 W	

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **29.7 MHz to 100 MHz** *(cont.)*	
4. *Radiodetermination Stations*	50
5. *Broadcasting Stations (other than television):*	2 000 Hz [23]
– power 50 W or less	
– power above 50 W	
6. *Broadcasting Stations (television sound and vision):*	500 Hz[24) 25)]
– power 50 W or less	
– power above 50 W	
7. *Space Stations*	20
8. *Earth Stations*	20
Band: **100 MHz to 470 MHz**	
1. *Fixed Stations:*	
– power 50 W or less	20[26]
– power above 50 W	10
2. *Land Stations:*	
a) Coast Stations	10
b) Aeronautical Stations	20[28]
c) Base Stations:	
– power 5 W or less	
– power above 5 W	
– in the band 100 - 235 MHz	15[29]
– in the band 235 - 401 MHz	7[29]
– in the band 401 - 470 MHz	5[29]
3. *Mobile Stations:*	
a) Ship Stations and Survival Craft Stations:	
– in the band 156 - 174 MHz	10
– outside the band 156 - 174 MHz	50[31]

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **100 MHz to 470 MHz** *(cont.)*	
3. *Mobile Stations:*	
b) Aircraft Stations	30[28)]
c) Land Mobile Stations:	
– power 5 W or less	
– power above 5 W	
– in the band 100 - 235 MHz	15[29)]
– in the band 235 - 401 MHz	7[29) 32)]
– in the band 401 - 470 MHz	5[29) 32)]
4. *Radiodetermination Stations*	50[33)]
5. *Broadcasting Stations (other than television)*	2 000 Hz[23)]
6. *Broadcasting Stations (television sound and vision):*	500 Hz[24) 25)]
– power 100 W or less	
– power above 100 W	
7. *Space Stations*	20
8. *Earth Stations*	20
Band: **470 MHz to 2 450 MHz**	
1. *Fixed Stations:*	
– power 100 W or less	100
– power above 100 W	50
2. *Land Stations*	20[36)]
3. *Mobile Stations*	20[36)]
4. *Radiodetermination Stations*	500[33)]
5. *Broadcasting Stations (other than television)*	100

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable to transmitters
Band: **470 MHz to 2 450 MHz** *(cont.)*	
6. *Broadcasting Stations (television sound and vision):*	
in the band 470 MHz to 960 MHz:	500 Hz[24) 25)]
– power 100 W or less	
– power above 100 W	
7. *Space Stations*	20
8. *Earth Stations*	20
Band: **2 450 MHz to 10 500 MHz**	
1. *Fixed Stations:*	
– power 100 W or less	200
– power above 100 W	50
2. *Land Stations*	100
3. *Mobile Stations*	100
4. *Radiodetermination Stations*	1 250[33)]
5. *Space Stations*	50
6. *Earth Stations*	50
Band: **10.5 GHz to 40 GHz**	
1. *Fixed Stations*	300
2. *Radiodetermination Stations*	5 000[33)]
3. *Broadcasting Stations*	100
4. *Space Stations*	100
5. *Earth Stations*	100

Notes in the Table of Transmitter Frequency Tolerances

1) For coast station transmitters used for direct-printing telegraphy or for data transmission, the tolerance is:

- 5 Hz for narrow-band phase-shift keying;
- 15 Hz for frequency-shift keying for transmitters in use or installed before 2 January 1992;
- 10 Hz for frequency-shift keying for transmitters installed after 1 January 1992.

2) For coast station transmitters used for digital selective calling, the tolerance is 10 Hz. This tolerance applies to transmitters installed after 1 January 1992 and to all transmitters after the date of full implementation of the GMDSS (see Resolution **331 (Mob-87)**).

3) For ship station transmitters used for direct-printing telegraphy or for data transmission, the tolerance is:

- 5 Hz for narrow-band phase-shift keying;
- 40 Hz for frequency-shift keying for transmitters in use or installed before 2 January 1992;
- 10 Hz for frequency-shift keying for transmitters installed after 1 January 1992.

4) For ship station transmitters used for digital selective calling, the tolerance is 10 Hz. This tolerance applies to transmitters installed after 1 January 1992 and to all transmitters after the date of full implementation of the GMDSS (see Resolution **331 (Mob-87)**).

5) If the emergency transmitter is used as the reserve transmitter for the main transmitter, the tolerance for ship station transmitters applies.

6) In countries covered by the North American Regional Broadcasting Agreement (NARBA) the tolerance of 20 Hz may continue to be applied.

7) For single-sideband radiotelephone transmitters except at coast stations, the tolerance is:

- 50 Hz in the bands 1 606.5 (1 605 Region 2) - 4 000 kHz and 4 - 29.7 MHz, for peak envelope powers of 200 W or less and 500 W or less, respectively;
- 20 Hz in the bands 1 606.5 (1 605 Region 2) - 4 000 kHz and 4 - 29.7 MHz, for peak envelope powers above 200 W and 500 W, respectively.

8) For radiotelegraphy transmitters with frequency-shift keying the tolerance is 10 Hz.

9) For coast station single-sideband radiotelephone transmitters the tolerance is 20 Hz.

10) For single-sideband transmitters operating in the frequency bands 1 606.5 (1 605 Region 2) - 4 000 kHz and 4 - 29.7 MHz which are allocated exclusively to the aeronautical mobile (R) service, the tolerance on the carrier (reference) frequency is:

a) for all aeronautical stations, 10 Hz;

b) for all aircraft stations operating on international services, 20 Hz;

c) for aircraft stations operating exclusively on national services, 50 Hz*.

11) For ship station single-sideband radiotelephone transmitters, the tolerance is:

a) in the band 1 606.5 (1 605 in Region 2) - 4 000 kHz:

- 100 Hz for transmitters installed before 2 January 1982;
- 50 Hz for transmitters installed after 1 January 1982;

b) in the band 4 000 - 27 500 kHz:

- 100 Hz for transmitters installed before 2 January 1978;
- 50 Hz for transmitters installed after 1 January 1978.

12) For A1A emissions the tolerance is 50 parts in 10^6.

13) For transmitters used for single-sideband radiotelephony or for frequency-shift keying radiotelegraphy the tolerance is 40 Hz.

14) For radiobeacon transmitters in the band 1 606.5 (1 605 Region 2) - 1 800 kHz the tolerance is 50 parts in 10^6.

15) For A3E emissions with carrier power of 10 kW or less the tolerance is 20 parts in 10^6, 15 parts in 10^6 and 10 parts in 10^6 in the bands 1 606.5 (1 605 Region 2) - 4 000 kHz, 4 - 5.95 MHz and 5.95 - 29.7 MHz respectively.

16) For A1A emissions the tolerance is 10 parts in 10^6.

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* *Note:* In order to achieve maximum intelligibility, it is suggested that administrations encourage the reduction of this tolerance to 20 Hz.

17) In the A1A Morse working frequency bands, a frequency tolerance of 200 parts in 10^6 may be applicable to existing transmitters, provided that the emissions are contained within the band in question.

18) In the A1A Morse calling frequency bands, frequency tolerances of 40 parts in 10^6 in the bands between 4 MHz and 23 MHz and of 30 parts in 10^6 in the 25 MHz band are recommended as far as possible.

19) For ship station transmitters in the band 26 175 - 27 500 kHz, on board small craft, with a carrier power not exceeding 5 W in or near coastal waters and utilizing A3E or F3E and G3E emissions, the frequency tolerance is 40 parts in 10^6.

20) The tolerance is 50 Hz for single-sideband radiotelephone transmitters, except for those transmitters operating in the band 26 175 - 27 500 kHz, and not exceeding a peak envelope power of 15 W, for which the basic tolerance of 40 parts in 10^6 applies.

21) It is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would be suitable for single-sideband emissions*.

22) For non-vehicular mounted portable equipment with a transmitter mean power not exceeding 5 W, the tolerance is 40 parts in 10^6.

23) For transmitters of a mean power of 50 W or less operating at frequencies below 108 MHz a tolerance of 3 000 Hz applies.

24) In the case of television stations of:

- 50 W (vision peak envelope power) or less in the band 29.7 - 100 MHz;
- 100 W (vision peak envelope power) or less in the band 100 - 960 MHz;

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* *Note:* The single-sideband system adopted for the bands exclusively allocated to HF broadcasting does not require a frequency tolerance less than 10 Hz. The above-mentioned degradation occurs when the ratio of wanted-to-interfering signal is well below the required protection ratio. This remark is equally valid for both double- and single-sideband emissions.

and which receive their input from other television stations or which serve small isolated communities, it may not, for operational reasons, be possible to maintain this tolerance. For such stations, the tolerance is 2 000 Hz.

For stations of 1 W (vision peak envelope power) or less, this tolerance may be relaxed further to:

- 5 kHz in the band 100 - 470 MHz;
- 10 kHz in the band 470 - 960 MHz.

25) For transmitters for system M (NTSC) the tolerance is 1 000 Hz. However, for low power transmitters using this system Note 24 applies.

26) For multi-hop radio-relay systems employing direct frequency conversion the tolerance is 30 parts in 10^6.

27) For coast and ship station transmitters in the band 156 - 174 MHz put into service after 1 January 1973 a tolerance of 10 parts in 10^6 shall apply. This tolerance is applicable to all transmitters, including survival craft stations, after 1 January 1983.

28) For a channel spacing of 50 kHz the tolerance is 50 parts in 10^6.

29) These tolerances apply to channel spacings equal to or greater than 20 kHz.

30) This tolerance is not applicable to survival craft stations operating on the frequency 243 MHz.

31) For transmitters used by on-board communication stations a tolerance of 5 parts in 10^6 shall apply.

32) For non-vehicular mounted portable equipment with a transmitter mean power not exceeding 5 W the tolerance is 15 parts in 10^6.

33) Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations shall be maintained wholly within the band allocated to the service and the indicated tolerance does not apply.

34) For transmitters using time-division multiplex the tolerance of 300 may be increased to 500.

35) This tolerance applies only to such emissions for which the necessary bandwidth does not exceed 3 000 kHz; for larger bandwidth emissions a tolerance of 300 applies.

36) In applying this tolerance administrations should be guided by the latest relevant ITU-R Recommendations.

APPENDIX S3

Table of Maximum Permitted Spurious Emission Power Levels

(See Article **S3**)

1. The following table indicates the maximum permitted levels of spurious emissions, in terms of the mean power level of any spurious component supplied by a transmitter to the antenna transmission line.

2. Spurious emission from any part of the installation other than the antenna and its transmission line shall not have an effect greater than would occur if this antenna system were supplied with the maximum permitted power at that spurious emission frequency.

3. These levels shall not, however, apply to emergency position-indicating radiobeacon (EPIRB) stations, emergency locator transmitters, ships' emergency transmitters, lifeboat transmitters, survival craft stations or maritime transmitters when used in emergency situations.

4. For technical or operational reasons, specific services may demand more stringent levels than those specified in the table. The levels applied to these services shall be those agreed upon by the appropriate conference. More stringent levels may also be fixed by specific agreement between the administrations concerned.

5. For radiodetermination stations, until acceptable methods of measurement exist, the lowest practicable power of spurious emission should be achieved.

Frequency Band Containing the Assignment (lower limit exclusive, upper limit inclusive)	For any spurious component the attenuation (mean power within the necessary bandwidth relative to the mean power of the spurious component concerned) shall be at least that specified below and the absolute mean power levels given shall not be exceeded (Note 1)
	Levels applicable to transmitters installed after 1 January 1985 and to all transmitters after 1 January 1994
9 kHz to 30 MHz	40 decibels 50 milliwatts (Notes 4, 7 and 8)
30 MHz to 235 MHz	
– mean power above 25 watts	60 decibels 1 milliwatt (Note 9)
– mean power 25 watts or less	40 decibels 25 microwatts
235 MHz to 960 MHz	
– mean power above 25 watts	60 decibels 20 milliwatts (Notes 10 and11)
– mean power 25 watts or less	40 decibels 25 microwatts (Notes 10, 11)

Frequency Band Containing the Assignment (lower limit exclusive, upper limit inclusive)	For any spurious component the attenuation (mean power within the necessary bandwidth relative to the mean power of the spurious component concerned) shall be at least that specified below and the absolute mean power levels given shall not be exceeded (Note 1)
	Levels applicable to transmitters installed after 1 January 1985 and to all transmitters after 1 January 1994
960 MHz to 17.7 GHz	
– mean power above 10 watts	50 decibels 100 milliwatts (Notes 10, 11, 12 and 13)
– mean power 10 watts or less	100 microwatts (Notes 10, 11, 12 and 13)
Above 17.7 GHz	Due to the diverse nature of technologies employed by services operating above 17.7 GHz, further study by the ITU-R is required prior to the specification of levels. To the extent possible, the values to be observed should be those shown in appropriate ITU-R Recommendations. Until suitable Recommendations have been adopted, the lowest possible values achievable shall be employed (see Recommendation **66**)

Notes in the Table of Maximum Permitted Spurious Emission Power Levels

1) When checking compliance with the provisions of the table, it shall be verified that the bandwidth of the measuring equipment is sufficiently wide to accept all significant components of the spurious emission concerned.

2) For transmitters of mean power exceeding 50 kilowatts and which operate below 30 MHz over a frequency range approaching an octave or more, a reduction below 50 milliwatts is not mandatory, but a minimum attenuation of 60 decibels shall be provided and every effort should be made to comply with the level of 50 milliwatts.

3) For hand-portable equipment of mean power less than 5 watts which operates below 30 MHz, the attenuation shall be at least 30 decibels, but every effort should be made to attain 40 decibels attenuation.

4) For mobile transmitters which operate below 30 MHz any spurious component shall have an attenuation of at least 40 decibels without exceeding the value of 200 milliwatts, but every effort should be made to comply with the level of 50 milliwatts wherever practicable.

5) For frequency modulated maritime mobile radiotelephone equipment which operates above 30 MHz, the mean power of any spurious emission falling in any other international maritime mobile channel, due to products of modulation, shall not exceed a level of 10 microwatts and the mean power of any other spurious emission on any discrete frequency within the international maritime mobile band shall not exceed a level of 2.5 microwatts. Where, exceptionally, transmitters of mean power above 20 watts are employed, these levels may be increased in proportion to the mean power of the transmitter.

6) For transmitters having a mean power of less than 100 milliwatts, it is not mandatory to comply with an attenuation of 40 decibels provided that the mean power level does not exceed 10 microwatts.

7) For transmitters of a mean power exceeding 50 kilowatts which can operate on two or more frequencies covering a frequency range approaching an octave or more, while a reduction below 50 milliwatts is not mandatory, a minimum attenuation of 60 decibels shall be provided.

8) For hand-portable equipment of mean power less than 5 watts, the attenuation shall be 30 decibels, but every practicable effort should be made to attain 40 decibels attenuation.

[9] Administrations may adopt a level of 10 milliwatts provided that harmful interference is not caused.

[10] Where several transmitters feed a common antenna or closely spaced antennae on neighbouring frequencies, every practicable effort should be made to comply with the levels specified.

[11] Since these levels may not provide adequate protection for receiving stations in the radio astronomy and space services, more stringent levels might be considered in each individual case in the light of the geographical position of the stations concerned.

[12] These levels are not applicable to systems using digital modulation techniques, but may be used as a guide. Values for these systems may be provided by the relevant ITU-R Recommendations, when available (see Recommendation **66**).

[13] These levels are not applicable to stations in the space services, but the levels of their spurious emissions should be reduced to the lowest possible values compatible with the technical and economic constraints to which the equipment is subject. Values for these systems may be provided by the relevant ITU-R Recommendations, when available (see Recommendation **66**).

APPENDIX S4

Consolidated List and Tables of Characteristics for Use in the Application of the Procedures of Chapter SIII

1. The substance of this Appendix is separated into two parts: one concerning data and their use for terrestrial radiocommunication services and another concerning data and their use for space radiocommunication services.

2. Both parts contain a list of characteristics and a table indicating the use of each of the characteristics in specific circumstances.

Annex 1A: List of characteristics of stations in the terrestrial services.

Annex 1B: Table of characteristics to be submitted for stations in the terrestrial services.

Annex 2A: Characteristics of satellite networks or earth or radio astronomy stations.

Annex 2B: Table of characteristics to be submitted for space and radio astronomy services.

ANNEX 1A

(to Appendix S4)

List of characteristics of stations in the terrestrial services[1]

ITEM B – Notifying administration

Country symbol of the notifying administration.

ITEM SYNC – Synchronized network

Symbol followed by the identification number of the network, if the station concerned by the assignment pertains to a synchronized network.

ITEM 1A – Assigned frequency

The assigned frequency as defined in Article **S1**.

ITEM 1B – Reference frequency

The reference frequency as defined in Article **S1**.

ITEM 1C – Preferred band (MHz)

For notifications under No. **S7.6** and for HF broadcasting stations in their exclusive bands.

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[1] The Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the International Frequency List.

ITEM 1D – Vision Carrier Frequency

The vision carrier frequency of a television broadcasting assignment.

ITEM 1E – Frequency offset

The carrier frequency offset expressed as a multiple of 1/12 of the line frequency of the television system concerned, expressed by a number and a symbol (P or M).

ITEM 1G – Alternative frequency

For HF broadcasting stations in their exclusive bands.

ITEM 1H – Other frequencies used

For HF broadcasting stations in their exclusive bands.

ITEM 1X – Channel number proposed or allotted channel

For HF coast radiotelephone stations.

ITEM 1Y – Channel number of the alternative proposed channel

For HF coast radiotelephone stations.

ITEM 1Z – Channel number of channel to be replaced

For HF coast radiotelephone stations.

ITEM 2C – Date of bringing into use

The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use.

ITEM 3A – Call sign or identification

The call sign or other identification used in accordance with Article **S19**.

ITEM 4A – Name of the transmitting station

The name of the locality by which the transmitting station is known or in which it is situated.

ITEM 4B – Country or geographical area

The country or geographical area in which the station is located.

ITEM 4C – Geographical coordinates

The geographical coordinates (longitude and latitude in degrees and minutes) of the transmitter site. In some cases, seconds are also indicated.

ITEM 4D – Radius of the circular area

The nominal radius (km) of the circular area in which the mobile transmitting stations are operating.

ITEM 4E – Country symbol or standard defined area

A country symbol or a standard defined area described by the symbols contained in standard references.

ITEM 4F – B1 character (transmitter coverage area identifier)

For a coast station assignment in the international NAVTEX system.

ITEM 4G – Ground conductivity

For assignments to stations of the broadcasting service covered by the LF/MF Broadcasting Agreement (Regions 1 and 3) (Geneva, 1975).

ITEM 5A – Name of the receiving station

The name of the locality by which the receiving station is known or in which it is situated.

ITEM 5B – Country or geographical area

The country or geographical area in which the receiving station is located.

ITEM 5C – Geographical coordinates

The geographical coordinates (longitude and latitude in degrees and minutes) of the site of the receiving station.

ITEM 5D – Area of the receiving station(s)

The standard defined area of reception of the transmitting station.

ITEM 5E – Longitude and latitude of the centre of the circular receiving area

The geographical coordinates (in degrees and minutes).

ITEM 5F – Nominal radius of the circular receiving area

The radius (km) of the circular receiving area.

ITEM 5G – Maximum length of circuit

The maximum length of the circuit (in km) for receiving areas other than circular.

ITEM 6A – Class of station

The class of station described by a symbol.

ITEM 6B – Nature of service

The nature of service described by a symbol.

ITEM 6C – Experimental station

Symbol EX in this item for experimental station only.

ITEM 7A – Class of emission, necessary bandwidth and description of transmission

The class of emission, necessary bandwidth and description of transmission, in accordance with Article **S2** and Appendix **S1**.

ITEM 7B – Class of operation of the assignment

The class of operation of the assignment.

ITEM 7C1 – Television system

Symbol corresponding to the television system.

ITEM 7C2 – Colour system

Symbol corresponding to the colour system.

ITEM 7D – Transmission system

Symbol corresponding to the transmission system for an assignment to a broadcasting station.

ITEM 7E – Frequency deviation

For any type of modulation, as applicable: the peak-to-peak frequency deviation (MHz).

ITEM 7F – Energy dispersal

For any type of modulation, as applicable: the sweep frequency (kHz) of the energy dispersal waveform.

ITEM 8 – Power (dBW)

Symbol X, Y or Z describing, as appropriate, the type of power corresponding to the class of emission.

ITEM 8A – Power delivered to the antenna (dBW)

The power delivered to the antenna transmission line expressed in dBW.

ITEM 8AB – Maximum power density (dB(W/Hz))

The maximum power density (dB(W/Hz)) for each carrier type averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz, supplied to the antenna transmission line.

ITEM 8B – Radiated power (dBW)

The radiated power expressed in dBW in one of the forms described in Nos. **155/S1.161** to **157/S1.163**.

ITEM 8BH – Effective radiated power (dBW) – horizontal

The effective radiated power of the horizontal polarization component (for VHF sound broadcasting (BC) and VHF/UHF television broadcasting (BT) assignments).

ITEM 8BV – Effective radiated power (dBW) – vertical

The effective radiated power of the vertical polarization component (for VHF sound broadcasting (BC) and VHF/UHF television broadcasting (BT) assignments).

ITEM 8D – Vision/Sound Power Ratio

Vision/sound carrier power ratio for VHF/UHF television broadcasting (BT) assignments.

ITEM 9 – Directivity of the antenna

Directional (D) or non-directional (ND) antenna.

ITEM 9A – Azimuth of maximum radiation

For a directional transmitting antenna, the azimuth of maximum radiation of the transmitting antenna in degrees (clockwise) from True North, or the symbol "ND" for a non-directional antenna.

ITEM 9AA – Central azimuth of augmentation

The central azimuth of the augmentation (centre of the span) in degrees for an assignment to a broadcasting station.

ITEM 9AB – Azimuthal sector for rotating antenna

Two azimuths in degrees (clockwise from True North) defining the sector in which the antenna rotates.

ITEM 9B – Elevation angle of maximum directivity

The angle of maximum directivity in degrees with one decimal position.

ITEM 9C – Angular width of radiation main lobe (beamwidth)

The total angle measured horizontally in a plane containing the direction of maximum radiation, in degrees, within which the power radiated in any direction does not fall more than 3 dB below the power radiated in the direction of maximum radiation.

ITEM 9CA – Total span of augmentation

The total span of the augmentation in degrees for an assignment to a broadcasting station.

ITEM 9D – Polarization

Information on polarization.

ITEM 9E – Height of antenna

Information on height above ground level, in metres.

ITEM 9EA – Altitude of site above sea level

Information on the altitude of the site above mean sea level, in metres (for VHF sound broadcasting (BC) and VHF/UHF television broadcasting (BT) assignments).

ITEM 9EB – Maximum effective antenna height

The maximum effective height of the antenna, in metres (for VHF sound broadcasting (BC) and VHF/UHF television broadcasting (BT) assignments).

ITEM 9EC – Effective antenna height at different azimuths

The effective height of the antenna at different azimuths, in metres, for every 10 degree interval (for VHF sound broadcasting (BC) and VHF/UHF television broadcasting (BT) assignments).

ITEM 9F – Electrical height or maximum height of the antenna

The electrical height of the antenna in degrees or metres.

ITEM 9G – Maximum antenna gain (isotropic, relative to a short vertical antenna or relative to a half-wave dipole, as appropriate)

The maximum gain of the antenna in the direction of maximum radiation (see No. **154/S1.160**).

ITEM 9GH – Antenna gain for different azimuths in the horizontal plane

The antenna gain in the horizontal plane for different azimuths (in dB).

ITEM 9GV – Antenna gain for different azimuths in the vertical plane

The antenna gain in the vertical plane for different azimuths (in dB).

ITEM 9H – Azimuths defining the sectors of limited radiation in degrees (clockwise) from True North

The azimuth or azimuthal sectors of limited radiation, in degrees (clockwise) from True North.

ITEM 9I – Maximum agreed radiation in the sectors

The maximum agreed radiation in the sector, in dB relative to a cymomotive force (c.m.f.) of 300 V or an effective monopole radiated power (e.m.r.p.) of 1 kW, determined from the nominal power of the transmitter and the theoretical gain of the antenna without allowing for miscellaneous losses.

ITEM 9IA – Radiation at central azimuth of augmentation

The value of the radiation at the central azimuth of the augmentation, expressed in mV/m at 1 km.

ITEM 9J – Reference antenna

The measured radiation pattern of the antenna, the reference radiation pattern or the symbols in standard references to be used for coordination.

ITEM 9K – Receiving system noise temperature

The lowest total receiving system noise temperature, in Kelvin.

ITEM 9N – Attenuation in a sector (dB)

The value in dB of the attenuation in a defined sector.

ITEM 9NA – Augmentation number

The serial numbers of the augmentations as described in items 9IA, 9AA and 9CA.

ITEM 9NH – Attenuation (dB) in the horizontal plane at different azimuths

The value of attenuation in dB with respect to maximum e.r.p. in the horizontal plane at different azimuths.

ITEM 9NV – Attenuation (dB) in the vertical plane at different azimuths

The value of attenuation in dB with respect to maximum e.r.p. in the vertical plane at different azimuths.

ITEM 9O – Type of pattern

The type of antenna radiation pattern, represented by a symbol.

ITEM 9P – Special quadrature factor

The value of the special quadrature factor, in mV/m at 1 km (to replace the normal expanded quadrature factor when special precautions are taken to ensure pattern stability).

ITEM 9Q – Type of antenna

Simple vertical antenna or directional antenna.

ITEM 9T1 – Tower number

The serial number of each of the towers whose characteristics are described in items 9T2 to 9T8.

ITEM 9T2 – Tower field ratio

The ratio of the tower field to the field of the reference tower.

ITEM 9T3 – Phase difference of the field

The positive or negative difference in the tower field with respect to the field of the reference tower, in degrees.

ITEM 9T4 – Electrical tower spacing

The electrical spacing of the tower from the reference point, in degrees.

ITEM 9T5 – Angular tower orientation

The angular orientation of the tower from the reference point, in degrees (clockwise) from True North.

ITEM 9T6 – Reference point indicator

The reference point.

ITEM 9T7 – Electrical height of tower

The electrical height of the tower, in degrees.

ITEM 9T8 – Tower structure

Symbol corresponding to the tower structure.

ITEMS 9T9A to 9T9D – Description of top-loaded or sectionalized tower

Description of top-loaded or sectionalized towers, in degrees.

ITEM 10A – Maximum hours (UTC) of operation of the circuit to each locality or area

The maximum hours of operation, expressed in hours and minutes (UTC) or by symbols.

ITEM 10B – Regular hours (UTC) of operation of the frequency assignment

The regular hours of operation (in hours and minutes from ... to ...) of the frequency assignment, in UTC.

ITEM 10C – Seasons and solar activity

The season or month of the year and the level of solar activity, expressed by appropriate symbols.

ITEM 10D – Estimated peak hours of traffic

For HF coast radiotelephone stations.

ITEM 10E – Estimated daily volume of traffic

For HF coast radiotelephone stations.

ITEM 10F – Duration of transmissions

For coast stations in the International NAVTEX system, the duration of transmission in hours and minutes.

ITEM 11 – Coordination with other administrations

Country or geographical area with which coordination is to be effected and the provision (No. of the Radio Regulations, regional agreement, or other arrangement) requiring such coordination.

ITEM 12A – Operating administration or agency

The symbol for the operating agency.

ITEM 12B – Postal and telegraphic addresses of the administration responsible for the station

Symbol for the address of the administration responsible for the station and to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article **S15**).

ANNEX 1B

(to Appendix S4)

Table of characteristics to be submitted for stations in the terrestrial services

Notice type	AP1/A1					AP1/B		AP1/C	AP1/A2	AP1/A4		AP1/A5	AP1/A6	AP1/A7	AP2	AP5	AP1/A1	Notice type
Item No.	AL, NL, LR, OE	FC, FP FA, BC FB	FD, FG	FX	SM	AM, ML MA, MO	MS, OD SA	All, except BC	BC	BC	BT	BC	BT	BC	BC	FC	FC (Art. S11)	Item No.
B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B
SYNC									X					X				SYNC
1A	X	X	X	X	X	X	X	X	X	X	X[5]	X	X[5]	X	X		X	1A
1B	+	+	+	+	+	+	+	+			X[5]				+			1B
1C				+											X	+		1C
1D											X		X					1D
1E											X		X					1E
1G															O			1G
1H															X			1H
1X																X		1X
1Y																O		1Y
1Z																+		1Z
2C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	+	X	X	2C
3A	X	X	X	X	X				X	O	O	O	O		X		X	3A
4A	X	X	X	X	X				X	X	X	X	X	X	X	+	X	4A
4B	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	4B
4C	X	X	X	X	X	*1)	*1)	*1)	X	X	X	X	X	X	X	+	X	4C
4D						*1)	*1)	*1)										4D
4E						*	*	*										4E
4F																	X	4F
4G									X									4G
5A				X		X	X											5A
5B				X		X	X											5B
5C				X		X	X										*	5C
5D		*2)	*2)												X	*3)	*	5D
5E	X	*	*		X											*		5E

X Mandatory * One of the items + Required in specific cases O Optional

1) (4C and 4D) or (4E).
2) (5D) or (5E and 5F).
3) (5D and 5F) or (5E and 5F).
5) May not be required with the new TerRaSys.

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Table of characteristics to be submitted for stations in the terrestrial services *(cont.)*

Notice type	AP1/A1					AP1/B		AP1/C	AP1/A2	AP1/A4		AP1/A5	AP1/A6	AP1/A7	AP2	AP5	AP1/A1	Notice type
Item No.	AL, NL, LR, OE	FC, FP FA, BC FB	FD, FG	FX	SM	AM, ML MA, MO	MS, OD SA	All, except BC	BC	BC	BT	BC	BT	BC	BC	FC	FC (Art. S11)	Item No.
5F	X	*	*		X											*		5F
5G	+	+	+	+	+											+	+	5G
6A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	6A
6B	+	+	X	X		X	X	+								X		6B
6C	+	+	+	+	+													6C
7A	X	X	X	X	X	X	X	X	X	X[5]	X[5]	X[5]	X[5]	X	X	X	X	7A
7B				X					X					X				7B
7C1									X[4]		X		X					7C1
7C2											X		X					7C2
7D												X						7D
7E				+[7]														7E
7F				+[7]														7F
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8
8A	*	*	X	*	X	*	*	*	X					X	X	X	*	8A
8AB				+[7]														8AB
8B	*	*		*		*	*	*		X	X	X	X				*	8B
8BH										X	X	X	X					8BH
8BV										X	X	X	X					8BV
8D											X		X					8D
9	X	X	X	X	X				X	X	X	X	X		X	X	X	9
9A	X	X	X	X	X				X	X	X	X	X		X	X	X	9A
9AA														X				9AA
9AB	+	+	+	+	+				+						+	+	+	9AB
9B				+											X			9B
9C	+	+	+	+	+											+		9C
9CA														X				9CA
9D				+						X	X	X	X					9D
9E				+					X	X	X	X	X					9E
9EA										X	X	X	X					9EA
9EB										X	X	X	X					9EB
9EC										X	X	X	X					9EC

X Mandatory * One of the items + Required in specific cases O Optional

4) For low power channels.

5) May not be required with the new TerRaSys.

7) This information need only to be furnished when such information has been used as a basis to effect coordination with another administration. This information may be optionnally provided in a request for coordination under **S9.16**, **S9.18** and **S9.19**.

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Table of characteristics to be submitted for stations in the terrestrial services *(cont.)*

Notice type	AP1/A1					AP1/B		AP1/C	AP1/A2	AP1/A4		AP1/A5	AP1/A6	AP1/A7	AP2	AP5	AP1/A1	Notice type
Item No.	AL, NL, LR, OE	FC, FP FA, BC FB	FD, FG	FX	SM	AM, ML MA, MO	MS, OD SA	All, except BC	BC	BC	BT	BC	BT	BC	BC	FC	FC (Art. S11)	Item No.
9F														X				9F
9G	+	+	+	+	+			+							+	+		9G
9GH									X									9GH
9GV									X									9GV
9H									X	X[5]	X[5]	X[5]		+		+		9H
9I									X					X				9I
9IA														X				9IA
9J				+, +[7]											X	+		9J
9K				+[7]														9K
9N												X[5]						9N
9NA														X				9NA
9NH										X[6]	X[6]	X[6]	X					9NH
9NV										X[6]	X[6]	X[6]	X					9NV
9O														X	X	X		9O
9P														X				9P
9Q									X					X				9Q
9T1														X				9T1
9T2														X				9T2
9T3														X				9T3
9T4														X				9T4
9T5														X				9T5
9T6														X				9T6
9T7														X				9T7
9T8														X				9T8
9T9A														+				9T9A
9T9B														X				9T9B
9T9C														+				9T9C

X Mandatory * One of the items + Required in specific cases O Optional

5) May not be required with the new TerRaSys.

6) To be used in the future TerRaSys.

7) This information need only to be furnished when such information has been used as a basis to effect coordination with another administration. This information may be optionally provided in a request for coordination under **S9.16**, **S9.18** and **S9.19**.

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Table of characteristics to be submitted for stations in the terrestrial services *(end)*

Notice type	AP1/A1					AP1/B		AP1/C	AP1/A2	AP1/A4		AP1/A5	AP1/A6	AP1/A7	AP2	AP5	AP1/A1	Notice type
Item No.	AL, NL, LR, OE	FC, FP FA, BC FB	FD, FG	FX	SM	AM, ML MA, MO	MS, OD SA	All, except BC	BC	BC	BT	BC	BT	BC	BC	FC	FC (Art. S11)	Item No.
9T9D														+				9T9D
10A				+														10A
10B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10B
10C		+		+											X			10C
10D																X		10D
10E																X		10E
10F																	X	10F
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	X	11
12A	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	12A
12B	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	12B

X Mandatory * One of the items + Required in specific cases O Optional

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ANNEX 2A

(to Appendix S4)

Characteristics of Satellite Networks or Earth or Radio Astronomy Stations[1]

A. *General characteristics to be provided for the satellite network or the earth or radio astronomy station*

A.1 *Identity of the satellite network or the earth or radio astronomy station*

a) Identity of a satellite network.

b) Country and ITU number (Regions 1 and 3); country and beam identification (Region 2).

c) Country and beam identification.

d) Country and identification of the allotment; for a network not derived from the Allotment Plan, the identity of the network.

e) Identity of an earth or radio astronomy station:

1) the type of earth station (specific or typical);

2) the name by which the station is known or the name of the locality in which it is situated;

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[1] The Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the International Frequency List.

3) for a specific earth station:

- the country or geographical area in which the station is located, using the symbols from the Preface to the International Frequency List;

- the geographical coordinates of each transmitting and receiving antenna site constituting the earth station (longitude and latitude in degrees and minutes as well as seconds with an accuracy of one-tenth of a minute; the seconds need only be furnished if the coordination area of the earth station overlaps the territory of another administration);

4) for a radio astronomy station:

- the country or geographical area in which the station is located, using the symbols from the Preface to the International Frequency List;

- the geographical coordinates of the station site (longitude and latitude in degrees and minutes).

f) Country symbol of the notifying administration. In the case of advance information, give the symbol of the administration or the symbols of the administrations in the group submitting the advance information on the satellite network.

A.2 *Date of bringing into use*

a) The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use. Whenever the assignment is changed in any of its basic characteristics (except in the case of a change in item A.1.*a)*, the date to be given shall be that of the latest change (actual or foreseen, as appropriate);

b) For the case of a space station onboard a geostationary satellite, the period of validity of the frequency assignments (see Resolution **4 (Rev.Orb-88)**);

c) The date (actual or foreseen, as appropriate) on which reception of the frequency band begins or on which any of the basic characteristics are modified.

A.3 *Operating administration or agency*

Symbols for the operating administration or agency and for the address of the administration to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the network or station (see Article **S15** of the Radio Regulations).

A.4 *Orbital information*

a) For the case of a space station onboard a geostationary satellite:

1) the nominal geographical longitude on the geostationary-satellite orbit;

2) the planned longitudinal tolerance and inclination excursion.

In the case where a geostationary space station is intended to communicate with an earth station:

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

4) the service arc (the arc of the geostationary-satellite orbit within which the space station could provide the required service to its associated earth stations or service areas);

5) in the event that the service arc is less than the arc of visibility, the reasons therefor.

b) For the case of space station(s) onboard non-geostationary satellite(s):

1) the angle of inclination of the orbit;

2) the period;

3) the altitudes in kilometres of the apogee and perigee of the space station(s);

4) the number of satellites used.

In addition, if the stations operate in a frequency band subject to the provisions of No. **S9.11A**:

5) new data elements required to characterize properly the orbital statistics of non-GSO satellite systems;

N_p = number of orbital planes;

N_s = number of satellites in each orbital plane;

Ω_j = right ascension of the ascending node for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the direction of the vernal equinox to the point where the satellite makes its south-to-north crossing of the equatorial plane ($0° \leq \Omega_j < 360°$);

i_j = inclination angle for the j-th orbital plane with respect to the reference plane, which is taken to be the Earth's equatorial plane ($0° \leq i_j < 180°$);

ω_i = initial phase angle of the i-th satellite in its orbital plane at reference time $t = 0$, measured from the point of the ascending node ($0° \leq \omega_i < 360°$);

α = semi-major axis;

e = eccentricity ($0 \leq e < 1$);

ω_p = argument of perigee, measured in the orbital plane, in the direction of motion, from the ascending node to the perigee ($0° \leq \omega_p < 360°$).

c) For the case of an earth station, the identity of the associated space station(s) with which communication is to be established as well as, in the case of a geostationary space station, its orbital position.

A.5 *Coordination*

The country symbol of any administration with which coordination has been successfully effected, as well as the country symbol of any administration with which coordination has been sought but not completed.

A.6 *Agreements*

If appropriate, the country symbol of any administration or administration representing a group of administrations with which agreement has been reached, including where the agreement is to exceed the limits prescribed in these Regulations.

A.7 *Earth station site characteristics*

For a specific earth station:

a) The horizon elevation angle in degrees and, in the case of a station submitted in accordance with Appendix **30A (S30A)**, the antenna gain in the direction of the horizon for each azimuth around the earth station.

b) The planned minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane, having due regard to possible inclined-orbit operation of the associated space station.

c) The planned range of operating azimuthal angles for the direction of maximum radiation in degrees, clockwise from True North, having due regard to possible inclined-orbit operation of the associated space station.

d) The altitude (metres) of the antenna above mean sea level.

A.8 *The rain climatic zone(s)*

A.9 *Minimum angle of elevation in the service area in the case of Regions 1 and 3*

A.10 *Earth station coordination area diagrams*

The diagrams shall be drawn to an appropriate scale, indicating, for both transmission and reception, the location of the earth station and its associated coordination areas, or the coordination area related to the service area in which it is intended to operate the mobile earth station.

A.11 *Regular hours of operation*

A.12 *Range of automatic gain control*

Range of automatic gain control, expressed in dB.

B. *Characteristics to be provided for each satellite antenna beam or each earth or radio astronomy station antenna*

B.1 *The designation of the satellite antenna beam and, if appropriate, an indication as to whether it is a steerable or reconfigurable antenna beam. The designation shall be a character code, and the last character shall be an "R" for steerable or reconfigurable beams.*

B.2 *Transmission/Reception indicator*

B.3 *Geostationary space station antenna characteristics*

a) Where it is intended to communicate with an earth station via an antenna pointing in a fixed direction:

1) the maximum isotropic gain (dBi);

2) the antenna gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite. The space station antenna gain contours shall be drawn as isolines of the isotropic gain, at least for –2, –4, –6, –10 and –20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible, the gain contours of the space station antenna should also be provided in a numerical format.

b) Where a steerable beam (see No. **183/S1.191**) is used:

1) the maximum isotropic antenna gain (dBi), if the effective boresight area (see No. **169/S1.175**) is identical with the global or nearly global service area. The maximum antenna gain is applicable to all points on the Earth's visible surface;

2) the maximum antenna gain and the effective antenna gain contours (see No.**170/S1.176**), if the effective boresight area (see No. **169/S1.175**) is less than the global or nearly global service area. These contours shall be provided as defined in B.3.*a)*.2 above.

c) The antenna gain contours of B.3.*a)*.2 and B.3.*b)*.2 above shall include the effect of the planned longitudinal tolerance, inclination excursion and pointing accuracy of the antenna.

d) The pointing accuracy of the antenna.

e) The antenna radiation pattern, where the antenna radiation beam is directed towards another satellite.

f) The gain of the antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth, in the case of operation in a band allocated in the Earth-to-space direction and in the space-to-Earth direction.

g) For the case of a space station submitted in accordance with Appendix **30 (S30)**, Appendix **30A (S30A)** or Appendix **30B (S30B)**:

1) maximum isotropic antenna gain (dBi);

2) shape of the beam (elliptical, circular, or other);

3) for circular beams:

- half-power beamwidth in degrees;
- co-polar and cross-polar radiation patterns;
- nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);

4) for elliptical beams:

- co-polar and cross-polar radiation patterns;
- rotational accuracy in degrees;
- major axis orientation in degrees anticlockwise from the Equator;
- major axis (degrees) at the half-power beamwidth;
- minor axis (degrees) at the half-power beamwidth;
- nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);

5) for beams of other than circular or elliptical shape:

- co-polar and cross-polar gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite on to a plane perpendicular to the line from the centre of the Earth to the satellite. The isotropic

or absolute gain shall be indicated at each contour which corresponds to a decrease in gain of 2, 4, 6, 10 or 20 dB and thereafter at 10 dB intervals down to a value of 0 dB relative to an isotropic radiator. Whenever practicable, a numerical equation or table providing the necessary information to allow the gain contours to be plotted should be provided;

– beam aim point longitude and latitude;

– where a steerable beam (see No. **183/S1.191**) is used, the maximum antenna gain and the effective antenna gain contours (see No. **170/S1.176**); these contours shall be provided as defined above.

6) for an assignment in the bands 14.5 - 14.8 GHz or 17.7 - 18.1 GHz, the isotropic gain in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth. Use a diagram to show estimated isotropic gain relative to orbit longitude.

7) ΔG (difference between the maximum gain and the gain in the direction of the point in the service area at which the power-flux density is at a minimum) (for Regions 1 and 3 only).

B.4 *Non-geostationary space station antenna characteristics*

a) The isotropic gain of the antenna in the direction of maximum radiation (dBi) and the antenna radiation pattern.

b) In the case of a space station submitted in accordance with Resolution **46(Rev.WRC-95)**/No. **S9.11A**:

– orientation of the satellite transmitting and receiving antenna beams and their radiation pattern;

– the satellite antenna gain $G(\Theta_e)$ as a function of elevation angle at a fixed point on the Earth;

- the spreading loss (for a non-GSO satellite) as a function of elevation angle (to be determined by equations or provided in graphical format);

- maximum and average beam peak e.i.r.p./4 kHz and e.i.r.p./1 MHz for each beam.

B.5 *Earth station antenna characteristics*

a) The isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. **S1.160**).

b) Half-power beamwidth in degrees.

c) Either the measured radiation pattern of the antenna or the reference radiation pattern to be used for coordination.

B.6 *Radio astronomy station antenna characteristics*

The antenna type and dimensions, effective area and angular coverage (in azimuth and elevation).

C. *Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth or radio astronomy station antenna*

C.1 *Frequency range*

The frequency range within which the carriers will be located for each Earth-to-space or space-to-Earth service area, or for each space-to-space relay.

C.2 *Assigned frequency (frequencies)*

a) The assigned frequency (frequencies), as defined in No. **S1.148**, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz. Alternatively, in the case of a space station submitted in accordance with Appendix **30 (S30)**, the channel number.

If the basic characteristics are identical, with the exception of the assigned frequency, a list of frequency assignments may be provided.

b) The centre of the frequency band observed, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz.

C.3 *Assigned frequency band*

a) The bandwidth of the assigned frequency band in kHz (see No. **S1.147**).

b) The bandwidth of the frequency band in kHz observed by the station.

C.4 *Class of station(s) and nature of service*

The class of station and nature of service performed, using the symbols shown in the Preface to the International Frequency List.

C.5 *Receiving system noise temperature*

a) In the case of a space station, the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the space station.

b) In the case of an earth station, the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the earth station under clear-sky conditions.

This value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is onboard a geostationary satellite and, in other cases, for the minimum value of the angle of elevation.

c) In the case of a radio astronomy station, the overall receiving system noise temperature in kelvins, referred to the output of the receiving antenna.

C.6 *Polarization*

The type of polarization and, if appropriate, sense of polarization of the antenna. In the case of circular polarization, indicate the direction of polarization (see Nos. **S1.154** and **S1.155**). In the case of linear polarization, indicate the angle (in degrees) measured counter-clockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the waves as seen from the satellite. In the case of a space station submitted in accordance with Appendix **30 (S30)** or **30A (S30A)**, this indication is to be in the direction of the boresight or the aim point or as defined in B.3 *g)* 3), B.3 *g)* 4) and B.3 *g)* 5), respectively.

C.7 *Class of emission, necessary bandwidth and description of the transmission*

In accordance with Article **S2** and Appendix **S1**:

a) the class of emission and the necessary bandwidth;

b) the carrier frequency or frequencies of the emission(s);

c) for each carrier the class of emission, necessary bandwidth and description of transmission;

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

C.8 *Power characteristics of the transmission*

a) The maximum value of the peak envelope power (dBW) and the maximum power density (dB(W/Hz))[1], averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz, supplied to the input of the antenna for each carrier type.

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

c) The minimum value of the peak envelope power (dBW) and the minimum power density (dB(W/Hz))[1], averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz, supplied to the input of the antenna for each carrier type.

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

e) The required carrier-to-noise ratio (dB), considering clear-sky operation, for each carrier type.

f) Nominal equivalent isotropically radiated power(s) (e.i.r.p.) on the beam axis.

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[1] The most recent version of Recommendation ITU-R **SF.675** should be used to the extent applicable in calculating the maximum power density per Hz.

g) The maximum aggregate power (dBW) of all carriers (per transponder, if applicable) supplied to the input of the antenna and their aggregate bandwidth. If this corresponds to the bandwidth of a transponder, this shall be indicated.

h) In the case of a space station submitted in accordance with Appendix **30 (S30)**:

- the power supplied to the antenna (dBW) (Regions 1 and 3);
- the power supplied to the antenna (dBW) and the maximum power density per Hz (dB(W/Hz)), averaged over the worst 5 MHz, 40 kHz and 4 kHz, supplied to the antenna (Region 2).

i) In the case of an earth station submitted in accordance with Appendix **30A (S30A)**:

- total transmitting power (dBW) in the assigned frequency band supplied to the input of the antenna;
- for the band 17.3 - 18.1 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the worst 1 MHz band;
- for the band 14.5 - 14.8 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the worst 4 kHz band;
- for the band 17.3 - 17.8 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the total RF bandwidth (24 MHz for Region 2 or 27 MHz for Regions 1 and 3);
- range of power control, expressed in dB, above the transmitting power indicated above (if power control is used).

j) In the case of a space station or an earth station submitted in accordance with Appendix **30B (S30B)**:

- the maximum value of power density, in dB(W/Hz), averaged over the necessary bandwidth of the modulated carrier, supplied to the input of the antenna;

- the frequency below which signals whose peak-to-average ratio is less than 5 dB will be located;

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

C.9 *Information on modulation characteristics*

a) For each carrier, according to the nature of the signal modulating the carrier and the type of modulation:

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

2) in the case of a carrier frequency modulated by a television signal: the standard of the television signal (including, where appropriate, the standard used for colour), the frequency deviation for the reference frequency of the pre-emphasis characteristic and the pre-emphasis characteristic itself as well as, where applicable, the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals;

3) in the case of a carrier phase-shift modulated by a digital signal: the bit rate and the number of phases;

4) in the case of an amplitude modulated carrier (including single sideband): as precisely as possible, the nature of the modulating signal and the kind of amplitude modulation used;

5) for all other types of modulation: such particulars as may be useful for an interference study;

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

b) In the case of a space station submitted in accordance with Appendix **30 (S30)** or the case of a space station submitted in accordance with Appendix **30A (S30A)**:

1) type of modulation;

2) pre-emphasis characteristics;

3) TV standard;

4) sound-broadcasting characteristics;

5) frequency deviation;

6) composition of the baseband;

7) type of multiplexing of the video and sound signals;

8) energy dispersal characteristics.

c) In the case of a non-geostationary space station submitted in accordance with Resolution **46(Rev.WRC-95)**/No. **S9.11A**, the type of modulation and multiple access, and spectrum mask.

C.10 *Type and identity of the associated station(s)*

The associated station may be another space station, a typical earth station of the network or a specific earth station.

a) For an associated space station, its identity.

b) For a specific associated earth station, the identity of the earth station and the geographical coordinates of the antenna site.

c) For an associated earth station (whether specific or typical):

1) the class of station and nature of service performed, using the symbols shown in the Preface to the International Frequency List;

2) the isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. **154/S1.160**);

3) the beamwidth in degrees between the half power points (describe in detail if not symmetrical);

4) either the measured radiation pattern of the antenna or the reference radiation pattern;

5) the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the earth station under clear-sky conditions, when the associated station is a receiving earth station;

6) the antenna diameter (metres).

C.11 *Service area*

a) The service area or areas of the satellite beam on the Earth, when the associated transmitting or receiving stations are earth stations.

b) In the case of a space station submitted in accordance with Appendix **30A (S30A)**:

– where the feeder-link earth station is in Region 2, the geographical coordinates of the feeder-link station in the frequency band 17.7 - 17.8 GHz, including the rain climatic zone;

– in all other cases, the feeder-link service area identified by a set of a maximum of ten feeder-link test points, including the rain climatic zone for each test point, and by a service area contour on the surface of the Earth.

c) In the case of a space station submitted in accordance with Appendix **30** (**S30**) or Appendix **30B** (**S30B**), the service area identified by a set of a maximum of ten test points and by a service area contour on the surface of the Earth.

d) In the case of a non-geostationary space station submitted in accordance with No. **S9.11A**, appropriate information required to calculate the affected region due to the MSS space stations (as defined in Recommendation ITU-R **M.1187**).

C.12 *Required protection ratio*

The minimum acceptable aggregate carrier-to-interference ratio, if less than 26 dB. The carrier-to-interference ratio is to be expressed in terms of the power averaged over the necessary bandwidth of the modulated wanted and interfering signals, assuming both the desired carrier and interfering signals have equivalent bandwidths and modulation types.

C.13 *Class of observations*

The class of observations to be taken on the frequency band shown in item C.3 *b)*. Class A observations are those in which the sensitivity of the equipment is not a primary factor. Class B observations are those of such a nature that they can be made only with advanced low-noise receivers using the best techniques.

C.14 *Type of reception*

Type of reception (individual or community) in the case of a space station in Regions 1 and 3 submitted in accordance with Appendix **30** (**S30**).

D. *Overall link characteristics*

To be provided only when simple frequency-changing transponders are used on the space station onboard a geostationary satellite.

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

The connection between uplink and downlink frequency assignments in each transponder for each intended combination of receiving and transmitting beams.

D.2 *Transmission gains and associated equivalent satellite link noise temperatures*

For each entry under D.1:

a) The lowest equivalent satellite link noise temperature and the associated transmission gain. These values shall be indicated for the nominal value of the angle of elevation. The transmission gain is evaluated from the output of the receiving antenna of the space station to the output of the receiving antenna of the earth station.

b) The values of transmission gain and associated equivalent satellite link noise temperature that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature.

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ANNEX 2B (to Appendix S4)

Table of characteristics to be submitted for space and radio astronomy services

A. General characteristics of the satellite network or the earth station

Items in Appendix	Advanced publication of a geostationary-satellite network	Advanced publication of a non-geostationary-satellite network	Notification or coordination of a GSO network (including Appendix **S30B**)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the BSS under Appendix **S30**	Notice for feeder-link stations under Appendix **S30A**	Notice for stations in the FSS under Appendix **S30B**	Items in Appendix	Radio-astronomy
A.1.a	X	X	X	X		X	X	X	A.1.a	
A.1.b						X			A.1.b	
A.1.c							X		A.1.c	
A.1.d								X	A.1.d	
A.1.e.1					X				A.1.e.1	
A.1.e.2					X				A.1.e.2	X
A.1.e.3					X				A.1.e.3	
A.1.e.4									A.1.e.4	X
A.1.f	X	X	X	X	X	X	X	X	A.1.f	X
A.2.a	X	X	X	X	X	X	X	X	A.2.a	
A.2.b	X		X						A.2.b	
A.2.c									A.2.c	X
A.3	X	X	X	X	X	X	X		A.3	X
A.4.a.1	X		X			X	X	X	A.4.a.1	
A.4.a.2	X		X			X	X		A.4.a.2	
A.4.a.3	X		X						A.4.a.3	
A.4.a.4	X		X						A.4.a.4	
A.4.a.5	X		X						A.4.a.5	
A.4.b		X		X					A.4.b	
A.4.c					X				A.4.c	
A.5			X	X	X	X	X	X	A.5	
A.6			X	X	X	X	X	X	A.6	
A.7.a					X		X		A.7.a	
A.7.b					X		X		A.7.b	
A.7.c					X				A.7.c	
A.7.d					X		X		A.7.d	
A.8						X			A.8	
A.9						X			A.9	
A.10					X				A.10	
A.11						X	X		A.11	
A.12							X		A.12	

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

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B. Characteristics to be provided for each satellite antenna beam and for each earth station antenna

Items in Appendix	Advanced publication of a geostationary-satellite network	Advanced publication of a non-geostationary-satellite network	Notification or coordination of a GSO network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the BSS under Appendix S30	Notice for feeder-link stations under Appendix S30A	Notice for stations in the FSS under Appendix S30B	Items in Appendix	Radio-astronomy
B.1	X	X	X	X	X	X	X	X	B.1	
B.2	X	X	X	X	X			X	B.2	
B.3.a	X		X						B.3.a	
B.3.b.1	X		X						B.3.b.1	
B.3.b.2	X		X						B.3.b.2	
B.3.c	O		C						B.3.c	
B.3.d	O		X			X	X	X	B.3.d	
B.3.e	X		X						B.3.e	
B.3.f	X		X				X		B.3.f	
B.3.g.1						X	X	X	B.3.g.1	
B.3.g.2						X	X	X	B.3.g.2	
B.3.g.3						X	X	X[9)]	B.3.g.3	
B.3.g.4						X	X	X[9)]	B.3.g.4	
B.3.g.5						X	X	X[9)]	B.3.g.5	
B.3.g.5 *bis*							X		B.3.g.5 *bis*	
B.3.g.6						X			B.3.g.6	
B.4.a		X		X					B.4.a	
B.4.b		X		X					B.4.b	
B.5.a					X				B.5.a	
B.5.b					X				B.5.b	
B.5.c					X				B.5.c	
B.6									B.6	X

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

9) Only information on co-polar antenna characteristics is required.

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C. Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth station antenna

Items in Appendix	Advanced publication of a geostationary-satellite network	Advanced publication of a non-geostationary-satellite network	Notification or coordination of a GSO network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the BSS under Appendix S30	Notice for feeder-link stations under Appendix S30A	Notice for stations in the FSS under Appendix S30B	Items in Appendix	Radio-astronomy
C.1	X	X						X	C.1	
C.2.a			X	X	X	X	X		C.2.a	
C.2.b									C.2.b	X
C.3.a			X	X	X		X		C.3.a	
C.3.b									C.3.b	X
C.4	X	X	X	X	X	X	X		C.4	X
C.5.a	X	X	X	X			X	X	C.5.a	
C.5.b					X				C.5.b	
C.5.c									C.5.c	X
C.6	X	X	X	X	X	X	X		C.6	
C.7.a	O	O	X	X	X	X	X		C.7.a	
C.7.b	O	O	C	C	C				C.7.b	
C.7.c	O	O	C	C	C				C.7.c	
C.7.d	O	O	C	C	C				C.7.d	
C.8.a	X[1), 7)]	X[1), 7)]	X[7)]	X[7)]	C[8)]				C.8.a	
C.8.b	X[1), 7)]	X[1), 7)]	X[7)]	X[7)]	X				C.8.b	
C.8.c	O	O	X[6)]	X[6)]	X[6)]				C.8.c	
C.8.d			X[2)]	X[2)]					C.8.d	
C.8.e	O	O	X[6)]	X[6)]	X[6)]				C.8.e	
C.8.f	X[3)]	X[3)]							C.8.f	
C.8.g			C[4)]	C[4)]	C[4), 5)]				C.8.g	
C.8.h						X			C.8.h	
C.8.i							X		C.8.i	
C.8.j								X	C.8.j	

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

1) Only the value of maximum power density is mandatory.
2) For transmission from the space station only.
3) For space-to-space relay only.
4) For transmission from the earth station only.
5) Not required for coordination under No. **S9.15**, **S9.17** or **S9.17A**.
6) Required, if applicable, for the type of transmission. If not applicable, a reason why it is not applicable is required.
7) One or the other of C.8.a or C.8.b is mandatory, but not both.
8) Only the value of total peak envelope power is required for coordination under No. **S9.15**, **S9.17** or **S9.17A**.

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C. Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth station antenna *(end)*

Items in Appendix	Advanced publication of a geostationary-satellite network	Advanced publication of a non-geostationary-satellite network	Notification or coordination of a GSO network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the BSS under Appendix S30	Notice for feeder-link stations under Appendix S30A	Notice for stations in the FSS under Appendix S30B	Items in Appendix	Radio-astronomy
C.9.a	O	O	C	C					C.9.a	
C.9.b						X	X		C.9.b	
C.9.c		X		X					C.9.c	
C.10.a	X	X	X	X					C.10.a	
C.10.b	X	X	X	X			X		C.10.b	
C.10.c.1	X	X	X	X			X	X	C.10.c.1	
C.10.c.2	X	X	X	X			X	X	C.10.c.2	
C.10.c.3	O	O	X	X			X	X	C.10.c.3	
C.10.c.4	X	X	X	X			X	X	C.10.c.4	
C.10.c.5	X	X	X	X				X	C.10.c.5	
C.10.c.6							X		C.10.c.6	
C.11.a	X	X	X	X					C.11.a	
C.11.b							X		C.11.b	
C.11.c						X		X	C.11.c	
C.11.d		X		X					C.11.d	
C.12								X	C.12	
C.13									C.13	X
C.14						X			C.14	

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

D. Overall Link Characteristics

Items in Appendix	Advanced publication of a geostationary-satellite network	Advanced publication of a non-geostationary-satellite network	Notification or coordination of a GSO network (including Appendix S30B)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station	Notice for space stations in the BSS under Appendix S30	Notice for feeder-link stations under Appendix S30A	Notice for stations in the FSS under Appendix S30B	Items in Appendix	Radio-astronomy
D.1	X		X						D.1	
D.2.a	X		X						D.2.a	
D.2.b	X		X						D.2.b.	

X Mandatory information O Optional information C This information need only be furnished when it has been used as a basis to effect coordination with another administration

APPENDIX S5

Identification of Administrations with Which Coordination Is to Be Effected or Agreement Sought Under the Provisions of Article S9

1. For the purpose of effecting coordination under Article **S9**, except in the case under No. **S9.21**, and for identifying the administrations with which coordination is to be effected, the frequency assignments to be taken into account are those in the same frequency band as the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights or a higher category[1] of allocation, which might affect or be affected, as appropriate, and which are:

a) in conformity with No. **S11.31**[2]; and

b) either recorded in the Master Register with a favourable finding with respect to No. **S11.32**; or

c) recorded in the Master Register with an unfavourable finding with respect to No. **S11.32** and a favourable finding with respect to No. **S11.32A** or No. **S11.33**, as appropriate; or

d) coordinated under the provisions of Article **S9**; or

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[1] The coordination between an earth station and terrestrial stations under Nos. **S9.15**, **S9.16**, **S9.17**, **S9.18** and **S9.19**, or between earth stations operating in opposite directions of transmission under **S9.17A**, applies only to assignments in bands allocated with equal rights.

[2] For the purpose of effecting coordination, an assignment for which the process of obtaining agreement under No. **S9.21** has been initiated is considered to be in conformity with No. **S11.31** with respect to No. **S9.21.**

e) included in the coordination procedure with effect from the date of receipt[3] by the Bureau, in accordance with No. **S9.34**, of the basic characteristics as specified in Appendix **S4**; or

f) for terrestrial radiocommunication stations or earth stations operating in the opposite direction of transmission[4], operating in accordance with these Regulations, or to be so operated prior to the date of bringing the earth station assignment into service, or within the next three years from the date of dispatch of coordination data under No. **S9.29**, whichever is the longer, or from the date of the publication referred to in No. **S9.38**, as appropriate.

2. For the application of No. **S9.21**, the agreement of an administration may be required with respect to the frequency assignments in the same frequency band as the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights or a higher category of allocation, which may be affected, and:

a) in cases involving a space radiocommunication station with respect to another space radiocommunication station:

i) which are in conformity with No. **S11.31**, and

– are recorded in the Master Register, or

– are notified to the Bureau, or

– for which information under No. **S9.34** has been received by the Bureau; or

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[3] See No. **S9.1** concerning the date to be considered as the date of receipt by the Bureau of the information relating to the coordination of a satellite network or the notification of a frequency assignment.

[4] The associated space network characteristics must have been communicated to the Bureau under No. **S9.2B**.

ii) for which the procedure under No. **S9.21** has been initiated; or

b) for terrestrial radiocommunication stations operating in accordance with these Regulations, or to be so operated prior to the date of bringing the earth station assignment into service, or within the next three years, whichever is the longer; or

c) for terrestrial radiocommunication stations operating in accordance with these Regulations, or to be so operated prior to the date of bringing the other terrestrial station assignment into service, or within the next three months, whichever is the longer;

3. For each of the frequency assignments to an individual station or to a satellite network mentioned in paragraphs 1 and 2 above, the level of interference shall be determined using the method referred to in Table **S5-1** which is appropriate to the particular case.

4. The assignment is considered to cause or suffer interference, as appropriate, and coordination must be sought under the procedure of Article **S9**, if:

a) the interference level exceeds the threshold level given in Table **S5-1**; or

b) the condition specified in Table **S5-1** is applicable.

5. Threshold values to determine whether coordination under No. **S9.11A** is required are given in Table **S5-2**.

6. No coordination is required:

a) when the use of a new frequency assignment will not cause or suffer, as appropriate, in respect of any service of another administration, an increase in the level of interference above the threshold calculated in accordance with the method referred to in Table **S5-1**; or

b) when the characteristics of a new or a modified frequency assignment or a new earth station are within the limits of those of a frequency assignment which has previously been coordinated; or

c) to change the characteristics of an existing assignment in such a way as not to increase the interference to or from, as appropriate, the assignments of other administrations; or

d) for assignments to stations comprising a satellite network in relation to assignments of other satellite networks:

i) for a new frequency assignment to a receiving station, when the notifying administration states that it accepts the interference resulting from the frequency assignments referred to in No. **S9.27**; or

ii) between earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth); or

e) for assignments to earth stations in relation to terrestrial stations or earth stations operating in the opposite direction of transmission, when an administration proposes:

i) to bring into use an earth station the coordination area of which does not include any of the territory of any other country;

ii) to operate a mobile earth station. However, if the coordination area associated with the operation of such a mobile earth station includes any of the territory of another country, the operation of such a station shall be subject to agreement on coordination between the administrations concerned. This agreement shall apply to the characteristics of the mobile earth station(s), or to the characteristics of a typical mobile earth station, and shall apply to a specified service area. Unless otherwise stipulated in the agreement, it shall apply to any mobile earth stations in the specified service area provided that interference caused by them shall not be greater than that caused by a typical earth station for which the technical characteristics appear in the notice and have been or are being submitted in accordance with Section **I** of Article **S11**; or

iii) to bring into use a new frequency assignment to a receiving earth station and the notifying administration states that it accepts the interference resulting from existing and future terrestrial station assignments or assignments to earth stations operating in the opposite direction of transmission. In such case, administrations responsible for the terrestrial stations or earth stations operating in the opposite direction of transmission are not required to apply the provisions of No. **S9.18** or No. **S9.17A** of Article **S9** respectively:

f) to bring into use an assignment to a terrestrial station or an earth station operating in the opposite direction of transmission which is located, in relation to an earth station, outside the coordination area of that earth station; or

g) to bring into use an assignment to a terrestrial station or an earth station operating in the opposite direction of transmission within the coordination area of an earth station, provided that the proposed assignment to a terrestrial station or an earth station operating in the opposite direction of transmission is outside any part of a frequency band coordinated for reception by that earth station.

TABLE S5-1

Technical conditions for coordination
(see Article **S9**)

Reference of Article **S9**	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.7** GSO/GSO	A station in a satellite network using the geostationary-satellite orbit in respect of any other satellite network using that orbit	Any frequency band allocated to a space service, except those mentioned in the plans of Appendices **S30**, **S30A** and **S30B**	Value of $\Delta T/T$ exceeds 6%	Appendix **S8**	
No. **S9.8** GSO/GSO	A transmitting space station of the fixed-satellite service (FSS) using the geostationary-satellite orbit in a frequency band shared with the BSS on an equal primary basis, in respect of space stations of the latter service which are subject to the plan in Appendix **S30**	11.7 - 12.2 GHz (R2) 12.2 - 12.7 GHz (R3) 12.5 - 12.7 GHz (R1)	i) There is an overlap in the necessary bandwidths of the space stations of FSS and BSS; and ii) the powerflux-density (pfd) of the space station of the FSS exceeds the value given in Annex **4** of Appendix **S30** on the territory of another administration located in another region	Check by using the assigned frequencies and bandwidths;	See also Article **7** of Appendix **S30**. The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendices **S30** and **S30A** is suspended pending the decision of WRC-97 on revision of Appendices **S30** and **S30A**.
No. **S9.9** GSO/GSO	A station of the FSS in a frequency band shared on an equal primary basis with the feeder links of the BSS, which are subject to the plan in Appendix **S30A**	17.7 - 18.1 GHz (R1) 17.7 - 18.1 GHz (R3) 17.7 - 17.8 GHz (R2)	i) Value of $\Delta T_s/T_s$ exceeds 4% (see Section **I** of Annex **4** of Appendix **S30A**); and ii) geocentric inter-satellite angular separation is less than 3° or greater than 150°	i) Case II of Appendix **S8** ii) Annex **1** of Appendix **S8**	The threshold/conditions do not apply when the geocentric angular separation, between a transmitting space station in the fixed-satellite service and a receiving space station in the feeder-link Plan, exceeds 150° of arc and the free-space power flux-density of the transmitting space station in the fixed-satellite service does not exceed a value of –137 dB ($W/m^2/MHz$) on the surface of the Earth at the equatorial limb. The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendices **S30** and **S30A** is suspended pending the decision of WRC-97 on revision of Appendices **S30** and **S30A**.

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TABLE S5-1 (*cont.*)

Reference of Article S9	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.11** GSO/terrestrial	A space station in the BSS, in any band shared on an equal primary basis with terrestrial services and in which there is no plan for the BSS, in respect of terrestrial services	620 - 790 MHz 1 452 - 1 492 MHz 2 310 - 2 360 MHz 2 520 - 2 655 MHz 2 655 - 2 670 MHz 12.5 - 12.75 GHz (R3) 17.3 - 17.8 GHz (R2) 21.4 - 22 GHz (R1, R3) 40.5 - 42.5 GHz 84 - 86 GHz	Condition: Bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. **S9.12** 1) Non-GSO/ Non-GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to **S9.11A** in respect of any other satellite network using a non-geostationary-satellite orbit	See Table **S5-1A**	Condition: Bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. **S9.12** 2) Non-GSO/GSO	A station in a satellite network using a non-geostationary-satellite orbit in the frequency bands for which a footnote refers to **S9.11A** in respect of any other satellite network using the geostationary-satellite orbit	See Table **S5-1A**	Condition: Bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. **S9.13** GSO/Non-GSO	A station in a satellite network using the geostationary-satellite orbit in the frequency bands for which a footnote refers to **S9.11A** in respect of any other satellite network using a non-geostationary-satellite orbit	See Table **S5-1A**	Condition: Bandwidths overlap	Check by using the assigned frequencies and bandwidths	

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TABLE S5-1 (*cont.*)

Reference of Article **S9**	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.14** Non-GSO/terrestrial, GSO/terrestrial	For a space station in a satellite network in the frequency bands for which a footnote refers to **S9.11A** in respect of stations of terrestrial services where the threshold(s) is (are) exceeded	See Table **S5-1A**	For a non-GSO space station: See Table **S5-2**	See Table **S5-2**	
No. **S9.15** Non-GSO/terrestrial	A specific earth station or a typical earth station in respect of terrestrial stations in frequency bands for which a footnote refers to **S9.11A** allocated with equal rights to space and terrestrial services, where the coordination area of the earth station includes the territory of another country	See Table **S5-1A**	The coordination area of the earth station covers the territory of another administration	See Section **2** of Annex **1**	
No. **S9.16** terrestrial/non-GSO	A transmitting station of a terrestrial service within the coordination area of an earth station in a non-geostationary-satellite network in frequency bands for which a footnote refers to **S9.11A**	See Table **S5-1A**	Transmitting terrestrial station is situated within the coordination area of a receiving earth station which has already been coordinated	See Section **2** of Annex **1**	The coordination area of the affected earth station has already been determined using the calculation method of No. **S9.15**

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TABLE S5-1 (*cont.*)

Reference of Article **S9**	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.17** GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 1 GHz allocated with equal rights to space and terrestrial services in relation to terrestrial stations, where the coordination area of the earth station includes the territory of another country	Any frequency band allocated to a space service, except those mentioned in the plans of Appendix **S30**	The coordination area of the earth station covers the territory of another administration	Appendix **S7** (For earth stations in the radiodetermination-satellite service (RDSS) in the bands 1 610 - 1 626.5, 2 483.5 - 2 500 and 2 500 - 2 516.5 MHz, see Remarks column) 1) The coordination area of aircraft earth stations is determined by increasing the service area by 1 000 km with respect to the aeronautical mobile service (terrestrial) or 500 km with respect to terrestrial services other than the aeronautical mobile service	*Note* – For RDSS earth stations, a uniform coordination distance of 400 km corresponding to an airborne earth station shall be used. In cases where the earth stations are all ground-based, a coordination distance of 100 km shall be used. The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendix **S30A** is suspended pending the decision of WRC-97 on revision of Appendix **S30A**.

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TABLE S5-1 (*cont.*)

Reference of Article **S9**	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.17** GSO, non-GSO/ terrestrial (*cont.*)				2) For 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 mean sea level, assuming 4/3 Earth radius	
No. **S9.17A** GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station	Any frequency band allocated to a space service	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of a coordinated earth station	i) For bands in Table **S5.1A**, see Section **2** of Annex **1** ii) See Recommendations ITU-R **IS.847**, **IS.848** and **IS.849**	The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendices **S30** and **S30A** is suspended pending the decision of WRC-97 on revision of Appendices **S30** and **S30A**.

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TABLE S5-1 (*end*)

Reference of Article 9	Case	Frequency bands	Threshold/Condition	Calculation method	Remarks
No. **S9.18** terrestrial/GSO, non-GSO	Any transmitting station of a terrestrial service in the bands mentioned in No. **S9.17** within the coordination area of an earth station	Any frequency band allocated to a space service, except those mentioned in Appendices **S30** and **S30A**	Transmitting terrestrial station is situated within the coordination area of an already coordinated receiving earth station	See remarks	The coordination area of the affected earth station has already been determined using the calculation method of No. **S9.17**
No. **S9.19** terrestrial/GSO	A transmitting station of a terrestrial service in a frequency band shared on an equal primary basis with the BSS	11.7 - 12.2 GHz (R3) 11.7 - 12.5 GHz (R1) 12.2 - 12.7 GHz (R2) and the bands listed in No. **S9.11**	i) Necessary bandwidths overlap; and ii) the pfd of the terrestrial station at the edge of the BSS service area exceeds the permissible level	i) Check by using the assigned frequencies and bandwidths ii) Annex **3** to Appendix **S30** for bands covered by that Appendix	See also Article **6** of Appendix **S30**. The application of these provisions with respect to the bands and services of Articles **6** and **7** of Appendices **S30** and **S30A** is suspended pending the decision of WRC-97 on revision of Appendices **S30** and **S30A**.
No. **S9.21** terrestrial, GSO, non-GSO/terrestrial, GSO, non-GSO	A station of a service for which the requirement to obtain the agreement of other administrations is included in a footnote to the Table of Frequency Allocations, referring to No. **S9.21**	Band(s) indicated in the relevant footnote	Condition: Incompatibility established by the use of Appendices **S7**, **S8**, technical annexes of Appendices **S30**, **S30A** and **S30B**, pfd values specified in some of the footnotes, other technical provisions of the Radio Regulations or ITU-R Recommendations as appropriate	Methods specified in, or adapted from, Appendices **S7**, **S8**, **S30**, **S30A**, **S30B**, other technical provisions of the Radio Regulations or ITU-R Recommendations	

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TABLE S5-1A

Applicability of No. S9.11A provisions

Note: Annex 1 to this Appendix contains the relevant coordination thresholds for sharing between MSS (space-to-Earth) and terrestrial services as well as the relevant coordination areas for mobile earth stations operating below 3 GHz. It also contains the relevant coordination thresholds for sharing between non-GSO MSS feeder links (space-to-Earth) and terrestrial services as well as the relevant coordination areas for earth stations providing feeder links for non-geostationary satellites operating in the mobile-satellite service and for non-GSO FSS earth stations.

Frequency band	RR footnote	Space services in footnotes referring to No. **S9.11A**	Other space services to which No. **S9.11A** provisions apply equally	Date of entry into force of the new allocations
137 - 137.025 MHz 137.175 - 137.825 MHz	**S5.208**	MOBILE-SATELLITE (S - E)	SPACE OPERATION (S-E) MET-SATELLITE (S-E) SPACE RESEARCH (S-E)	Existing allocation
137.025 - 137.175 MHz 137.825 - 138 MHz	**S5.208**	mobile-satellite (S - E)	---	Existing allocation
148 - 149.9 MHz	**S5.219**	MSS (E - S)	---	Existing allocation
149.9 - 150.05 MHz	**S5.220**	LMSS (E - S)	---	Existing allocation (secondary until 1.1.97, No. **S5.224**)
312 - 315 MHz	**S5.255**	mss (E - S)	---	Existing allocation
387 - 390 MHz	**S5.255**	mss (S - E)	---	Existing allocation
399.9 - 400.05 MHz	**S5.220**	MSS (E - S)	---	01.01.1997
400.15 - 401 MHz	**S5.264**	MSS (S - E)	MET-SATELLITE (S - E) SPACE RESEARCH (S - E)	Existing allocation
455 - 456 MHz	**S5.286A**	MSS (E - S)(R2)	---	01.01.1997
459 - 460 MHz	**S5.286A**	MSS (E - S)(R2)	---	01.01.1997
1 492 - 1 525 MHz	**S5.348**	MSS (S - E) (R2, except USA)	---	Existing allocation
1 525 - 1 530 MHz (R1, R3)	**S5.354**	MSS (S - E) (or subset)	SPACE OPERATION (S - E)	Existing allocation
1 525 - 1 530 MHz (R1, R3)	**S5.354**	lmss (S - E)(R1)	Earth exploration - satellite	Existing allocation
1 530 - 1 535 MHz	**S5.354**	MSS (S - E) (or subset)	SPACE OPERATION (S - E)	Existing allocation

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TABLE S5-1A (*cont.*)

Frequency band	RR footnote	Space services in footnotes referring to No. **S9.11A**	Other space services to which No. **S9.11A** provisions apply equally	Date of entry into force of the new allocations
1 533 - 1 535 MHz	**S5.354**	lmss (S - E)	Earth exploration - satellite	Existing allocation
1 535 - 1 544 MHz	**S5.354**	lmss (S - E)	---	Existing allocation
1 535 - 1 559 MHz	**S5.354**	MSS (S - E) (or subset)	---	Existing allocation
1 610 - 1 626.5 MHz	**S5.364**	MSS (E - S), RDSS (R2 + No. **S5.369**)	---	Existing allocation
1 610 - 1 626.5 MHz	**S5.364**	rdss (E - S)(R1, R3)	---	Existing allocation
1 613.8 - 1 626.5 MHz	**S5.365**	mss (S - E)	---	Existing allocation
1 626.5 - 1 660 MHz	**S5.354**	MSS (E - S) (or subset)	---	Existing allocation
1 626.5 - 1 631.5 MHz 1 634.5 - 1 645.5 MHz	**S5.354**	lmss (E - S)	---	Existing allocation
1 660 - 1 660.5 MHz	**S5.354**	MSS (E - S) (or subset)	---	Existing allocation
1 675 - 1 700 MHz	**S5.377**	MSS (E - S)(R2)	---	Existing allocation
1 700 - 1 710 MHz	**S5.377**	MSS (E - S)(R2)	SPACE RESEARCH (S - E) No. **S5.384**	Existing allocation
1 980 - 2 010 MHz	**S5.389**	MSS (E - S)	---	01.01.2000 (1 980 - 1 990 MHz, 2005 in R2)
2 010 - 2 025 MHz	**S5.389C**	MSS (E - S)(R2)	---	01.01.2005 (01.01.2000 in USA and CAN)
2 160 - 2 170 MHz	**S5.389**	MSS (S - E)(R2)	---	01.01.2005
2 170 - 2 200 MHz	**S5.389**	MSS (S - E)	---	01.01.2005
2 483.5 - 2 500 MHz	**S5.402**	MSS (S - E) RDSS (S - E) (R2 + No. **S5.400**)	---	Existing allocation
2 483.5 - 2 500 MHz	**S5.402**	rdss (S - E)(R1, R3)	---	Existing allocation
2 500 - 2 520 MHz	**S5.414** **S5.403**	MSS (S - E)	FSS (S - E)(R2, R3), RDSS (S - E) No. **S5.404**	01.01.2005; (until 2005: Article **S9**: MSS (-AMSS))

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TABLE S5-1A (*end*)

Frequency band	RR footnote	Space services in footnotes referring to No. **S9.11A**	Other space services to which No. **S9.11A** provisions apply equally	Date of entry into force of the new allocations
2 520 - 2 535 MHz	**S5.403**	MSS (-AMSS) (S - E)	BSS FSS (S - E)(R2, R3)	Existing allocation
2 655 - 2 670 MHz	**S5.420**	MSS (-AMSS) (E - S)	BSS FSS (S - E)(R2, R3)	Existing allocation
2 670 - 2 690 MHz	**S5.419** **S5.420**	MSS (E - S)	FSS (E - S), (S -E)(R2) FSS (E - S)(R3)	01.01.2005; (until 2005: Article **S9**:MSS (-AMSS))
5 091 - 5 150 MHz	**S5.444A**	FSS (E - S) (limited to non-GSO MSS feeder link)	---	18.11.1995
5 150 - 5 250 MHz	**S5.447A** **S5.447C**	FSS (E - S) (limited to non-GSO MSS feeder link)	---	01.01.1997
5 150 - 5 216 MHz	**S5.447B**	FSS (S - E) (limited to non-GSO MSS feeder link)	---	01.01.1997
6 700 - 7 075 MHz	**S5.458B**	FSS (S - E) (limited to non-GSO MSS feeder link)	FSS (E - S)	01.01.1997
15.4 - 15.7 GHz	**S5.511A**	FSS (S - E) (limited to non-GSO MSS feeder link)	---	01.01.1997
15.45 - 15.65 GHz	**S5.511C**	FSS (E - S) (limited to non-GSO MSS feeder link)	---	18.11.1995
18 9 - 19 3 GHz	**S5.523A**	non-GSO FSS (S - E)	FSS (GSO) (S - E)	Existing allocation
19.3 - 19.6 GHz	**S5.523D** **S5.523B**	FSS (GSO and non-GSO MSS feeder link (S - E) (E - S)	---	(S - E) existing allocation (E - S) 01.01.1997
28.7 - 29.1 GHz	**S5.523A**	non-GSO FSS (E - S)	FSS (GSO) (E - S)	Existing allocation
29.1 - 29.4 GHz	**S5.535A**	FSS (GSO and non-GSO MSS feeder link (E - S)	---	Existing allocation

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ANNEX 1 TO APPENDICE S5(WRC-95)

1. *Coordination thresholds for sharing between MSS (space-to-Earth) and terrestrial services in the same frequency bands and between non-GSO/MSS feeder links (space-to-Earth) and terrestrial services in the same frequency bands*

1.1 *Below 1 GHz*

In the bands 137 - 138 MHz and 400.15 - 401 MHz, coordination of a space station of the MSS (space-to-Earth) with respect to terrestrial services is required only if the power flux-density produced by the station exceeds –125 dB(W/m^2/4 kHz) at the Earth's surface.

1.2 *Between 1 and 3 GHz*

1.2.1 *Objectives*

Generally, power flux-density thresholds were used to determine the need for coordination between space stations of the MSS (space-to-Earth) and terrestrial services. However, to facilitate sharing between digital fixed service (FS) stations and non-GSO/MSS space stations, the concept of fractional degradation in performance (FDP) was adopted. This concept involves new methods described in this Annex.

As a consequence of this new concept, the need for coordination between space stations of the MSS (space-to-Earth) and terrestrial services is determined using two methods:

- simple method: FDP (**simple** definition of the MSS system and characteristics of **reference** FS stations are used in inputs) or power flux-density trigger value;

- more detailed method: system specific methodology (SSM) (**specific** characteristics of the MSS system and characteristics of **reference** FS stations are used in inputs) as described, for example, in Annex **1** to Recommendation ITU-R **IS.1143**.

If one of the two methods gives a result that does not exceed the criteria relevant to each method, there is no need for coordination.

If only one method is available in an administration, the result of this method must be taken into account.

1.2.2 *General considerations*

1.2.2.1 *Method for calculating the value of fractional degradation in performance (FDP)*

The FDP is used in cases of sharing between digital FS stations with non-GSO/MSS stations (space-to-Earth).

To calculate the value of the FDP, the following parameters are needed:

- technical characteristics of digital FS station;
- technical characteristics of non-GSO/MSS constellation.

The FDP is calculated:

- by simulating the proposed MSS constellation using the information given in paragraph A.3 of Resolution **46 (Rev.WRC-95)**;
- by positioning the FS station at a certain latitude (each station is assumed to operate at an elevation angle of 0°);
- by calculating for each pointing azimuth (Az) varying between 0° and 360°:

– at each instant in time of the simulation, the aggregate interference from all visible space stations received at the FS station;

– the FDP_{Az} for the azimuth Az, using the following formula:

$$FDP_{Az} = \sum_{I_i = \min}^{\max} \frac{I_i f_i}{N_T}$$

– by the following formula:

$$FDP = \max(FDP_{Az})$$

(The formula for FDP applies to the 1 - 3 GHz frequency range only. A different formula may apply at frequencies above 3 GHz.)

where:

I_i = interference noise power level (W)

f_i = the fractional period of time during which the interference power equals I_i

N_T = station receiving system noise power level = kTB (W)

k = Boltzmann's constant = $1.38 \cdot 10^{-23}$ (J/K)

T = FS station receiving system effective noise temperature (T should be calculated by the following formula: 10 log T = NF + 10 log T_0 where NF dB) is the receiver noise figure given in Annex **1** and T_0 should be assumed as 290 K)

B = reference bandwidth = 1 MHz

NOTE – For the purpose of FDP calculation according to this Annex, it should be assumed that all space stations in the same MSS constellation operate on the same frequencies.

1.2.2.2 *Characteristics of reference systems in the fixed service*

The following parameters represent the set of reference parameters of the fixed service.

1.2.2.2.1 *Characteristics of reference digital point-to-point systems*

Three different digital systems are described in the following table:

- 64 kbit/s capacity used, for example, for outside-plant (individual subscriber connection);
- 2 Mbit/s capacity used, for example, for business subscriber connections for the local part of the inside-plant;
- 45 Mbit/s capacity used, for example, for trunk networks.

Capacity	64 kbit/s	2 Mbit/s	45 Mbit/s
Modulation	4-PSK	8-PSK	64-QAM
Antenna gain (dB)	33	33	33
Transmit power (dBW)	7	7	1
Feeder/multiplexer loss (dB)	2	2	2
e.i.r.p. (dBW)	38	38	32
Receiver IF bandwidth (MHz)	0.032	0.7	10
Receiver noise figure (dB)	4	4.5	4
Receiver input level for a BER of 10^{-3} (dBW)	–137	–120	–106
Maximum long-term interference Total power (dBW)	–165	–151	–136
Maximum long-term interference Power spectral density (dB(W/4 kHz))	–174	–173	–170

Antenna pattern:

$$G(\varphi) = G_{max} - 2.5 \times 10^{-3} \left(\frac{D\varphi}{\lambda}\right)^2 \qquad \text{for } 0 < \varphi < \varphi_m$$

$$G(\varphi) = G_1 \qquad \text{for } \varphi_m \leq \varphi < 75.86(\lambda/D)$$

$$G(\varphi) = 49 - 10 \log (D/\lambda) - 25 \log \varphi \qquad \text{for } 75.86(\lambda/D) \leq \varphi < 48°$$

$$G(\varphi) = 7 - 10 \log (D/\lambda) \qquad \text{for } 48° \leq \varphi$$

where:

$G(\varphi)$: gain relative to an isotropic antenna (dBi)

φ: off-axis angle (degree)

D: antenna diameter

λ: wavelength expressed in the same unit as D

G_1: gain of the first side-lobe $= 2 + 15 \log (D/\lambda)$

(D/λ may be estimated from $20 \log D/\lambda \approx G_{max} - 7.7$)

G_{max}: main lobe antenna gain (dBi)

$\varphi_m =$ $20 (\lambda/D) \times \sqrt{(G_{max} - G_1)}$ (degrees)

It should be noted that the above antenna radiation pattern corresponds to the average side-lobe pattern and it is recognized that individual side-lobes may exceed it by up to 3 dB.

1.2.2.2.2 *Characteristics of reference analogue point-to-point systems*

Antenna gain (dBi)	33
e.i.r.p. (dBW)	36
Feeder/multiplexer loss (dB)	3
Receiver noise figure (referred to input of receiver) (dB)	8
Maximum long-term interference per link (20% of time) (dB(W/4 kHz))	–170

Antenna pattern: Use antenna pattern of section 1.2.2.2.1.

1.2.2.2.3 *Characteristics of reference point-to-multipoint systems*

Parameter	Central station	Outstation
Antenna type	Omni/Sectoral	Dish/Horn
Antenna gain (dBi)	10/13	20 (analogue) 27 (digital)
e.i.r.p. (max) (dBW) analogue digital	 12 24	 21 34
Noise figure (dB)	3.5	3.5
Feeder loss (dB)	2	2
IF bandwidth (MHz)	3.5	3.5
Maximum permissible long-term interference power (20% time) Total (dBW) dB (W/4 kHz) dB (W/MHz)	 –142 –170 –147	 –142 –170 –147

Antenna pattern:

For the outstation antenna pattern, the reference pattern described in section 1.2.2.2.1 has to be used.

The reference radiation pattern for omnidirectional or sectoral antennas is the following:

$$G(\theta) = G_0 - 12\,(\theta/\varphi_3)^2, \text{ dBi} \qquad 0 \le \theta < \varphi_3$$

$$G(\theta) = G_0 - 12 - 10 \log (\theta/\varphi_3), \text{ dBi} \qquad \varphi_3 \le \theta < 90°$$

where:

G_0 = maximum gain in the horizontal plane (dBi)

θ is the radiation angle above the horizontal plane (degrees)

φ_3 (degrees) is given by:

$$\varphi_3 = \frac{1}{\alpha^2 - 0.818} \text{ degrees}$$

where:

$$\alpha = \frac{10^{0.1 G_0} + 172.4}{191}$$

It should be noted that the above antenna pattern is provisional and that further study is under way in the ITU-R.

1.2.3 *Determination of the need for coordination between MSS space stations (space-to-Earth) and terrestrial stations*

1.2.3.1 *Method for the determination of the need for coordination between MSS space stations (space-to-Earth) and other terrestrial services sharing the same frequency band in the 1 to 3 GHz range*

Coordination of space stations of the mobile-satellite service downlink with respect to terrestrial services is not required if the power flux-density produced at the Earth's surface or the fractional degradation in performance (FDP) of a station in the fixed service does not exceed the threshold values shown in the following table.

Frequency band (MHz)	Service to be protected	Coordination threshold values				
		Geostationary space stations		Non-geostationary space stations		
		pfd (per space station) calculation factors (NOTE 2)		pfd (per space station) calculation factors (NOTE 2)		% FDP (in 1 MHz) (NOTE 1)
		P dB(W/m^2) in 4 kHz	r dB/deg	P dB(W/m^2) in 4 kHz	r dB/deg	
1 492 - 1 525	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0 5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
1 525 - 1 530	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
2 160 - 2 200 (NOTE 3)	analogue FS	–152	0.5	–147	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–147	0.5	

Frequency band (MHz)	Service to be protected	Coordination threshold values				
		Geostationary space stations		Non-geostationary space stations		
		pfd (per space station) calculation factors (NOTE 2)		pfd (per space station) calculation factors (NOTE 2)		% FDP (in 1 MHz) (NOTE 1)
		P dB(W/m^2) in 4 kHz	r dB/deg	P dB(W/m^2) in 4 kHz	r dB/deg	
2 483.5 - 2 500	fixed	–152	0.5	–150	0.65	
	other terrestrial services (NOTE 4)	–152	0.5	–150	0.65	
2 500 - 2 520	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
2 520 - 2 535	analogue FS	–160	0.75	–152	0.5	
	digital FS	–160	0.75			25
	other terrestrial services (NOTE 4)	–160	0.75	–152	0.5	

NOTE 1 – The calculation of FDP (fractional degradation in performance) is contained in section 1.2.2.1, using reference FS parameters contained in sections 1.2.2.2.1 and 1.2.2.2.3.

NOTE 2 – The following formula should be used for deriving the coordination threshold in terms of power flux-density:

P dB(W/m^2/4 kHz)	for $0° \leq \delta \leq 5°$
$P + r(\delta - 5)$ dB(W/m^2/4 kHz)	for $5° < \delta \leq 25°$
$P + 20r$ dB(W/m^2/4 kHz)	for $25° < \delta \leq 90°$

where δ is the angle of arrival (degrees).

The threshold values are obtained under assumed free-space propagation conditions.

NOTE 3 – The coordination threshold in the band 2 160 - 2 270 MHz (Region 2) and 2 170 - 2 200 MHz (all regions) to protect other terrestrial services does not apply to the terrestrial component of the Future Public Land Mobile Telecommunication Systems (FPLMTS), as the satellite and the terrestrial components are not intended to operate in the same area or on common frequencies within these bands.

NOTE 4 – The coordination threshold factors applicable to other terrestrial services may be reviewed at a future conference, as necessary.

1.2.3.2 *A system-specific methodology (SSM) to be used in determining the need for detailed coordination of non-GSO/MSS (space-to-Earth) systems with fixed service systems*

The purpose of the system-specific methodology (SSM) is to allow a detailed assessment of the need to coordinate frequency assignments to non-GSO/MSS space stations (space-to-Earth) with frequency assignments to receiving stations in an FS network of a potentially affected administration. The SSM takes into account specific characteristics of the non-GSO/MSS system and reference FS characteristics.

Those administrations planning to establish the need for coordination between non-geostationary-satellite networks in the mobile-satellite service and fixed service systems are encouraged to use Recommendation ITU-R **IS.1143**. While urgent additional development work is being undertaken in the ITU-R to facilitate the use of the methodology described in Recommendation ITU-R **IS.1143**, administrations may be able to effect coordination by applying this system-specific methodology.

1.3 *Above 3 GHz*

In the band 15.45 - 15.65 GHz, when an administration proposes to use a non-geostationary space station whose emissions exceed –146 dB (W/m^2/MHz) for all angles of arrival, it shall coordinate with affected administrations.

2. *Hard limits*

2.1 *Sharing between feeder links of the non-GSO/MSS (space-to-Earth) and terrestrial services in the same frequency bands*

The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150 - 5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

Emissions from a non-geostationary space station shall not exceed the following limits at the Earth's surface:

Frequency bands	Service	Limit in dB(W/m^2) for angle of arrival above the horizontal plane			Reference bandwidth
		0° – 5°	5° – 25°	25° – 90°	
6 700 - 6 825 MHz	Fixed-satellite (S-E)	–137	–137 + 0.5 (δ–5)	–127	1 MHz
6 825 - 7 075 MHz	Fixed-satellite (S-E)	–154 and –134	–154 + 0.5 (δ–5) and –134 + 0.5 (δ–5)	–144 and –124	4 kHz 1 MHz

Emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2/MHz) in the bands 15.4 - 15.45 GHz and 15.65 - 15.7 GHz, and –111 dB(W/m^2/MHz) in the band 15.45 - 15.65 GHz for all angles of arrival. These limits relate to the

power flux-density which would be obtained under assumed free-space propagation conditions.

Power flux-density limits between 17.7 GHz and 27.5 GHz.

The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

$-115 + 0.5(\delta-5)$ dB(W/m^2) in any 1 MHz band for angles of arrival δ between 5 and 25 degrees above the horizontal plane;

–105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

In the band 19.3 - 19.7 GHz for non-geostationary satellite systems, these values shall apply subject to review by the ITU-R and the results of this review should be considered by WRC-97 (see Resolution **119 (WRC-95)**).

2.2 *Power flux-density limits produced by non-GSO/MSS feeder links with respect to the GSO orbit*

In the frequency band 6 700 - 7 075 MHz, the maximum aggregate power flux-density produced at the GSO and including ±5° of inclination around the geostationary-satellite orbit by a non-geostationary-satellite system in the fixed-satellite service shall not exceed –168dB(W/m^2) in any 4 kHz band.

2.3 *Power flux-density limits produced by non-GSO/FSS in the 20 - 30 GHz band*

The power flux-density at the Earth's surface produced by emissions from a space station shall not exceed the following values:

–115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

$-115 + 0.5(\delta - 5)$ dB(W/m^2) in any 1 MHz band for angles of arrival δ between 5 and 25 degrees above the horizontal plane;

–105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which could be obtained under assumed free-space propagation conditions.

In the band 18.9 - 19.3 GHz for non-GSO satellite systems, these values shall apply subject to review by the ITU-R and the results of this review should be considered by WRC-97 (see Resolution **118 (WRC-95)**).

2.4 *Power limits for terrestrial stations*

In the band 19.3 - 19.6 GHz, the maximum equivalent isotropically radiated power (e.i.r.p.) of a station in the fixed service or mobile service shall not exceed 55 dBW and the power delivered to the antenna shall not exceed +10 dBW.

2.5 *Power limits for earth stations*

In the band 19.3 - 19.6 GHz, the equivalent isotropically radiated power (e.i.r.p.) transmitted in any direction towards the horizon by a feeder-

link earth station of the mobile-satellite service shall not exceed the following limits:

+64 dBW in any 1 MHz band	for $\theta \leq 0°$
$+64 + 3\,\theta$ dBW in any 1 MHz band	for $0° \leq \theta < 5°$,

where θ is the angle of elevation of the horizon viewed from the centre of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

These limits may be exceeded by not more than 10 dB. However, when the resulting coordination area extends into the territory of another country, such increase shall be subject to agreement by the administration of that country.

3. *Coordination areas for mobile earth stations operating below 3 GHz and earth stations providing feeder links for non-geostationary satellites operating in the mobile-satellite service and for non-GSO/FSS earth stations*

3.1 *Objectives*

In order to apply the provisions of Sections **III** and **IV**, paragraphs 3.1 and 4.1 of the Annex **1** to Resolution **46 (Rev.WRC-95)**, this Section specifies the coordination area (see No. **S1.171** of the Radio Regulations) for mobile earth stations as well as earth stations providing feeder links for non-geostationary-satellite networks operating in the mobile-satellite service. In both cases, the coordination contour (see No. **S1.172** of the Radio Regulations) associated with the coordination area is drawn to scale on an appropriate map in order to depict the coordination area and the extent to which it overlaps the territory of administrations that may be affected. Tables **1-3** specify

coordination distances (see No. **S1.173** of the Radio Regulations) for certain frequency sharing situations and frequency bands in which the provisions of Resolution **46 (Rev.WRC-95)** are applied. Table **4** applies to non-GSO/FSS earth stations.

The coordination area of a mobile earth station is determined as the service area in which it is intended to operate typical earth stations, extended in all directions by the coordination distance. Tables **1** and **2** specify coordination distances for mobile earth stations operating below 1 GHz and in the 1 - 3 GHz frequency range, respectively. In the case of feeder-link earth stations, the coordination contour is determined as the end points of coordination distances measured from the earth station location. Coordination distances for feeder-link earth stations operating below 1 GHz are specified in Table **1**. Coordination distances for feeder-link earth stations operating above 5 GHz are specified in Table **3** with respect to stations in terrestrial services and, where applicable, earth stations of other satellite networks operating in the opposite direction of transmission. Coordination distances for non-GSO/FSS earth stations are specified in Table **4**.

3.2 *General considerations*

Two types of coordination distances are specified in Tables **1-4**: 1) predetermined distances, and 2) distances that are to be calculated on a case-by-case basis, taking into account specific parameters of the earth station for which the coordination area is being determined. Neither of these distances indicate required separation distances.

It must be emphasized that the presence or installation of another station within the coordination area of an earth station would not necessarily preclude the satisfactory operation of either the earth station or the other station, since coordination distances are based on the most unfavourable case assumptions as regards interference.

The different coordination distances may be reviewed at a future conference conforming to the relevant Resolution.

TABLE 1

Earth stations operating at frequencies below 1 GHz

Frequency Sharing Situation		Coordination Distance
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service)	(In sharing situations involving services allocated with equal rights)
148.0 - 149.9 MHz ground-based (mobile) 149.9 - 150.05 MHz ground-based (mobile)	ground-based stations	As determined using Equation (1) and Figure 1 of Recommendation ITU-R **M.1185** In this case, the coordination distance is calculated by the administration of the terrestrial station using the parameters of its terrestrial stations and the relevant parameters taken from the advance publication for the earth station.
400.15 - 401 MHz ground-based	meteorological aids (radiosonde)	582 km
All bands below 1 GHz ground-based	mobile (aircraft)	500 km
All bands below 1 GHz aircraft (mobile)	ground-based stations	500 km
400.15 - 401 MHz aircraft (mobile)	meteorological aids (radiosonde)	1 082 km
All bands below 1 GHz aircraft (mobile)	mobile (aircraft)	1 000 km
455 - 456 MHz 459 - 460 MHz ground-based	ground-based stations	500 km

TABLE 2

Earth stations operating at frequencies in the 1 - 3 GHz range

Frequency Sharing Situation		Coordination Distance (In sharing situations involving services allocated with equal rights)
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	
ground-based mobile (NOTE 1) (GSO network)	ground-based stations in terrestrial services	Determined using Recommendation ITU-R **IS.847** with the parameters specified therein for terrestrial stations and all applicable equations and figures.
ground-based mobile (NOTE 1) (non-GSO network)	ground-based stations in terrestrial services	The methodology of Recommendation ITU-R **IS.849** is applied in conjunction with Recommendation ITU-R **IS.847** (see above).
1 675 - 1 700 MHz ground-based mobile	meteorological aids (radiosonde)	582 km
All bands 1 - 3 GHz ground-based mobile	terrestrial mobile (aircraft)	500 km
All bands aircraft (mobile)	ground-based stations in terrestrial services	500 km
1 675 - 1 700 MHz aircraft (mobile)	meteorological aids (radiosonde)	1 082 km
All bands aircraft (mobile)	terrestrial mobile (aircraft)	1 000 km

NOTE 1 – Recommendation ITU-R **IS.847** supplies the necessary terrestrial station parameters for the bands 1 492 - 1 530 MHz, 1 555 - 1 559 MHz, 1 610 - 1 645.5 MHz, 1 646.5 - 1 660 MHz, 1 675 - 1 710 MHz, 1 980 - 2 025 MHz, 2 160 - 2 200 MHz, 2 483.5 - 2 520 MHz, and 2 655 - 2 690 MHz.

TABLE 3

Non-GSO/MSS feeder-link earth stations

Frequency Sharing Situation		Coordination Distance
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	(In sharing situations involving services that are allocated with equal rights)
19.3 - 19.7 GHz and 29.1 - 29.5 GHz; earth station operating co-directionally with other earth stations	ground-based stations in terrestrial services	Determined using Recommendations ITU-R **IS.847** and **IS.849** with the parameters specified therein for terrestrial stations and all applicable equations and figures.
Bands in which the FSS is already allocated; earth station operating in opposite direction	ground-based stations in terrestrial services	A) 19.3 - 19.7 GHz: 170 km; B) 6 700 - 7 075 MHz: 300 km
All bands and earth stations	terrestrial mobile (aircraft)	500 km
Bands in which the FSS is already allocated; earth station operating in opposite direction	earth station operating in opposite direction of transmission	A) 19.3 - 19.7 GHz: 170 km; B) 6 700 - 7 075 MHz: 300 km

TABLE 4

Non-GSO/FSS earth stations

Frequency Sharing Situation		Coordination Distance (In sharing situations involving services that are allocated with equal rights)
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	
18.9 - 19.3 GHz and 28.7 - 29.1 GHz; earth station operating co-directionally with other earth stations	ground-based stations in terrestrial services	Determined using Recommendations ITU-R **IS.847** and **IS.849** with the parameters specified therein for terrestrial stations and all applicable equations and figures.

APPENDIX S9*

Report of an Irregularity or Infringement

(see Article **S15**, Section **V**)

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* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **22** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S10*

Report of Harmful Interference

(see Article **S15**, Section **VI**)

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* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **23** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S11*

**Double-Sideband (DSB) or Single-Sideband (SSB)
System Specifications in
the HF Broadcasting Service**

* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **45** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S12

Special Rules Applicable to Radiobeacons

(see Article S28)

Section I. Aeronautical Radiobeacons

(1) The assignment of frequencies to aeronautical radiobeacons operating in the bands between 160 kHz and 535 kHz shall be based on a protection ratio against interference of at least 15 dB for each beacon throughout its service area.

(2) The radiated power should be kept to the minimum value necessary to give the desired field strength at the service range.

(3) The daylight service range of radiobeacons referred to in (1) above shall be based on the following field strengths:

(4) *Regions 1 and 2*

- 70 microvolts per metre for radiobeacons north of 30° N;
- 120 microvolts per metre for radiobeacons between 30° N and 30° S;
- 70 microvolts per metre for radiobeacons south of 30° S.

(5) *Region 3*

- 70 microvolts per metre for radiobeacons north of 40° N;
- 120 microvolts per metre for radiobeacons between 40° N and 50° S;
- 70 microvolts per metre for radiobeacons south of 50° S.

Section II. Maritime Radiobeacons

(1) The protection ratio required for assignment of frequencies to maritime radiobeacons operating in the bands between 283.5 kHz and 335 kHz shall be based on the effective radiated power being kept to the minimum value necessary to give the desired field strength at the service range and the need to provide adequate geographical separation between radiobeacons operating on the same frequency and at the same time, to avoid harmful interference.

(2) The daylight service range of the radiobeacons referred to in (1) above shall be based on the following field strengths:

(3) *Region 1*

- 50 microvolts per metre for radiobeacons north of 43° N;
- 75 microvolts per metre for radiobeacons between 43° N and 30° N;
- 100 microvolts per metre for radiobeacons between 30° N and 30° S;
- 75 microvolts per metre for radiobeacons between 30° S and 43° S;
- 50 microvolts per metre for radiobeacons south of 43° S.

(4) *Region 2*

- 50 microvolts per metre for radiobeacons north of 40° N;
- 75 microvolts per metre for radiobeacons between 40° N and 31° N;

- 100 microvolts per metre for radiobeacons between 31° N and 30° S;
- 75 microvolts per metre for radiobeacons between 30° S and 43° S;
- 50 microvolts per metre for radiobeacons south of 43° S.

(5) *Region 3*

- 75 microvolts per metre for radiobeacons north of 40° N;
- 100 microvolts per metre for radiobeacons between 40° N and 50° S;
- 75 microvolts per metre for radiobeacons south of 50° S.

(6) The carrier frequencies of maritime radiobeacons and the separation between channels shall be based on the use of integer multiples of 100 Hz. The separation between adjacent carrier frequencies should be based on relevant ITU-R Recommendations.

APPENDIX S13*

Distress and Safety Communications (Non-GMDSS)

(see Article **S30**)

PART A

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* *Note by the Secretary-General:* This Appendix contains two parts: A and B: Part A of this Appendix contains the complete texts of Chapter **IX** of the Radio Regulations (edition of 1990, revised in 1994). The Chapter **IX** contains the following articles, which are to be included without change and are therefore not reproduced here:

ARTICLE **37** – General Provisions

ARTICLE **38** – Frequencies for Distress and Safety

ARTICLE **39** – Distress Communications

ARTICLE **40** – Urgency and Safety Transmissions, and Medical Transports

ARTICLE **41** – Alarm and Warning Signals

ARTICLE **42** – Special Services Relating to Safety

In order to have all the provisions of the present Radio Regulations related to non-GMDSS distress and safety communications assembled in one place, the provisions of Sections **II** and **III** of Article **55** and Section **II** of Article **56**, amended as decided by the WRC-95 are also included in this annex and reproduced in Part B of this Appendix.

PART B

Requirements for Personnel

Section I. Categories of Certificates

1.1 There are four categories of certificates, shown in descending order of requirements, for radiotelegraph operators. Each lower order certificate has lesser requirements and except for code speed, its requirements are a subset of the next higher certificate. The highest order Morse code speed certificate is the first-class radiotelegraph;

a) the radiocommunication operator's general certificate;

b) the first-class radiotelegraph operator's certificate;

c) the second-class radiotelegraph operator's certificate;

d) the radiotelegraph operator's special certificate.

There are two categories of radiotelephone operators' certificates, general and restricted.

1.2 The holder of a radiocommunication operator's general certificate, or of a first-class or second-class radiotelegraph operator's certificate, may carry out the radiotelegraph or radiotelephone service of any ship station.

1.3 The holder of a radiotelephone operator's general certificate may carry out the radiotelephone service of any ship station.

1.4 The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any ship station, provided that the operation of the transmitter requires only the use of simple external controls, and excludes all manual adjustment of frequency determining elements, with

the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by Appendix **S2**, and the peak envelope power of the transmitter does not exceed 1.5 kW.

1.5 The radiotelephone operator's restricted certificate may be limited exclusively to one or more of the maritime mobile frequency bands. In such cases the certificate shall be suitably endorsed.

1.6 The radiotelegraph service of ships for which a radiotelegraph installation is not made compulsory by international agreements, as well as the radiotelephone service of ship stations for which only a radiotelephone operator's restricted certificate is required, may be carried out by the holder of a radiotelegraph operator's special certificate[1].

1.7 However, where the conditions specified in Table **AP S13** are satisfied, the radiotelegraph service of ships for which a radiotelegraph installation is not made compulsory by international agreements, as well as the radiotelephone service of any ship station, may be carried out by the holder of a radiotelegraph operator's special certificate[1].

1.8 Exceptionally, the second-class radiotelegraph operator's certificate as well as the radiotelegraph operator's special certificate may be limited exclusively to the radiotelegraph service. In such cases the certificate shall be suitably endorsed.

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[1] The radiotelegraph service of ships equipped with a radiotelegraph installation in accordance with Regulation 131 (2) (a) of the International Convention for the Safety of Fishing Vessels (Torremolinos, 1977) may be carried out by the holder of a radiotelegraph operator's special certificate.

Section II. Conditions for the Issue of Certificates

A. General

2.1 The conditions to be imposed for obtaining the various certificates are contained in the following paragraphs and represent the minimum requirements.

2.2 Each administration is free to fix the number of examinations necessary to obtain each certificate.

2.3 The administration which issues a certificate may, before authorizing an operator to carry out the service on board a ship, require the fulfilment of other conditions (for example: experience with automatic communication devices; further technical and professional knowledge relating particularly to navigation; physical fitness; etc.).

2.4 Administrations should take whatever steps they consider necessary to ensure the continued proficiency of operators after prolonged absences from operational duties.

2.5 However, with respect to the maritime mobile service, administrations should also take whatever steps they consider necessary to ensure the continued proficiency of operators while in service.

2.6 The requirements for candidates to obtain one of the certificates described in this section with regard to technical and professional knowledge and qualifications are shown in the following Table **AP S13**.

TABLE AP S13

Conditions for the Issue of Operator's Certificate

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Knowledge of the principles of electricity and the theory of radio and of electronics sufficient to meet the requirements specified below:	*			
Theoretical knowledge of modern radiocommunication equipment, including marine radiotelegraph and radiotelephone transmitters and receivers, marine antenna systems, automatic alarm devices, radio equipment for lifeboats and other survival craft, direction-finding equipment, together with all auxiliary items including power supply (such as motors, alternators, generators, inverters, rectifiers and accumulators), as well as an elementary knowledge of the principles of other apparatus generally used for radio-navigation, with particular reference to maintaining the equipment in service.	*			

TABLE AP S13 (*cont.*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Practical knowledge of the operation, adjustment and maintenance of the apparatus mentioned above, including the taking of direction-finding bearings and knowledge of the principles of the calibration of radio direction-finding apparatus.	*			
Practical knowledge necessary for the location and remedying (using appropriate testing equipment and tools) of faults in the apparatus mentioned above which may occur during a voyage.	*			
Knowledge both of the general principles of electricity and of the theory of radio, knowledge of the adjustment and practical working of various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as elementary knowledge of the principles of operation of other apparatus generally used for radionavigation.		*		

TABLE AP S13 (*cont.*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocommunicat. Operator's General Certificate	1st-Class Radiotelegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Elementary theoretical and practical knowledge of electricity and radio, knowledge of the adjustment and practical working of various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as an elementary knowledge of the principles of operation of other apparatus generally used for radionavigation.			*	
Theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned above.		*		
Elementary theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned above.			*	

TABLE AP S13 (*cont.*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Practical knowledge necessary to repair, with the means available on board, damage which may occur to the radiotele-graph, radiotelephone and radio direction-finding apparatus during a voyage.		*		
Practical knowledge sufficient for effect-ing repairs in the case of minor damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a voyage.			*	
Ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and receiving shall be, as a rule, five minutes.	*		*	*

TABLE AP S13 (*cont.*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of twenty groups a minute, and a plain language text at a speed of twenty-five words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and receiving shall be, as a rule, five minutes.		*		
Knowledge of the practical operation and adjustment of radiotelegraph apparatus.				*
Ability to send correctly and to receive correctly by radiotelephone.	*	*		*
Ability to send correctly and to receive correctly by radiotelephone except in the case provided for in 1.8 of Part B to this Appendix.			*	

TABLE AP S13 (*cont.*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio.	*		*	
Detailed knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio.		*		
Knowledge of the Regulations applying to radiotelegraph communications and specifically of that part of those Regulations relating to the safety of life.				*
Sufficient knowledge of world geography, especially the principal shipping routes and the most important telecommunication routes.	*	*	*	

TABLE AP S13 (*end*)

The relevant certificate is issued to a candidate who has shown proof of the technical and professional knowledge and qualifications enumerated below, as applicable, and indicated by an asterisk (*) in the appropriate box	Radiocom-municat. Operator's General Certificate	1st-Class Radio-telegraph Operator's Certificate	2nd-Class Radio-Telegraph Operator's Certificate	Radio-Telegraph Operator's Special Certificate
Knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.	*			
Sufficient knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.		*		
If necessary, elementary knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.			*	

B. Radiotelephone Operator's Certificates

2.7 The radiotelephone operator's general certificate is issued to candidates who have shown proof of the knowledge and professional qualifications enumerated below (see also paragraphs 1.2, 1.3, 1.6 and 1.7):

a) a knowledge of the elementary principles of radiotelephony;

b) detailed knowledge of the practical operation and adjustment of radiotelephone apparatus;

c) ability to send correctly and to receive correctly by radiotelephone;

d) detailed knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.

2.8 The restricted radiotelephone operator's certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below:

a) practical knowledge of radiotelephone operation and procedure;

b) ability to send correctly and to receive correctly by telephone;

c) general knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.

2.9 For ship radiotelephone stations where the peak envelope power of the transmitter does not exceed 400 watts, each administration may itself fix these conditions for obtaining a restricted radiotelephone operator's certificate, provided that the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by

the transmitter itself within the limits of tolerance specified in Appendix **S2**. However, in fixing the conditions, administrations shall ensure that the operator has an adequate knowledge of radiotelephone operation and procedure, particularly as far as distress, urgency and safety are concerned. This in no way contravenes the provisions of paragraph 2.13.

2.10 Administrations in Region 1 do not issue certificates under paragraph 2.9.

2.11 A radiotelephone operator's certificate shall show whether it is a general certificate or a restricted certificate and, in the latter case, whether it has been issued in conformity with the provisions of paragraph 2.9.

2.12 In the maritime mobile service, a radiotelephone operator's restricted certificate shall show whether it is also limited as provided for in paragraph 1.5.

2.13 In order to meet special needs, special agreements between administrations may fix the conditions to be fulfilled in order to obtain a radiotelephone operator's certificate, intended to be used in radiotelephone stations complying with certain technical conditions and certain operating conditions. These agreements, if made, shall be on the condition that harmful interference to international services shall not result therefrom. These conditions and agreements shall be mentioned in the certificates issued to such operators.

Section III. Class and Minimum Number of Operators

3.1 In the public correspondence service, each government shall take the necessary steps to ensure that stations on board ships of its own nationality have personnel adequate to perform efficient service.

3.2 The personnel of ship stations in the public correspondence service shall, having regard to the provisions of Part A of Appendix **S13**, include at least:

a) ship stations of the first category, except in the case provided for in paragraph 3.2 *e)*: a chief operator holding a radiocommunication operator's general certificate or a first-class radiotelegraph operator's certificate;

b) ship stations of the second and third categories, except in the case provided for in paragraph 3.2 *e)*: a chief operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;

c) ship stations of the fourth category, except in the cases provided for in paragraphs 3.2 *d)* and 3.2 *e)*: one operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;

d) ship stations in which a radiotelegraph installation is provided but not prescribed by international agreements: one operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate, or a radiotelegraph operator's special certificate;

e) ship stations equipped with a radiotelephone installation only: one operator holding either a radiotelephone operator's certificate or a radiotelegraph operator's certificate.

APPENDIX S14*

Phonetic Alphabet and Figure Code

(see Articles **S30**, **S57** and Appendix **S13**)

* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **24** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S15

Frequencies for Distress and Safety Communications for the GMDSS

(see Article **S31**)

The frequencies for distress and safety communications for the GMDSS are given in Tables **S15.1** and **S15.2** for frequencies below and above 30 MHz, respectively.

TABLE S15.1

Frequencies below 30 MHz

Frequency (in kHz)	Description of usage	Notes
490	MSI	The frequency 490 kHz will be used exclusively for maritime safety information (MSI) after full implementation of the GMDSS (see also Resolution **210 (Mob-87)**).
518	MSI	The frequency 518 kHz is used exclusively by the international NAVTEX system.
*2 174.5	NBDP-COM	
*2 182	RTP-COM	The frequency 2 182 kHz uses class of emission J3E. See also No. **S52.190** and Appendix **S13**.
*2 187.5	DSC	
3 023	AERO-SAR	The aeronautical carrier (reference) frequencies 3 023 kHz and 5 680 kHz may be used for intercommunication between mobile stations engaged in coordinated search and rescue operations, and for communication between these stations and participating land stations, in accordance with the provisions of Appendix **S27** (see Nos. **S5.111** and **S5.115**).
*4 125	RTP-COM	See also No. **S52.222** and Appendix **S13**. The carrier frequency 4 125 kHz may be used by aircraft stations to communicate with stations of the maritime mobile service for distress and safety purposes, including search and rescue (see No. **S30.11**).
*4 177.5	NBDP-COM	
*4 207.5	DSC	
4 209.5	MSI	The frequency 4 209.5 kHz is exclusively used for NAVTEX-type transmissions (see Resolution **339 (WRC-95)**).
4 210	MSI-HF	
5 680	AERO-SAR	See note under 3 023 kHz above.
*6 215	RTP-COM	See also No. **S52.222** and Appendix **S13**.
*6 268	NBDP-COM	
*6 312	DSC	

Legend
MSI In the maritime mobile service, these frequencies are used exclusively for the transmission of Maritime Safety Information (MSI) (including meteorological and navigational warnings and urgent information) by coast stations to ships, by means of narrow band direct-printing telegraphy.
NBDP-COM These frequencies are used exclusively for distress and safety communications (traffic) using narrow-band direct-printing telegraphy.
RTP-COM These carrier frequencies are used for distress and safety communications (traffic) by radiotelephony.
DSC These frequencies are used exclusively for distress and safety calls using digital selective calling in accordance with No. **S32.5** (see Nos. **S32.9**, **S33.11** and **S33.34**).
AERO-SAR These aeronautical carrier (reference) frequencies may be used for distress and safety purposes by mobile stations engaged in coordinated search and rescue operations.
* Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices **S13** and **S15** is prohibited.

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TABLE S15.1 (*end*)

Frequency (in kHz)	Description of usage	Notes
6 314	MSI-HF	
*8 291	RTP-COM	
*8 376.5	NBDP-COM	
*8 414.5	DSC	
8 416.5	MSI-HF	
*12 290	RTP-COM	
*12 520	NBDP-COM	
*12 577	DSC	
12 579	MSI-HF	
*16 420	RTP-COM	
*16 695	NBDP-COM	
*16 804.5	DSC	
16 806.5	MSI-HF	
19 680.5	MSI-HF	
22 376	MSI-HF	
26 100.5	MSI-HF	

Legend
MSI-HF In the maritime mobile service, these frequencies are used exclusively for the transmission of high seas MSI by coast stations to ships, by means of narrow-band direct-printing telegraphy (see Resolution **333 (Mob-87)**). * Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices **S13** and **S15** is prohibited.

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TABLE S15.2

Frequencies above 30 MHz (VHF/UHF)

Frequency (in MHz)	Description of usage	Notes
*121.5	AERO-SAR	The aeronautical emergency frequency 121.5 MHz is used for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service using frequencies in the band between 117.975 MHz and 137 MHz. This frequency may also be used for these purposes by survival craft stations. Emergency position-indicating radio beacons use the frequency 121.5 MHz as indicated in Recommendation ITU-R **M.690-1**. Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. **S5.111** and **S5.200**). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
123.1	AERO-SAR	The aeronautical auxiliary frequency 123.1 MHz, which is auxiliary to the aeronautical emergency frequency 121.5 MHz, is for use by stations of the aeronautical mobile service and by other mobile and land stations engaged in coordinated search and rescue operations (see also No. **S5.200**). Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. **S5.111** and **S5.200**). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
156.3	VHF-CH06	The frequency 156.3 MHz may be used for communication between ship stations and aircraft stations engaged in coordinated search and rescue operations. It may also be used by aircraft stations to communicate with ship stations for other safety purposes (see also Note g) in Appendix **S18**).
*156.525	VHF-CH70	The frequency 156.525 MHz is used in the maritime mobile service for distress and safety calls using digital selective calling (see also **Nos. S4.9, S5.227, S30.2** and **S30.3**).
156.650	VHF-CH13	The frequency 156.650 MHz is used for ship-to-ship communications relating to the safety of navigation in accordance with Note p) in Appendix **S18**.
*156.8	VHF-CH16	The frequency 156.8 MHz is used for distress and safety communications by radiotelephony (see also Appendix **S13**). Additionally, the frequency 156.8 MHz may be used by aircraft stations for safety purposes only.

Legend
AERO-SAR These aeronautical carrier (reference) frequencies may be used for distress and safety purposes by mobile stations engaged in coordinated search and rescue operations. **VHF-CH#** These VHF frequencies are used for distress and safety purposes. The channel number (CH#) refers to the VHF channel as listed in Appendix **S18**, which should also be consulted. * Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices **S13** and **S15** is prohibited.

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TABLE S15.2 (*end*)

Frequency (in MHz)	Description of usage	Notes
*406 - 406.1	406-EPIRB	This frequency band is used exclusively by satellite emergency position-indicating radio beacons in the Earth-to-space direction (see No. **S5.266**).
1 530 - 1 544	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 530 - 1 544 MHz is used for distress and safety purposes in the space-to-Earth direction in the maritime mobile-satellite service.
*1 544 - 1 545	D&S-OPS	Use of the band 1 544 - 1 545 MHz (space-to-Earth) is limited to distress and safety operations (see No. **S5.356**), including feeder links of satellites needed to relay the emissions of satellite emergency position-indicating radio beacons to earth stations and narrow-band (space-to-Earth) links from space stations to mobile stations.
1 626.5 - 1 645.5	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 626.5 - 1 645.5 MHz is used for distress and safety purposes in the Earth-to-space direction in the maritime mobile-satellite service.
*1 645.5 - 1 646.5	D&S-OPS	Use of the band 1 645.5 - 1 646.5 MHz (Earth-to-space) is limited to distress and safety operations (see No. **S5.375**), including transmissions from satellite EPIRBs and relay of distress alerts received by satellites in low polar Earth orbits to geostationary satellites.
9 200 - 9 500	SARTS	This frequency band is used by radar transponders to facilitate search and rescue.

Legend
SAT-COM These frequency bands are available for distress and safety purposes in the maritime mobile-satellite service (see Notes).
D&S-OPS The use of these bands is limited to distress and safety operations of satellite emergency position-indicating radio beacons (EPIRBs).
* Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices **S13** and **S15** is prohibited.

APPENDIX S16*

Documents with Which Stations on Board Ships and Aircraft Shall be Provided

(see Articles **S42** and **S51**)

* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **11** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S17*

Frequencies and Channelling Arrangements in the High-Frequency Bands for the Maritime Mobile Service

(see Article **S52**)

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* *Note by the Secretary-General:*

This Appendix contains two parts, the second of which is divided into five sections:

Part A – Table of Subdivided Bands
*(Present Appendix **31**)*

Part B – Channelling Arrangements

Section I – Radiotelephony
*(Present Appendix **16**)*

Section II – Narrow-Band Direct-Printing Telegraphy (Paired Frequencies)
*(Present Appendix **32**)*

Section III – Narrow-Band Direct-Printing Telegraphy (Non-Paired Frequencies)
*(Present Appendix **33**)*

Section IV – Morse Telegraphy (Calling)
*(Present Appendix **34**)*

Section V – Morse Telegraphy (Working)
*(Present Appendix **35**)*

The contents of this Appendix have not been reproduced since no change of substance to the above-mentioned Appendices of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S18*

Table of Transmitting Frequencies in the VHF Maritime Mobile Band

(see Article **S52**)

* *Note by the Secretary-General:* The contents of this Appendix have not been reproduced since no change of substance to Appendix **18** of the Radio Regulations (edition of 1990, revised in 1994) has been decided by the WRC-95.

APPENDIX S25

Provisions and Associated Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4 000 kHz and 27 500 kHz

The provisions of this Appendix shall apply to the maritime mobile radiotelephone bands reserved for duplex operation (two-frequency channels) between 4 000 kHz and 27 500 kHz (see Appendix **S17**). Section **I** contains the procedure for bringing up to date the Frequency Allotment Plan for coast stations. The Allotment Plan is contained in Section **II** of this Appendix.

Section I: Procedure for Bringing Up to Date the Frequency Allotment Plan

1.1 Before notifying to the Radiocommunication Bureau or bringing into use at any coast radiotelephone station a frequency assignment not covered by an allotment in the Frequency Allotment Plan contained in Section **II** of this Appendix, an administration which

1.1.1 intends to establish a coast radiotelephone station and has no allotment in the Plan, *or*

1.1.2 intends to expand its coast radiotelephone service and requires an additional allotment,

shall send the information listed in Appendix **S4** to the Bureau not earlier than two years in the case of No. 1.1.1, or not earlier than six months in the case of No. 1.1.2, before the projected date of bringing into service of the planned coast radiotelephone service but in any case not later than three months before that date.

1.2 The Bureau shall publish the information sent under No. 1.1 in a special section of the weekly circular together with such apparent incompatibilities between the proposed allotment which is the subject of the publication and any other existing or proposed allotments which the Bureau can identify. The Bureau shall also indicate any information of a technical nature and make such suggestions as it may be able to offer with a view to avoiding these incompatibilities.

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

1.3.1 indication of a suitable channel or channels for the service projected by the administration before that administration submits the information for publication;

1.3.2 carry out the procedure for which provision is made in No. 1.4;

1.3.3 any other assistance of a technical nature for completion of the procedure in this section.

1.4 At the same time as sending the information listed in Appendix **S4** to the Bureau for publication, an administration shall seek the agreement of the administrations having an allotment in the same channel as the proposed allotment. A copy of the relevant correspondence shall be sent to the Bureau.

1.5 Any administration which, upon examining the information published by the Bureau, considers that its existing services or services planned within the time-limits mentioned in No. 1.1 would be affected shall have the right to be brought into the procedure undertaken pursuant to No. 1.4.

1.6 An administration which receives a request under No. 1.4 shall acknowledge receipt thereof immediately by telegram. If no acknowledgement is received within thirty days after the date of the weekly circular containing the information published under No. 1.2, the administration seeking agreement shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days.

1.7 Upon receipt of the request under No. 1.4, an administration shall, having regard to the proposed date of bringing into use of the assignment(s) corresponding to the allotment for which agreement was requested, promptly examine the matter with regard to harmful interference which would be caused to the services rendered by its coast station(s):

1.7.1 using a frequency assignment corresponding to an allotment appearing in the Plan; or

1.7.2 to be brought into service in conformity with an allotment appearing in the Plan within the time-limit prescribed in No. 1.25; or

1.7.3 to be brought into service within the time-limit prescribed in No. 1.25, in conformity with a proposed allotment for which the information has been submitted to the Bureau under No. 1.1 for publication under No. 1.2.

1.8 Any administration which receives a request under No. 1.4 and which considers that the proposed use of a channel will not cause harmful interference to the services rendered by its coast stations as outlined in No. 1.7 shall, as soon as possible and not later than two months from the date of the relevant weekly circular, notify its agreement to the administration seeking agreement.

1.9 Any administration which receives a request under No. 1.4 and which considers that the proposed use of a channel may cause harmful interference to the services rendered by its coast stations as outlined in No. 1.7 shall inform the administration concerned of the reasons for its disagreement as soon as possible and not later than two months from the date of the relevant weekly circular and shall furnish any information and suggestions with a view to reaching a satisfactory solution of the problem. The administration seeking agreement shall try, as far as possible, to adjust its requirements according to the comments received.

1.10 In a case where the administration seeking agreement has no allotment in the band concerned, the administration(s) with which agreement is sought shall, in consultation with the requesting administration, explore all means of meeting the requirement of the requesting administration.

1.11 An administration seeking agreement may request the Bureau to endeavour to obtain such agreement in those cases where:

1.11.1 an administration to which a request has been sent under No. 1.4 fails to acknowledge receipt of the request within forty-five days from the date of the weekly circular containing the pertinent information;

1.11.2 an administration has acknowledged receipt under No. 1.6 but fails to give a decision within two months from the date of the weekly circular containing the pertinent information;

1.11.3 there is disagreement between the administration seeking agreement and an administration with which agreement is sought as to the sharing possibilities;

1.11.4 it is not possible to reach agreement for any other reason.

1.12 Either the administration seeking agreement or an administration with which agreement is sought, or the Bureau, may request additional information which it may require in studying any problem relating to this agreement.

1.13 Where the Bureau receives a request under No. 1.11.1, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

1.14 Where the Bureau receives an acknowledgement following its action under No. 1.13, or where the Bureau receives a request under No. 1.11.2, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

1.15 Where the Bureau receives a request under No. 1.11.4, it shall endeavour to obtain agreement to which reference is made in No. 1.4. Where the Bureau receives from an administration no acknowledgement to the request it made under the terms of No. 1.4 for agreement within the period specified in No. 1.6, it shall act, in so far as this administration is concerned, in accordance with No. 1.13.

1.16 Where an administration fails to reply within fifteen days of the Bureau's telegram requesting an acknowledgement sent under No. 1.13, or fails to give a decision in the matter within thirty days of dispatch of the Bureau's telegram of request under No. 1.14, it shall be deemed that the administration with which agreement was sought has undertaken, once the projected allotment is included in the Plan:

1.16.1 that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its coast radiotelephone stations by the use of assignments in accordance with the allotment for which agreement was requested; and

1.16.2 that its existing or projected coast radiotelephone stations will not cause harmful interference to the use of assignments in conformity with the allotment for which agreement was requested.

1.17 The Bureau shall examine the proposed allotment with respect to the probability of harmful interference which it may receive from an allotment in the Plan of the administration which failed to reply or which indicated disagreement without supplying the reasons; if the finding is favourable and where the application of the present procedure with respect to the other administrations concerned permits, the Bureau shall enter the proposed allotment in the Plan.

1.18 In the event of an unfavourable finding, the Bureau shall inform the administration concerned of the result of the examination; if the administration insists, and where the application of the present procedure with respect to the other administrations concerned permits, the Bureau shall enter the proposed allotment in the Plan.

1.19 Where the Bureau receives a request under No. 1.11.3, it shall assess the sharing possibilities and it shall inform the administrations concerned of the results obtained.

1.20 In the case of continuing disagreement, the Bureau shall examine the proposed allotment from the point of view of harmful interference which may be caused to the services rendered by the stations of the administration having

declared its disagreement. In the case where the Bureau's finding is favourable and where the application of the present procedure with respect to the other administrations concerned permits, it shall enter the proposed allotment in the Plan.

1.21 If, after the examination under No. 1.20, the Bureau reaches an unfavourable finding, it shall then examine the proposed allotment from the point of view of harmful interference which may be caused to the services on all the various channels in the band. Should the Bureau reach an unfavourable finding in each case, it shall determine the channel which is the least affected and, if so requested by the administration seeking agreement, it shall enter the proposed allotment in this channel in the Plan.

1.22 An administration seeking agreement for a proposed allotment shall inform the Bureau of the results of its consultations with the administrations concerned. When the Bureau finds that the procedure prescribed in this section has been applied with respect to each administration concerned, the Bureau shall publish its finding in a special section of the weekly circular and, as the case may be, bring the Plan up to date.

1.23 Notwithstanding the above provisions and if the circumstances justify, an administration may, in exceptional circumstances, notify to the Bureau for provisional entry in the Master Register an assignment which is not covered by an allotment in the Plan. That administration shall, however, begin forthwith the procedure prescribed in this section.

1.24 When, within twelve months from the date of the inclusion of the allotment in the Plan, the Bureau does not receive a notice of a first frequency assignment corresponding to this allotment, or where the first notified frequency assignment has not been brought into use within the time-limits prescribed in these Regulations, before proceeding with the deletion of the allotment from the Plan, it shall consult with the administration concerned on the appropriateness of such a deletion and of publishing this information in connection with bringing the Plan up to date. However, in the case where the Bureau, in the light of a request from the administration concerned, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed six months, except in the case of an administration which has no coast station in service in which case the period may be extended to eighteen months.

1.25 Any administration in whose name an allotment is shown in the Plan, and which has a need to replace this allotment by another allotment in the same frequency band with a view to improving its service, shall apply the procedure described in this section. When that administration arrives at a positive result in applying this procedure, the Bureau, at its request, shall replace the existing allotment in the Plan by the proposed allotment.

1.26 The Bureau shall maintain an up-to-date master copy of the Plan resulting from the application of this procedure. It shall prepare in a suitable form, for publication by the Secretary-General, the whole or part of the revised version of the Plan as and when the circumstances justify and in any case once annually.

Section II: Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4 000 kHz and 27 500 kHz*

* This section will be reproduced *in extenso* in the new edition of the Radio Regulations.

APPENDIX S42

Table of Allocation of International Call Sign Series

(See Article **S19**)

Call Sign Series	Allocated to
AAA-ALZ	United States of America
AMA-AOZ	Spain
APA-ASZ	Pakistan (Islamic Republic of)
ATA-AWZ	India (Republic of)
AXA-AXZ	Australia
AYA-AZZ	Argentine Republic
A2A-A2Z	Botswana (Republic of)
A3A-A3Z	Tonga (Kingdom of)
A4A-A4Z	Oman (Sultanate of)
A5A-A5Z	Bhutan (Kingdom of)
A6A-A6Z	United Arab Emirates
A7A-A7Z	Qatar (State of)
A8A-A8Z	Liberia (Republic of)
A9A-A9Z	Bahrain (State of)
BAA-BZZ	China (People's Republic of)
CAA-CEZ	Chile
CFA-CKZ	Canada
CLA-CMZ	Cuba
CNA-CNZ	Morocco (Kingdom of)
COA-COZ	Cuba
CPA-CPZ	Bolivia (Republic of)
CQA-CUZ	Portugal
CVA-CXZ	Uruguay (Eastern Republic of)
CYA-CZZ	Canada
C2A-C2Z	Nauru (Republic of)
C3A-C3Z	Andorra (Principality of)
C4A-C4Z	Cyprus (Republic of)
C5A-C5Z	Gambia (Republic of the)
C6A-C6Z	Bahamas (Commonwealth of the)
*C7A-C7Z	World Meteorological Organization
C8A-C9Z	Mozambique (Republic of)

(*Cont.*)

Call Sign Series	Allocated to
DAA-DRZ	Germany (Federal Republic of)
DSA-DTZ	Korea (Republic of)
DUA-DZZ	Philippines (Republic of the)
D2A-D3Z	Angola (Republic of)
D4A-D4Z	Cape Verde (Republic of)
D5A-D5Z	Liberia (Republic of)
D6A-D6Z	Comoros (Islamic Federal Republic of the)
D7A-D9Z	Korea (Republic of)
EAA-EHZ	Spain
EIA-EJZ	Ireland
EKA-EKZ	Armenia (Republic of)
ELA-ELZ	Liberia (Republic of)
EMA-EOZ	Ukraine
EPA-EQZ	Iran (Islamic Republic of)
ERA-ERZ	Moldova (Republic of)
ESA-ESZ	Estonia (Republic of)
ETA-ETZ	Ethiopia (Federal Democratic Republic of)
EUA-EWZ	Belarus (Republic of)
EXA-EXZ	Kyrgyz Republic
EYA-EYZ	Tajikistan (Republic of)
EZA-EZZ	Turkmenistan
E2A-E2Z	Thailand
E3A-E3Z	Eritrea
FAA-FZZ	France
GAA-GZZ	United Kingdom of Great Britain and Northern Ireland
HAA-HAZ	Hungary (Republic of)
HBA-HBZ	Switzerland (Confederation of)
HCA-HDZ	Ecuador
HEA-HEZ	Switzerland (Confederation of)
HFA-HFZ	Poland (Republic of)
HGA-HGZ	Hungary (Republic of)
HHA-HHZ	Haiti (Republic of)
HIA-HIZ	Dominican Republic
HJA-HKZ	Colombia (Republic of)

(Cont.)

Call Sign Series	Allocated to
HLA-HLZ	Korea (Republic of)
HMA-HMZ	Democratic People's Republic of Korea
HNA-HNZ	Iraq (Republic of)
HOA-HPZ	Panama (Republic of)
HQA-HRZ	Honduras (Republic of)
HSA-HSZ	Thailand
HTA-HTZ	Nicaragua
HUA-HUZ	El Salvador (Republic of)
HVA-HVZ	Vatican City State
HWA-HYZ	France
HZA-HZZ	Saudi Arabia (Kingdom of)
H2A-H2Z	Cyprus (Republic of)
H3A-H3Z	Panama (Republic of)
H4A-H4Z	Solomon Islands
H6A-H7Z	Nicaragua
H8A-H9Z	Panama (Republic of)
IAA-IZZ	Italy
JAA-JSZ	Japan
JTA-JVZ	Mongolia
JWA-JXZ	Norway
JYA-JYZ	Jordan (Hashemite Kingdom of)
JZA-JZZ	Indonesia (Republic of)
J2A-J2Z	Djibouti (Republic of)
J3A-J3Z	Grenada
J4A-J4Z	Greece
J5A-J5Z	Guinea-Bissau (Republic of)
J6A-J6Z	Saint Lucia
J7A-J7Z	Dominica (Commonwealth of)
J8A-J8Z	Saint Vincent and the Grenadines
KAA-KZZ	United States of America
LAA-LNZ	Norway
LOA-LWZ	Argentine Republic
LXA-LXZ	Luxembourg
LYA-LYZ	Lithuania (Republic of)

(*Cont.*)

Call Sign Series	Allocated to
LZA-LZZ	Bulgaria (Republic of)
L2A-L9Z	Argentine Republic
MAA-MZZ	United Kingdom of Great Britain and Northern Ireland
NAA-NZZ	United States of America
OAA-OCZ	Peru
ODA-ODZ	Lebanon
OEA-OEZ	Austria
OFA-OJZ	Finland
OKA-OLZ	Czech Republic
OMA-OMZ	Slovak Republic
ONA-OTZ	Belgium
OUA-OZZ	Denmark
PAA-PIZ	Netherlands (Kingdom of the)
PJA-PJZ	Netherlands Antilles
PKA-POZ	Indonesia (Republic of)
PPA-PYZ	Brazil (Federative Republic of)
PZA-PZZ	Suriname (Republic of)
P2A-P2Z	Papua New Guinea
P3A-P3Z	Cyprus (Republic of)
P4A-P4Z	Aruba
P5A-P9Z	Democratic People's Republic of Korea
RAA-RZZ	Russian Federation
SAA-SMZ	Sweden
SNA-SRZ	Poland (Republic of)
SSA-SSM	Egypt (Arab Republic of)
SSN-STZ	Sudan (Republic of the)
SUA-SUZ	Egypt (Arab Republic of)
SVA-SZZ	Greece
S2A-S3Z	Bangladesh (People's Republic of)
S5A-S5Z	Slovenia (Republic of)
S6A-S6Z	Singapore (Republic of)
S7A-S7Z	Seychelles (Republic of)

(*Cont.*)

Call Sign Series	Allocated to
S8A-S8Z	South Africa (Republic of)
S9A-S9Z	Sao Tome and Principe (Democratic Republic of)
TAA-TCZ	Turkey
TDA-TDZ	Guatemala (Republic of)
TEA-TEZ	Costa Rica
TFA-TFZ	Iceland
TGA-TGZ	Guatemala (Republic of)
THA-THZ	France
TIA-TIZ	Costa Rica
TJA-TJZ	Cameroon (Republic of)
TKA-TKZ	France
TLA-TLZ	Central African Republic
TMA-TMZ	France
TNA-TNZ	Congo (Republic of the)
TOA-TQZ	France
TRA-TRZ	Gabonese Republic
TSA-TSZ	Tunisia
TTA-TTZ	Chad (Republic of)
TUA-TUZ	Côte d'Ivoire (Republic of)
TVA-TXZ	France
TYA-TYZ	Benin (Republic of)
TZA-TZZ	Mali (Republic of)
T2A-T2Z	Tuvalu
T3A-T3Z	Kiribati (Republic of)
T4A-T4Z	Cuba
T5A-T5Z	Somali Democratic Republic
T6A-T6Z	Afghanistan (Islamic State of)
T7A-T7Z	San Marino (Republic of)
T8A-T8Z	Palau (Republic of)
T9A-T9Z	Bosnia and Herzegovina (Republic of)
UAA-UIZ	Russian Federation
UJA-UMZ	Uzbekistan (Republic of)
UNA-UQZ	Kazakstan (Republic of)
URA-UZZ	Ukraine
VAA-VGZ	Canada

(*Cont.*)

Call Sign Series	Allocated to
VHA-VNZ	Australia
VOA-VOZ	Canada
VPA-VSZ	United Kingdom of Great Britain and Northern Ireland
VTA-VWZ	India (Republic of)
VXA-VYZ	Canada
VZA-VZZ	Australia
V2A-V2Z	Antigua and Barbuda
V3A-V3Z	Belize
V4A-V4Z	Saint Kitts and Nevis
V5A-V5Z	Namibia (Republic of)
V6A-V6Z	Micronesia (Federated States of)
V7A-V7Z	Marshall Islands (Republic of the)
V8A-V8Z	Brunei Darussalam
WAA-WZZ	United States of America
XAA-XIZ	Mexico
XJA-XOZ	Canada
XPA-XPZ	Denmark
XQA-XRZ	Chile
XSA-XSZ	China (People's Republic of)
XTA-XTZ	Burkina Faso
XUA-XUZ	Cambodia (Kingdom of)
XVA-XVZ	Viet Nam (Socialist Republic of)
XWA-XWZ	Lao People's Democratic Republic
XXA-XXZ	Portugal
XYA-XZZ	Myanmar (Union of)
YAA-YAZ	Afghanistan (Islamic State of)
YBA-YHZ	Indonesia (Republic of)
YIA-YIZ	Iraq (Republic of)
YJA-YJZ	Vanuatu (Republic of)
YKA-YKZ	Syrian Arab Republic
YLA-YLZ	Latvia (Republic of)
YMA-YMZ	Turkey
YNA-YNZ	Nicaragua
YOA-YRZ	Romania
YSA-YSZ	El Salvador (Republic of)

(*Cont.*)

Call Sign Series	Allocated to
YTA-YUZ	Yugoslavia (Federal Republic of)
YVA-YYZ	Venezuela (Republic of)
YZA-YZZ	Yugoslavia (Federal Republic of)
Y2A-Y9Z	Germany (Federal Republic of)
ZAA-ZAZ	Albania (Republic of)
ZBA-ZJZ	United Kingdom of Great Britain and Northern Ireland
ZKA-ZMZ	New Zealand
ZNA-ZOZ	United Kingdom of Great Britain and Northern Ireland
ZPA-ZPZ	Paraguay (Republic of)
ZQA-ZQZ	United Kingdom of Great Britain and Northern Ireland
ZRA-ZUZ	South Africa (Republic of)
ZVA-ZZZ	Brazil (Federative Republic of)
Z2A-Z2Z	Zimbabwe (Republic of)
Z3A-Z3Z	The Former Yugoslav Republic of Macedonia
2AA-2ZZ	United Kingdom of Great Britain and Northern Ireland
3AA-3AZ	Monaco (Principality of)
3BA-3BZ	Mauritius (Republic of)
3CA-3CZ	Equatorial Guinea (Republic of)
3DA-3DM	Swaziland (Kingdom of)
3DN-3DZ	Fiji (Republic of)
3EA-3FZ	Panama (Republic of)
3GA-3GZ	Chile
3HA-3UZ	China (People's Republic of)
3VA-3VZ	Tunisia
3WA-3WZ	Viet Nam (Socialist Republic of)
3XA-3XZ	Guinea (Republic of)
3YA-3YZ	Norway
3ZA-3ZZ	Poland (Republic of)
4AA-4CZ	Mexico
4DA-4IZ	Philippines (Republic of the)
4JA-4KZ	Azerbaijani Republic
4LA-4LZ	Georgia (Republic of)
4MA-4MZ	Venezuela (Republic of)
4NA-4OZ	Yugoslavia (Federal Republic of)

(*Cont.*)

Call Sign Series	Allocated to
4PA-4SZ	Sri Lanka (Democratic Socialist Republic of)
4TA-4TZ	Peru
*4UA-4UZ	United Nations
4VA-4VZ	Haiti (Republic of)
4XA-4XZ	Israel (State of)
*4YA-4YZ	International Civil Aviation Organization
4ZA-4ZZ	Israel (State of)
5AA-5AZ	Libya (Socialist People's Libyan Arab Jamahiriya)
5BA-5BZ	Cyprus (Republic of)
5CA-5GZ	Morocco (Kingdom of)
5HA-5IZ	Tanzania (United Republic of)
5JA-5KZ	Colombia (Republic of)
5LA-5MZ	Liberia (Republic of)
5NA-5OZ	Nigeria (Federal Republic of)
5PA-5QZ	Denmark
5RA-5SZ	Madagascar (Republic of)
5TA-5TZ	Mauritania (Islamic Republic of)
5UA-5UZ	Niger (Republic of the)
5VA-5VZ	Togolese Republic
5WA-5WZ	Western Samoa (Independent State of)
5XA-5XZ	Uganda (Republic of)
5YA-5ZZ	Kenya (Republic of)
6AA-6BZ	Egypt (Arab Republic of)
6CA-6CZ	Syrian Arab Republic
6DA-6JZ	Mexico
6KA-6NZ	Korea (Republic of)
6OA-6OZ	Somali Democratic Republic
6PA-6SZ	Pakistan (Islamic Republic of)
6TA-6UZ	Sudan (Republic of the)
6VA-6WZ	Senegal (Republic of)
6XA-6XZ	Madagascar (Republic of)
6YA-6YZ	Jamaica
6ZA-6ZZ	Liberia (Republic of)
7AA-7IZ	Indonesia (Republic of)
7JA-7NZ	Japan
7OA-7OZ	Yemen (Republic of)

(*End*)

Call Sign Series	Allocated to
7PA-7PZ	Lesotho (Kingdom of)
7QA-7QZ	Malawi
7RA-7RZ	Algeria (People's Democratic Republic of)
7SA-7SZ	Sweden
7TA-7YZ	Algeria (People's Democratic Republic of)
7ZA-7ZZ	Saudi Arabia (Kingdom of)
8AA-8IZ	Indonesia (Republic of)
8JA-8NZ	Japan
8OA-8OZ	Botswana (Republic of)
8PA-8PZ	Barbados
8QA-8QZ	Maldives (Republic of)
8RA-8RZ	Guyana
8SA-8SZ	Sweden
8TA-8YZ	India (Republic of)
8ZA-8ZZ	Saudi Arabia (Kingdom of)
9AA-9AZ	Croatia (Republic of)
9BA-9DZ	Iran (Islamic Republic of)
9EA-9FZ	Ethiopia (Federal Democratic Republic of)
9GA-9GZ	Ghana
9HA-9HZ	Malta
9IA-9JZ	Zambia (Republic of)
9KA-9KZ	Kuwait (State of)
9LA-9LZ	Sierra Leone
9MA-9MZ	Malaysia
9NA-9NZ	Nepal
9OA-9TZ	Zaire (Republic of)
9UA-9UZ	Burundi (Republic of)
9VA-9VZ	Singapore (Republic of)
9WA-9WZ	Malaysia
9XA-9XZ	Rwandese Republic
9YA-9ZZ	Trinidad and Tobago

* Series allocated to an international organization.

FINAL PROTOCOL*

At the time of signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the undersigned delegates take note of the following statements made by signatory delegations:

No. 1

For the Republic of Maldives: *Original:* English

The delegation of the Republic of Maldives in signing the Final Acts reserves for its Government the right to take such action as it deems necessary, to safeguard its interests in the event of any Member failing in any way to comply with the requirements of the Constitution and Convention of the ITU or the Annexes thereto, or should reservation by another country jeopardize its telecommunications services.

No. 2

For the Republic of Paraguay: *Original:* Spanish

The Republic of Paraguay supports the allocation of frequency bands to the new services (NGSO MSS), provided those services do not cause harmful interference to services currently in operation (particularly in the bands below 3 GHz); requests that every effort be made to achieve a satisfactory frequency sharing plan and that the time-frames for the possible migration of stations to other bands be complied with; and reserves the right not to accept harmful interference caused within its territory by the operation of the new services.

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

No. 3

Original: English

For the Republic of Mauritius:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Mauritius reserves for its Government the right to take such measures as it might deem necessary to safeguard its interests should any country fail in any way to respect any of the conditions specified in these Final Acts or should the reservation made by any country be prejudicial or detrimental to radiocommunication services in the Republic of Mauritius.

No. 4

Original: English

For the People's Republic of Bangladesh:

Bangladesh reserves the right of its Government to take action it considers necessary to protect its interests and safeguard the operation of its telecommunication services.

It also reserves the right to make any reservation it deems necessary prior to the ratification of these Final Acts if any provision contradicts the Constitution of the People's Republic of Bangladesh.

No. 5

Original: French

For the Republic of Guinea:

The delegation of the Republic of Guinea reserves for its Government the right to take such action at it deems necessary, in line with its national legislation and international law, to safeguard its national interests should other Members fail to comply with the Constitution and Convention of the International Telecommunication Union (Geneva, 1992) or should the reservations made by the representatives of other States jeopardize the proper functioning of its telecommunication services or the full exercise of its sovereign rights.

No. 6

For the Republic of Singapore: *Original:* English

The delegation of the Republic of Singapore reserves for its Government the right to take any action it considers necessary to safeguard its interests should any Member of the Union fail in any way to comply with the requirements of the Final Acts of the World Radiocommunication Conference (Geneva, 1995), or should reservations by any Member of the Union jeopardize the Republic of Singapore's telecommunication services, affect its sovereignty or lead to an increase in its contributory share towards defraying the expenses of the Union.

The delegation of the Republic of Singapore further reserves for its Government the right to make any additional reservations which it considers necessary up to and including the time of its ratification of the Final Acts of the World Radiocommunication Conference (Geneva, 1995).

No. 7

For Turkey: *Original:* English

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Turkey reserves for its Government the right to take whatever action it may deem necessary to safeguard its interests on the decisions taken by the Conference in modifying, amending, deleting and adding provisions, footnotes, tables, Resolutions and Recommendations in the Radio Regulations, should any Member fail in any way to comply with the Final Acts, Annexes and the Radio Regulations thereto, in using its existing services and introducing new services for space, terrestrial and other applications or should any reservation entered by other countries jeopardize the proper operation of its telecommunication services.

No. 8

For the Republic of Cameroon: *Original:* French

The delegation of the Republic of Cameroon to the World Radiocommunication Conference (Geneva, 1995), in signing the Final Acts of the Conference, declares that the Government of its country has always fulfilled all commitments entered into on its behalf. Nevertheless, on behalf of its Government the delegation of the Republic of Cameroon reserves the right:

1 to take any measures it may deem necessary to protect its legitimate interests should other Members of the International Telecommunication Union fail in any way to comply with the provisions of these said Final Acts or of the Radio Regulations;

2 to take, in addition, any steps it deems necessary to protect its interests should the reservations expressed by other Members of the International Telecommunication Union run counter to those interests.

No. 9

Original: English

For Ghana:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Ghana reserves for its Government the right to take any action it considers appropriate to safeguard its legitimate interests, should they be jeopardized through the failure of any Member of the International Telecommunication Union to comply with the provisions of these Final Acts, and to express reservations on any provisions not compatible with its laws and regulations.

No. 10

Original: English

For the Republic of Kenya:

The delegation of the Republic of Kenya herewith declares on behalf of its Government and on behalf of the powers conferred on it:

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

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

No. 11

Original: English

For the Democratic People's Republic of Korea:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Democratic People's Republic of Korea reserves the right of its Government to take any action it deems necessary to protect its interests if any other country fails in any way to observe the provisions of the Final Acts of the Conference or if reservations entered by other countries disturb the proper operation of its telecommunication services or jeopardize its sovereignty.

No. 12

Original: English

For Malta:

The delegation of Malta to the World Radiocommunication Conference (Geneva, 1995) reserves for its Government the right to take such action as it considers necessary to safeguard its interests should any Member fail in any way to abide by the provisions of the Constitution and Convention of the International Telecommunication Union, Geneva, 1992, as amended by the Plenipotentiary Conference, Kyoto, 1994, and of the Final Acts of the Conference, Geneva, 1995.

No. 13

Original: French

For the Togolese Republic:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Togolese Republic reserves for its Government the right to take any action it considers necessary for safeguarding its interests should any Member of the Union fail in any way to comply with the provisions agreed upon at WRC-95, including all Resolutions, Recommendations and revised parts of the Radio Regulations, or should the operation of new non-geostationary-satellite systems not take into account the protection of its telecommunication services.

No. 14

Original: French

For Burkina Faso:

The delegation of Burkina Faso to the World Radiocommunication Conference (Geneva, 1995), reserves for its Government the right to take any action it considers necessary in accordance with its national legislation and international law to protect its interests should Members fail in any way whatever to comply with the provisions of the Final Acts of the Conference or should reservations by Members jeopardize the efficient operation of its telecommunication services.

No. 15

For the Central African Republic: *Original:* French

By virtue of the powers conferred upon it, the delegation of the Central African Republic has the honour to sign the Final Acts of the World Radiocommunication Conference (WRC) held at Geneva, Switzerland, from 23 October to 17 November 1995. However, it reserves for its Government the right to take any action it may consider necessary and useful to safeguard its interests should the new provisions be violated by any Member of the Union.

No. 16

For the Republic of Colombia: *Original:* Spanish

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Colombia:

1 Declares that it reserves for its Government the right:

a) To take any measures it may deem necessary, in conformity with its domestic law and with international law, to safeguard its national interests should any other Members fail to comply with the provisions of the Radio Regulations or other documents contained in the Final Acts of the Conference, or should reservations by representatives of other States jeopardize the telecommunication services of the Republic of Colombia or its full sovereign rights.

b) To express reservations, under the Vienna Convention on the Law of Treaties of 1969, with regard to the Final Acts of the World Radiocommunication Conference (Geneva, 1995), at any time it sees fit between the date of the signature and the date of the possible ratification of the international instruments constituting those Final Acts.

2 Reaffirms, in their essence, reservations Nos. 40 and 79 made at the World Administrative Radio Conference (Geneva, 1979) and No. 43 made at the World Administrative Radio Conference (Malaga-Torremolinos, 1992), especially with regard to the new provisions included in the Radio Regulations (Geneva, 1995) and other documents of the Final Acts.

3 Declares that the Republic of Colombia considers itself bound by the Radio Regulations (Geneva, 1995) only in so far as it expressly and duly consents to be bound, and subject to the completion of the appropriate procedures established in its domestic law.

No. 17

Original: English

For the United Republic of Tanzania:

The delegation of the United Republic of Tanzania signed the Final Acts of the World Radiocommunication Conference for Dealing with Simplification of the Radio Regulations and Frequency Allocations in Certain Parts of the Spectrum (Geneva, 1995), on the understanding that all Parties to the Agreement will abide with all issues agreed at the Conference including all Resolutions, Recommendations and the revised parts of the Radio Regulations; in particular, regarding the following:

- that all administrations operating equipment/systems in the frequency bands below 1 GHz, in the 1 GHz to 3 GHz and above 3 GHz bands shall use frequencies which are in accordance with the agreed plan or plans to be made in the future, and that operation of such equipment/systems shall not cause interference to equipment/systems installed within Tanzania's borders;

- that administrations operating terrestrial radiocommunication systems, geostationary-satellite systems, non-geostationary-satellite systems, LEO satellite systems and broadcasting-satellite (sound) systems in the agreed frequency bands shall ensure that their frequencies will not cause interference to equipment/systems installed within Tanzania's borders. Tanzania expects to join other States in the Region to have a regional satellite system. Therefore, Tanzania expects that some of the agreed BSS frequency bands, the other satellite frequency bands and appropriate space locations will be available for the regional satellite project;

- that Tanzania will continue to broadcast on double-sideband (DSB) up to the agreed date of 2015. Subject to the availability of cheap SSB receivers, Tanzania will replace its DSB transmitters with SSB transmitters in 2015.

In the event that some Members will not execute the Final Acts of WRC-95, the Tanzanian Government will take the necessary measures to ensure proper operation of its equipment/systems within its borders and realization of their regional satellite project.

No. 18

Original: French

For the Republic of Senegal:

In signing these Final Acts subject to ratification by its Government, the delegation of the Republic of Senegal declares that its country reserves the right to take such action at it may deem necessary to safeguard its interests should:

a) other Members fail to comply with the provisions of the Final Acts of the World Radiocommunication Conference (Geneva, 1995);

b) reservations entered by other countries jeopardize the operation of its telecommunication services.

No. 19

Original: English

For the Republic of Indonesia:

The delegation of the Republic of Indonesia to the World Radiocommunication Conference (Geneva, 1995):

1 Reserves the right of its Government to take any action and preservation measures it deems necessary to safeguard its national interests should the Final Acts drawn up in the World Radiocommunication Conference (Geneva, 1995) directly or indirectly affect its sovereignty or be in contravention with the Constitution, Laws and Regulations of the Republic of Indonesia as well as with the rights of the Republic of Indonesia which exist and may result from any principles of international law. In this regard the Government of the Republic of Indonesia will recognize the legitimate interests of other countries with a view to improving the use of the geostationary and/or non-geostationary-satellite orbit, broadcasting service and other radiocommunication services for the benefit of mankind.

2 Further reserves the right of its Government to take any action and preservation measures it deems necessary to safeguard its national interests should any administration in any way fail to comply with the provisions and the requirements in the Final Acts of the World Radiocommunication Conference (Geneva, 1995) or should the consequences of reservations by any administration jeopardize the rights of the Republic of Indonesia under the Final Acts.

No. 20

Original: French / English / Spanish

For the Federal Republic of Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, the Kingdom of the Netherlands, Portugal, the United Kingdom of Great Britain and Northern Ireland and Sweden:

The delegations of the Member States of the European Union declare that the Member States of the European Union will apply the revision of the Radio Regulations adopted at this Conference in accordance with their obligations under the Treaty establishing the European Economic Community.

No. 21

Original: French

For the Republic of Burundi:

The delegation of the Republic of Burundi reserves for its Government the right to take any action it may consider necessary to protect its interests should certain Members fail in any way whatever to observe the provisions of the Radio Regulations and the Final Acts of this Conference.

No. 22

Original: English

For the Kingdom of Lesotho:

The delegation of the Kingdom of Lesotho reserves for its Administration the right to take any action it may consider necessary to safeguard and protect its interests, should certain Members of the Union fail to observe the provisions contained in the Final Acts and Annexes thereto adopted by this Conference, and should reservations entered by other Members jeopardize the operation of its radiocommunication services.

No. 23

Original: English

For Thailand:

The delegation of Thailand to the World Radiocommunication Conference (Geneva, 1995) reserves for its Government the right to take any action it deems necessary to safeguard its interests should any Member or Members of the International Telecommunication Union fail, in any way, to comply with the Final Acts of this Conference and the Annexes thereto, or should any of the declarations by other Members jeopardize its telecommunication services or infringe its national sovereignty.

No. 24

Original: English

For Greece:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995) the delegation of Greece declares:

1 that it reserves for its Government the right:

a) to take any action consistent with its national and international law that it may consider or deem necessary or useful to protect and safeguard its sovereign and inalienable rights and legitimate interests, should any Member State of the International Telecommunication Union fail in any way to comply with or apply the provisions of these Final Acts, which include the Radio Regulations and the Resolutions of the Conference, or should the acts of other entities or third parties affect its national sovereignty;

b) to make, under the Vienna Convention on the Law of Treaties of 1969, reservations to the above-mentioned Final Acts at any time it considers proper between the date of signature and the date of their ratification or approval and not to be bound by any provision of these Final Acts or of the Constitution and the Convention of the International Telecommunication Union restricting its sovereign right to make reservations;

2 that it is fully established that the term "country", used in the provisions of these Final Acts and in any other instrument or act of the International Telecommunication Union with regard to its Members and their rights and obligations, is regarded as being synonymous in all respects with the term "sovereign State" as legally constituted and internationally recognized.

No. 25

Original: French

For the Gabonese Republic:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Gabonese Republic reserves for its Government the right:

1 to take such action as it may deem necessary to safeguard its interests should other Members fail to comply in any way whatever with the decisions taken by this Conference, or should reservations entered by any other Members be such as to jeopardize the operation of its telecommunication services;

2 to accept or reject the consequences of decisions which might directly jeopardize its sovereignty, in particular any relating to the increased use of the mobile-satellite service in the bands between 1 - 3 GHz, and in the bands between 5 - 7 GHz allocated to feeder links for the mobile-satellite service.

No. 26

Original: French

For the Republic of Senegal:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Senegal formally declares that it maintains the reservations entered into on behalf of its Administration. Indeed, it considers:

1 that there is a contradiction between *resolves* 1 of Resolution **529 (WRC-95)** and Resolution **20** of the Plenipotentiary Conference (Kyoto, 1994);

2 that it is necessary to convene a planning conference before authorizing the use of HF bands allocated to the broadcasting service by the World Administrative Radio Conferences of 1979 and 1992.

No. 27

Original: Russian

For Mongolia:

The delegation of Mongolia reserves for its Government the right to take such action as it deems necessary to safeguard its interests should any Member of the Union fail to comply with the provisions of the Final Acts of this Conference or should reservations made with respect to the Final Acts or any other action taken by a Member of the Union jeopardize the proper operation of the telecommunication services of Mongolia.

No. 28

Original: English

For the Kingdom of Saudi Arabia, the State of Bahrain, the United Arab Emirates, the State of Kuwait, the Sultanate of Oman and the State of Qatar:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegations of the Administrations of the Cooperation Council for the Arab States of the Gulf (GCC) to this Conference, on behalf of their Governments, reserve the right to take any action they deem necessary to safeguard their interests should they be affected or should any Member fail to comply with the provisions of the Convention or its Annexes, or should reservations by any other country jeopardize their telecommunication services.

No. 29

Original: English

For Malaysia:

The delegation of Malaysia in signing this Final Acts reserves for its Government the right to take such actions as they may consider necessary to safeguard their interest should any Member fail in any way to comply with the requirements of the Radio Regulations of the International Telecommunication Union (Geneva, 1995), or the Annexes thereto or should reservations by other countries jeopardize their interests.

No. 30

Original: English

For Brunei Darussalam:

The delegation of Brunei Darussalam reserves for its Government the right to take any action which it considers necessary to safeguard its interests should any Member of the Union fail in any way to comply with the requirements of the Final Acts of the World Radiocommunication Conference (Geneva, 1995), or should reservations by any Member of the Union jeopardize Brunei Darussalam's telecommunication services, affect its sovereignty or lead to an increase in its contributory share towards defraying the expenses of the Union.

The delegation of Brunei Darussalam further reserves for its Government the right to make any additional reservations which it considers necessary up to and including the time of its ratification of the Final Acts of the World Radiocommunication Conference (Geneva, 1995).

No. 31

Original: English

For the Former Yugoslav Republic of Macedonia:

The delegation of the Republic of Macedonia to the World Radiocommunication Conference (Geneva, 1995), declares that the Republic of Macedonia reserves the right to take such actions it may consider necessary to protect its interests in cases where a Member of the Union fails to comply with the provisions of the Radio Regulations as modified by this Conference or make reservations that jeopardize the operation of its radiocommunication services.

No. 32

Original: English

For the Republic of Zimbabwe:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Zimbabwe states that its Administration would comply with the provisions of the Final Acts of WRC-95 without prejudice to the Republic of Zimbabwe's sovereign right to take any measures that the Government of Zimbabwe deems necessary to safeguard and protect its telecommunication and other communication services in the event of harmful interference caused to the said services by any Member of the Union failing to comply with the provisions of the Radio Regulations as revised and adopted by this Conference.

No. 33

Original: English

For the Kingdom of Swaziland:

The delegation of the Kingdom of Swaziland reserves the right of its Government to take any action it deems necessary to safeguard its interests in the event of Members failing in any way to comply with the provisions of the Final Acts of the World Radiocommunication Conference (Geneva, 1995), or should reservations by other countries jeopardize its telecommunications services.

No. 34

Original: English

For the Republic of Angola:

In signing the Final Acts of the World Radiocommunication Conference of the International Telecommunication Union, the delegation of Angola declares on behalf of its Government:

a) that it accepts no consequence of the reservations made by other governments;

b) that it reserves for its Government the right to take any steps it may consider necessary to safeguard its interests should any country fail in any way to comply with the provisions of the Regulations of the Radiocommunication Bureau of the International Telecommunication Union as amended by the Final Acts of this Conference, or if any reservations expressed by other countries were to jeopardize the proper operation of its telecommunication services;

c) that it also reserves for its Government the right to express additional specific reservations to these Final Acts or to any other instrument arising from other relevant ITU conferences which has not yet been ratified until such time as the respective instrument of ratification has been deposited.

No. 35

Original: French

For the People's Democratic Republic of Algeria:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the People's Democratic Republic of Algeria reserves for its Government the right to take any measure it considers necessary to safeguard its interests. This reservation concerns, in particular, such harmful interference as may be caused to its fixed and mobile services by the non-geostationary mobile-satellite service networks in sub-bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz until 1 January 2005.

No. 36

Original: English

For the Republic of Zambia:

The delegation of the Republic of Zambia to the World Radiocommunication Conference (Geneva, 1995) wishes to declare as follows: in signing the Final Acts of the Conference, the delegation reserves for its Government the right to take any action it may consider necessary to protect the country's telecommunications interests should any Member of the ITU fail in any way to comply with the decisions of this Conference.

No. 37

Original: English

For the Republic of Latvia:

The delegation of the Republic of Latvia reserves for its Government the right to take any action it may deem necessary to safeguard its interests, should any measure adopted by this Conference, reservation deposited or the failure by other countries to comply with this agreement jeopardize the efficient operation of its telecommunication services.

No. 38

Original: English

For the Republic of Chad:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Chad reserves for its Government the right to take any action it considers necessary to protect its interests should another country or administration fail in any way whatever to comply with the provisions of the Final Acts of this Conference or should reservations by other Members jeopardize the efficient operation of its telecommunication services.

No. 39

Original: Spanish

For Spain:

On behalf of its Government, the delegation of Spain declares that it will not be bound by any rules or provisions adopted by this Conference that are to be applied with retroactive effect.

No. 40

Original: English

For the Republic of South Africa:

The delegation of the Republic of South Africa declares that it reserves for its Government the right to take any action which it may deem necessary to safeguard its interests should any Member fail to comply with the provisions of the Constitution and Convention of the International Telecommunication Union (Geneva, 1992), its Annexes and the Protocols attached thereto, and as amended by the Final Acts of the World Radiocommunication Conference (Geneva, 1995), or should reservations or actions by other Members jeopardize its telecommunication services.

No. 41

Original: Spanish

For Ecuador:

In signing the Final Acts, the delegation of Ecuador reserves for its Government the right to take whatever measures it considers necessary should Ecuador's telecommunication services suffer interference from the radio stations of another country, or should its interests be jeopardized in any way by any action of another country, as a result of that country's failure to comply with the decisions of this Conference, or should reservations by other Members of the Union jeopardize its telecommunication services.

No. 42

Original: Spanish

For Mexico:

In signing the Final Acts, the delegation of Mexico to the ITU World Radiocommunication Conference (Geneva, 1995) reserves on behalf of its Government the right to take any measures it considers necessary to safeguard its interests should other Member countries fail in any way whatever to comply with the provisions of these Acts or should reservations by other Members of the Union jeopardize the efficient operation of its telecommunication services.

This reservation also applies to cases where other Members of the Union fail to comply with their obligations under the Radio Regulations and their adopted amendments applicable, under Article **4** of the Constitution, at the time of this Conference.

No. 43

Original: English

For Canada:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Canada reserves for its Government the right to take any measures it might deem necessary to safeguard its interests if another country should in any way fail to respect the conditions specified in the Final Acts or if the reservations made by any country should be prejudicial to the operation of radiocommunication services of Canada.

The delegation of Canada further declares that it reserves for its Government the right to make any statements or reservations when depositing its instruments of ratification for the Final Acts of the World Radiocommunication Conference (Geneva, 1995).

No. 44

Original: English

For the Federative Republic of Brazil:

Brazil came to this Conference with a proposal to advance the date of entry into force of the MSS allocation in the 2 GHz band, in order to allow for earlier competition while preserving the band agreed upon by CITEL Member countries for terrestrial personal communication systems. A key concern of the Brazilian Administration has always been the protection of its fixed service in that band. However, Brazil decided to be part of the consensus within CITEL to foster the integration of our Region and subscribed Document WRC-95/260.

Nevertheless, we reiterate the above-mentioned concern: the transition to this new allocation should be careful and gradual. In particular, the Brazilian Administration plans to continue using terrestrial links beyond 1 January 2000 in the band 2 170 - 2 180 MHz and 1 January 2005 in the band 2 020 - 2 025 MHz, and we expect that a future conference will adequately deal with the allocation to the MSS in the latter band.

No. 45

Original: English

For the Islamic Republic of Iran:

IN THE NAME OF GOD

The delegation of the Islamic Republic of Iran reserves for its Government the right to take any action as it may consider necessary to safeguard its interests should they be affected by decisions taken at this World Radiocommunication Conference (Geneva, 1995), or by failure on the part of any other country or administration in any way to

comply with the provisions of the instruments amending the Constitution and Convention of the International Telecommunication Union as adopted by the Plenipotentiary Conference (Kyoto, 1994), or the Annexes or the Protocols and Regulations attached thereto, or these Final Acts, or should reservations or declarations by other countries or administrations jeopardize the proper and efficient operation of its telecommunication services, or infringe the full exercise of the sovereign rights of the Islamic Republic of Iran.

No. 46

Original: English

For the Syrian Arab Republic:

The delegation of the Syrian Arab Republic reserves for its Administration the right to take any action it considers necessary to protect its interests if Members of the Union should fail in any way whatever to comply with the provisions of the Radio Regulations, or if reservations made by other Members should jeopardize the efficient operation of its radiocommunication services.

No. 47

Original: English

For the People's Democratic Republic of Algeria, the Kingdom of Saudi Arabia, the Islamic Republic of Iran, the Lebanon, the Socialist People's Libyan Arab Jamahiriya and the Syrian Arab Republic:

The above-mentioned delegations to the World Radiocommunication Conference (Geneva, 1995), declare that the signature and possible ratification by their respective Governments of the Final Acts of this Conference, should not be valid for the ITU Member under the name "Israel", and in no way whatsoever imply its recognition by these Governments.

No. 48

Original: Spanish

For Peru:

In signing the Final Acts of the World Radiocommunication Conference of the International Telecommunication Union (Geneva, 1995), the delegation of Peru expresses its concern at the failure to make due provision for the requirement it submitted for the introduction in the Radio Regulations of the additional allocation

indicated by "Different category of service" in the bands 137 - 143 MHz. It also reserves for its Government the right to take such action as it may consider necessary to protect its interests and allow appropriate development of the radiocommunication services necessary for its national development.

In addition, it reserves for its Government the right to take such action as it may consider necessary to protect its interests should other Members fail in any way to comply with the provisions set forth in the Radio Regulations and in the Constitution and Convention of the International Telecommunication Union and the annexes or protocols thereto or should reservations made by other Members jeopardize the proper operation of its telecommunication services.

No. 49

Original: English

For Canada:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Canada considers that the number of items appearing on the agenda for the 1997 World Radiocommunication Conference, as adopted through Resolution **718 (WRC-95)**, to be excessive, and therefore urges the 1996 session of the ITU Council to critically examine this agenda from the point of view of conformity with the budgetary ceilings established by the Plenipotentiary Conference (Kyoto, 1994) and the biennial budget approved by the 1995 session of the Council.

No. 50

Original: French

For France:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the French delegation expresses reservations should the number and complexity of the texts adopted within a very limited time give rise to interpretations which are not in conformity with the final consensus of the Conference.

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By this reservation, France formally declares that it does not recognize the potentially retroactive character of the provisions adopted by the World Radiocommunication Conference 1995, in so far as they might affect legal situations which have arisen from the Radio Regulations in force at the date of signature of these Final Acts.

France therefore reserves the right not to apply or comply with decisions of the ITU, its Sectors or its Members, or recognize the validity of objections to its own requests, whatever origin, if the application of the aforesaid provisions were to modify, directly or indirectly, the rights or obligations of the various Administrations, as recognized at the date of signature of these Final Acts and deriving from the application of the procedures in force on that date.

No. 51

Original: Spanish

For Spain:

The Spanish delegation reserves for the Kingdom of Spain the right, in accordance with the Vienna Convention on the Law of Treaties of 23 May 1969, and in view of the difficult conditions in which the texts contained in the Final Acts of this Conference were adopted, to express reservations to those Final Acts up until the time of deposit of the appropriate instrument of ratification.

No. 52

Original: English

For New Zealand:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the New Zealand delegation reserves for its Government the right to take such measures as it might deem necessary to safeguard its interests if any other country should in any way fail to respect the conditions specified in the Final Acts or if the reservations made by any country should be prejudicial or detrimental to radiocommunication services in New Zealand.

In addition, New Zealand reserves the right to make appropriate specific reservations and statements prior to ratification of the Final Acts.

No. 53

Original: English

For the People's Democratic Republic of Algeria, the Kingdom of Saudi Arabia, the Arab Republic of Egypt, the Hashemite Kingdom of Jordan, the State of Kuwait, Lebanon, the Kingdom of Morocco, the Sultanate of Oman, the Syrian Arab Republic and Tunisia:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegations of the People's Democratic Republic of Algeria, the Kingdom of Saudi Arabia, the Arab Republic of Egypt, the Hashemite Kingdom of Jordan, the State of Kuwait, Lebanon, the Kingdom of Morocco, the Sultanate of Oman, the Syrian Arab Republic and Tunisia reserve for their Governments the right to take any action they consider necessary to protect their interests; this reservation is justified among other things by:

1 doubt as to the exactness of the relationship between the revisions of the different parts of the Radio Regulations and between those revisions and the associated Resolutions and Recommendations;

2 the impossibility for a country of developing an economically viable broadcasting-satellite network in view of the limitations recommended by this Conference to be taken into consideration by the World Radiocommunication Conference scheduled for 1997 when it proceeds to revise Appendices **30 (S30)** and **30A (S30A)**.

No. 54

Original: English

For Italy:

By the present reservation, Italy formally states that it does not recognize the potentially retroactive character of the provisions adopted by the World Radiocommunication Conference 1995, as far as they could prejudice the legal situation, established under the provisions of the Radio Regulations in force at the date of the signature of the present Final Acts.

Consequently, Italy reserves its right not to apply or not to respect decisions of ITU, its sectors or its Members, or not to recognize the validity of objections to its own requests, whatever their origin, as far as the application of the above-mentioned provisions would modify, directly or indirectly, the effectiveness and the implementation of the requests, the rights or obligations of Administrations existing at the date of signature of the present Final Acts, as they result from application of procedures in force at the same date.

No. 55

Original: English

For the Socialist Republic of Viet Nam:

In signing the Final Acts of the World Radiocommunication Conference 1995 (WRC-95), the Vietnamese delegation declares on behalf of the Socialist Republic of Viet Nam that:

1 It maintains the reservations made at the Nairobi Plenipotentiary Conference (1982) and reaffirmed at the Plenipotentiary Conferences of the International Telecommunication Union held in Nice, 1989, Geneva, 1992 and Kyoto, 1994.

2 Future operation of mobile-satellite services in certain frequency bands in accordance with the decisions of the Conference (WRC-95) may affect the use by Viet Nam of existing services in these bands. Therefore, it reserves for its Government the right to continue the operation of existing services in the bands without being affected by harmful interference.

3 It reserves for its Government the right to take any action as it may consider necessary to safeguard its interests should any of the reservations or declarations by other Members jeopardize its telecommunication services or threaten its national sovereignty.

No. 56

Original: English

For Papua New Guinea:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995) which, *inter alia*, reviewed the simplified Radio Regulations and considered the technical, regulatory and administrative issues on the mobile-satellite service, and in the light of declarations and reservations deposited, the delegation of Papua New Guinea is obliged to reserve for its Government the right to take such actions as it may consider necessary to safeguard its interests should any Member(s) of the ITU fail to observe the provisions adopted by this Conference and in so doing cause harmful interference to radiocommunication systems and services which are under the jurisdiction of the Government of Papua New Guinea.

No. 57

Original: English

For the Republic of Hungary:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Hungary reserves the right for its Government to take such action as it may consider necessary to safeguard its interest should any Member States of the Union fail in any way to observe or comply with the provisions of these Final Acts or should reservations by other countries jeopardize the proper operation of its radiocommunication services.

No. 58

Original: English

For the Republic of Cyprus:

The delegation of the Republic of Cyprus reserves for its Government the right not to be bound by those provisions adopted by the World Radiocommunication Conference (WRC-95) which are potentially retroactive in character and could prejudice the legal situation established under the auspices of the Radio Regulations in force on the date of signature of the present Final Acts.

No. 59

Original: English

For Luxembourg:

By the present reservation, Luxembourg formally states that it does not recognize the potentially retroactive character of the provisions adopted by the World Radiocommunication Conference 1995, as far as they could prejudice the legal situation, established under the auspices of the Radio Regulations in force at the date of signature of the present Final Acts.

Consequently, Luxembourg reserves the possibility for itself not to apply or not to respect decisions of ITU, its sectors or its Members, or not to recognize the validity of objections to its own requests, whatever their origin, as far as the application of the above-mentioned provisions would modify, directly or indirectly, the rights or obligations of the Administrations, established at the date of signature of the present Final Acts, as they result from the application of procedures in force at the same date.

No. 60

Original: Spanish

For Cuba:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of Cuba reserves for its Government the right to take such action as it deems necessary to safeguard its interests should any Member fail to comply with the provisions of these Final Acts or use its radiocommunication services for purposes contrary to those established in the Preamble to the Constitution of the International Telecommunication Union, or should reservations by any other Member jeopardize its telecommunication services.

The delegation of Cuba also reiterates and incorporates by reference in these Final Acts all its reservations and declarations made at previous world administrative radiocommunication conferences.

The delegation of Cuba reserves for its Government the right to make any additional reservations which it deems necessary until ratification of the aforesaid Final Acts.

No. 61

Original: Spanish

For the Argentine Republic:

The delegation of the Argentine Republic reserves for its Government the right to take any action it may deem necessary to safeguard its interests should any decision taken by this Conference, reservations made by other Members of the Union, or failure by other countries to comply with this agreement jeopardize the proper operation of its telecommunication services.

No. 62

Original: English

For the Republic of India:

In signing the Final Acts of the World Radiocommunication Conference, Geneva, 1995 (WRC-95), the delegation of the Republic of India reserves for its Government the right to take such actions, as may be considered necessary, to safeguard its interests should any Administration make reservations and/or not accept the provisions of the Final Acts or fail to comply with one or more provisions of the Final Acts, including those which form a part of the Radio Regulations.

No. 63

Original: English

For the Republic of the Philippines:

The delegation of the Republic of the Philippines reserves for its Government the right to take any action it deems necessary and sufficient, consistent with its national law to safeguard its interests, should reservations made by representatives of other States jeopardize its telecommunication services or prejudice its rights as a sovereign country.

The Philippines delegation further reserves for its Government the right to make any declaration or reservations prior to the deposit of the instrument of ratification of the Final Acts of the World Radiocommunication Conference 1995, held in Geneva, from 23 October to 17 November 1995.

No. 64

Original: English

For the Federal Republic of Germany, the Republic of Cyprus, the Republic of Hungary, Luxembourg, Norway, the Kingdom of the Netherlands, Portugal and Sweden:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegations of the above-mentioned countries formally declare that their agreement to Resolution **118 (WRC-95)** is on the explicit understanding that the application of the provisions of the said Resolution has no detrimental retroactive effect whatsoever on geostationary-satellite systems and networks under coordination, coordinated, notified or recorded. In particular, they will only accept "*resolves* 2" in connection with "*resolves* 3" of this Resolution to mean that non-geostationary-satellite networks and systems which were notified or recorded before 18 November 1995 will continue to have to observe Radio Regulation No. **2613** with respect to geostationary-satellite networks and systems under coordination, coordinated, notified or recorded before 18 November 1995, i.e. there will be no change in their respective rights and obligations. The relation, i.e. the "respective status" as referred to in "*resolves* 3" of the said Resolution, between the aforementioned geostationary and non-geostationary-satellite networks and systems will therefore continue to be governed by the provisions of Articles **11** and **13** of the Radio Regulations (Edition 1990, revised in 1994), i.e. this

relation remains unchanged and is not affected by the said Resolution. The delegations of the above-mentioned countries formally declare that they will consider any interpretation contrary to the above as null and void and as not establishing any obligation whatsoever on the Governments or the Administrations of their countries. The delegations of the above-mentioned countries therefore reserve for their Governments the right to take any action they might consider necessary to safeguard their interests with regard to the matter referred to above.

No. 65

Original: English

For the People's Republic of China:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the Chinese delegation declares on behalf of its Government that:

1 In view of the possibility of harmful interference from the operation of non-GSO MSS including their feeder links and non-GSO FSS in some frequency bands newly allocated to them by the Conference to the use of those services already allocated in these bands, the Chinese delegation reserves for its Government the right to continue to use the existing and planned services in these bands free from harmful interference.

2 In view of the absence of relevant technical standards and computing programmes in some coordination procedures contained in the Radio Regulations revised at this Conference, the Chinese delegation reserves for its Government the right to take any actions it may consider necessary to safeguard its interests.

3 Given that some parts of the Final Acts were adopted in very limited time and in the case of the legal confusion which might ensue as a consequence, the Chinese delegation reserves for its Government the right to take any measures aimed at safeguarding its interests.

4 The Chinese delegation reserves for its Government the right to take such actions it may deem necessary to safeguard its interests, should any Member fail in any way to comply with the requirements of these Final Acts or should reservations by other countries jeopardize its interests.

5 The Chinese delegation reserves for its Government the right to make additional reservations when ratifying the Final Acts.

No. 66

Original: Russian

For the Republic of Armenia, the Republic of Belarus, the Republic of Kazakstan, the Republic of Moldova, the Republic of Uzbekistan, the Republic of Kyrgyzstan, the Russian Federation and Ukraine:

The delegations of the above-mentioned countries reserve for their respective Governments the right to take any action they consider necessary to protect their interests should any Member of the Union fail to comply with the provisions of the Final Acts of this Conference or should reservations made upon signing the Final Acts or other measures taken by any Member of the Union jeopardize the proper operation of those countries' telecommunication services.

No. 67

Original: English

For the United States of America:

1 The United States of America shall not be deemed to have consented to be bound by revisions of the Radio Regulations adopted at this Conference without specific notification to the International Telecommunication Union by the United States of America of its consent to be bound.

2 The United States of America refers to No. **445** and No. **446** of the International Telecommunication Union Convention (Geneva, 1992) and notes that in considering the Final Acts of this World Radiocommunication Conference (Geneva, 1995), the United States of America may find it necessary to make additional declarations or reservations. Accordingly, the United States of America reserves the right to make additional specific declarations or reservations at the time of deposit of its notification to the International Telecommunication Union of its consent to be bound by the revisions to the Radio Regulations adopted by this World Radiocommunication Conference.

3 The United States of America declares that, in view of the fact that the Conference has unduly restricted allocations for mobile-satellite services in the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz, it will utilize these bands in the way most appropriate to satisfy its particular mobile-satellite service requirements recognizing the priority of AMSS(R) and maritime safety communications.

No. 68

Original: English

For the United States of America and the United Kingdom of Great Britain and Northern Ireland:

Referring to the frequency range below 3 GHz concerning mobile-satellite services, it is necessary to note that proposals were put forward at this Conference to revise No. **726D (S5.354)** to the Table of Frequency Allocations in Article **8** in order to avoid additional and unnecessary burdens of coordination between geostationary and non-geostationary mobile-satellite networks in the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz. There was insufficient time to consider these proposals at this Conference. Accordingly, the above administrations will not accept any additional commitments for coordination arising from No. **726D (S5.354)**. This reservation is made on behalf of all national and international organizations for whose frequency assignments the two countries are the notifying administrations.

No. 69

Original: French

For the Republic of Mali:

In taking note of Document 310 containing the reservations and in signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Republic of Mali reserves for its Government the right to take any action it might consider necessary to protect its interests.

This reservation concerns, in particular:

1) the bringing forward to 1 January 1996 of the date for the use of HFBC frequencies allocated at WARC-79, contrary to Resolution **20** of the Plenipotentiary Conference (Kyoto, 1994);

2) any deletions or amendments to the Radio Regulations that could jeopardize the protection of fixed or mobile services.

The delegation of the Republic of Mali to the World Radiocommunication Conference (Geneva, 1995) on behalf of its Government also expresses its sincere regret at the discontinuation of assistance, in particular the technical support provided by the Radiocommunication Bureau to the developing countries in the planning of radio frequencies.

No. 70

Original: English

For the Republic of Suriname:

Having taken note of Document 310, the delegation of the Republic of Suriname declares that its Government reserves the right to take such action as it may consider necessary to protect its interests, should a Member fail in any way to observe the provisions of the Constitution and Convention of the International Telecommunication Union (Geneva, 1992), or should the reservations made by such Member jeopardize its telecommunication services or lead to an increase in Suriname's share in defraying the expenses of the Union.

No. 71

Original: French

For Lebanon:

Having taken note of the reservations deposited by certain Members of the Union at the World Radiocommunication Conference (Geneva, 1995) (Document 310), Lebanon herewith formally declares that it does not recognize the potentially retroactive nature of the provisions adopted by this Conference, to the extent that they may prejudice the legal situations established under the auspices of the Radio Regulations in force on the date these Final Acts are signed.

Lebanon therefore reserves the possibility of not applying or not complying with decisions by the ITU, its Sectors or its Members, and of not recognizing the validity of objections to its own requests, of whatever origin, should the application of the above-mentioned provisions directly or indirectly modify the rights and obligations of the Administrations established at the date these Final Acts are signed, arising from the application of procedures in force at the same date.

No. 72

Original: English

For the Islamic Republic of Pakistan:

Having taken note of the reservations put forward by Members of the Union participating in WRC-95 (in Document 310), Pakistan's delegation declares that:

1 In signing the Final Acts of the 1995 World Radiocommunication Conference (WRC-95), the delegation of the Islamic Republic of Pakistan reserves its Government's right of ratification of the decisions taken by the WRC-95 Conference, in accordance with National Law, and further reserves the right of its Government to take

effective steps to safeguard and protect its interests if any administration operates any satellite, broadcasting and other telecommunication services/systems in violation of the Radio Regulations in force or the decisions taken by the World Radiocommunication Conference (WRC-95) and ratified by the Government of the Islamic Republic of Pakistan. It also further reserves the right of its Government to take steps if reservations or declarations made by any other country or administration jeopardize the proper and efficient operation of its satellite, broadcasting and other telecommunication services/systems.

2 The Government of the Islamic Republic of Pakistan cannot undertake to accept any transmission to or infringement of its territory by means of radio transmissions of any other Administration and reserves its right to take such steps as necessary should this happen.

3 That the decisions of the 1995 World Radiocommunication Conference (WRC-95) for dealing with frequency allocations in certain parts of the spectrum regarding areas falling within the territories of the disputed states of Jammu and Kashmir are without prejudice to the position recognized by the relevant resolutions of the United Nations on the question.

4 In Pakistan, the use of various frequency bands allocated to MSS on primary/secondary basis, shall not cause harmful interference to or claim protection from other services in these bands having the same status of allocation, or constrain the development of fixed and mobile services.

No. 73

Original: English

For the Socialist People's Libyan Arab Jamahiriya:

Having noted Document 310 and in signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), the delegation of the Great Socialist People's Libyan Arab Jamahiriya reserves for its country the right to take any measures it considers necessary to safeguard its interests. This reservation concerns, in particular, such harmful interference as may be caused to its fixed and mobile services by the non-geostationary mobile-satellite service networks in sub-bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz, until 1 January 2005.

No. 74

Original: English

For the Federal Democratic Republic of Ethiopia:

Having taken note of Document 310 and in signing the Final Acts of the World Radiocommunication Conference 1995, the delegation of the Federal Democratic Republic of Ethiopia reserves for its Government the right to take any action it considers appropriate to safeguard its legitimate interests, should they be jeopardized through the failure of any Member of the International Telecommunication Union to comply with the provisions of these Final Acts, and to express reservations on any provisions not compatible with its laws and regulations.

No. 75

Original: English

For the State of Israel:

Declaration 47 to the Final Acts made by certain delegations is incompatible with the principles, objects and purpose of the Constitution and Convention of the International Telecommunication Union, and is therefore devoid of all legal validity.

With regard to the substance of the matter, the Government of Israel will adopt towards the Members whose delegations have made the above-mentioned Declaration, an attitude of complete reciprocity. In view of this Declaration, the Government of Israel reserves its right to take any action deemed necessary to protect its interests and to safeguard the operation of its telecommunications services.

No. 76

Original: English

For the Republic of Korea:

The delegation of the Republic of Korea after having considered the declarations contained in Conference Document 310, in signing the 1995 Final Acts of the World Radiocommunication Conference of the International Telecommunication Union, reserves the right for the Government of the Republic of Korea to take any measures it considers appropriate to safeguard its interests.

The delegation of the Republic of Korea further reserves for the Government of the Republic of Korea the right to make any statements and reservations when depositing its instrument of ratification for the Final Acts of the 1995 World Radiocommunication Conference of the International Telecommunication Union.

No. 77

Original: English

For the Republic of Slovenia:

Having taken note of the declarations presented by many delegations, the delegation of the Republic of Slovenia to the World Radiocommunication Conference (Geneva, 1995) declares the following reservation at signing the Final Acts of the WRC-95 and reserves the right for its Government to take such action as it may consider necessary to safeguard its interest should any Member States of the Union fail in any way to observe or comply with the provisions of these Final Acts or should reservations by other countries jeopardize the proper operation of its radiocommunications services.

No. 78

Original: English

For the Federal Republic of Germany, Australia, the Republic of Bulgaria, the United States of America, France, the Republic of India, Italy, Japan, the Principality of Liechtenstein, Luxembourg, Norway, New Zealand, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland and the Confederation of Switzerland:

The delegations of the above-mentioned countries referring to the Declaration made by the Republic of Colombia (No. 16), inasmuch as this statement refers to the Bogota Declaration of 3 December 1976 by equatorial countries and to the claims of those countries to exercise sovereign rights over segments of the geostationary-satellite orbit, and any similar statements, consider the claims in question cannot be recognized by this Conference. Further, the above-mentioned delegations wish to affirm or reaffirm the Declarations made on behalf of a number of the above-mentioned Administrations in this regard when signing the Final Acts of the World Administrative Radio Conference (Geneva, 1979), and the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (first and second sessions, Geneva, 1985 and 1988), the Plenipotentiary Conference of the International Telecommunication Union (Nice, 1989), in the Final Protocol of the International Telecommunication Convention (Nairobi, 1982) and the Final Acts of the Additional Plenipotentiary Conference (Geneva, 1992), as if these Declarations were here repeated in full.

The above-mentioned delegations also wish to state that reference in Article **44** of the Constitution to the "geographical situation of particular countries" does not imply a recognition of claim to any preferential rights to the geostationary-satellite orbit.

No. 79

(This number has not been used)

No. 80

Original: English

For the Slovak Republic:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995) and having studied Document 310, the delegation of the Slovak Republic reserves for its Government the right to take such action as it deems necessary, to safeguard its interests should any Member of the ITU fail in any way to comply with the Final Acts and Annexes or should the reservations made by the representatives of other States jeopardize the proper operation of its telecommunication services.

No. 81

Original: English

For the Republic of Poland:

In signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995) and having read Document 310, the Polish delegation declares that:

1 In view of the possibility of harmful interference from non-GSO satellite systems in some frequency bands newly allocated to them by the Conference to those services already operating in these bands according to national regulations, the Polish delegation reserves for its Government the right to continue to use the existing systems in these bands free from harmful interference.

2 The Polish Administration in considering the Final Acts of this World Radiocommunication Conference (Geneva, 1995) may find it necessary to make additional declarations or reservations.

No. 82

Original: English

For the United States of America:

With respect to Declarations 39, 50, 54, 59 and 64, the interpretation of the United States of America on the basis of which the majority of delegations to this Conference supported the United States of America and Indonesian proposals which resulted in Resolution **118 (WRC-95)** is as follows:

Any satellite system, GSO or non-GSO, communicated or notified to the Bureau before 18 November 1995 has a status derived from the date of notification or communication of information required for coordination or notification, as the case may be.

As of 18 November 1995, Resolution **46** applies to all these systems and they shall be coordinated one system with respect to another system in the order of receipt of the information described above.

With respect to the applicability of No. **2613** as agreed in Committee 4, No. **2613** is of an operational character and No. **2613** and Resolution **46** are mutually exclusive.

*

* *

The United States of America reiterates and incorporates by reference all declarations or reservations made at prior world radiocommunication conferences and in particular with regard to Declaration 60 of this Conference.

No. 83

Original: English

For the Federated States of Micronesia:

After having considered the declarations and reservations contained in Conference Document 310, the delegation of the United States of America, acting on behalf of the Government of the Federated States of Micronesia pursuant to No. **335** of the International Telecommunication Union Convention (Geneva, 1992) declares that it reserves for the Government of the Federated States of Micronesia the right to make any statements or reservations necessary to safeguard Micronesian interests should statements or reservations made by other Members jeopardize the proper operation of the telecommunication services of the Federated States of Micronesia.

No. 84

Original: English

For the Federal Republic of Nigeria:

Having studied the declarations contained in Document 310, the Federal Republic of Nigeria, in signing the Final Acts of the World Radiocommunication Conference (Geneva, 1995), reserves the right for its Government to take any measures it might deem necessary to safeguard its interests if another country should in any way fail to respect the conditions specified in the Final Acts or if the reservations made by another country should be prejudicial to the operation of radiocommunication services of the Federal Republic of Nigeria.

Furthermore, the Nigerian delegation declares that the Government of the Federal Republic of Nigeria reserves the right to make any change when depositing its instruments of ratification for the Final Acts of the World Radiocommunication Conference (Geneva, 1995).

No. 85

Original: English

For Greece:

The delegation of Greece declares with regard to Declaration 31 that the text contains an indication of the respective country not conforming to the name under which this country is admitted to the ITU and the UN. Such an act does not in any way give right to that country to use that improper indication and does not entail any relevant consequence.

(The signatures follow)

(The signatures following the Final Protocol are the same as those shown on pages 3 to 19, with the exception of Denmark, Republic of India, Principality of Monaco and Romania which did not sign it.)

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RESOLUTION 13 (Rev.WRC-95)

Formation of Call Signs And Allocation of New International Series

The World Radiocommunication Conference (Geneva, 1995),

considering

a) the adoption by this Conference of Article **S19** and Appendix **S42**;

b) the increasing demand for call signs justified by the increased number of Members of the Union and by the increased requirements of countries which are already Members,

believing

that call signs already in use should, as far as possible, not be changed,

noting

a) that the former call sign series formed of three letters, or a figure and two letters, having been exhausted, a new series has been introduced formed of a letter, a figure and a letter; but in no case may the figure be 0 or 1;

b) that the method mentioned in *noting a)* is not applicable to series beginning with one of the following letters: B, F, G, I, K, M, N, R, W,

resolves

1. that the Director of the Radiocommunication Bureau shall continue to urge administrations:

1.1 to make maximum use of the possibilities of the series at present allocated, in order to avoid, as far as possible, further requests;

1.2 to review the call-sign assignments they have already made from their present allocations, with a view to releasing any series and placing them at the disposal of the Union;

2. that the Director shall, upon request, furnish advice to administrations on the means of effecting the greatest economy, which should be the rule, in the use of a series of call signs;

3. that if, nevertheless, before the next competent world radiocommunication conference, it appears that all the possibilities of the present system of forming call signs will be exhausted, the Director shall:

3.1 explore the possibility of extending the present series as foreseen in Resolution **71(WRC-95)**;

3.2 issue a circular-letter:

3.2.1 explaining the position;

3.2.2 urging the administrations to send in their proposals for possible solutions;

4. that, from the information thus submitted, the Director shall prepare a report, together with his comments and suggestions, for submission to the next competent world radiocommunication conference.

RESOLUTION 21 (Rev.WRC-95)

Implementation of Changes in Frequency Allocations Between 5 900 kHz and 19 020 kHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that parts of the frequency bands between 5 900 kHz and 19 020 kHz which were previously allocated on an exclusive or shared basis to the fixed and mobile services have been reallocated to the broadcasting service;

b) that some existing fixed and mobile assignments may need to be removed progressively from those reallocated bands to make way for the broadcasting service;

c) that the assignments to be removed, termed "displaced assignments", must be reaccommodated in other appropriate frequency bands;

d) that developing countries may require special assistance from the Bureau, as well as in application of Resolution **22 (WARC-92)**, in replacing their displaced assignments with appropriate protection;

e) that procedures already exist in Article **S11** of the Radio Regulations that may be used to this effect,

recognizing

the difficulties that administrations and the Bureau might encounter during the period of transition from the previous allocations to those made by the World Administrative Radio Conference (Malaga-Torremolinos, 1992),

resolves

1. that the duration of the transition period shall be from 1 April 1992 to 1 April 2007;

2. that administrations should no longer notify any frequency assignments to stations of the fixed and mobile services in the reallocated bands. Assignments notified in these bands after 1 April 1992 shall bear a symbol to indicate that the finding will be examined by the Bureau as of 1 April 2007 in accordance with the provisions of No. **S11.31** of the Radio Regulations;

3. that the Bureau shall undertake a continuing action to review the Master International Frequency Register with the help of administrations. In this respect, the Bureau shall periodically consult the administrations concerning the frequency assignments to links for which another satisfactory means of telecommunication exists, with a view to either downgrading assignments of class of operation A or deleting such assignments;

4. that administrations shall, for assignments of class of operation A in the reallocated bands, either notify the replacement frequencies to the Bureau or request the Bureau's assistance in selecting the replacement frequencies in application of Articles **S7** and **S13** of the Radio Regulations;

5. that the Bureau shall develop in due time a draft procedure to be used for the replacement of remaining frequency assignments and shall consult administrations in accordance with Article **S14** of the Radio Regulations;

6. that the Bureau should modify the draft procedures taking into account, to the extent practicable, comments received from administrations, and propose replacement assignments at the latest three years before 1 April 2007. In so doing, the Bureau shall request administrations to take appropriate action to bring their assignments in conformity with the Table of Frequency Allocations by the due date;

7. that a replacement frequency assignment whose basic characteristics, with the exception of the assigned frequency, have not been modified in the above process, shall keep its original date. However, if these basic characteristics of a replacement frequency assignment are different from those of the displaced assignment, the replacement assignment shall be treated in accordance with the relevant provisions of Section **II** of Article **S11** of the Radio Regulations,

invites administrations

when seeking reaccommodation of the displaced assignments for their fixed and mobile services in the bands between 5 900 kHz and 19 020 kHz which have been reallocated to the broadcasting service, to make every effort to find replacement assignments in the bands allocated to the fixed and mobile services concerned.

RESOLUTION 23 (WRC-95)

Provisions Applicable to the Frequency Assignments in the Non-planned Bands Below 28 000 kHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the provisions relating to the notification, examination and recording of the frequency assignments in the bands below 28 000 kHz were modified by this Conference, by suppressing, *inter alia*, provisions Nos. **1241-1245** of the Radio Regulations relating to the examination of the probability of harmful interference and the related re-submission and inquiry procedures for the frequency assignments in the bands that are not subject to Plans (provisions Nos. **1252-1265**, **1269-1273**, **1305-1308** and **1416-1420** of the Radio Regulations);

b) that the application of the above procedures is time-consuming and requires manpower resources that may be more efficiently used for other tasks;

c) that the application of the simplified Radio Regulations would lead to the review of all assignments recorded in the Master Register, in particular those which will be examined under the above provisions prior to the entry into force of the simplified Radio Regulations,

resolves

that, with effect from 18 November 1995, the Bureau shall not examine with respect to Nos. **1241-1245** of the Radio Regulations, and shall not apply the related provisions to, frequency assignment notices in the non-planned bands below 28 000 kHz, including those received prior to 18 November 1995 and whose treatment was not completed by that date, and shall enter a remark in the Master Register for each assignment treated under this Resolution.

RESOLUTION 24 (WRC-95)

Review of the Provisions of the Constitution Relating to Revisions of the Radio Regulations

The World Radiocommunication Conference (Geneva, 1995),

noting

a) that, pursuant to Nos. **29** and **31** of the Constitution of the International Telecommunication Union (Geneva, 1992), the Radio Regulations are an instrument of the Union which complement the provisions of the Constitution and the Convention;

b) that the provisions of No. **216** of the Constitution only apply to revisions of the Radio Regulations adopted prior to 22 December 1992;

c) that revisions of the Radio Regulations adopted after the aforementioned date are governed by Nos. **217** to **223** of the Constitution;

d) that the decisions of this Conference shall in all circumstances be in conformity with the provisions of the Constitution and Convention (see No. **92** of the Constitution),

considering

a) that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the Radio Regulations, so that countries or groups of countries may have equitable access to both (No. **196** of the Constitution);

b) that the Radio Regulations should be applicable to all the Members of the Union;

c) that ratification, acceptance or approval of the Constitution and Convention (Geneva, 1992) binds Members to amendments of the Radio Regulations adopted prior to the date of signature of the Final Acts of the Additional Plenipotentiary Conference (Geneva, 1992);

d) that subsequent amendments to the Radio Regulations apply, from the date of their provisional application, to all Members who have signed the respective Final Acts, *provisionally to the extent permitted by their national law* for a period of three years (No. **217** of the Constitution), and that Members are not required to make known the extent of this provisional application;

e) that world radiocommunication conferences shall normally be convened every two years (No. **90** of the Constitution);

f) that Members will be entitled to participate in such conferences with full voting rights even if they do not apply the previous revisions of the Radio Regulations;

g) that, during the period of provisional application, the status of application of the Radio Regulations in each Member country will be uncertain, and that as a result of the different time periods referred to in *considering d)* and *e)* above, it will become increasingly uncertain with each revision,

resolves to request the next ordinary Plenipotentiary Conference

to review the provisions of Nos. **217** to **223** of the Constitution in the light of the points raised under *noting* and *considering* in this Resolution,

resolves to invite Members of the Union

1. to propose to the next ordinary Plenipotentiary Conference, in accordance with No. **224** of the Constitution, appropriate amendments to the provisions of the Constitution pertaining to the entry into force of the Administrative Regulations, in particular the Radio Regulations, considering any consequential impact on the scheduling of conferences;

2. in respect of the revisions of the Radio Regulations adopted by this Conference for provisional application prior to the next World Radiocommunication Conference (WRC-97), to advise the Secretary-General of the status of their provisional application, or whether they consent to be bound or not, prior to WRC-97,

instructs the Secretary-General

to inform WRC-97 of the Members' responses in accordance with *resolves* 2.

RESOLUTION 25 (WRC-95)

Operation of Global Satellite Systems for Personal Communications

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that, in accordance with No. **6** of its Constitution (Geneva, 1992), one of the purposes of the Union is "to promote the extension of the benefits of the new telecommunication technologies to all the world's inhabitants";

b) that, to this end, the Union is fostering the use of new technologies in telecommunications and is studying questions relating to this use in the Radiocommunication and the Telecommunication Standardization Sectors;

c) that the Telecommunication Development Sector is studying questions aimed at identifying the benefits that developing countries may derive from using new technologies;

d) that, among these new technologies, constellations of low-Earth orbit satellites may provide global coverage and facilitate low-cost communications;

e) that the ITU Council, at its 1995 session, resolved in its Resolution **1083** that the theme "global mobile personal communications by satellite" be discussed at the first World Telecommunication Policy Forum established by Resolution **2** of the Plenipotentiary Conference (Kyoto, 1994),

recognizing

a) that the spectrum available to global satellite systems for personal communications is limited;

b) that successful coordination does not in any way imply licensing authorization to provide a service within the territory of a Member,

considering further

that other countries intending to use these systems should be guaranteed that they will be operated in accordance with the Constitution, the Convention and the Administrative Regulations,

noting

a) that the Constitution recognizes the sovereign right of each State to regulate its telecommunications;

b) that the International Telecommunication Regulations "recognize the right of any Member, subject to national law and should it decide to do so, to require that administrations and private operating agencies, which operate in its territory and provide an international telecommunication service to the public, be authorized by that Member", and specifies that "within the framework of the present Regulations, the provision and operation of international telecommunication services in each relation is pursuant to mutual agreement between administrations";

c) that Article **24** of the Radio Regulations specifies the authorities for licensing the operation of stations within any given territory;

d) the right of each Member to decide on its participation in these systems, and the obligations for entities and organizations providing international or national telecommunication services by means of these systems to comply with the legal, financial and regulatory requirements of the administrations in whose territory these services are authorized,

resolves

that administrations licensing global satellite systems and stations intended to provide public personal communications by means of fixed, mobile or transportable terminals shall ensure, when licensing these systems and stations, that they can be operated only from the territory or territories of administrations having authorized such service and stations in compliance with Articles **23** and **24** of the Radio Regulations, in particular No. **2020**,

urges administrations and other members of the Sectors

to participate in the first World Telecommunication Policy Forum dealing with global satellite systems for personal communications,

invites administrations

to cooperate with worldwide satellite system operators in establishing mutually beneficial arrangements for the provision of service within their territories,

reminds operators of such systems

to take account, when contracting agreements on the operation of their systems from the territory of a country, of any potential loss of revenue that the country may suffer from a possible reduction of its international traffic existing at the time such agreements are executed.

RESOLUTION 26 (WRC-95)

Footnotes to the Table of Frequency Allocations

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that footnotes to the Table of Frequency Allocations should be clear, concise and easy to understand;

b) that footnotes should relate directly to matters of frequency allocation;

c) that there is a need to review footnotes regularly in order to ensure that any which are no longer required are deleted;

d) that, in order to ensure that footnotes allow modification of the Table of Frequency Allocations without introducing unnecessary complications, principles relating to the use of footnotes are needed,

resolves

1. that, wherever possible, footnotes to the Table of Frequency Allocations should be confined to altering, limiting, or otherwise changing the relevant allocations rather than dealing with the operation of stations, assignment of frequencies or other matters;

2. that the Table of Frequency Allocations should include only those footnotes which have international implications for the use of the radio-frequency spectrum;

3. that new footnotes to the Table of Frequency Allocations should only be adopted in order to:

a) achieve flexibility in the Table of Frequency Allocations;

b) protect the relevant allocations in the body of the Table and in other footnotes in accordance with Section **II** of Article **S5** of the Radio Regulations;

c) introduce either transitional or permanent restrictions on a new service to achieve compatibility; or

d) meet the specific requirements of a country or area when it is impracticable to satisfy such needs otherwise within the Table of Frequency Allocations;

4. that footnotes serving a common purpose should be in a common format, and, where possible, be grouped into a single footnote with appropriate references to the relevant frequency bands;

5. that recommended agendas for future world radiocommunication conferences should include an agenda item which would enable country footnotes, or country names in footnotes, to be deleted, if no longer required,

urges administrations

that, in making proposals to world radiocommunication conferences, account should be taken of *resolves* 1 to 5,

instructs the Director of the Radiocommunication Bureau

to review footnotes periodically, in consultation with concerned administrations, and communicate the results to future world radiocommunication conferences, in order to enable administrations to propose the deletion of their country footnotes, or their own country names from footnotes, as appropriate.

RESOLUTION 27 (WRC-95)

References to ITU-R Recommendations in the Radio Regulations

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that principles of incorporation by reference have been adopted by this Conference (see Annex hereto);

b) that there are provisions of the Radio Regulations which employ mandatory incorporation by reference but fail to make explicit reference to the ITU-R Recommendations incorporated;

c) that, by Resolution ITU-R **38**, the 1995 Radiocommunication Assembly established a special committee to address the review of regulatory/procedural matters,

resolves

that, in view of *considering b)*, the provisions of the Radio Regulations which use mandatory incorporation by reference should be studied in order to determine whether they require modification pursuant to the principles adopted by this Conference,

urges administrations

to review the ITU-R Recommendations and the provisions of the Radio Regulations employing incorporation by reference in light of *resolves* above,

instructs the Director of the Radiocommunication Bureau

to arrange for appropriate studies to be conducted by the new special committee established by the 1995 Radiocommunication Assembly to address the review of regulatory/procedural matters and for the committee to report the results of those studies to the 1997 Conference Preparatory Meeting.

ANNEX TO RESOLUTION 27 (WRC-95)

Principles of Incorporation by Reference

1. No restrictions are necessary on the inclusion of references where these are non-mandatory. In such cases, reference could be made to "the latest version" of a Recommendation.

2. Mandatory references to Resolutions or Recommendations of a world radiocommunication conference (WRC) are acceptable without restriction, since such texts will have been agreed by a WRC.

3. Where mandatory references are suggested, and the relevant texts are brief, the referenced material should be incorporated in the body of the Radio Regulations.

4. If, on a case-by-case basis, it is decided to incorporate material by reference on a mandatory basis, then the following provisions shall apply:

4.1 the referenced text shall have the same treaty status as the Regulations themselves;

4.2 the reference must be explicit, specifying the specific part of the text (if appropriate) and the version or issue number;

4.3 the referenced text must be adopted by the Plenary of a competent WRC, but should not be part of the Final Acts;

4.4 all texts incorporated by reference must be readily available, by being published in a separate volume;

4.5 if, between WRCs, a referenced text (e.g. an ITU-R Recommendation) is updated, the reference in the Radio Regulations shall continue to apply to the original version until such time as a competent WRC agrees to incorporate the new version of the reference. The mechanism for considering such a step is given in Resolution **28 (WRC-95)**.

RESOLUTION 28 (WRC-95)

Revision of References to ITU-R Recommendations Incorporated by Reference in the Radio Regulations

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the Voluntary Group of Experts on simplification of the Radio Regulations (VGE) proposed the transfer of certain texts of the Radio Regulations to other documents, especially to ITU-R Recommendations, using the incorporation by reference procedure;

b) that, in some cases, the provisions of the Radio Regulations imply an obligation on Members to conform to the criteria or specifications incorporated by reference;

c) that references to incorporated texts shall be explicit and shall refer to a precisely identified provision;

d) that, taking into account the rapid evolution of technology, ITU-R may revise the Recommendations incorporated by reference at short intervals;

e) that revised and approved Recommendations will not have the same legal force as the initial Recommendations, incorporated by reference until a competent world radiocommunication conference has so decided;

f) that it would be desirable to ensure, in the cases provided for in the Radio Regulations, that the provisions reflect the most recent technical developments,

resolves

1. that each Radiocommunication Assembly shall communicate to the following world radiocommunication conference a list of the ITU-R Recommendations incorporated by reference in the Radio Regulations which have been revised and approved during the elapsed study period;

2. that, on this basis, the WRC shall examine those revised Recommendations, and decide whether or not to update the corresponding references in the Radio Regulations;

3. that, if the WRC decides not to update the corresponding references, ITU-R shall continue publishing the ITU-R Recommendations currently referenced in the Radio Regulations;

4. that WRCs shall place the examination of Recommendations in conformity with *resolves* 1 and *resolves* 2 of this Resolution on the agenda of future WRCs,

urges administrations

to participate actively in the work of the ITU-R Study Groups and the Radiocommunication Assembly in the revision of those Recommendations to which mandatory references are made in the Radio Regulations.

RESOLUTION 46 (Rev.WRC-95)

Interim Procedures for the Coordination and Notification of Frequency Assignments of Satellite Networks in Certain Space Services and the Other Services to Which certain Bands are Allocated[1]

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that in several different space radiocommunication services there is increasing interest in the use of space systems using non-geostationary-satellite networks;

b) that, in order to ensure the satisfactory operation of such networks, other networks and other radio services sharing the same frequency bands, taking into account the relevant allocations, there is a need for procedures to regulate the frequency assignments of non-geostationary-satellite networks;

c) that the coordination methods for non-geostationary-satellite networks require specific criteria and calculation methods which are not yet generally available;

d) that, consequently, there is a need for interim procedures to be applied until such time as the coming into force of a suitable permanent procedure;

e) that there is also a need for these interim procedures to be applied in certain bands made available by the present Conference for the purpose of providing feeder links to space stations in the non-geostationary-satellite networks of the mobile-satellite service,

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[1] This Resolution shall apply only to the frequency bands for which specific reference is made to this Resolution in the footnotes to the Table of Frequency Allocations.

considering also

f) that any interim procedures must take full account of the status of the allocations to services, both terrestrial and space, in frequency bands which may be used by non-geostationary-satellite networks;

g) that any interim procedures must also take full account of the interests of all countries, including the state of development of their terrestrial and space radiocommunication services,

recognizing

that the operation of telecommunication systems in the bands subject to this Resolution must be in conformity with the Constitution and Convention of the International Telecommunication Union and the Administrative Regulations in force, in particular their respective preambles and, in this respect:

a) the right of each Member to decide how or whether to participate in the above systems, and to determine the terms and conditions of access to such systems from its territory;

b) the obligation for entities and organizations providing international or national telecommunication services by non-geostationary-satellite networks to operate at the point of delivery under the legal, financial and regulatory requirements of the Member of the Union in whose territory these services are authorized,

resolves

1. that, pending the entry into force of a permanent procedure, the use of frequency assignments by:

a) non-geostationary-satellite systems in the space services in relation to other non-geostationary-satellite systems, geostationary-satellite systems and terrestrial stations;

b) geostationary-satellite systems in relation to non-geostationary-satellite systems; and

c) terrestrial stations in relation to the earth stations of non-geostationary-satellite networks;

to which this Resolution applies shall be regulated in accordance with the interim procedures and the associated provisions and criteria contained in Annexes **1** and **2** respectively;

2. that the interim procedures annexed to this Resolution apply in addition to those of Articles **11** and **13** for geostationary-satellite networks and shall replace those of Articles **11** and **13** for non-geostationary-satellite networks in those frequency bands specifically identified by footnote to the Table of Frequency Allocations in Article **8**;

3. that the interim procedures annexed to this Resolution shall be applied from 17 November 1995;

invites

1. all administrations concerned in or by the introduction and operation of non-geostationary-satellite systems in the relevant space services to cooperate in the application of these interim procedures;

2. all administrations which acquire experience in the application of the annexed interim procedures to contribute to the studies of the ITU-R;

instructs the Radiocommunication Bureau

to apply these procedures and to provide the necessary assistance to administrations;

invites the ITU-R Study Groups

to study and develop Recommendations on the coordination methods, the necessary orbital data relating to non-geostationary-satellite systems, and the sharing criteria.

ANNEX 1 TO RESOLUTION No. 46 (Rev.WRC-95)

Interim Procedures for the Coordination and Notification of Frequency Assignments of Satellite Networks in Certain Space Services and the Other Services to Which Certain Bands are Allocated

Section A. General Information

A.1 The assistance of the Radiocommunication Bureau can be requested in the application of the provisions of this annex.

A.2 In the absence of specific provisions relating to the evaluation of the interference, the calculation methods and the criteria should be based on relevant ITU-R Recommendations agreed by the administrations concerned, either as a result of Resolution **703 (Rev.WARC-92)** or otherwise. In the event of disagreement on a ITU-R Recommendation or in the absence of such Recommendations, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

A.3 When applying the provisions of this Resolution for non-geostationary-satellite networks, administrations shall provide the following information in addition to that of Appendix **3** or Appendix **4**:

i) Orientation of the satellite transmitting and receiving antenna beams and their radiation pattern.

ii) Type of modulation and multiple access and spectrum mask.

iii) Appropriate information required to calculate the region affected by the MSS space stations as defined in Recommendation ITU-R **M.1187**.

iv) Maximum and average peak e.i.r.p./4 kHz and e.i.r.p./1 MHz for each beam.

v) Satellite antenna gain $G(\theta_e)$ as a function of elevation angle at a fixed point on the Earth. (To be provided either as part of Appendix **3** or as a formula to convert existing Appendix **3** data.)

vi) Spreading loss (for a non-GSO satellite) as a function of elevation angle. (To be determined by equations or provided in graphical form.)

vii) New data elements required to properly characterize non-GSO satellite systems:

N_p = Number of orbital planes

N_S = Number of satellites in each orbital plane

Ω_j = Right ascension of the ascending node for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the direction of the vernal equinox to the point where the satellite makes its south-to-north crossing of the equatorial plane ($0° \leq \Omega_j < 360°$).

i_j = Inclination angle for the j-th orbital plane with respect to the reference plane, which is taken to be the Earth's equatorial plane ($0° \leq i_j < 180°$).

ω_i = Initial phase angle of the i-th satellite in its orbital plane at reference time $t = 0$, measured from the point of ascending node ($0° \leq \omega_i < 360°$).

a = Semi-major axis.

e = Eccentricity ($0 \leq e < 1$).

ω_p = Argument of perigee, measured in the orbital plane, in the direction of motion, from the ascending node to perigee ($0° \leq \omega_p < 360°$)

In the following, references to Appendix **3** or Appendix **4** information shall be considered to include this additional information, where appropriate.

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

Publication of Information

1.1 An administration (or one acting on behalf of a group of named administrations) which intends to bring into use a satellite network within a satellite system shall, prior to the coordination procedure described in paragraphs 2.1 and 2.2, send to the Bureau, not earlier than six years[1] and preferably not later than two years before the date of bringing into service of each satellite network, the information listed in Appendix **4**.

1.2 Amendments to the information sent in accordance with the provisions of paragraph 1.1 shall also be sent to the Bureau as soon as they become available. For geostationary-satellite networks and non-geostationary-satellite networks which are subject to Section **II**, the use of an additional frequency band will require the application of the advance publication procedure for this band. For non-geostationary-satellite networks which are not subject to Section **II**, the use of an additional frequency band or an extension of the service area will require the application or recommencing respectively of the advance publication procedures for these modifications; see Resolution **48 (WRC-95)**.

1.3 On receipt of the complete information sent under paragraphs 1.1 and 1.2, the Bureau shall publish it in a special section of its weekly circular within three months and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall indicate the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

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[1] See also paragraph 5.1.6.

Comments on Published Information

1.4 If, after studying the information published under paragraph 1.3, any administration is of the opinion that interference which may be unacceptable may be caused to assignments of its existing or planned satellite networks or to assignments to its existing or planned terrestrial stations, it shall, within four months after the date of the weekly circular referred to in paragraph 1.3 above, send the administration concerned its comments on the particulars of the interference to its existing or planned satellite networks or to its existing or planned terrestrial stations. A copy of these comments shall also be sent to the Bureau. If no such comments are received from an administration within the period mentioned above, it may be assumed that the administration has no basic objections to the planned satellite network(s) of the system on which details have been published.

1.4A An administration sending information under paragraphs 1.1 and 1.2 shall, if requested by an administration receiving information published under paragraph 1.3, provide the technical methods and criteria it proposes to use for the evaluation of the interference.

1.4B An administration receiving information published under paragraph 1.3, may provide to the administration sending information under paragraphs 1.1 and 1.2 the technical methods and criteria it proposes to use for the evaluation of the interference.

Resolution of Difficulties

1.5 An administration receiving comments sent in accordance with paragraph 1.4 and administrations sending such comments shall endeavour to resolve any difficulties that may arise and shall provide any additional information that may be available.

1.5A In case of difficulties arising, the administration responsible for the planned network shall first explore all possible means of meeting its

requirements without considering the possibility of adjustment to stations or networks of other administrations. If no such means can be found, the administration concerned may then request other administrations, either bilaterally or multilaterally, to mutually help resolve these difficulties.

1.5B An administration receiving a request under paragraph 1.5A shall, in consultation with the requesting administration, explore all possible means of meeting the latter's requirements.

1.5C If, after following the procedure described in paragraphs 1.5A and 1.5B, there are unresolved difficulties, the administrations concerned shall jointly make every possible effort to resolve these difficulties by means of mutually acceptable adjustments.

Results of Advance Publication

1.6 An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 1.1 to 1.3 shall, after the period of four months specified in paragraph 1.4, inform the Bureau whether or not comments provided for in paragraph 1.4 have been received and of the progress made in resolving any difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Bureau at intervals not exceeding six months prior to the commencement of coordination or notification to the Bureau, as the case may be. The Bureau shall publish this information in the special section of its weekly circular.

1.7 When, upon expiry of a period of six years plus the extension provided for in paragraph 5.1.6 after the date of the publication of the special section referred to in paragraph 1.3, the administration responsible for the network has not submitted the Appendix **3** information, for coordination under paragraph 2.1 or paragraph 2.2 or notification under No. **1488** of the Radio Regulations or Section **V** of this Annex, as appropriate, the information published under paragraph 1.3 shall be cancelled after the administration concerned has been informed.

Commencement of Coordination or Notification Procedures

1.8 When communicating to the Bureau the information referred to in paragraph 1.1, an administration may, at the same time or later, communicate:

1.8A the information required for the network coordination of a frequency assignment to a station of a satellite network in accordance with the provisions of paragraph 2.6, or

1.8B the information required for notification of a frequency assignment to a station of a satellite network when coordination for that assignment is not required.

1.9 The coordination or notification information, as the case may be, shall be considered as having been received by the Bureau not earlier than six months after the date of receipt of the complete information as indicated under paragraph 1.3.

Section II. Coordination of Frequency Assignments to a Station of a Satellite Network

Requirement for Coordination

2.1 Before an administration (or one acting on behalf of one or more named administrations)[1] notifies to the Bureau or brings into use any frequency assignment to a space station or to an earth station of a non-geostationary-satellite network, it shall effect coordination of the assignment with any other administration:

- whose assignment to a station in a geostationary-satellite network might affect or be affected by the proposed assignment, or

[1] Whenever, under this provision, an administration acts on behalf of a group of named administrations, all members of the group retain the right to respond in respect of their own networks or systems.

- whose assignment to a station of a non-geostationary-satellite network might affect or be affected by the proposed assignment, or
- whose assignment to a terrestrial station might affect or be affected by the proposed space station assignment.

2.2 Before an administration (or one acting on behalf of one or more named administrations)[1] notifies to the Bureau or brings into use any frequency assignment to a station of a geostationary-satellite network, it shall effect coordination of the assignment with any other administration:

- whose assignment to a station of a non-geostationary-satellite network might affect or be affected by the proposed assignment, or
- whose assignment to a terrestrial station might affect or be affected by the proposed space station assignment.

2.3 Coordination under paragraphs 2.1 and 2.2 may be effected for a satellite network using the information relating to the space station, including its service area, and the parameters of one or more typical earth stations which may be located in all or part of the space station service area.

2.4 If a frequency assignment is brought into use before the commencement of the coordination procedure of paragraphs 2.1 and 2.2, when this coordination is required, the operation in advance of the receipt by the Bureau of the Appendix **3** information shall in no way afford any priority of the date.

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[1] Whenever, under this provision, an administration acts on behalf of a group of named administrations, all members of the group retain the right to respond in respect of their own networks or systems.

2.5 *Assignments to be taken into account*

2.5.1 Frequency assignments to be taken into account in the application of paragraphs 2.1 and 2.2 are those with a frequency overlap with the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights, or a higher category of allocation (see Nos. **420** to **425** and **435**), and which:

for space services, are:

2.5.2 in conformity with No. **1503**, and

2.5.3 either recorded in the Master Register, or notified to the Bureau without any coordination in those cases when the provisions of paragraph 2.5.8 apply, or coordinated under the provisions of this Section or of Section **II** of Article **11**, or received by the Bureau prior to 18 November 1995 for notification in cases where coordination was not required as of the date of receipt of the notice, or

2.5.4 included in the coordination procedure with effect from the date of receipt by the Bureau, in accordance with paragraph 2.6 or No. **1074** or **1074A** of Article **11**, of the complete information as specified in Appendix **3**;

or, for terrestrial services, are:

2.5.5 recorded in the Master Register with a favourable finding with respect to No. **1240**, or

2.5.6 not notified but in use or planned to be brought into use within the three years following the date of the publication referred to in paragraph 2.7.2.

2.5.7 Coordination of space services (space-to-Earth) with the terrestrial services of an administration is required only if the threshold levels appearing in Annex **2** of this Resolution are exceeded over any part of the territory of this administration.

2.5.8 No coordination under paragraphs 2.1 or 2.2 is required:

a) when the characteristics of a new or a modified frequency assignment or a new earth station are within the limits of those of a frequency assignment which has previously been coordinated;

b) when, for a new frequency assignment to a receiving station, the notifying administration states that it accepts the interference resulting from the frequency assignments referred to in paragraphs 2.5.1 to 2.5.4;

c) between earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth).

Coordination Data

2.6 The administration seeking coordination shall send to the Bureau the information listed in Appendix **3**.

2.7 On receipt of the complete information referred to in paragraph 2.6, the Bureau shall:

2.7.1 examine this information with respect to its conformity with No. **1503**; the date of its receipt shall be considered as the date from which the assignment will be taken into account for coordination, and

2.7.2 publish in the special section of its weekly circular, within three months, the information received under paragraph 2.6 and the result of the examination under paragraph 2.7.1. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations giving the reasons therefor, and

2.7.3 to assist administrations in identifying services that might be affected, include in the special section mentioned in paragraph 2.7.2 the names of the administrations having frequency assignments complying with the provisions of paragraphs 2.5.1, 2.5.2, 2.5.3 and 2.5.4 for space services and paragraphs 2.5.1 and 2.5.5 for terrestrial services.

Examination of Coordination Data and Agreement Between Administrations

2.8 On receipt of the special section referred to in paragraph 2.7.2, an administration shall promptly examine the matter with regard to:

2.8.1 interference which would be caused to the frequency assignments of its satellite networks or by these assignments to the satellite network for which coordination is sought, or

2.8.2 its planned or existing terrestrial stations which have a frequency overlap with the frequency assignments of the space station for which coordination is sought.

2.9 In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination is sought. It shall then, within four months from the date of the relevant weekly circular, notify the administration seeking coordination of its agreement.

2.10 On receipt of the special section referred to in paragraph 2.7.2, and within the same four-month period, an administration in need of assistance may inform the Bureau that it has recorded, existing or planned terrestrial stations that might be affected by the planned satellite network and may request the Bureau to determine the need for coordination by applying the Annex **2** criteria. The Bureau shall inform the administration seeking coordination of this request, indicating the date by which it may be able to provide the results of its analysis. When these results are available, the Bureau shall inform both administrations.

A request under paragraph 2.10 shall be considered as a disagreement, pending the results of the analysis by the Bureau of the need for coordination.

2.11 If an administration does not agree under paragraph 2.9 or has requested assistance from the Bureau under paragraph 2.10, it shall, within the same period, send to the administration seeking coordination the technical

details of the networks or information on the terrestrial stations concerned upon which its disagreement is based, including:

2.11.1 in case of a disagreement under paragraph 2.8.1, the characteristics contained in Appendix **3**, or

2.11.2 in case of a disagreement under paragraph 2.8.2, the characteristics contained in Section **C** of Appendix **1** which have not previously been notified to the Bureau,

and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Bureau.

2.12 If the administration concerned has notified its disagreement within the same period, but the information on the fixed service stations upon which its disagreement is based cannot be provided, it shall be assumed that reference parameters, as contained in Annex **2**, can be used to determine the need for coordination with this administration.

2.13 Administrations with which coordination is sought, as well as the administration seeking coordination, shall make all possible mutual efforts to overcome the difficulties in a manner acceptable to the parties concerned.

2.14 Forty-five days prior to the expiry of the four-month period mentioned in paragraph 2.9, the Bureau shall dispatch a circular telegram to all administrations, bringing the matter to their attention.

2.15 Upon receipt of the circular telegram mentioned in paragraph 2.14, an administration shall acknowledge receipt immediately by telegram. If no acknowledgement is received within thirty days, the Bureau shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days.

2.16 When an administration has not responded to the Bureau within the period of four months referred to in paragraph 2.9, it shall be deemed that this administration has undertaken:

a) that no complaint will be made in respect of any harmful interference affecting the services rendered by its satellite networks referred to in paragraphs 2.5.1 to 2.5.4 which may be

caused by the use of the assignment to a station of the satellite network for which coordination was requested;

b) that no complaint will be made in respect of any harmful interference affecting the services rendered by its terrestrial stations referred to in paragraph 2.5.1, 2.5.5 and 2.5.6 which may be caused by the use of the assignment to a station of the satellite network for which coordination was requested;

c) that its assignments to a station in a satellite network referred to in paragraphs 2.5.1 to 2.5.4 will not cause harmful interference to the satellite network assignment for which coordination was requested;

d) that assignments to terrestrial stations referred to in paragraphs 2.5.1 and 2.5.6 will not cause harmful interference to the satellite network assignment for which coordination was requested.

Results of Coordination

2.17 An administration which has initiated a coordination procedure under the provisions of paragraphs 2.1 to 2.6 shall communicate to the Bureau the names of the administrations with which agreement has been reached. The Bureau shall publish this information in the special section of its weekly circular.

2.18 An administration which has sought coordination, as well as any administration which has complied with the provisions of paragraphs 2.8 to 2.16, shall communicate to the Bureau any modifications to the published characteristics of their respective networks or stations that were required to reach agreement on the coordination. The Bureau shall publish this information in accordance with paragraph 2.7.2, indicating that these modifications resulted from the joint efforts of the administrations concerned to reach agreement on the coordination.

Requests to the Bureau for Assistance in Effecting Coordination

2.18.1 If an administration with which coordination is sought has disagreed under paragraph 2.11, but fails to give a decision on the matter or to provide information concerning its own assignments upon which the disagreement is based, within the same four-month period specified in paragraph 2.9, the requesting administration may seek the assistance of the Bureau.

2.18.2 The Bureau, acting on a request under paragraph 2.18.1, shall forthwith send a telegram to the administration concerned requesting it to give an early decision on the matter or to provide the relevant information.

2.18.3 If the administration concerned still does not respond to this request within thirty days of the Bureau's action under 2.18.2, the conclusions under paragraph 2.16 shall apply.

2.18.4 If there is continuing disagreement, or if any administration involved has requested the assistance of the Bureau, the Bureau shall seek any necessary information to enable it to assess the interference. It shall communicate its conclusions to the administrations involved.

Notification of Frequency Assignments in the Event of Continuing Disagreement

2.19 In the event of continuing disagreement between an administration seeking to effect coordination and any administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of publication of the special section referred to in paragraph 2.7.2, taking into account the provisions of No. **1496**. When the assistance of the Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Section III. Coordination of Frequency Assignments to Earth Stations of a Non-Geostationary-Satellite Network in Relation to Terrestrial Stations and of a Satellite Network in Relation to Other Earth Stations in the Opposite Direction of Transmission

Requirement for Coordination

3.1 Before an administration notifies to the Bureau or brings into use any frequency assignment to a fixed earth station or to typical earth stations in a particular band allocated with equal rights to space and terrestrial radiocommunication services, it shall effect coordination of the assignment with each administration whose territory lies wholly or partly within the coordination area as specified in Annex **2** to this Resolution. The request for coordination may specify all or some of the frequency assignments to the associated space station, but thereafter each assignment shall be dealt with individually.

3.1.1 No coordination under paragraph 3.1 is required:

3.1.2 *a)* when an administration proposes to bring into use an earth station the coordination area of which does not include any of the territory of any other country;

3.1.3 *b)* when an administration proposes to bring into use an assignment to an earth station operating in the opposite direction of transmission, which is located in relation to an earth station outside the coordination area of that earth station;

3.1.4 *c)* when the characteristics of a new or modified assignment are within the limits of those of a frequency assignment which has previously been coordinated;

3.1.5 *d)* when an administration proposes to bring into use a new frequency assignment to a receiving earth station and the notifying administration states that it accepts the interference resulting from existing and future terrestrial station assignments

or earth station assignments operating in the opposite direction of transmission. In such case, administrations responsible for the terrestrial stations or the earth stations, are not required to apply the provisions of Section **IV** or Section **III** respectively, of this Annex.

Coordination Data

3.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 3.1 all basic characteristics concerning the proposed frequency assignment as listed in Appendix **3**, and an indication of the planned date of bringing into use.

Acknowledgement of Receipt of Coordination Data

3.3 An administration with which coordination is sought under paragraph 3.1 shall immediately acknowledge receipt of the coordination data.

Examination of Coordination Data and Agreement Between Administrations

3.4 On receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which coordination was requested, promptly examine the matter with regard to both:

3.4.1 *a)* interference which would affect the service rendered by its terrestrial stations operating in accordance with the Constitution, the Convention and these Regulations, or to be so operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer, and

3.4.1 *b)* interference which would affect the services rendered by its earth stations which are operating, or are planned to be operated in the opposite direction of transmission, prior to the planned date of

bringing into service of the earth station assignment, or within the next three years, whichever is the longer. The assignments to be taken into account in this examination are those:

b1 for which the associated space network characteristics have been communicated to the Bureau under paragraph 1.3; and

b2 which are in conformity with No. **1503**; and

b3 either coordinated under No. **1107** or paragraph 3.1 above; or

b4 to be taken into account for coordination with effect from the date of communication of the information referred to in No. **1113** or paragraph 3.2 above; or

b5 recorded in the Master Register with a favourable finding with respect to No. **1505** or paragraph 5.1.2 below; or

b6 recorded in the Master register with an unfavourable finding with respect to No. **1505** or paragraph 5.1.2 below, and a favourable finding with respect to No. **1509** or paragraph 5.1.4 below; or

b7 recorded in the Master Register in application of No. **1544**, if that frequency assignment has not in fact caused harmful interference to any other previously recorded frequency assignment which is in conformity with No. **1503**;

3.4.2 *a)* interference which would be caused to reception at an earth station by the service rendered by its terrestrial stations operating in accordance with the Constitution, the Convention and these Regulations, or to be so operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer;

3.4.2 *b)* interference which would be caused to reception at an earth station by the service rendered by its earth stations in the opposite direction of transmission, covered under paragraphs 3.4.1.b1 to 3.4.1.b7, which are operating, or are to be operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer.

3.5 The administration with which coordination is sought shall, within four months from dispatch of the coordination data:

3.5.1 notify the administration requesting coordination of its agreement with a copy to the Bureau, indicating, where appropriate, the part of the allocated frequency band containing the coordinated frequency assignments; or

3.5.2 send to that administration a request for inclusion in coordination of the terrestrial stations or the earth stations in the opposite direction of transmission mentioned in 3.4.1 *a)*, 3.4.1 *b)*, 3.4.2 *a)* and 3.4.2 *b)*; or

3.5.3 notify that administration of its disagreement.

3.6 In the cases mentioned in paragraphs 3.5.2 and 3.5.3, the administration with which coordination is sought shall send to the administration requesting coordination a diagram drawn to an appropriate scale indicating the location of those terrestrial stations or earth stations in the opposite direction of transmission which are or will be within the coordination area, together with all other relevant basic characteristics using Appendix **1** or Appendix **3**, as appropriate, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

3.7 When the administration with which coordination is sought sends to the administration seeking coordination the information required in the case of paragraph 3.5.3, a copy thereof shall also be sent to the Bureau.

a) The Bureau shall consider as notifications in accordance with Section **I** of Article **12** only that information relating to existing terrestrial stations, or to those to be brought into use within the next three months.

b) The Bureau shall consider as notifications in accordance with Section **I** of Article **13** only that information relating to existing earth stations, or to those to be brought into use within the next three years.

3.7.1 When an agreement on coordination is reached as a consequence of paragraphs 3.5 to 3.7, the administration responsible for the terrestrial stations or the earth stations in the opposite direction of transmission may send to the Bureau the information concerning those stations covered by the agreement which are intended to be notified in accordance with Section **I** of Article **12** or Section **I** of Article **13**, as appropriate. The Bureau shall consider as notifications in accordance with those Sections only that information relating to existing stations or to those to be brought into use within the next three years.

3.7.2 The periods referred to in paragraphs 3.4.1 and 3.4.2 may be extended by agreement between the administrations concerned in order to take planned terrestrial and space networks into account. Coordination between earth stations may commence five and a half years before bringing these stations into use.

Requests to the Bureau for Assistance in Effecting Coordination

3.7.3 An administration seeking coordination may request the Bureau to endeavour to effect coordination in those cases where:

3.7.4 *a)* an administration with which coordination is sought under paragraph 3.1 fails to acknowledge receipt, under paragraph 3.3, within forty-five days of dispatch of the coordination data referred to in paragraph 3.2; or

3.7.5 *b)* an administration has acknowledged receipt under paragraph 3.3, but fails to give a decision within four months from dispatch of the coordination data under paragraph 3.2; or

3.7.6 *c)* there is disagreement, as to the acceptable interference, between the administration seeking coordination and an administration with which coordination is sought; or

3.7.7 *d)* coordination is not possible for any other reason.

3.7.8 In making its request, the administration shall furnish the necessary information to enable the Bureau to endeavour to effect such coordination.

Action to Be Taken by the Bureau

3.7.9 When the Bureau receives a request under 3.7.4, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

3.7.10 When the Bureau receives an acknowledgement following its action under paragraph 3.7.9, or when the Bureau receives a request under paragraph 3.7.5, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

3.7.11 When the Bureau receives a request under paragraph 3.7.7, it shall endeavour to effect coordination in accordance with the provisions of paragraph 3.1. When the Bureau receives no acknowledgement to its request for coordination within a period of thirty days, it shall act in accordance with paragraph 3.7.9.

3.7.12 Where necessary, as part of the procedure under paragraphs 3.7.3 to 3.7.8, the Bureau shall assess the interference. In any case, the Bureau shall inform the administrations concerned of the results obtained.

3.7.13 The Bureau may request additional information which it may require to assess the interference to the services concerned.

3.7.14 If an administration fails to reply within thirty days of dispatch of the Bureau's telegram requesting an acknowledgement sent under paragraph 3.7.9, or fails to give a decision in the matter within thirty days of dispatch of the

Bureau's telegram of request under paragraph 3.7.10, it shall be deemed that the administration with which coordination was sought has undertaken:

3.7.15 *a)* that no complaint will be made in respect of any harmful interference affecting the services rendered by its terrestrial stations or its earth stations with regard to operation in the opposite direction of transmission which may be caused by the use of the assignment for which coordination was requested;

3.7.16 *b)* that its terrestrial stations or its earth stations operating in the opposite direction of transmission will not cause harmful interference to the frequency assignment for which coordination was requested.

Notification of Frequency Assignments in the Event of Continuing Disagreement

3.8 In the event of continuing disagreement between an administration seeking coordination and an administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of the request for coordination, taking into account the provisions of No. **1496**. When the assistance of the Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Section IV. Coordination of Frequency Assignments to Terrestrial Stations for Transmission in Relation to Earth Stations of a Non-Geostationary-Satellite Network

Requirement for Coordination

4.1 Before an administration notifies to the Bureau, or brings into use any frequency assignment to a terrestrial station for transmission within the coordination area, as specified in Annex **2** to this Resolution, of an earth station of a non-geostationary satellite network, in a band allocated with equal rights to

terrestrial radiocommunication services and space radiocommunication services (space-to-Earth), it shall effect coordination of the proposed assignment with the administration responsible for the earth stations with respect to the frequency assignments:

4.1.1 for which the associated space network characteristics have been communicated to the Bureau under paragraph 1.3; and

4.1.2 which are in conformity with No. **1503**; and

4.1.3 either coordinated under No. **1107** or paragraph 3.1 above; or

4.1.4 to be taken into account for coordination with effect from the date of communication of the information referred to in No. **1113** or paragraph 3.2 above; or

4.1.5 recorded in the Master Register with a favourable finding with respect to No. **1505** or paragraph 5.1.2 below; or

4.1.6 recorded in the Master Register with an unfavourable finding with respect to No. **1505** or paragraph 5.1.2 below, and a favourable finding with respect to No. **1509** or paragraph 5.1.4 below; or

4.1.7 recorded in the Master Register with an unfavourable finding with respect to No. **1505** or paragraph 5.1.2 below and No. **1509** or paragraph 5.1.4 below, the notifying administration having stated that it accepts the interference resulting from the existing terrestrial stations located within the coordination area of the earth station on the date of its recording.

4.1.8 No coordination under paragraph 4.1 is required when an administration proposes:

4.1.9 *a)* to bring into use a terrestrial station located outside the coordination area of an earth station;

4.1.10 *b)* to change the characteristics of an existing assignment in such a way as to remain within the envelope of the characteristics of this assignment.

4.1.11 *c)* to bring into use a terrestrial station within the coordination area of an earth station, provided that the proposed terrestrial station assignment is outside any part of a frequency band coordinated under paragraph 3.5.1 for reception by that earth station.

Coordination Data

4.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 4.1 all pertinent information. The request for coordination may specify all or some of the frequency assignments expected to be used within the next three years by stations of a terrestrial network wholly or partly within the coordination area of the earth stations. Thereafter each assignment shall be dealt with individually.

Acknowledgement of Receipt of Coordination Data

4.3 An administration with which coordination is sought under paragraph 4.1 shall immediately acknowledge receipt of the coordination data.

Examination of Coordination Data and Agreement Between Administrations

4.4 On receipt of the coordination data, the administration with which coordination is sought shall promptly examine the matter with regard to interference which would affect the services rendered by its earth stations covered by paragraphs 4.1 to 4.1.7, which are operating or are to be operated within the next three years.

4.5 The administration with which coordination is sought shall, within an overall period of four months from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is not possible, indicate the reasons for its objection and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

4.6 *Requests to the Bureau for Assistance in Effecting Coordination*

4.6.1 An administration seeking coordination may request the Bureau to endeavour to effect coordination in those cases where:

4.6.2 *a)* an administration with which coordination is sought under paragraph 4.1 fails to acknowledge receipt under paragraph 4.3 within thirty days of dispatch of the coordination data referred to in paragraph 4.2; or

4.6.3 *b)* an administration has acknowledged receipt under paragraph 4.3, but fails to give a decision within four months of dispatch of the coordination data; or

4.6.4 *c)* there is disagreement, as to the acceptable interference, between the administration seeking coordination and an administration with which coordination is sought; or

4.6.5 *d)* coordination is not possible for any other reason.

4.6.6 In making its request, the administration shall furnish the necessary information to enable the Bureau to endeavour to effect such coordination.

4.7 *Action to be Taken by the Bureau*

4.7.1 When the Bureau receives a request under paragraph 4.6.2, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

4.7.2 When the Bureau receives an acknowledgement following its action under paragraph 4.7.1, or where the Bureau receives a request under paragraph 4.6.3, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

4.7.3 When the Bureau receives a request under paragraph 4.6.5, it shall endeavour to effect coordination in accordance with the provisions of paragraph 4.1. When the Bureau receives no acknowledgement of its request for coordination within three months, it shall act in accordance with paragraph 4.7.1.

4.7.4 Where necessary, as part of the procedure under paragraphs 4.6.1 to 4.6.5, the Bureau shall assess the interference. In any case, the Bureau shall inform the administrations concerned of the results obtained.

4.7.5 The Bureau may request additional information which it may require to assess the interference to the services concerned.

4.7.6 If an administration fails to reply within thirty days of dispatch of the Bureau's telegram sent under paragraph 4.7.1 requesting an acknowledgement, or fails to give a decision in the matter within thirty days of dispatch of the Bureau's telegram of request sent under 4.7.2, it shall be deemed that the administration with which coordination was sought has undertaken that no complaint will be made in respect of any harmful interference which may be caused by the terrestrial station being coordinated to the service rendered by its earth station.

Notification of Frequency Assignments in the Event of Continuing Disagreement

4.8 In the event of continuing disagreement between an administration seeking coordination and an administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of the request for coordination, taking into account the provisions of Nos. **1230** and **1496**. When the assistance of the Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Section V. Notification of Frequency Assignments

Notification of Assignments to Space Stations and Earth Stations

5.1 An administration shall, for the purpose of notifying an assignment to the Bureau, apply the provisions of Article **13**. When applying the provisions of Article **13** to frequency assignment notices relating to space stations and earth stations covered by this Resolution, the Bureau shall:

5.1.1 in applying No. **1504**, also examine the notice with respect to its conformity with the provisions of paragraphs 2.1, 2.2 and 2.5.8 relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.1.2 in applying No. **1505**, also examine the notice with respect to its conformity with the provisions of paragraphs 3.1 and 3.1.1 to 3.1.3 relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.1.3 in applying No. **1506**, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 2.1 or 2.2 has not been successfully effected;

5.1.4 in applying No. **1509**, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 3.1 has not been successfully effected;

5.1.5 not apply Nos. **1515** and **1516**;

5.1.6 apply No. **1550** with respect to the date of publication of the special section of the weekly circular referred to in paragraph 1.3.

5.2 The examination under paragraph 5.1.3 or 5.1.4 shall take into account the frequency assignments for transmission or reception already recorded in the Master Register.

Notification of Assignments to Terrestrial Stations

5.3 An administration shall, for the purpose of notifying an assignment to the Bureau, apply the provisions of Article **12**. When applying the provisions of Article **12** the Bureau shall, in application of No. **1353**, examine frequency assignment notices relating to terrestrial stations covered by this Resolution with respect to their conformity with the provisions of paragraph 4.1 relating to coordination of the use of the frequency assignment with the other administrations concerned.

ANNEX 2 TO RESOLUTION 46 (Rev.WRC-95)

A2.1 *Coordination thresholds for sharing between MSS (space-to-Earth) and terrestrial services in the same frequency bands and between non-GSO/MSS feeder links (space-to-Earth) and terrestrial services in the same frequency bands*

A2.1.1 *Below 1 GHz*

In the bands 137 - 138 MHz and 400.15 - 401 MHz, coordination of a space station of the MSS (space-to-Earth) with respect to terrestrial services is required only if the power flux-density produced by the station exceeds –125 dB(W/m^2/4 kHz) at the Earth's surface.

A2.1.2 *Between 1 and 3 GHz*

A2.1.2.1 *Objectives*

Generally, power flux-density thresholds were used to determine the need for coordination between space stations of the MSS (space-to-Earth) and terrestrial services. However, to facilitate sharing between digital fixed service (FS) stations and non-GSO/MSS space stations, the concept of fractional degradation in performance (FDP) was adopted. This concept involves new methods described in this Annex.

As a consequence of this new concept, the need for coordination between space stations of the MSS (space-to-Earth) and terrestrial services is determined using two methods:

- simple method: FDP (**simple** definition of the MSS system and characteristics of **reference** FS stations are used in inputs) or power flux-density trigger value;

- more detailed method: system specific methodology (SSM) (**specific** characteristics of the MSS system and characteristics of **reference** FS stations are used in inputs) as described, for example, in Annex **1** to Recommendation ITU-R **IS.1143**.

If one of the two methods gives a result that does not exceed the criteria relevant to each method, there is no need for coordination.

If only one method is available in an administration, the result of this method must be taken into account.

A2.1.2.2 *General considerations*

A2.1.2.2.1 *Method for calculating the value of fractional degradation in performance (FDP)*

The FDP is used in cases of sharing between digital FS stations with non-GSO/MSS stations (space-to-Earth).

To calculate the value of the FDP, the following parameters are needed:

- technical characteristics of digital FS station;

- technical characteristics of non-GSO/MSS constellation.

The FDP is calculated:

- by simulating the proposed MSS constellation using the information given in paragraph A.3 of this Resolution;

- by positioning the FS station at a certain latitude (each station is assumed to operate at an elevation angle of 0°);

- by calculating for each pointing azimuth (Az) varying between 0° and 360°:

  - at each instant in time of the simulation, the aggregate interference from all visible space stations received at the FS station;

  - the FDP_{Az} for the azimuth Az, using the following formula:

$$FDP_{Az} = \sum_{I_i = \min}^{\max} \frac{I_i f_i}{N_T}$$

- by the following formula:

$$FDP = \max(FDP_{Az})$$

(The formula for FDP applies to the 1 - 3 GHz frequency range only. A different formula may apply at frequencies above 3 GHz.)

where:

I_i = interference noise power level (W)

f_i = the fractional period of time during which the interference power equals I_i

N_T = station receiving system noise power level = kTB (W)

k = Boltzmann's constant = $1.38 \cdot 10^{-23}$ (J/K)

T = FS station receiving system effective noise temperature (T should be calculated by the following formula: 10 log T = NF + 10 log T_0 where NF dB) is the receiver noise figure given in Annex **1** and T_0 should be assumed as 290 K)

B = reference bandwidth = 1 MHz

NOTE – For the purpose of *FDP* calculation according to this Annex, it should be assumed that all space stations in the same MSS constellation operate on the same frequencies.

A2.1.2.2.2 *Characteristics of reference systems in the fixed service*

The following parameters represent the set of reference parameters of the fixed service.

A2.1.2.2.2.1 *Characteristics of reference digital point-to-point systems*

Three different digital systems are described in the following table:

- 64 kbit/s capacity used, for example, for outside-plant (individual subscriber connection);
- 2 Mbit/s capacity used, for example, for business subscriber connections for the local part of the inside-plant;
- 45 Mbit/s capacity used, for example, for trunk networks.

Capacity	64 kbit/s	2 Mbit/s	45 Mbit/s
Modulation	4-PSK	8-PSK	64-QAM
Antenna gain (dB)	33	33	33
Transmit power (dBW)	7	7	1
Feeder/multiplexer loss (dB)	2	2	2
e.i.r.p. (dBW)	38	38	32
Receiver IF bandwidth (MHz)	0.032	0.7	10
Receiver noise figure (dB)	4	4.5	4
Receiver input level for a BER of 10^{-3} (dBW)	–137	–120	–106
Maximum long-term interference Total power (dBW)	–165	–151	–136
Maximum long-term interference Power spectral density (dB(W/4 kHz))	–174	–173	–170

Antenna pattern:

$$G(\varphi) = G_{max} - 2.5 \times 10^{-3} \left(\frac{D\varphi}{\lambda}\right)^2 \qquad \text{for } 0 < \varphi < \varphi_m$$

$$G(\varphi) = G_1 \qquad \text{for } \varphi_m \leq \varphi < 75.86(\lambda/D)$$

$$G(\varphi) = 49 - 10 \log (D/\lambda) - 25 \log \varphi \qquad \text{for } 75.86(\lambda/D) \leq \varphi < 48°$$

$$G(\varphi) = 7 - 10 \log (D/\lambda) \qquad \text{for } 48° \leq \varphi$$

where:

$G(\varphi)$: gain relative to an isotropic antenna (dBi)

φ: off-axis angle (degree)

D: antenna diameter

λ: wavelength expressed in the same unit as D

G_1: gain of the first side-lobe $= 2 + 15 \log (D/\lambda)$

$(D/\lambda$ may be estimated from $20 \log D/\lambda \approx G_{max} - 7.7)$

G_{max}: main lobe antenna gain (dBi)

$\varphi_m =$ $20 (\lambda/D) \times \sqrt{(G_{max} - G_1)}$ (degrees)

It should be noted that the above antenna radiation pattern corresponds to the average side-lobe pattern and it is recognized that individual side-lobes may exceed it by up to 3 dB.

A2.1.2.2.2.2 *Characteristics of reference analogue point-to-point systems*

Antenna gain (dBi)	33
e.i.r.p. (dBW)	36
Feeder/multiplexer loss (dB)	3
Receiver noise figure (referred to input of receiver) (dB)	8
Maximum long-term interference per link (20% of time) (dB(W/4 kHz))	–170

Antenna pattern: Use antenna pattern of section A.2.1.2.2.2.1.

A2.1.2.2.2.3 *Characteristics of reference point-to-multipoint systems*

Parameter	Central station	Outstation
Antenna type	Omni/Sectoral	Dish/Horn
Antenna gain (dBi)	10/13	20 (analogue) 27 (digital)
e.i.r.p. (max) (dBW) analogue digital	 12 24	 21 34
Noise figure (dB)	3.5	3.5
Feeder loss (dB)	2	2
IF bandwidth (MHz)	3.5	3.5
Maximum permissible long-term interference power (20% time) Total (dBW) dB (W/4 kHz) dB (W/MHz)	 –142 –170 –147	 –142 –170 –147

Antenna pattern:

For the outstation antenna pattern, the reference pattern described in section A2.1.2.2.2.1 has to be used.

The reference radiation pattern for omnidirectional or sectoral antennas is the following:

$$G(\theta) = G_0 - 12\,(\theta/\varphi_3)^2, \text{ dBi} \qquad 0 \le \theta < \varphi_3$$

$$G(\theta) = G_0 - 12 - 10 \log (\theta/\varphi_3), \text{ dBi} \qquad \varphi_3 \le \theta < 90°$$

where:

G_0 = maximum gain in the horizontal plane (dBi)

θ is the radiation angle above the horizontal plane (degrees)

φ_3 (degrees) is given by:

$$\varphi 3 = \frac{1}{\alpha^2 - 0.818} \text{ degrees}$$

where:

$$\alpha = \frac{10^{0.1 G_0} + 172.4}{191}$$

It should be noted that the above antenna pattern is provisional and that further study is under way in the ITU-R.

A2.1.2.3 *Determination of the need for coordination between MSS space stations (space-to-Earth) and terrestrial stations*

A2.1.2.3.1 *Method for the determination of the need for coordination between MSS space stations (space-to-Earth) and other terrestrial services sharing the same frequency band in the 1 to 3 GHz range*

Coordination of space stations of the mobile-satellite service downlink with respect to terrestrial services is not required if the power flux-density produced at the Earth's surface or the fractional degradation in performance (FDP) of a station in the fixed service does not exceed the threshold values shown in the following table.

Frequency band (MHz)	Service to be protected	Coordination threshold values				
		Geostationary space stations		Non-geostationary space stations		
		pfd (per space station) calculation factors (NOTE 2)		pfd (per space station) calculation factors (NOTE 2)		% FDP (in 1 MHz) (NOTE 1)
		P dB(W/m^2) in 4 kHz	r dB/deg	P dB(W/m^2) in 4 kHz	r dB/deg	
1 492 - 1 525	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
1 525 - 1 530	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
2 160 - 2 200 (NOTE 3)	analogue FS	–152	0.5	–147	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–147	0.5	

Frequency band (MHz)	Service to be protected	Coordination threshold values				
		Geostationary space stations		Non-geostationary space stations		
		pfd (per space station) calculation factors (NOTE 2)		pfd (per space station) calculation factors (NOTE 2)		% FDP (in 1 MHz) (NOTE 1)
		P dB(W/m^2) in 4 kHz	r dB/deg	P dB(W/m^2) in 4 kHz	r dB/deg	
2 483.5 - 2 500	fixed	–152	0.5	–150	0.65	
	other terrestrial services (NOTE 4)	–152	0.5	–150	0.65	
2 500 - 2 520	analogue FS	–152	0.5	–152	0.5	
	digital FS	–152	0.5			25
	other terrestrial services (NOTE 4)	–152	0.5	–152	0.5	
2 520 - 2 535	analogue FS	–160	0.75	–152	0.5	
	digital FS	–160	0.75			25
	other terrestrial services (NOTE 4)	–160	0.75	–152	0.5	

NOTE 1 – The calculation of FDP (fractional degradation in performance) is contained in section A2.1.2.2.1, using reference FS parameters contained in sections A2.1.2.2.2.1 and A2.1.2.2.2.3.

NOTE 2 – The following formula should be used for deriving the coordination threshold in terms of power flux-density:

P dB(W/m^2/4 kHz)	for $0° \leq \delta \leq 5°$
$P + r(\delta-5)$ dB(W/m^2/4 kHz)	for $5° < \delta \leq 25°$
$P + 20r$ dB(W/m^2/4 kHz)	for $25° < \delta \leq 90°$

where δ is the angle of arrival (degrees).

The threshold values are obtained under assumed free-space propagation conditions.

NOTE 3 – The coordination threshold in the band 2 160 - 2 270 MHz (Region 2) and 2 170 - 2 200 MHz (all regions) to protect other terrestrial services does not apply to the terrestrial component of the Future Public Land Mobile Telecommunication Systems (FPLMTS), as the satellite and the terrestrial components are not intended to operate in the same area or on common frequencies within these bands.

NOTE 4 – The coordination threshold factors applicable to other terrestrial services may be reviewed at a future conference, as necessary.

A2.1.2.3.2 *A system-specific methodology (SSM) to be used in determining the need for detailed coordination of non-GSO/MSS (space-to-Earth) systems with fixed service systems*

The purpose of the system-specific methodology (SSM) is to allow a detailed assessment of the need to coordinate frequency assignments to non-GSO/MSS space stations (space-to-Earth) with frequency assignments to receiving stations in an FS network of a potentially affected administration. The SSM takes into account specific characteristics of the non-GSO/MSS system and reference FS characteristics.

Those administrations planning to establish the need for coordination between non-geostationary-satellite networks in the mobile-satellite service and fixed service systems are encouraged to use Recommendation ITU-R **IS.1143**. While urgent additional development work is being undertaken in the ITU-R to facilitate the use of the methodology described in Recommendation ITU-R **IS.1143**, administrations may be able to effect coordination by applying this system-specific methodology.

A2.1.3 *Above 3 GHz*

In the band 15.45 - 15.65 GHz, when an administration proposes to use a non-geostationary space station whose emissions exceed –146 dB (W/m^2/MHz) for all angles of arrival, it shall coordinate with affected administrations.

A2.2 *Hard limits*

A2.2.1 *Sharing between feeder links of the non-GSO/MSS (space-to-Earth) and terrestrial services in the same frequency bands*

The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150 - 5 216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

Emissions from a non-geostationary space station shall not exceed the following limits at the Earth's surface:

Frequency bands	Service	Limit in dB(W/m^2) for angle of arrival above the horizontal plane			Reference bandwidth
		0° – 5°	5° – 25°	25° – 90°	
6 700 - 6 825 MHz	Fixed-satellite (S-E)	–137	–137 + 0.5 (δ–5)	–127	1 MHz
6 825 - 7 075 MHz	Fixed-satellite (S-E)	–154 and –134	–154 + 0.5 (δ–5) and –134 + 0.5 (δ–5)	–144 and –124	4 kHz 1 MHz

Emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of –146 dB(W/m^2/MHz) in the bands 15.4 - 15.45 GHz and 15.65 - 15.7 GHz, and –111 dB(W/m^2/MHz) in the band 15.45 - 15.65 GHz for all angles of arrival. These limits relate to the

power flux-density which would be obtained under assumed free-space propagation conditions.

Power flux-density limits between 17.7 GHz and 27.5 GHz.

The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–115 + 0.5(δ-5) dB(W/m^2) in any 1 MHz band for angles of arrival δ between 5 and 25 degrees above the horizontal plane;

–105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

In the band 19.3 - 19.7 GHz for non-geostationary satellite systems, these values shall apply subject to review by the ITU-R and the results of this review should be considered by WRC-97 (see Resolution **119 (WRC-95)**).

A2.2.2 *Power flux-density limits produced by non-GSO/MSS feeder links with respect to the GSO orbit*

In the frequency band 6 700 - 7 075 MHz, the maximum aggregate power flux-density produced at the GSO and including ±5° of inclination around the geostationary-satellite orbit by a non-geostationary-satellite system in the fixed-satellite service shall not exceed –168dB(W/m^2) in any 4 kHz band.

A2.2.3 *Power flux-density limits produced by non-GSO/FSS in the 20 - 30 GHz band*

The power flux-density at the Earth's surface produced by emissions from a space station shall not exceed the following values:

–115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

$-115 + 0.5(\delta - 5)$ dB(W/m^2) in any 1 MHz band for angles of arrival δ between 5 and 25 degrees above the horizontal plane;

–105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which could be obtained under assumed free-space propagation conditions.

In the band 18.9 - 19.3 GHz for non-GSO satellite systems, these values shall apply subject to review by the ITU-R and the results of this review should be considered by WRC-97 (see Resolution **118 (WRC-95)**).

A2.2.4 *Power limits for terrestrial stations*

In the band 19.3 - 19.6 GHz, the maximum equivalent isotropically radiated power (e.i.r.p.) of a station in the fixed service or mobile service shall not exceed 55 dBW and the power delivered to the antenna shall not exceed +10 dBW.

A2.2.5 *Power limits for earth stations*

In the band 19.3 - 19.6 GHz, the equivalent isotropically radiated power (e.i.r.p.) transmitted in any direction towards the horizon by a feeder-

link earth station of the mobile-satellite service shall not exceed the following limits:

+64 dBW in any 1 MHz band	for $\theta \leq 0°$
$+64 + 3\,\theta$ dBW in any 1 MHz band	for $0° \leq \theta < 5°$,

where θ is the angle of elevation of the horizon viewed from the centre of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

These limits may be exceeded by not more than 10 dB. However, when the resulting coordination area extends into the territory of another country, such increase shall be subject to agreement by the administration of that country.

A2.3 *Coordination areas for mobile earth stations operating below 3 GHz and earth stations providing feeder links for non-geostationary satellites operating in the mobile-satellite service and for non-GSO/FSS earth stations*

A2.3.1 *Objectives*

In order to apply the provisions of Sections **III** and **IV**, paragraphs 3.1 and 4.1 of the Annex **1** to Resolution **46 (Rev.WRC-95)**, this Section specifies the coordination area (see No. **S1.171** of the Radio Regulations) for mobile earth stations as well as earth stations providing feeder links for non-geostationary-satellite networks operating in the mobile-satellite service. In both cases, the coordination contour (see No. **S1.172** of the Radio Regulations) associated with the coordination area is drawn to scale on an appropriate map in order to depict the coordination area and the extent to which it overlaps the territory of administrations that may be affected. Tables **1-3** specify

coordination distances (see No. **S1.173** of the Radio Regulations) for certain frequency sharing situations and frequency bands in which the provisions of Resolution **46 (Rev.WRC-95)** are applied. Table **4** applies to non-GSO/FSS earth stations.

The coordination area of a mobile earth station is determined as the service area in which it is intended to operate typical earth stations, extended in all directions by the coordination distance. Tables **1** and **2** specify coordination distances for mobile earth stations operating below 1 GHz and in the 1 - 3 GHz frequency range, respectively. In the case of feeder-link earth stations, the coordination contour is determined as the end points of coordination distances measured from the earth station location. Coordination distances for feeder-link earth stations operating below 1 GHz are specified in Table **1**. Coordination distances for feeder-link earth stations operating above 5 GHz are specified in Table **3** with respect to stations in terrestrial services and, where applicable, earth stations of other satellite networks operating in the opposite direction of transmission. Coordination distances for non-GSO/FSS earth stations are specified in Table **4**.

A2.3.2 *General considerations*

Two types of coordination distances are specified in Tables **1-4**: 1) predetermined distances, and 2) distances that are to be calculated on a case-by-case basis, taking into account specific parameters of the earth station for which the coordination area is being determined. Neither of these distances indicate required separation distances.

It must be emphasized that the presence or installation of another station within the coordination area of an earth station would not necessarily preclude the satisfactory operation of either the earth station or the other station, since coordination distances are based on the most unfavourable case assumptions as regards interference.

The different coordination distances may be reviewed at a future conference conforming to the relevant Resolution.

TABLE 1

Earth stations operating at frequencies below 1 GHz

Frequency Sharing Situation		Coordination Distance (In sharing situations involving services allocated with equal rights)
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service)	
148.0 - 149.9 MHz ground-based (mobile) 149.9 - 150.05 MHz ground-based (mobile)	ground-based stations	As determined using Equation (1) and Figure 1 of Recommendation ITU-R **M.1185** In this case, the coordination distance is calculated by the administration of the terrestrial station using the parameters of its terrestrial stations and the relevant parameters taken from the advance publication for the earth station.
400.15 - 401 MHz ground-based	meteorological aids (radiosonde)	582 km
All bands below 1 GHz ground-based	mobile (aircraft)	500 km
All bands below 1 GHz aircraft (mobile)	ground-based stations	500 km
400.15 - 401 MHz aircraft (mobile)	meteorological aids (radiosonde)	1 082 km
All bands below 1 GHz aircraft (mobile)	mobile (aircraft)	1 000 km
455 - 456 MHz 459 - 460 MHz ground-based	ground-based stations	500 km

TABLE 2

Earth stations operating at frequencies in the 1 - 3 GHz range

Frequency Sharing Situation		Coordination Distance (In sharing situations involving services allocated with equal rights)
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	
ground-based mobile (NOTE 1) (GSO network)	ground-based stations in terrestrial services	Determined using Recommendation ITU-R **IS.847** with the parameters specified therein for terrestrial stations and all applicable equations and figures.
ground-based mobile (NOTE 1) (non-GSO network)	ground-based stations in terrestrial services	The methodology of Recommendation ITU-R **IS.849** is applied in conjunction with Recommendation ITU-R **IS.847** (see above).
1 675 - 1 700 MHz ground-based mobile	meteorological aids (radiosonde)	582 km
All bands 1 - 3 GHz ground-based mobile	terrestrial mobile (aircraft)	500 km
All bands aircraft (mobile)	ground-based stations in terrestrial services	500 km
1 675 - 1 700 MHz aircraft (mobile)	meteorological aids (radiosonde)	1 082 km
All bands aircraft (mobile)	terrestrial mobile (aircraft)	1 000 km

NOTE 1 – Recommendation ITU-R **IS.847** supplies the necessary terrestrial station parameters for the bands 1 492 - 1 530 MHz, 1 555 - 1 559 MHz, 1 610 - 1 645.5 MHz, 1 646.5 - 1 660 MHz, 1 675 - 1 710 MHz, 1 980 - 2 025 MHz, 2 160 - 2 200 MHz, 2 483.5 - 2 520 MHz, and 2 655 - 2 690 MHz.

TABLE 3

Non-GSO/MSS feeder-link earth stations

Frequency Sharing Situation		Coordination Distance
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	(In sharing situations involving services that are allocated with equal rights)
19.3 - 19.7 GHz and 29.1 - 29.5 GHz; earth station operating co-directionally with other earth stations	ground-based stations in terrestrial services	Determined using Recommendations ITU-R **IS.847** and **IS.849** with the parameters specified therein for terrestrial stations and all applicable equations and figures.
Bands in which the FSS is already allocated; earth station operating in opposite direction	ground-based stations in terrestrial services	A) 19.3 - 19.7 GHz: 170 km; B) 6 700 - 7 075 MHz: 300 km
All bands and earth stations	terrestrial mobile (aircraft)	500 km
Bands in which the FSS is already allocated; earth station operating in opposite direction	earth station operating in opposite direction of transmission	A) 19.3 - 19.7 GHz: 170 km; B) 6 700 - 7 075 MHz: 300 km

TABLE 4

Non-GSO/FSS earth stations

Frequency Sharing Situation		Coordination Distance (In sharing situations involving services that are allocated with equal rights)
Frequency band and earth station for which coordination area is determined	Other service or station (station in terrestrial service or earth station)	
18.9 - 19.3 GHz and 28.7 - 29.1 GHz; earth station operating co-directionally with other earth stations	ground-based stations in terrestrial services	Determined using Recommendations ITU-R **IS.847** and **IS.849** with the parameters specified therein for terrestrial stations and all applicable equations and figures.

RESOLUTION 47 (WRC-95)

Implementation of Resolution 46 (Rev.WRC-95)

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has modified Resolution **46**;

b) that the revised version of Resolution **46** is referred to in several footnotes to the Table of Frequency Allocations of the Radio Regulations that have been modified by this Conference;

c) that these footnotes shall apply provisionally only as from 1 January 1997;

d) that some administrations have expressed the wish to start the coordination procedure contained in Resolution **46** (**Rev.WRC-95**) as soon as possible following this Conference,

considering further

that some administrations have already submitted information on projected networks,

instructs the Bureau

to apply, as of 18 November 1995, the provisions of Resolution **46** (**Rev.WRC-95**) to those bands in which the Resolution is mentioned.

RESOLUTION 48 (WRC-95)

Conditions for Recommencing the Procedures for the Advance Publication of Information

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that No. **S9.2** of the simplified Radio Regulations requires that the advance publication procedure will need to be applied and in one case recommenced as a result of a change to either one or two parameters;

b) it may be appropriate for both non-geostationary-satellite-orbit (non-GSO) and geostationary-satellite-orbit (GSO) systems to have a very limited extension of this set of parameters;

c) that this possible list of parameters requires more study,

resolves to invite the Radiocommunication Bureau

1. in cooperation with the relevant ITU-R study groups and Special Committee on regulatory/procedural matters, to investigate:

- what parameters might require a new advance publication;
- what significant changes to these parameters would require a new advance publication;

2. to present the results of its investigations to the Conference Preparatory Meeting for WRC-97.

RESOLUTION 71 (WRC-95)

Further Studies Concerning Application of Article 25/S19 (Identification of stations)

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that application of Article **25/S19** has given rise *inter alia* to legal and political questions, arising from uncertainty as to which entities can be allocated call sign series and blocks of identities, and from ambiguity in the use of the terms "country", "member" and "administration" relative to the provisions of that Article;

b) that this matter is of considerable importance to many administrations and to some international organizations;

c) that a proposal was made to consider the possibility of extending present allocations of international call sign series by lifting the limitation on use of the letter "Q" and the digits "0" and "1";

d) that the Voluntary Group of Experts on simplification of the Radio Regulations (VGE) concluded that much more detailed study is required before any further changes to Article **25/S19** are considered,

resolves to instruct the Secretary-General and the Director of the Radiocommunication Bureau

to arrange for the appropriate studies relating to *considering a)* within the Radiocommunication Sector in consultation with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) and submit a report to WRC-97.

RESOLUTION 114 (WRC-95)

Use of the Band 5 091 - 5 150 MHz by the Fixed-Satellite Service (Earth-to-Space) (Limited to feeder links of the non-geostationary Mobile-Satellite Service)

The World Radiocommunication Conference (Geneva, 1995),

considering

a) the current allocation of the frequency band 5 000 - 5 250 MHz to the aeronautical radionavigation service;

b) the requirements of both the aeronautical radionavigation and the fixed-satellite (Earth-to-space) (limited to feeder links of non-geostationary mobile-satellite systems) services in the above-mentioned band,

recognizing

a) that precedence must be given to the microwave landing system (MLS) in accordance with No. **S5.444** of the Radio Regulations and to other international standard systems of the aeronautical radionavigation service in the frequency band 5 000 - 5 150 MHz;

b) that, in accordance with Annex 10 of the Convention of the International Civil Aviation Organization (ICAO), it may be necessary to use the frequency band 5 091 - 5 150 MHz for the MLS if its requirements cannot be satisfied in the frequency band 5 030 - 5 091 MHz;

c) that the fixed-satellite service providing feeder links for non-geostationary mobile-satellite services will need access to the frequency band 5 091 - 5 150 MHz in the short term, in order to accommodate already identified requirements,

noting

a) the necessary evolution of the current MLS and of other international standard systems in the aeronautical radionavigation service implementation plans;

b) the small number of fixed-satellite service stations to be considered,

resolves

1. that the provisions of this Resolution and of Nos. **S5.444** and **S5.444A** of the Radio Regulations shall enter into force on 18 November 1995;

2. that administrations authorizing stations providing feeder links for non-geostationary mobile-satellite systems in the frequency band 5 091 - 5 150 MHz shall ensure that they do not cause harmful interference to stations of the aeronautical radionavigation service;

3. that the allocation to the aeronautical radionavigation service and the fixed-satellite service in the frequency band 5 091 - 5 150 MHz should be reviewed at the 2001 World Radiocommunication Conference (WRC-2001),

urges administrations

1. when authorizing stations of the aeronautical radionavigation service, to assign frequencies giving priority to the band below 5 091 MHz;

2. when assigning frequencies in the band 5 091 - 5 150 MHz before 1 January 2010 to stations of the aeronautical radionavigation service or to stations of the fixed-satellite service providing feeder links of the non-geostationary mobile-satellite service (Earth-to-space), to take all practicable steps to avoid mutual interference between them,

instructs ITU-R

1. to study the technical and operational issues relating to sharing of this band between the aeronautical radionavigation service and the fixed-satellite service providing feeder links of the non-geostationary mobile-satellite service (Earth-to-space);

2. to bring the results of these studies to the attention of WRC-2001,

invites

1. ICAO to further review, within the same time-frame, detailed spectrum requirements and planning for international standard aeronautical radionavigation systems in the above-mentioned band;

2. all members of ITU-R, and especially ICAO, to participate actively in such studies,

requests the Secretary-General

to bring this Resolution to the attention of ICAO.

RESOLUTION 115 (WRC-95)

Calculation of the Power Flux-Density at the Geostationary-Satellite Orbit in the Band 6 700 - 7 075 MHz Used for Feeder Links of Non-Geostationary-Satellite Systems in the Mobile-Satellite Service in the Space-to-Earth Direction

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has allocated the band 6 700 - 7 075 MHz to the fixed-satellite service, in the space-to-Earth direction, on a primary basis, for use by feeder links of non-geostationary satellite networks in the mobile-satellite service;

b) that the band 6 725 - 7 025 MHz is also allocated to the fixed-satellite service in the Earth-to-space direction, on a primary basis, subject to the Allotment Plan of Appendix **30B (S30B)** of the Radio Regulations for geostationary-satellite networks;

c) that, under No. **S22.5A** of the Radio Regulations, this Conference has specified a limit on the maximum aggregate power flux-density produced within ±5 degrees of the geostationary-satellite orbit by a non-geostationary-satellite system,

considering also

d) that ITU-R has not identified a methodology for calculating the aggregate level of power flux-density produced at the geostationary-satellite orbit by a non-geostationary-satellite network, which is needed in order to apply No. **S22.5A** of the Radio Regulations,

resolves

1. that, as an interim measure, the aggregate level of power flux-density at the geostationary-satellite orbit shall be calculated as the sum of the levels of power flux-density (in $W/m^2/4$ kHz) generated concurrently at a given geostationary-satellite location by all visible satellites in the non-geostationary network;

2. that the peak value of the sums for all locations within ±5 degrees inclination of the geostationary-satellite orbit shall be compared with the limiting value;

3. that, as an item of supplementary information, administrations proposing to operate feeder links of non-geostationary-satellite systems in the mobile-satellite service in the frequency band 6 700 - 7 075 MHz shall include the calculated peak value of power flux-density produced within ±5 degrees inclination of the geostationary-satellite orbit;

4. that the power flux-density shall be determined by simulation of the complete orbital constellation of the non-geostationary-satellite network,

invites ITU-R

to develop a methodology for calculating the aggregate level of power flux-density produced at the geostationary-satellite orbit by a non-geostationary-satellite network,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the progress of these studies to the 1997 World Radiocommunication Conference (WRC-97).

RESOLUTION 116 (WRC-95)

Allocation of Frequencies to the Fixed-Satellite Service (Space-to-Earth) in the Band 15.4 - 15.7 GHz for Feeder Links of Non-Geostationary-Satellite Networks in the Mobile-Satellite Service

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has added an allocation to the fixed-satellite service in the band 15.4 - 15.7 GHz for feeder links of non-geostationary-satellite networks in the mobile-satellite service in the space-to-Earth direction;

b) that this band is shared with the aeronautical radionavigation service and certain limitations have been placed on the fixed-satellite service, as specified in No. **S5.511A** of the Radio Regulations;

c) that the adjacent band 15.35 - 15.4 GHz is allocated to the radio astronomy service and other passive services, and that protection from harmful interference due to emissions from space stations is needed (see No. **S5.511A** of the Radio Regulations),

resolves

1. to invite ITU-R, as a matter of urgency, to carry out studies in preparation for the Conference Preparatory Meeting of the next competent conference, namely the 1997 World Radiocommunication Conference (WRC-97), with a view to:

1.1 reviewing the power flux-density values given in No. **S5.511A** of the Radio Regulations relating to allocations in the band 15.4 - 15.7 GHz (space-to-Earth);

1.2 determining the out-of-band emission limits to be applied to space station assignments in the band 15.4 - 15.7 GHz for the protection of services in the band 15.35 - 15.4 GHz;

1.3 recommending that WRC-97 consider this subject,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the results of these studies to WRC-97.

RESOLUTION 117 (WRC-95)

Allocation of Frequencies to the Fixed-Satellite Service (Earth-to-Space) in the Band 15.45 - 15.65 GHz for Use by Feeder Links of Non-Geostationary Satellite Networks Operating in the Mobile-Satellite Service

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has added an allocation to the fixed-satellite service in the band 15.45 - 15.65 GHz for use by feeder links of non-geostationary-satellite networks in the mobile-satellite service in the Earth-to-space direction;

b) that this band is shared with the aeronautical radionavigation service and certain limitations have been placed on the fixed-satellite service, as specified in No. **S5.511C** of the Radio Regulations;

c) that the requirements of feeder links (Earth-to-space) of non-geostationary-satellite systems in the mobile-satellite service need to be accommodated in this band,

recognizing

a) that No. **953** of the Radio Regulations applies to the use of these bands by aeronautical radionavigation services;

b) that feeder-link earth stations will be small in number and widely separated,

resolves

1. to invite ITU-R, as a matter of urgency, to carry out studies in preparation for the Conference Preparatory Meeting of the next competent Conference (WRC-97), with respect to the sharing criteria and interference mitigation techniques necessary to permit the continued development in this band of all of the services to which it is allocated;

2. that WRC-97 should consider this subject,

also resolves

that the provisions of No. **S5.511C** of the Radio Regulations shall become effective on 18 November 1995,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the progress of these studies to WRC-97.

RESOLUTION 118 (WRC-95)

Use of the Bands 18.8 - 19.3 GHz and 28.6 - 29.1 GHz by Non-Geostationary Fixed-Satellite Service Systems

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the International Telecommunication Union has, among its purposes, "to promote the extension of the benefit of the new telecommunication technologies to all the world's inhabitants" (No. **6** of the Constitution of the International Telecommunication Union (Geneva, 1992));

b) that it is desirable, in this respect, to promote systems capable of providing a universal service;

c) that new telecommunication services need advanced and reliable networks permitting high capacity communications;

d) that systems based on the use of new technologies associated with both geostationary (GSO) and non-geostationary (non-GSO) low-Earth orbit satellite constellations are capable of providing the most isolated regions of the world with high-capacity and low-cost means of communication;

e) that many of the Members of the Union are in need of such systems;

f) that the operation of such systems requires a suitable amount of spectrum in appropriate frequency bands;

g) that decisions on this matter should permit as many systems as possible to be operated;

h) that in spite of the urgency attached to the development of such systems, technical, sharing and regulatory issues should be studied in order to achieve the most efficient use of the spectrum that may be available for these systems;

i) that there is a need for the provision of services on a competitive basis between GSO/FSS and non-GSO/FSS as well as between non-GSO/FSS and non-GSO FSS,

noting

1. that information relating to GSO and non-GSO systems in the fixed-satellite service in the 20/30 GHz bands has been communicated to the Radiocommunication Bureau;

2. that some of these systems are in operation and others will be operated in the near future and, consequently, difficulties may be experienced in modifying their characteristics;

3. the need to protect existing terrestrial services,

considering further

a) that technical studies are required in order to ascertain the extent to which sharing of the frequency bands 20/30 GHz is feasible between GSO and non-GSO systems, between non-GSO systems and between non-GSO and terrestrial systems;

b) that it is probable that non-GSO systems of the fixed-satellite service communicated to the Radiocommunication Bureau will not be brought into use before the 1997 World Radiocommunication Conference (WRC-97) and, consequently, the application of Resolution **46 (Rev.WRC-95)** referred to in *resolves* 1 below does not need to take account of No. **2613** of the Radio Regulations;

c) that the development of GSO and non-GSO systems in these bands is based on a major source of global investment and consequently their reciprocal coordination needs the firm commitment of all parties concerned on the basis of the application of Resolution **46 (Rev.WRC-95)**;

d) that the provisional character of *considering further b)* above, and the economic impact of *considering further c)* above, makes it necessary for the study of any technical or regulatory issue to be completed well in advance of

the date of WRC-97, with a view to permitting that Conference to review the regulatory provisions applying in the bands 18.8 - 19.3 GHz and 28.6 - 29.1 GHz;

e) that WRC-97 should consider the non-application of No. **2613** of the Radio Regulations in the bands 18.8 - 18.9 GHz and 28.6 - 28.7 GHz in light of the spectrum requirements for non-GSO/FSS systems and taking into account the results of the studies in the *further resolves* below,

resolves

1. that Resolution **46 (Rev.WRC-95)** shall be applied in the bands 18.9 - 19.3 GHz and 28.7 - 29.1 GHz to frequency assignments of GSO and non-GSO systems of the fixed-satellite service as of 18 November 1995;

2. that as of 18 November 1995, No. **2613** of the Radio Regulations shall not apply in the bands 18.9 - 19.3 GHz and 28.7 - 29.1 GHz; however, the non-application of No. **2613** of the Radio Regulations in these bands shall be reviewed by WRC-97 in light of the studies referred to in the *further resolves* below;

3. that the respective status of satellite systems communicated to the Bureau prior to 18 November 1995 shall be that derived from the application of Articles **11** and **13** of the Radio Regulations;

4. that, when applying Resolution **46 (Rev.WRC-95)** with respect to GSO systems to be taken into account, administrations intending to use non-GSO systems should afford appropriate protection to GSO systems in operation and those to be operated in the near future;

5. to urge administrations which have communicated their satellite systems in the bands 18.9 - 19.3 GHz and 28.7 - 29.1 GHz to the Radiocommunication Bureau prior to the date of this Conference to make every effort to reach agreement on the coordination of their respective systems,

further resolves

1. to request ITU-R to study, as a matter of urgency, the criteria to be applied for the sharing situations listed in *considering further a)* above, with a view to facilitating sharing, and taking account of existing and planned systems, and to recommend the required revisions of the Radio Regulations;

2. to instruct the Director of the Radiocommunication Bureau to ensure, in consultation with the Chairmen of study groups, committees and meetings, that the results of these studies are available in due time for consideration by WRC-97;

3. to recommend that WRC-97 review the results of the above studies and take appropriate action, including adjustments to spectrum allocations, for the harmonious development of GSO and non-GSO systems and terrestrial services in the bands 20/30 GHz, taking account of the conclusions reached on this matter by this Conference;

4. to urge the administrations concerned to cooperate to the maximum extent practicable in initiating the required coordination and to conduct such coordination with a view to reaching results acceptable to all the parties concerned,

instructs the Radiocommunication Bureau

to return any Appendix **3**/Appendix **4** information received or considered to be received from administrations in relation to the FSS in the bands 18.8 - 18.9 GHz and 28.6 - 28.7 GHz after 17 February 1996 and until the last day of WRC-97. In such cases, the period referred to in No. **1550** of the Radio Regulations will be extended accordingly,

recommends

that future world radiocommunication conferences consider the results of studies relating to the benefits that may be derived from the use of low-orbit satellite technologies and, if necessary, identify additional bandwidths that may be used by non-GSO systems.

RESOLUTION 119 (WRC-95)

Sharing Between the Fixed-Satellite Service and the Fixed Service in the 19.3 - 19.6 GHz Band when used by the Fixed-Satellite Service to Provide Feeder Links for Non-Geostationary Satellite Systems in the Mobile-Satellite Service

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the 19.3 - 19.6 GHz band is currently allocated to the fixed-satellite service in the space-to-Earth direction on a primary basis and that this Conference has designated this band to provide feeder links for non-geostationary-satellite systems in the mobile-satellite service;

b) that this Conference has also allocated the 19.3 - 19.6 GHz band in the Earth-to-space direction on a primary basis to the fixed-satellite service for use by feeder links for non-geostationary satellite systems in the mobile-satellite service;

c) that the 19.3 - 19.6 GHz band is also allocated on a primary basis to the fixed service;

d) that the coordination and notification procedures set forth in Resolution **46 (Rev.WRC-95)** apply to services with equal rights in the 19.3 - 19.6 GHz band;

e) that this Conference has adopted the existing power flux-density limits for the 19.3 - 19.6 GHz band at the surface of the Earth for feeder links of non-geostationary-satellite systems in the mobile-satellite service, and that these limits are to apply subject to review by ITU-R and until the results of that review are considered by the 1997 World Radiocommunication Conference (WRC-97);

f) that high rain attenuation occurs in this band in certain parts of the world, which could affect both the fixed service and the satellite link margins,

considering further

g) that Note 5 in Recommendation ITU-R **SF.1005** states that the criteria of maximum permissible interference from earth stations operating bidirectionally to stations in the fixed service are preliminary and require further study,

resolves to instruct ITU-R

1. to study, as a matter of urgency, the criteria of maximum permissible interference from earth stations operating bidirectionally in the 19.3 - 19.6 GHz band to stations in the fixed service;

2. to study possible modification of the power flux-density limits at the surface of the Earth in this band applicable to feeder links of non-geostationary-satellite networks in the mobile-satellite service, keeping in view the different rain characteristics in many parts of the world,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the results of these studies to WRC-97

RESOLUTION 120 (WRC-95)

Use of the Bands 19.3 - 19.7 GHz and 29.1 - 29.5 GHz by Feeder Links for Non-GSO/MSS Networks

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that CPM-95 noted that FSS frequency bands to be used by feeder links for non-GSO/MSS networks would be exempt from the application of No. **2613** and would be subject to a coordination procedure such as Resolution **46**;

b) that WRC-95 revised Resolution **46** and adopted the provisions of No. **S9.11A** for application in the frequency bands identified for use by feeder links for non-GSO/MSS networks;

c) that WRC-95 decided that Resolution **46 (Rev.WRC-95)** will come into effect on 18 November 1995;

d) that WRC-95 decided to remove the application of No. **2613** and simultaneously apply Resolution **46 (Rev.WRC-95)** in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz;

e) that WRC-95 also discussed the possibility of removing the application of No. **2613** and applying Resolution **46 (Rev.WRC-95)** in the immediately adjacent bands 19.6 - 19.7 GHz (space-to-Earth) and 29.4 - 29.5 GHz (Earth-to-space) but concluded that further study by the ITU-R was required before such a decision could be made;

f) that WRC-95 allocated the band 19.3 - 19.6 GHz to the FSS in the Earth-to-space direction for use limited to feeder links for non-GSO/MSS networks;

g) that Resolution **121 (WRC-95)** invited the ITU-R to undertake studies on sharing between feeder links of non-GSO/MSS networks and GSO/FSS networks;

h) that Resolution **119 (WRC-95)** invites the ITU-R to undertake studies on sharing between feeder links of non-GSO/MSS networks and the fixed service,

resolves

1. that as of 18 November 1995, Resolution **46 (Rev.WRC-95)** shall be applied in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz;

2. that as of 18 November 1995, No. **2613** of the Radio Regulations shall not apply to feeder links of non-GSO/MSS networks with respect to GSO/FSS networks in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz except the case mentioned in *resolves* 4;

3. that WRC-97 should consider the removal of the application of No. **2613** of the Radio Regulations for feeder links of non-GSO/MSS networks with respect to GSO/FSS networks in the bands 19.6 - 19.7 GHz and 29.4 - 29.5 GHz taking into account the results of ITU-R studies; see Resolutions **119 (WRC-95)** and **121 (WRC-95)**;

4. that in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz, No. **2613** of the Radio Regulations shall continue to apply between feeder links of non-GSO/MSS networks and GSO/FSS networks for which complete Appendix **3** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995,

urges administrations

to note that WRC-97 will consider the removal of the application of No. **2613** of the Radio Regulations and subsequent application of Resolution **46 (Rev.WRC-95)** in the bands 19.6 - 19.7 GHz and 29.4 - 29.5 GHz for coordination between GSO/FSS networks and feeder links for non-GSO/MSS networks.

RESOLUTION 121 (WRC-95)

Development of Interference Criteria and Methodologies for Coordination Between Feeder Links of Non-Geostationary Satellite Networks in the Mobile-Satellite Service and Geostationary-Satellite Networks in the Fixed-Satellite Service in the Bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference made provision for use of the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz by feeder links of non-geostationary-satellite networks in the mobile-satellite service (non-GSO/MSS);

b) that coordination between feeder links of non-GSO/MSS networks, and geostationary-satellite networks in the fixed-satellite service (GSO/FSS) and terrestrial networks in these bands will be in accordance with Annex **2** of Resolution **46 (Rev.WRC-95)**/Annex **1** of Appendix **S5** ;

c) that the Report of the Conference Preparatory Meeting (CPM) to this Conference recognized that coordination between feeder links of non-GSO/ MSS networks and GSO/FSS networks would become more difficult as the number of satellite systems that are implemented increased;

d) that simultaneous operation of GSO/FSS networks and feeder links of non-GSO/MSS networks will in most cases result in short-term, high-level interference between such networks, unless interference mitigation techniques are applied by both types of network;

e) that the CPM Report to this Conference concluded that "by the use of interference reduction mechanisms, frequency sharing may be possible at 20 and 30 GHz in some cases";

f) that no ITU-R Recommendations have been developed on coordination methodologies and permissible interference for non-GSO/MSS feeder links, while permissible interference criteria for GSO networks proposed in the CPM Report to this Conference may require further refinements;

g) that permissible interference criteria would facilitate determination of the most appropriate interference mitigation techniques;

h) that No. **S5.541A** of the Radio Regulations requires the use of interference mitigation techniques in order to facilitate coordination of feeder links of non-GSO/MSS networks with GSO/FSS networks;

i) that, in addition to permissible interference criteria, an agreed method for calculating mutual interference between feeder links of non-GSO/MSS networks and GSO/FSS networks is required;

j) that the development and implementation of interference mitigation techniques would facilitate the coordination of feeder links of non-GSO/MSS networks with GSO/FSS networks when the interference between such networks exceeds the applicable permissible interference criteria,

recognizing

that, while ITU-R is developing Recommendations on coordination methodologies, coordination between feeder links of non-GSO/MSS networks and GSO/FSS networks will be carried out by administrations using mutually acceptable sharing criteria,

resolves to invite ITU-R

1. to undertake, as a matter of urgency, the development of appropriate permissible interference criteria for both non-GSO/MSS feeder links and GSO/FSS networks operating in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz;

2. to undertake, as a matter of urgency, studies of interference mitigation techniques (including, *inter alia*, uplink adaptive power control and fade compensation techniques) which would facilitate coordination between non-GSO/MSS feeder links and GSO/FSS networks;

3. to undertake, as a matter of urgency, studies to develop coordination methodologies for GSO/FSS networks and non-GSO/MSS feeder links operating in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz on an equal basis,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the progress of these studies to WRC-97.

RESOLUTION 212 (Rev.WRC-95)

Implementation of Future Public Land Mobile Telecommunication Systems (FPLMTS)

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that ITU-R has recommended the 1 - 3 GHz band as the most suitable for FPLMTS;

b) that ITU-R has recommended approximately 60 MHz for use by personal stations and approximately 170 MHz for use by mobile stations;

c) that ITU-R has recognized that space techniques are an integral part of FPLMTS;

d) that, in No. **S5.388** of the Radio Regulations, this Conference has identified bands to accommodate this future service,

considering further

a) that ITU-R has not completed its studies regarding duplexing methods, modulation techniques, channelling arrangements, signalling or communication protocols;

b) that no worldwide intersystem numbering plan currently exists that would facilitate worldwide roaming,

noting

a) that the implementation of the terrestrial components of FPLMTS in the bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz is expected to commence around the year 2000 subject to market and technical considerations;

b) that the availability of the satellite component of FPLMTS in the bands 1980 - 2010 MHz and 2170 - 2200 MHz simultaneously with the terrestrial component of FPLMTS in the bands identified in No. **S5.388** would improve the overall implementation and the attractiveness of FPLMTS to both developed and developing countries,

invites administrations

to give due consideration to the accommodation of other services currently operating in these bands when implementing FPLMTS,

invites ITU-R

to continue its studies with a view to developing suitable and acceptable technical characteristics for FPLMTS that will facilitate worldwide use and roaming, and ensure that FPLMTS can also meet the telecommunication needs of the developing countries and rural areas,

invites ITU-T

a) to complete its studies of signalling and communication protocols;

b) to develop a common worldwide intersystem numbering plan and associated network capabilities that will facilitate worldwide roaming,

resolves

that administrations which implement FPLMTS:

a) should make the necessary frequencies available for system development;

b) should use those frequencies when FPLMTS are implemented;

c) should use the relevant international technical characteristics, as identified by the Recommendations of the ITU-R and ITU-T.

RESOLUTION 213 (Rev.WRC-95)

Sharing Studies Concerning Possible Use of the Band 1 675 - 1 710 MHz by the Mobile-Satellite Service

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the agenda of this Conference requested the consideration, *inter alia*, of a review of the technical constraints associated with the allocation to the mobile-satellite service (MSS);

b) that the frequency band 1 675 - 1 710 MHz is already allocated to the MSS (Earth-to-space) on a primary basis in Region 2;

c) that this Conference considered proposals for reducing the technical constraints on the MSS for part of the frequency band 1 675 - 1 710 MHz, but concluded that the required studies were incomplete;

d) that the band 1 675 - 1 710 MHz is mainly used by the meteorological-satellite and meteorological aids services, and studies indicate that parts of this band are used by the meteorological-satellite service in a way which may allow sharing with the MSS, but that there are currently more than 5 400 meteorological-satellite receiving terminals in the band 1 690 - 1 710 MHz registered with the World Meteorological Organization (WMO);

e) that there are few main meteorological earth stations in the 1 675 - 1 690 MHz band, but these are the main control and operating stations for meteorological-satellite systems and must therefore receive adequate protection;

f) that studies to date and the conclusions of the 1995 Conference Preparatory Meeting indicate that sharing of part of the band 1 675 - 1 710 MHz between the meteorological-satellite and the mobile-satellite services may be feasible, taking into account Recommendation ITU-R **SA.1158** and the results of other sharing studies still to be completed;

g) that parts of the frequency band 1 675 - 1 710 MHz are also allocated to the fixed and mobile services;

h) that improvements in some of the radiocommunication characteristics of meteorological aids are technically possible, and that these may improve sharing possibilities;

i) that the cost impact of improving the radiocommunication characteristics of meteorological aids may reduce their usage in large areas of the world (see Recommendation ITU-R **SA.1165**);

j) that there is a need to determine the operational and technical means of preventing harmful interference to the services referred to in *d)* above,

resolves to invite ITU-R

as a matter of urgency, and in time for the 1997 World Radiocommunication Conference (WRC-97), to complete the technical and operational studies on the feasibility of sharing of the band concerned between the services referred to in *d)* and *g)* above and the MSS, and on the required means for preventing harmful interference,

further invites

1. administrations and interested parties (e.g. WMO) to participate actively in such studies, by submitting relevant contributions;

2. ITU-R to investigate a potentially suitable downlink band that may assist in meeting the spectrum requirements of the MSS,

instructs the Secretary-General

to bring this Resolution to the notice of WMO.

RESOLUTION 214 (WRC-95)

Sharing Studies Relating to Consideration of the Allocation of Bands Below 1 GHz to the Non-Geostationary Mobile-Satellite Service

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the agenda of this Conference included consideration of the requirements of the mobile-satellite service (MSS) and, if necessary, the adoption of limited allocations for the MSS;

b) that the Conference Preparatory Meeting 1995, in its Report, indicated that, in order to meet projected MSS requirements below 1 GHz, a range of an additional 7 to 10 MHz will be required in the near future;

c) that several administrations made proposals to this Conference to allocate additional spectrum on a worldwide basis for non-geostationary-satellite networks in the mobile-satellite service (non-GSO/MSS) below 1 GHz;

d) that new technologies of some radiocommunication services, especially within the terrestrial mobile and broadcasting services, which require spectrum below 1 GHz, may have an impact on the sharing possibilities;

e) that non-GSO/MSS systems operating below 1 GHz have undergone advance publication by the Radiocommunication Bureau and that administrations may seek to implement further such systems;

f) that there is an urgent need to make additional spectrum available on a worldwide basis for non-GSO/MSS systems operating below 1 GHz;

g) that the requirements for the introduction of these new technologies have to be balanced,

considering further

that the bands below 1 GHz are extensively used by many services,

noting

that, after appropriate studies, there may be other bands below 1 GHz which could also be considered suitable for a worldwide allocation to non-GSO/MSS,

resolves

1. that further studies are urgently required on operational and technical means to facilitate sharing between the non-GSO/MSS and other radiocommunication services having allocations and operating below 1 GHz;

2. that the 1997 World Radiocommunication Conference (WRC-97) be invited to consider, on the basis of the results of the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO/MSS below 1 GHz;

3. that the relevant international organizations be invited to participate in these sharing studies,

invites ITU-R

1. to study and develop Recommendations, as a matter of urgency, on the technical and operational issues relating to sharing between services having allocations and the non-GSO/MSS below 1 GHz, in the bands proposed to this Conference by several administrations and in other frequency bands, as necessary;

2. to bring the results of these studies to the attention of WRC-97 and the relevant preparatory meetings,

urges administrations

1. to participate actively in these studies;

2. to submit reports on their technical, operational and frequency sharing experience with non-GSO/MSS systems operating below 1 GHz.

RESOLUTION 215 (WRC-95)

Coordination Process Among Non-Geostationary Mobile-Satellite Systems

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that space-to-Earth transmissions of non-geostationary (non-GSO) mobile-satellite systems are constrained to limit their power flux-density over areas where the frequency band is shared with terrestrial systems;

b) that a number of proposed non-GSO mobile-satellite systems can provide a good service to users within the power flux-density limits given in Annex 2 of Resolution **46 (Rev.WRC-95)**/Annex **1** to Appendix **S5**;

c) that when maximum communication capacity is achieved by non-GSO systems in the mobile-satellite service a major portion of the interference into each of these systems will come from the other mobile-satellite systems sharing the frequency band, and, consequently, if one system starts to transmit at higher power, all others need to do the same in order to overcome mutual interference;

d) that the ITU-R is studying the efficient use of the radio spectrum and frequency sharing within the mobile-satellite service, that Recommendations ITU-R **M.1186** and **M.1187** are a basis for further study, and that additional preliminary texts are available or can be provided by administrations on this matter,

recognizing

that, as a means to ensure that the frequency bands allocated to the mobile-satellite service can be used in an efficient manner, there is an urgent demand for:

1. criteria to be established by the ITU-R to be used in determining the need to coordinate between mobile-satellite systems; and

2. detailed methods of interference calculation to be used by administrations in the coordination process,

resolves to invite ITU-R

to continue its studies on this subject and develop, as a matter of urgency, criteria for determining the need to coordinate and calculation methods for determining levels of interference, as well as the required protection ratios between networks in the mobile-satellite service,

invites the Council

to include this Resolution in the agenda of WRC-97 in order that that Conference consider the results of these studies and take such action as may be appropriate with a view to achieving an efficient use of the spectrum.

RESOLUTION 339 (WRC-95)

Coordination of NAVTEX Services

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the Voluntary Group of Experts (VGE) has suggested that, in the interests of simplification, this Conference may decide that it is no longer necessary for ITU to continue frequency coordination of NAVTEX services in addition to the operational coordination undertaken by the International Maritime Organization (IMO);

b) that the IMO has established a Coordinating Panel on NAVTEX to, *inter alia*, coordinate the operational aspects of NAVTEX services in the planning stages for transmissions on the frequencies 490 kHz, 518 kHz or 4 209.5 kHz;

c) that coordination in the frequencies 490 kHz, 518 kHz and 4 209.5 kHz is essentially operational;

d) that consideration should be given to an effective means of publishing and recording information on frequency assignments for NAVTEX services, if ITU no longer undertakes coordination of NAVTEX services,

resolves

1. to abrogate the current Article **14A** of the Radio Regulations with immediate effect and to replace the related procedures with those contained in the Annex to this Resolution;

2. that the procedures in the Annex to this Resolution may also be applied for coordinating the use of the frequency 4 209.5 kHz for NAVTEX-type transmissions as well as for the use of the frequency 490 kHz, when it becomes available for NAVTEX-type transmissions,

instructs the Secretary-General

to arrange for the necessary consultations with IMO on the need for ITU to continue frequency coordination for NAVTEX services and report the results to WRC-97 to enable it to decide on this item.

ANNEX TO RESOLUTION 339 (WRC-95)

Procedure to be applied by Administrations and the Radiocommunication Bureau to coordinate the planned use of the frequency 518 kHz for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships by means of automatic narrow-band direct-printing telegraphy (International NAVTEX System)

§ 1. (1) Before an administration notifies to the Bureau a frequency assignment to a coast station for the transmission of navigational and meteorological warnings and urgent information to ships by means of automatic narrow-band direct-printing telegraphy, it shall coordinate the assignment with any other administration with an assignment in the same frequency band which might be affected.

(2) To this effect, the administration shall communicate to the Bureau, not earlier than one year before the proposed date of bringing the assignment into use, the information listed in Section **A** of Appendix **1** or Appendix **S4**, as appropriate, together with the following additional characteristics:

a) the B1 character (transmitter coverage area identifier) to be used by the coast station;

b) the regular transmission schedule assigned to the station;

c) the duration of transmissions;

d) the ground-wave coverage area of the transmission.

(3) The administration shall also indicate the results of any coordination[1] already effected in relation with the projected use.

(4) In order to enable the procedure to be completed in good time before notification under No. **1214** or No. **S11.2**, as appropriate, the administrations should communicate the above information not later than six months before the proposed date of bringing the assignment into use.

§ 2. In cases where the Bureau finds that a basic characteristic or any of the additional characteristics are missing, it shall return the request by airmail, stating the reason, unless the information not provided is immediately forthcoming in response to an enquiry of the Bureau.

§ 3. The Bureau shall examine the proposed use with respect to assignments to stations of other services to which the band 517.5 - 518.5 kHz is allocated, notified under No. **1214** or No. **S11.2**, as appropriate, at an earlier date, and shall identify the administrations whose assignments are likely to be affected.

§ 4. The Bureau shall, within 45 days of the receipt of the complete information, publish it in a special section of its weekly circular indicating any coordination already effected and the names of administrations identified in application of § 3 above. The Bureau shall communicate a copy of this publication to the International Maritime Organization (IMO), the International Hydrographic Organization (IHO), and the World Meteorological Organization (WMO), requesting them to communicate to the administrations concerned, with a copy to the Bureau, any information which may assist in reaching agreement on coordination.

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[1] Administrations are strongly recommended to coordinate the above characteristics in accordance with the procedures of the International Maritime Organization (IMO)

§ 5. On expiry of a period of four months from the date of publication of the information in the special section, the administration responsible for the assignment should notify it to the Bureau in accordance with No. **1214** or No. **S11.2**, as appropriate, indicating the names of administrations with which agreement has been reached and those which have signified their disagreement.

§ 6. Upon receipt of the notice, the Bureau shall request those administrations named in the special section which have not communicated their agreement or disagreement with respect to the proposed use to signify within a period of 30 days their decision on the matter.

§ 7. An administration which does not reply to the Bureau's request made under § 6 above or fails to signify a decision on the matter shall be deemed to have undertaken:

a) that no complaint will be made in respect of any harmful interference which may be caused to its stations by the proposed use;

b) that its stations will not cause harmful interference to the proposed use.

§ 8. When examining the proposed use in accordance with Article **12** or Article **S11** as appropriate, the Bureau shall apply the provisions of No **1245** as long as they are in force, except with respect to those assignments for which the administration responsible has signified its disagreement with respect to the proposed use.

§ 9. The Bureau shall examine the notified assignments in accordance with No. **1241**, as long as they are in force, on the basis of its technical standards and shall record them in accordance with the pertinent provisions of Article **12** or Article **S11**, as appropriate. The recording shall contain symbols reflecting the result of the application of this procedure.

§ 10. The Bureau shall, at appropriate intervals, update and publish the data referred to in § 5 above in a special list in an appropriate format.

RESOLUTION 529 (WRC-95)

HF Broadcasting

The World Radiocommunication Conference (Geneva, 1995),

noting

a) its agenda item relating to "the availability of the newly allocated HFBC bands";

b) that the World Administrative Radio Conference (Geneva, 1979) (WARC-79) allocated the HF bands listed in No. **531/S5.148** of the Radio Regulations to the broadcasting service and, by its Resolution **8 (Rev.Mob-87)** took action for the transfer of existing fixed stations to other bands;

c) that, by its Resolution **512 (HFBC-87)**, the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987) (WARC HFBC-87) reviewed the dates of implementation of the changes of the frequency allocations in the bands referred to in No. **531** of the Radio Regulations;

d) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) (WARC-92), in allocating additional HF bands to the broadcasting service, as listed in No. **521A/S5.134** of the Radio Regulations, limited their use to single-sideband transmissions, and, by its Resolution **21 (WARC-92)**, took action for the transfer of existing fixed-service stations to other bands, and that the transfer is in progress;

e) that, by its Resolution **22 (WARC-92)**, WARC-92 requested the Telecommunication Development Bureau (BDT) to consider as a matter of priority the introduction of specific modifications in the radiocommunication networks of the developing countries, coordinating the necessary technical advisory activities with the IFRB and the CCIR;

f) that WARC-79, in its Resolution **508**, WARC-HFBC-87, in its Resolution **511 (HFBC-87)**, and WARC-92, in its Resolution **523 (WARC-92)**, recommended the convening of a world radiocommunication conference for the planning of the HF bands allocated to the broadcasting service;

g) that Resolution **20** of the Plenipotentiary Conference (Kyoto, 1994) stipulated that broadcasting in the bands referred to above shall not be operated until planning is completed and the conditions stipulated in the Radio Regulations are fulfilled;

h) that WARC-HFBC-87 adopted a revised Article **17**, together with Resolution **515 (HFBC-87)**, containing planning principles, a planning system and a consultation procedure, and, by its Resolution **511 (HFBC-87)** instructed the IFRB to undertake the improvements in the software of the HFBC planning system, to test the system and to submit their results to administrations and to the recommended future HFBC planning conference;

i) that WARC-92 considered the IFRB report on the above improvements and tests and, in its Resolution **523 (WARC-92)**, instructed the IFRB to propose a flexible, simplified planning method, which could be used for the subsequent development of a planning system,

considering

a) that the IFRB reports on the tests and improvements requested by the successive world administrative radio conferences concluded that, even with the additional allocations, a planning method based on all the requirements of administrations could not be developed and implemented in an economical way;

b) that the HF bands allocated by WARC-92 to the broadcasting service are allocated to other services on a primary basis until 1 April 2007 under the provisions of Nos. **521C/S5.136**, **528A/S5.143**, **529B/S5.146** and **534A/S5.151** of the Radio Regulations;

c) that *resolves* 2 of Resolution **517 (HFBC-87)** specifies that "the final date for the cessation of DSB emissions specified in the Annex to this Resolution shall be periodically reviewed by competent future world administrative radio conferences in the light of the latest available complete statistics on the worldwide distribution of SSB transmitters and synchronous demodulator receivers, and that at least one such review shall be carried out before the year 2000";

d) that the implementation of the timetable contained in the Annex to Resolution **517 (HFBC-87)** may impose undue constraints on countries, in particular developing countries, discontinuing their double-sideband transmissions;

e) that the 1993 Radiocommunication Assembly approved and assigned a Question to the Radiocommunication Sector entitled "Planning Procedures for HF Broadcasting" with a request to complete the studies by 1997, so that an alternative planning procedure might be adopted by the 1997 World Radiocommunication Conference (WRC-97);

f) that the work carried out by ITU-R Task Group 10/5 and the Conference Preparatory Meeting (CPM) is to be taken into account, with a view to WRC-97 taking action, on "availability of the newly allocated HFBC bands", in accordance with the agenda item of this Conference;

g) that the Radiocommunication Sector is engaged in the development of a simple and flexible planning procedure based on the concept of coordination,

also noting

a) that the Additional Plenipotentiary Conference (Geneva, 1992) adopted a new structure for the International Telecommunication Union, in which service conferences, such as HFBC conferences, are replaced by a periodical world radiocommunication conference convened every two years;

b) that the preliminary agenda of the forthcoming WRC-97 set out in Resolution **2 (WRC-93)** contains a set of items which includes the "examination of, and taking necessary decisions on, the question of the HF bands allocated to the broadcasting service in the light of developments to date and the results of the studies carried out by the Radiocommunication Sector",

resolves

1. that the HF bands allocated to the broadcasting service by WARC-79 may be used on an interim basis by that service from 1 January 1996, on the basis of the consultation procedure of Article **17**, until new procedures are adopted by WRC-97 and taking into account the provisions of No. **531/S5.148** of the Radio Regulations;

2. to invite WRC-97 to consider the new HFBC planning procedure being developed in the Radiocommunication Sector with a view to its adoption, and, if that procedure is adopted, to decide on a suitable date for its introduction, which should be the nearest possible date after the conclusion of that Conference;

3. to request ITU-R to carry out the following studies and to prepare a report for consideration by WRC-97:

3.1 review the planning principles contained in Article **17** and continue to develop the new procedure to be applied to the HF bands allocated to the broadcasting service (except in the bands to be used in the Tropical Zone), taking into account the provisions of Nos. **1737**, **1738** and **1739** of the Radio Regulations;

3.2 devise means by which other primary services in the additional bands allocated by WARC-92 to the broadcasting service continue to be protected taking into account Nos. **521C/S5.136**, **528A/S5.143**, **529B/S5.146** and **534A/S5.151** of the Radio Regulations;

3.3 recommend a date or dates by which other primary services in the above additional allocations will no longer be protected;

3.4 recommend the criteria which may be used by the Radiocommunication Bureau for carrying out a test of the recommended procedure;

3.5 consider a flexible timetable for the introduction of SSB transmissions incorporating a progressive increase in the parts of the HF bands allocated to the broadcasting service for use by SSB transmissions, so that countries in difficult economic situations can continue using their DSB transmitters;

4. that, taking into account the needs of the other primary services in the bands affected, WRC-97 consider bringing forward the date of availability of the HF bands allocated by WARC-92 to the broadcasting service,

instructs the Director of the Radiocommunication Bureau

1. to conduct tests based on the recommended criteria referred to in *resolves* 3.4 above and, if necessary, consult administrations on their requirements, and to report to WRC-97;

2. to make arrangements with the Director of the BDT for an information meeting to be held in application of Nos. **166** and **224** of the Convention (Geneva, 1992), before the last meeting of CPM-97, in order to inform developing countries of the results of the ITU-R studies.

3. to provide the necessary assistance to Task Group 10/5 in carrying out its task.

RESOLUTION 530 (WRC-95)

Simplification of Article 17 of the Radio Regulations

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the World Administrative Radio Conference (Geneva, 1979) (WARC-79) allocated new HF bands to the broadcasting service and that the use of this additional spectrum was subject to provisions to be established by a future world administrative radio conference for the planning of HF bands allocated to the broadcasting service;

b) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) (WARC-92) allocated further additional HF bands to the broadcasting service and that the use of this additional spectrum was subject to the planning to be drawn up by a competent world administrative radio conference;

c) that efforts to develop a HF broadcasting planning system have not been successful;

d) that the Voluntary Group of Experts (VGE) has made proposals to this Conference to simplify the existing Article **17** procedures;

e) that the agenda of this Conference invites administrations, when preparing and submitting their proposals, to base them as far as practicable on the recommended texts in the final report of the VGE,

recognizing

a) that the preliminary agenda for the 1997 World Radiocommunication Conference (WRC-97) includes examination of, and taking necessary decisions on, the question of the HF bands allocated to the broadcasting service in the light of developments to date and the results of the studies carried out by the Radiocommunication Sector;

b) that in response to Resolution **523 (WARC-92)** and ITU-R Question **212/10**, ITU-R is studying alternative planning procedures and the associated technical parameters for HF broadcasting,

resolves

that consideration of the simplification of Article **17** as proposed in Article **S12** of the VGE Report and annexed to this Resolution be deferred to WRC-97 and hence Article **17** shall continue to be applied as at present.

ANNEX TO RESOLUTION 530 (WRC-95)

PROPOSED ARTICLE S12 OF VGE[1]

Planning and Procedure for the Bands Allocated Exclusively to the Broadcasting Service Between 5 950 kHz and 26 100 kHz

Section I. Introduction

S12.1 When applying the procedure of this Article administrations ar urged to comply to the maximum possible extent with the principles containe in Section **II** of this Article.[VGE Note 12]

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1 This text, including VGE Note 12, is taken from the VGE Report.

VGE Note 12 The VGE has noted Resolution **9** of the APP-92 requesting the Radio communication Assembly (AR-93), inter alia, "to establish the wor programme and the Study Groups of the Radiocommunication Sector including any future work on HF Broadcasting, taking account of an IFRB report on the application of Resolution **523** of the WARC-92. Upon the assumption that this will lead to longer term action by th Union, the scope for action by the VGE to simplify the present Article **1** of the Radio Regulations relating to HFBC is necessarily limited.

The VGE has therefore limited its action to the "Consultation Procedure in Sections **IV** to **VIII** of Article **17**, leaving it to the WRC-95 to decid upon Sections **I** to **III**, which contain principles and other materia relating to the planning of HFBC. Within these limitations the VGE proposes only that the number of seasons each year be reduced from fou to two; that the prior coordination of schedules be encouraged bu without disadvantage to uncoordinated schedules; that as a result of th reduced number of incompatibilities the technical work of the Bureau ca be reduced; and that as an economy measure the publication of the "Fina Schedule" can be abandoned, using the Weekly Circular to update th "Tentative Schedule". The results of this work are condensed in the draf of Article **S12**.

Section II. Planning Principles

S12.2 (1) The planning of the high frequency bands allocated to the broadcasting service shall be based on the principle of equal rights of all countries, large or small, to equitable access to these bands. In planning, an attempt shall also be made to achieve efficient use of these frequency bands, account being taken of the technical and economic constraints that may exist in certain cases. On the basis of the foregoing, the following planning principles shall be applied.

S12.3 (2) All the broadcasting requirements, current or future, formulated by the administrations, shall be taken into account and be treated on an equitable basis, so as to guarantee the equality of rights referred to in No. **S12.2**, and to enable each administration to provide a satisfactory service.

S12.4 (3) All broadcasting requirements, national[1] and international, shall be treated on an equal basis, with due consideration of the differences between these two kinds of broadcasting requirements.

S12.5 (4) In the planning procedure, an attempt shall be made to ensure, as far as practicable, continuity of use of a frequency or of a frequency band. However, such continuity should not prevent equal and technically optimum treatment of all broadcasting requirements.

S12.6 (5) The periodical planning procedure shall be based solely on the broadcasting requirements expected to become operational during the planning period. It shall furthermore be flexible in order to take into account new broadcasting requirements and modifications to the existing broadcasting requirements.

S12.7 (6) The planning procedure shall be based on double-sideband emissions. Single-sideband emissions which administrations might wish to make may, however, be permitted in place of planned double-sideband emissions, provided that the level of interference caused to double-sideband emissions is not increased.

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[1] An HF broadcasting use is considered as being for the purposes of national coverage when the transmitting station and its associated required service area are both located within the territory of the same country.

S12.8 (7) For efficient spectrum use, only one frequency should be used whenever possible, to meet a given broadcasting requirement in a giver required service area; in any case the number of frequencies used will be the minimum necessary to provide a specified quality of reception.

S12.9 (8) Those broadcasting requirements for which the agreed minimum usable field strength is not ensured at any point of the required service area through lack of the requisite technical facilities, can obtain proportionally reduced protection against interference.

S12.10 (9) In the first stage of the equitable application of a new planning procedure, an attempt will be made to include the maximum number of submitted requirements achieving the desired quality level. The remaining requirements will be processed on the understanding that lower quality levels would be acceptable.

S12.11 (10) The planning method shall satisfy, on an equal basis, a minimum of the broadcasting requirements submitted by administrations with the desired performance. Special consideration shall be given to the requirements of administrations which, in the first instance, are unable to achieve this performance.

Section III. Planning System

S12.12 The Planning System developed in accordance with the principles set out in Section **II** of this Article and the decisions of the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987), shall be improved and tested in accordance with the instructions contained in Resolution **511 (HFBC-87)** for adoption, if acceptable to a competent world radio conference.

Section IV. Consultation Procedure

S12.13 Twice yearly administrations shall submit their projected seasonal broadcasting schedules in the relevant frequency bands to the Bureau. Those schedules shall cover the following seasons and shall be implemented at 0001 UTC on the first Sunday of each period concerned:

S12.14 *a)* March schedule – March to August inclusive;

S12.15 *b)* September schedule – September to February inclusive.

S12.16 Administrations may, if they wish, maintain four periods for their annual patterns of broadcasting, but are urged to do so within the periods indicated below, provided that this is made clear in their projected schedules at the time of their submission to the Bureau. These schedules shall be implemented at 0001 UTC on the first Sunday of each period concerned:

S12.17 *a)* March Schedule – March and April

S12.18 *b)* May Schedule – May, June, July and August

S12.19 *c)* September Schedule – September and October

S12.20 *d)* November Schedule – November, December, January and February.

S12.21 Administrations may include in their schedules assignments up to one year in advance of their use provided that the characteristics are not expected to change during that period.

S12.22 The frequencies in the schedules should be those that will be used during the season concerned, and they should be the minimum number required to provide satisfactory reception of the programmes in each of the areas and for each of the periods intended. To the maximum possible extent in each schedule the frequencies to be used in each reception area should be repeated from season to season.

S12.23 Administrations are encouraged to coordinate their schedules with other administrations as far as possible prior to submission. An administration may submit on behalf of a group of administrations their coordinated schedules the frequencies of which shall however have no priority for use over those submitted by other administrations.

S12.24 The closing dates for receipt by the Bureau of the schedules relating to the two seasons mentioned in No. **S12.13** and the four seasons mentioned in No. **S12.16** shall be established and published by the Bureau.

S12.25 The schedules shall be submitted with the relevant data contained in Appendix **S4** in accordance with the practices recommended in the Rules of Procedure.

S12.26 Upon receipt of the schedules the Bureau shall, in accordance with the Rules of Procedure, consolidate them, validate the data where necessary, identify such incompatibilities as it may be able, and prepare the High Frequency Broadcasting Schedule (the Schedule). This Schedule shall include all assignments where administrations gave no alternatives, the selections made by the Bureau from any alternatives given, and the frequencies selected by the Bureau in cases where the need for its assistance was indicated by their intentional omission from the individual schedules.

S12.27 The Schedule shall be published at least two months before the start of each of the two seasons in No. **S12.13**.

S12.28 Administrations should consider the Schedule and, before or during the season, they should, as quickly as possible, inform the Bureau of any changes they intend to make from their original submissions and the reasons for those changes. The Bureau shall publish this information regularly and up-date the Schedule as appropriate.

S12.29 After each season the Bureau shall consult the administrations concerned, the actual frequencies used and shall periodically publish its results to administrations.

S12.30 In a case of harmful interference, involving the application of the provisions of Article **S15**, administrations are urged to exercise the utmost goodwill and mutual cooperation taking into account all the relevant technical and operational factors of the case.

RESOLUTION 531 (WRC-95)

Review of Appendices 30 (S30) and 30A (S30A) of the Radio Regulations

The World Radiocommunication Conference (Geneva, 1995),

considering

a) the objectives set out in Resolution **524**;

b) the institutional nature of the ITU, which is founded on an agreement between Member Administrations;

c) the treaty status of the Plans in Appendices **30 (S30)** and **30A (S30A)**;

d) the increasing number of applications under Article **4** for modifications to the Plans;

e) the need to provide guidance to the Radiocommunication Bureau in order to preserve the integrity of the Plans until the 1997 World Radiocommunication Conference (WRC-97),

resolves

that WRC-97, in revising Appendices **30 (S30)** and **30A (S30A)**, may take into account the results of the studies considered by this Conference and contained in the report set out in annex hereto to WRC-97 on review and revision of Appendices **30 (S30)** and **30A (S30A)** of the Radio Regulations,

urges Members of the ITU

to consider that report and actively participate in the planning exercises referred to in section 5.4,

instructs ITU-R

to take appropriate actions based on the matters contained in the report, particularly in respect of section 5.

ANNEX 1 TO RESOLUTION 531 (WRC-95)

Report of the 1995 World Radiocommunication Conference to the 1997 World Radiocommunication Conference on Review and Revision of Appendices 30 (S30) and 30A (S30A) of the Radio Regulations

(RESOLUTION 524 (WARC-92))

1. *Introduction*

In 1977 a frequency Plan was established by ITU which regulates the use of the BSS in the bands 11.7 - 12.5 GHz (Region 1) and 11.7 - 12.2 GHz (Region 3). The Plan assigned, with a few exceptions, five channels to each country. The Plan was based on frequency modulation of the analogue TV systems PAL, SECAM, NTSC with one FM sound subcarrier. In accordance with the Radio Regulations (Appendix **30 (S30)**) other modulation systems are, however, not precluded "provided that the use of such characteristics does not cause greater interference than that caused by the system considered in the appropriate Regional Plan".

Appendix **30 (S30)** of the Radio Regulations contains the regulatory provisions for the use of the 11.7 - 12.5 GHz frequency band by the broadcasting-satellite service in Regions 1 and 3, known as the WARC-77 Plan, and other services occupying the planned bands in all three Regions. The main provisions of this Appendix are:

- the list of assignments, as contained in the columns of the Plan, with their detailed characteristics for each country (channel number, polarization, satellite orbital location, beam boresight, size and orientation, satellite e.i.r.p., earth station test points, reference interference situation). The Plan is updated regularly by the BR. Its initial version (in 1977) is included in Article **11** of Appendix **30 (S30)**;

- the technical criteria on which the Plan has been established (i.e. C/N objectives, satellite and earth station antenna radiation patterns, protection ratios, etc.). These **technical criteria** are provided in Annex **5** to Appendix **30 (S30)**;

- the procedure for modification of the Plan. This **procedure** is provided in Article **4** of Appendix **30 (S30)** and also includes technical provisions, the most important of which are given in Annexes **1** and **7** of Appendix **30 (S30)**.

In 1988 the Plans were completed by the addition of Appendix **30A (S30A)** which delineates the feeder-link assignments associated with the downlinks in Appendix **30 (S30)**. New procedures to regulate the use of these feeder links were developed, including some variations to the concepts contained in Appendix **30 (S30)**.

Decisions to revise the Plans may lead to modifications to these Plans, the technical criteria and the procedures.

The agenda of WRC-95 included the following item:

"3. to consider the following items, taking into account the work carried out by the study groups and the Conference Preparatory Meeting of the Radiocommunication Sector, with a view to taking action, as appropriate:

a) Appendices **30** and **30A** for Regions 1 and 3 in response to Resolution **524** **(WARC-92)**, and taking particular account of *resolves* 2 of that Resolution and with due regard to the advantage of taking into account, where practicable, the orbital arcs of Appendix **30B**;"

In addressing this agenda item, WRC-95 discussed many aspects of the possible revision of the Plan and contributions to the subject from Members. As required by the agenda, WRC-95 also took into account the work of ITU-R as given in the Report of the Conference Preparatory Meeting. The Radiocommunication Bureau also contributed a report on its experience in administering the Plan.

It was considered desirable to fully discuss some of the issues which will need to be resolved during WRC-97 and convey the outcome of those deliberations in this Report, to enable the results of consensus and agreements reached to be available as guidance for the preparatory work for WRC-97 by the Radiocommunication Sector and administrations.

To enable WRC-97 to revise Appendices **30 (S30)** and **30A (S30A)**, WRC-95 adopted and included in this Report a set of material required for ITU-R, and in particular the Bureau, for the work to be carried out. This material may also serve as a guide to administrations when preparing their proposals to WRC-97. It consists of planning principles, planning parameters, considerations on the current procedures and instructions to ITU-R. In developing this material, due account was taken of Resolution **524**.

As indicated in Resolution **524**, revision of Appendices **30 (S30)** and **30A (S30A)** shall include requirements for new countries. The Bureau indicated in its report to WRC-95 (Annex **2**) the difficulties it encountered in

dealing with requirements it received from new countries. Taking account of the limited resources of the Bureau, requirements of new countries shall be considered within the revision of Appendices **30 (S30)** and **30A (S30A)**.

2. *Planning principles*

Several administrations submitted proposals for principles to be adopted for the WRC-97 review of the Plans. These were discussed by WRC-95 and adopted as a basis for the preparatory work of the Radiocommunication Sector and to guide the preparations of administrations for WRC-97.

The revision of Appendices **30 (S30)** and **30A (S30A)** should be based on the following principles.

2.1 There is agreement that the revision of the Plans should, as a minimum:

2.1.1 use the revised planning parameters adopted in Recommendation **521 (WRC-95)**;

2.1.2 provide for new countries, and those countries having less than the minimum number of channels assigned by the 1977 BSS Conference (for example, in Region 1 this was five channels, if available, in the specific orbital location), an initial capacity equivalent to that which would have been provided to them using the principles adopted at the 1977 BSS Conference.

2.1.3 be based on national coverage;

2.1.4 protect, on the basis of the criteria set forth in Appendix **30 (S30)** (respectively **30A (S30A)**), the assignments which are in conformity with Appendix **30 (S30)** (respectively **30A (S30A)**), and have been notified under paragraph 5.1 of Article **5** of Appendix **30 (S30)** (respectively **30A (S30A)**) and for which the entry into service has been confirmed to the Bureau under paragraph 5.2.8 of Appendix **30 (S30)** (respectively **30A (S30A)**); and protect, on the basis of the

planning parameters contained in Recommendation **521 (WRC-95)** and, as far as possible, on the basis of the criteria set forth in Appendix **30 (S30)** (respectively **30A (S30A)**), the assignments which are in conformity with Appendix **30 (S30)** (respectively **30A (S30A)**) and have been notified under paragraph 5.1 of Article **5** of Appendix **30 (S30)** (respectively **30A (S30A)**);

2.1.5 in order to avoid the obsolescence of the Plans, caused by technical assumptions becoming out of date, ensure that the plan is established with a view to achieving long-term flexibility;

2.1.6 taking account of the increased requirements of subregional systems, avoid a high fill factor of the band in order to facilitate the development (in a balanced way among the Regions) of multi-administrations and subregional systems through the application of procedures associated with the Plan;

2.1.7 take account, as far as possible, of systems which have been communicated to the Bureau under Article **4** of Appendices **30 (S30)** and **30A (S30A)**.

2.2 To the extent possible, the revision of the Plans and associated procedures should facilitate:

2.2.1 a channel capacity large enough to permit the economical development of a broadcasting-satellite system;

2.2.2 utilization of existing orbital locations, except for those administrations wishing alternative ones. Where necessary in the revision, in some segments of the orbital arc, it may be desirable to use an orbital spacing other than the nominal spacing, without increasing the amount of assigned orbital locations and without affecting other assignments in the Plans;

2.2.3 the establishment of procedures associated with the Plans which would allow administrations, under conditions to be specified, to use their entry(ies) in the Plan for the fixed-satellite service;

2.2.4 considering, for planning, the appropriateness of a complete digital approach in the future and, if so, providing for the simultaneous operation of analogue and digital systems, if necessary during a defined time-scale.

2.3 The planning shall maintain the integrity of the Region 2 Plan in accordance with the provisions of *resolves* 2 of Resolution **524**.

2.4 Compatibility shall be ensured between the broadcasting-satellite service in Regions 1 and 3 and those services having allocations in the planned bands in all three Regions.

3. *Planning parameters*

WRC-95 decided to adopt revised technical planning parameters recommended by the CPM and supported in the proposals of administrations, in Recommendation **521 (WRC-95)** which recommends:

1) that the following technical parameters be adopted in preparation for WRC-97 actions on the revision of Appendices **30 (S30)** and **30A (S30A)**:

1.1) e.i.r.p. planning values: a general reduction of 5 dB from the levels listed in Appendix **30 (S30)**;

1.2) use of an improved receive earth station reference antenna pattern based on Recommendation ITU-R **BO.1213**;

1.3) simultaneous planning of feeder links and downlinks, with calculation of overall equivalent protection margins;

1.4) aggregate C/I ratio values of:

– co-channel 23 dB with no single-entry C/I lower than 28 dB;

– adjacent channel 15 dB;

2) that these updated parameters be applied to possible revisions to assignments not operating or notified; operating or notified systems, to the extent they are in accordance with Appendices **30 (S30)** and **30A (S30A)**, will only be adjusted if the administrations concerned agree;

3) that the general e.i.r.p. reduction in 1.1) above be applied, but for countries in high rainfall climate zones adequate e.i.r.p. levels will be maintained.

4. *Procedural matters requiring preparatory work and consideration by WRC-97*

4.1 *Modification procedures*

A number of contributions recognized the desirability of improving the procedures for modification of the Plans. It is considered that further study is needed by the Radiocommunication Sector, taking into account the studies of the VGE and the study groups. Additionally, in its report to the Conference, the Bureau identified a number of matters where procedures could be improved to ensure more efficient and effective processing of applications. Some specific items were identified for consideration.

4.1.1 It might be necessary to discourage modifications to the Plan which are not intended to be brought into use.

Further studies need to be carried out to suitably review the modification procedures contained in Article **4** of Appendices **30 (S30)** and **30A (S30A)** (see Recommendation **35 (WRC-95)**).

4.2 *Relationship with Appendix **30B (S30B)***

The potential for aligning BSS assignments with the orbital positions and their predetermined arcs of Appendix **30B (S30B)** has been studied. It was found that, if applied systematically, this will complicate any planning

exercise. It may, however, be feasible in some cases to take commonality in an orbital arc into account in revising the Plans taking into account Section 2.2.2 above.

4.3 *Matters relating to the application of No. **2674***

4.3.1 No. **2674** states: "In devising the characteristics of a space station in the broadcasting-satellite service, all technical means available shall be used to reduce, to the maximum extent practicable, the radiation over the territory of other countries unless an agreement has been previously reached with such countries".

It is a general provision applicable to all BSS bands, planned and unplanned, in all three Regions. The interpretation and application of No. **2674** by the Bureau is explained in the Rules of Procedure for Article **30** of the Radio Regulations which were adopted in December 1994 without objection from administrations.

4.3.2 In its Document 21, the Bureau referred to the need to bring in line the English and the French wording of No. **2674**; this may be indicated to WRC-97 and the preparation of a revised text should be dealt with in the framework of the preparation of WRC-97.

4.3.3 The agreement referred to in No. **2674** is not covered by Article **4** of Appendices **30 (S30)** and **30A (S30A)**. No existing procedure is indicated for its application. Should such a procedure be developed, it should first allow the identification of the administrations whose agreement is required, and then indicate any steps that should be applied in this specific case.

4.3.4 It may be difficult for the Board to adopt criteria permitting the Bureau to evaluate the extent to which the available technical means have been used to reduce the radiation over the territory of another administration. For the purpose of the application of No. **2674**, the administration communicating a satellite network should indicate the service area in terms of territories of another administration (or test points), as indicated under item **6** of Annex **2** of Appendix **30 (S30)**.

4.3.5 Recognizing that the agreement under No. **2674** and the agreement required in Article **4** of Appendices **30 (S30)** and **30A (S30A)** are separate agreements, the agreement under No. **2674** should be sought directly from the administration concerned or through the Bureau; in this latter case, the agreement under No. **2674** should be sought through the publication required under Article **4** of Appendices **30 (S30)** and **30A (S30A)**. In case of no comment being received by the Bureau within a determined period, the non-commenting administration is considered as not having a major objection. In the case of a disagreement, and if the administrations concerned cannot reach an agreement, the Bureau shall modify the service area to exclude the territory of the objecting administration. In either case, the administration initiating the project is entitled to bring into use the modification after successful completion of Article **4** of Appendices **30 (S30)** and **30A (S30A)** procedures.

4.3.6 When a subregional system is communicated to the Bureau by an intergovernmental organization referred to in No. **261** of the ITU Convention (Geneva, 1992), in accordance with its internal rules, it shall be deemed that the members of that organization have given their agreement under No. **2674**.

4.4 *Subregional systems*

WRC-95 considered the desirability of facilitating the development of subregional and multinational systems in the procedures of Appendices **30 (S30)** and **30A (S30A)**.

It noted there are a number of such systems being proposed to the Bureau for which the existing procedures may not be adequate.

Guidance for development of suitable procedures can be found in Resolution **42** and Appendix **30B (S30B)** (see 5.1.8). It is desirable that studies be undertaken to provide advice to WRC-97.

4.5 *Alignment of Appendices **30 (S30)** and **30A (S30A)***

There are inclusions in the Articles of Appendix **30A (S30A)** adopted at WARC Orb-88 which differ from those in Appendix **30 (S30)**. It would be desirable for these to be brought into alignment as far as possible. The Radiocommunication Sector is requested to study the provisions of the two sets of procedures and suggest appropriate adjustment.

5. *Advice and instructions to ITU-R*

5.1 *Matters of which WRC-95 takes note*

WRC-95 takes note of the following issues appearing in Section 2.6 of the Radiocommunication Bureau's Report to WRC-95 (attached hereto):

5.1.1 Introduction, networks submitted to the Bureau, publications and protection margins report (Sections 2.6.1 and 2.6.2.1).

5.1.2 Applicability of the group concept (Section 2.6.3.1).

5.1.3 Resolution **42 (Rev.Orb-88)** (Section 2.6.3.3).

5.1.4 Reference protection margin for the BSS Plan of Regions 1 and 3 (Section 2.6.3.5).

5.1.5 Station-keeping (Section 2.6.4.2).

5.1.6 Extension of the date of bringing into use (Section 2.6.3.7).

5.1.7 Shaped beams (Section 2.6.6.3).

5.1.8 Experience of the Bureau in applying Appendix **30B (S30B)** (Section 2.6.7).

5.2 *Matters for which WRC-95 considers that further studies are required to be carried out by ITU-R with the results to be available by CPM-97 at the latest*

5.2.1 Frequency assignments in the guardbands of the Plans (Section 2.6.3.4 of the Bureau's Report to WRC-95).

5.2.2 Power control (Section 2.6.3.8).

5.2.3 Very low equivalent protection margins (Section 2.6.6.1).

5.2.4 Coordination area around a feeder-link transmitting earth station (Section 2.6.6.4).

5.2.5 Rain climatic zones in Appendices **30 (S30)** and **30A (S30A)** (Section 2.6.6.5).

5.2.6 Linear polarization and digital transmission (Section 2.6.4.1).

5.2.7 Time difference in the conclusion of the Article **4** procedure by different networks (Section 2.6.6.2).

5.2.8 Coexistence of analogue and digital systems.

5.2.9 Non-uniform spacing.

5.2.10 Members with unified/divided territories.

5.2.11 Transmit earth station antenna.

5.2.12 Energy dispersal.

5.2.13 Subregional systems (see Section 4.4 above).

5.2.14 Compatibility between the broadcasting-satellite service and the fixed-satellite service in the BSS planned bands (see Section 2.2.3 above).

5.2.15 Emissions overlapping guardbands (Section 2.6.4.3).

5.2.16 Service area contours and steerable beams (Section 2.6.6.6).

5.3 *Rules of Procedure*

5.3.1 *Agreements under No.* ***2674*** *(Section 2.6.3.6 of the Bureau's Report to WRC-95)*

WRC-95 instructs the RRB to modify the Rules of Procedure for No. **2674**, for Regions 1 and 3 as described in Section 4.3 above.

5.3.2 *Application of Appendices **30 (S30)** and **30A (S30A)** to new ITU Members (Section 2.6.5 of the Bureau's Report to WRC-95)*

This Conference confirms the Bureau's action to treat submissions under Article **4** of Appendices **30 (S30)** and **30A (S30A)** by new ITU Members as follows:

that when countries become new ITU Members, they may apply the modification procedures of Appendices **30 (S30)** and **30A (S30A)** to suitably modify the Plans in order to accommodate their requirements.

5.3.3 *Former assignments not reflecting current administrative and geographical situation*

In cases where the Bureau identifies a new case of excess of interference into an assignment to an administration in the Plan which has administratively or geographically changed with respect to its situation at the time of the conferences, the Bureau will have to include in the list of affected administrations the name(s) of the new Member(s) in the territory of which the affected test point(s) is (are) located.

Then, if the administration of one of these new Members has the intention to ask for the use of the former assignments, as mentioned above, during WRC-97, it may have the opportunity to send unfavourable comments to the administration responsible for the submission under Article **4** of Appendices **30 (S30)** and **30A (S30A)** before the end of the four-month period specified therein.

5.3.4 *General remarks on the submitted data. Non-standard parameters (Sections 2.6.2.2 and 2.6.3.2 of the Bureau's Report to WRC-95)*

WRC-95 instructs the Bureau to identify the systems still under Article **4** of Appendices **30 (S30)** and **30A (S30A)**, including those using parameters different from those on the basis of which the current Plans were developed, in order to include a Note in the relevant publications.

This Note is intended to indicate that if the proposed system has not successfully completed the Article **4** procedures by WRC-97, WRC-97 will take account as far as possible of its parameters (see Section 2.1.7 above); otherwise, if this is not possible, the administration responsible for this system may either revise its parameters, at WRC-97, so as to be compatible with the revised Regions 1 and 3 Plan, or maintain the modification and continue coordination under the modification procedures adopted by WRC-97, as of their entry into force.

5.3.5 *Overall equivalent protection margins (OEPM) (Addendum 1 of the Bureau's Report to WRC-95)*

The Bureau shall develop calculation methods on the basis of existing ITU-R Recommendations or any material at its disposal, and circulate them for comment by administrations.

Pending subsequent decision by WRC-97, WRC-95 instructs the Bureau and ITU-R, in calculating the OEPM for Regions 1 and 3 Plan to be developed, to use the OEPM algorithm appearing in Section 1.14 of Annex **5** of Appendix **30 (S30)** and Section 1.12 of Annex **3** of Appendix **30A (S30A)** for the Region 2 analysis, as properly modified to calculate the overall margins for co-channel, first lower adjacent and first upper adjacent channels. The above-mentioned margins will be then combined using the equations appearing in the above-mentioned sections in order to obtain the OEPM reference situation to be used in the planning exercises to be carried out by ITU-R, together with the additional technical criteria referred to in Recommendation **521 (WRC-95)**.

5.4 *Planning exercises*

The Bureau, in cooperation with administrations and the study groups and on the basis of the planning principles contained in Section 2 above, is

instructed to conduct planning exercises as follows and report the results of its work for the Conference Preparatory Meeting.

Step 1: Modify the existing Plan assignments on the basis of the new parameters contained in Recommendation **521 (WRC-95)**.

In this and subsequent steps the Bureau should protect, on the basis of the criteria set forth in Appendix **30 (S30)** (respectively **30A (S30A)**), assignments which are in conformity with Appendix **30 (S30)** (respectively **30A (S30A)**), and have been notified under paragraph 5.1 of Article **5** of Appendix **30 (S30)** (respectively **30A (S30A)**) and for which the entry into service has been confirmed to the Bureau under paragraph 5.2.8 of Appendix **30 (S30)** (respectively **30A (S30A)**); and protect, on the basis of the planning parameters contained in Recommendation **521 (WRC-95)** and, as far as possible, on the basis of the criteria set forth in Appendix **30 (S30)** (respectively **30A (S30A)**), assignments which are in conformity with Appendix **30 (S30)** (respectively **30A (S30A)**) and have been notified under paragraph 5.1 of Article **5** of Appendix **30 (S30)** (respectively **30A (S30A)**).

Step 2: Provide for new countries, and those countries having less than the minimum number of channels, an initial capacity equivalent to that which would have been provided to them by the principles adopted for the 1977 BSS Conference.

To conduct this step, it will be necessary for the Bureau to consult with the administrations concerned to establish their test points and new beam requirements. Assignments in the Plans to former Members may be utilized, as appropriate in accommodating the requirements.

Step 3: Take account, as far as possible, of systems which have been communicated to the Bureau under Article **4** of Appendices **30 (S30)** and **30A (S30A)**.

ANNEX 2

EXTRACT FROM DOCUMENT WRC-95/21

2.6 *Experience in the application of Appendices **30** and **30A** (CPM Report, Chapter 3)*

2.6.1 *Introduction*

The present material summarizes the main conclusions* of the experience of the Bureau in its application of Appendices **30** and **30A** to the Radio Regulations. These comments are submitted to the Conference for its consideration when dealing with preparatory activities for WRC-97. Taking into account the reference to Appendix **30B** in agenda item 3*a)*, some comments on the application of that Appendix are also included in the present Report.

The Bureau's experience and difficulties in the application of the above-mentioned Appendices were considered by the Radio Regulations Board (RRB*)* in 1994 on the basis of draft Rules of Procedure submitted by the Radiocommunication Bureau (BR). The Rules of Procedure approved by the RRB were circulated to all administrations with Circular-letter CR/32 of 5 December 1994 to which no comments, relating to the application of the above Appendices, have been received to date.

2.6.2 *Networks submitted to the Bureau*

2.6.2.1 *BR publications*

The Bureau has published so far 29 special sections AP30/E (Part A) in response to 64 requests under Article **4** of Appendix **30** and 28 special sections AP30A/E (Part A) in response to 62 requests under Article **4** of Appendix **30A**. The Bureau has received seven requests and published six

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* A more detailed document on the subject which was submitted to the September 1995 meeting of ITU-R Working Party 10-11S is also available and may be provided on request.

special sections AP30/E (Part B) and five requests and published four special sections AP30A/E (Part B) under Article **4** of Appendices **30** and **30A** respectively. It has received two requests and published one special section Resolution **42 (Rev.Orb-88)**.

The Bureau has processed 14 out of 16 submissions under Article **5** of Appendix **30** and has processed 9 out of 11 submissions under Article **5** of Appendix **30A**.

According to the provisions of paragraphs 4.5 and 4.4 of Appendices **30** and **30A** respectively, the updated Plans, together with a protection margin report of the plan entries, were published through Circular-letters 376 of 15 April 1977, 656 of 30 May 1986, 881 of 14 October 1991 and 919 of 24 November 1992. Since then, due to the considerable amount and scope of proposed modifications/additions to the Plans, the publication of these data on paper has been discontinued. The related information is, however, available on diskette and on ITU's Telecom Information Exchange Services (TIES) for subscribers.

2.6.2.2 *General remarks on the submitted data*

When establishing the BSS and Feeder-Link Plans, the Planning Conferences of 1977 and 1988 took into consideration a set of generalized requirements such as five TV channels per country, national coverage, circular or elliptical beams, circular polarization, analogue modulation, pre-established channelling arrangements and assignment bandwidths as well as typical receiving and transmitting antenna patterns. The introduction of the broadcasting-satellite service took a much longer period than what was foreseen at the time of the first planning Conference and in the meantime the requirements of administrations have considerably changed. The IFRB (before 1993) and the Radiocommunication Bureau (after 1993) received several submissions for modification/addition to the Plans relating to characteristics different from the above-mentioned ones, such as number of TV channels up to 40, supranational service area, shaped satellite antenna beams,

linear polarization, digital modulation, assigned frequencies or assigned bandwidths or both different from those included in the initial Plans, etc. Modifications/additions have also been submitted with transmitting/receiving earth station antenna patterns which differ from those foreseen in the initial Plans.

2.6.3 *RRB Decisions included in the Rules of Procedure*

2.6.3.1 *Applicability of the group and cluster concepts*

Following the introduction by RARC-83 of the grouping concept for Region 2 (Articles **9** and **10** of Appendices **30A** and **30** respectively) and further to the decision of WARC Orb-88 to apply this concept to the Regions 1 and 3 Feeder-Link Plan (Article **9A** of Appendix **30A**), the Radio Regulations Board decided to extend this concept to the procedures applicable to the WARC-77 BSS Plan. This means that it is assumed that no simultaneous transmission will occur on the same channels by space stations that are part of the same group (either from one or different orbital positions). Consequently, in the calculation of interference to assignments that are part of the group, only the interference contribution from assignments that are not part of the same group is included. On the other hand, for the calculation of interference from the assignments belonging to a given group into the assignments that are not part of the same group, only the worst interference contribution from that group is taken into consideration.

Furthermore, subsequent to the introduction of the cluster concept by RARC-83 for Region 2 for BSS and feeder links (Section B of Annex **7** of Appendix **30**, paragraph 4.13 of Annex **3** of Appendix **30A**) and for Regions 1 and 3 by WARC Orb-88 for feeder links (paragraph 3.15 of Annex **3** of Appendix **30A**), the Board decided that Regions 1 and 3 may also apply this concept for the BSS Plan provided that the required agreement is obtained from administrations in the cluster.

The Board also decided that the 8 dB reduction in the e.i.r.p. referred to in section A.3 of Annex **7** to Appendix **30** is not applicable in the case of an orbital position situated within the cluster centred on one of the nominal orbital positions of the Plan.

2.6.3.2 *Class of emission, assigned frequency and assigned bandwidths*

The Board decided to accept, for plan modifications, other classes of emission and bandwidths than 27M0F8W (for Regions 1 and 3) and 24M0F8W (for Region 2). (Some examples of classes of emission and bandwidths recently received: 27M0F3F, 27M0F9W, 27M0G7W, 33M0G7W, 27M0FXF, 27M0FXX, 33M0FXX, 33M0GXX.)

2.6.3.3 *Resolution **42 (Rev.Orb-88)***

Provisions 5.1 *a)* and 5.2 *a)* of the Annex to Resolution **42 (Rev. Orb-88)** do not include any allowance for the overall equivalent protection margin (OEPM) to trigger the need for coordination. The Board decided that if the calculations for a proposed 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.

2.6.3.4 *Frequency assignments in the guardbands of the Plans*

Due to the lack of any specific procedure, the Board decided that frequency assignments in the guardbands of the Plans are subject to advance publication. No other technical examination or publication is to be effected, however, by the Bureau.

2.6.3.5 *Reference protection margin for the BSS Plan of Regions 1 and 3*

The reference equivalent protection margin is used as the basis for comparing the effect of a proposed modification, addition or interim system. There exists some difference between the calculation method and criteria applicable for Region 2 and Regions 1 and 3, respectively. The Board decided to introduce some amendments to the Regions 1 and 3 method to harmonize the two models (see Rules of Procedure, Part A1, AP30, Annex 1, Sec. 1 and 2, pages 11 and 12).

2.6.3.6 *Objections under No. **2674***

In connection with objections of administrations related to the inclusion of their territories in the service area of a BSS space station of another administration, the Board noted that there is a significant difference between the texts of the English and French versions of provision No. **2674**; therefore, the Board suggested that this provision be reviewed by WRC-95. In addition, the Board noted that No. **2674** refers to the radiation from a space station and consequently this provision relates mainly to the question of "coverage area" and not "service area".

As far as the application of this provision is concerned, the Bureau uses the Rules of Procedure concerning No. **2674** (Part A1, AR30, page 1).

2.6.3.7 *Extension of the date of bringing into use*

Provision 4.3.5 of Appendix **30** states that modifications involving additions (new assignments) will lapse if they are not brought into service by the date indicated. The provision does not contain any possibility for administrations to extend this date within a specified period as is done in No. **1550** of Article **13**. The Board decided that, for modifications or additions to the Plans, the postponement of the date of bringing into use will be possible beyond the original date by no more than three years. On the other hand, it is to be noted that a similar lapse period is not contained in paragraph 4.2.5 of Appendix **30A**.

2.6.3.8 *Power control*

Provision 3.11.4.4 of Annex **3** to Appendix **30A (Orb-88)** states that "in the event of modifications to the Plan, the IFRB shall recalculate the value of power control for the assignment subject to modification and insert the appropriate value for the assignment in column 9 of 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". The Radio Regulations Board

decided that immediately after the Regions 1 and 3 Feeder-Link Plan (14 GHz or 17 GHz) is updated and before Part B publication is effected, the Bureau shall recalculate the power control values and will inform the notifying administration about its findings. If the values of permissible power increase of other assignments in the Plan need to be adjusted, the responsible administration shall seek by all possible means to solve the matter with the affected administrations.

The 1977 Regions 1 and 3 Plan was developed, generally speaking, on the basis of a 6° orbital separation. After proposed modifications or additions to the Plan, this minimum orbital separation may no longer "be valid" or "exist". Section 3.11.1.1 of Annex **3** to Appendix **30A** establishes that the list of assignments in the same orbital position and the two adjacent positions liable to suffer interference from the assignments studied must be taken into consideration. For the sake of clarity, the Bureau confirms that in its calculations of power control, it considers not only the two adjacent orbital positions but at least those in the 6° arc (or even farther if no station is found within the 6° arc).

2.6.4 *Collaboration between ITU-R WP 10-11S and the Bureau*

2.6.4.1 *Linear polarization and digital transmission*

The initial Appendices **30** and **30A** Plans were based on the use of assignments with circular polarization and analogue transmission, consequently no model exists in those Appendices to deal with other polarization or modulation cases. The IFRB, when dealing with the first submissions involving digital transmission or other than circular polarization under Article **4** of Appendices **30** and **30A**, sought the technical guidance of Working Party 10-11S on how to treat these cases. In order to satisfy the Board's request, the Working Party nominated a Special Rapporteur to coordinate activities and provided the Bureau with the necessary models to evaluate the interference between assignments of different (linear or circular) polarization as well as digital transmissions including assigned frequencies having different bandwidths and non-regular channel spacing. The algorithm developed by the Working Party has now been implemented in the MSPACE computer software.

2.6.4.2 *Station-keeping*

WARC-77 considered that space stations in the broadcasting-satellite service must be maintained in position with an accuracy of better than $\pm 0.1°$ in both N-S and E-W directions. However, WARC Orb-88 did not foresee any allowance for station-keeping. Working Party 10-11S in dealing with this issue considered that "there is a need to revise Appendix **30A** in order to take this parameter into account, as is done in Appendix **30**".

2.6.4.3 *Emissions overlapping guardbands*

In their proposed modification/addition to the Plans, some administrations, due to the use of different bandwidths from those in the Plan, overlap into the guardbands of the Plans. Working Party 10-11S has decided to assess the compatibility of BSS transmissions in the guardbands with the space operation service. Until the conclusions of the study are available, the Bureau includes, for such cases, a specific Note in the special section and asking administrations likely to be affected to provide their comments within four months of these publications.

2.6.5 *Application of Appendices **30** and **30A** to new ITU Members*

The Bureau, in treating requests received from new country Members of the ITU, has noted that, unlike the provisions of Appendix **30B**, Appendices **30** and **30A** of the Radio Regulations do not explicitly foresee any regulatory procedure for the addition of new orbital position and corresponding frequency assignments for a new Member of the Union nor do these Appendices explicitly prevent a new ITU Member from applying the plan modification procedure of Article **4**, in order to seek a new orbital position and associated frequency assignments. Similarly, Appendices **30** and **30A** of the Radio Regulations do not contain any regulatory procedure for the transfer of frequency assignments in the Plan from one administration to another (new)

administration. Pending the decision of WRC-95 on this matter, the Bureau has taken into account the requests of new countries on a provisional basis and applies the Article **4** procedures subject to the endorsement of the Conference. This approach was confirmed by the Radio Regulations Board in its June 1995 meeting.

In dealing with the above-mentioned regulatory procedures, it might happen that the responsible administration and/or the Radiocommunication Bureau identifies an affected administration in the Plan which no longer exists or which has politically or geographically changed with respect to its situation at the time of the conferences. Therefore, the responsible administration seeking the agreement, and the Bureau in carrying out its tasks, may face the problem of not being in a position to clearly identify with whom the agreement must be obtained, or to whom correspondence is to be addressed as well as the validity of comments received from administrations which are still not in the Plan. Several instances of this situation have already occurred.

2.6.6 *Other comments of the Radiocommunications Bureau*

2.6.6.1 *Very low equivalent protection margins (EPM) in the Plan*

The Bureau's analysis has shown that the sensitivity of Plan entries to interference, in terms of being identified as affected by networks submitted to the Bureau, decreases when these networks produce very low equivalent protection margins (EPM). In these cases, due to the above-mentioned phenomenon, some plan entries might not be identified as affected or may lose their right to be protected if the administration responsible for the plan entry does not react in a timely manner within the plan modification procedures (paragraphs 4.3.12 of Appendix **30** and 4.2.13 of Appendix **30A** refer).

In addition and similarly to other plan modification procedures, if the delay between publications of Part A and Part B is too long, the subject

network remains in the Bureau file and should be protected against any subsequent incoming network unless the notifying administration formally withdraws the submission. This may lead to freezing in the Plans for a certain number of years.

2.6.6.2 *Time difference in the conclusion of the Article 4 procedure by different networks*

In determining those administrations that may be affected, a proposed modification/addition is examined with respect to the Plan as it exists at the date of receipt of the request for modification/addition including the proposed modification/addition received before that date. It might happen that while the requests for modifications/additions of networks A, B and C are still at the stage of application of Article **4**, a new request for modification/addition (network D) is submitted to the Bureau. It may also happen that the above-mentioned new proposed modification (network D) successfully completes the procedure of Article **4** and is entered in the Plan while networks A, B or C are still in the stage of application of Article **4**. Because of its later submission date for Article **4** network D will not be duly protected against the proposed modifications of networks A, B and C. This case is not properly handled in the Plan procedures. (Working Party 10-11S has decided to set up a special Reporter's group to examine this matter.)

2.6.6.3 *Shaped beams*

The plan was developed on the basis of elliptical beams. To handle shaped beams, the Bureau's MSPACE computer system uses a software package called the Graphical Interference Management System (GIMS) to calculate the corresponding gain at the test points defining the service area.

2.6.6.4 *Coordination area around a feeder-link transmitting earth station*

The Bureau has compared the results of calculations according to Annex **4** of Appendix **30A** of the Radio Regulations and Recommendation ITU-R **IS.848-1**. The coordination areas produced by Recommendation ITU-R **IS.848-1** were found to be much smaller. In Recommendation ITU-R **IS.848-1**, unlike in Annex **4** of Appendix **30A**, it is assumed that

the antenna of the hypothetical receiving earth station is not pointing towards the horizon but towards a satellite at some elevation above the horizon. This implies that it will receive much less interference from the transmitting earth station than a terrestrial station in the same location, which leads to a smaller coordination area.

2.6.6.5 *Rain climatic zones in Appendices **30** and **30A***

Figures 2 and 3 of Annex **5** to Appendix **30** provide the rain climatic zones corresponding to the three ITU Regions to be used when dealing with Appendix **30**, while Figures 1, 2 and 3 of Annex **3** to Appendix **30A** provide the corresponding rain climatic zones to be used when dealing with Appendix **30A**. None of the maps correspond to Recommendation ITU-R **PN.837-1** that contains the latest information available on the subject.

2.6.6.6 *Service area contours*

Contrary to Appendix **3/S4** to the Radio Regulations, Annex **2** of Appendices **30** and **30A** does not explicitly require that service area contours be furnished; however, a set of test points are provided for C/I compatibility analyses. In order to enable the Bureau to carry out the examination of power-flux density (pfd) under Annex **4** of Appendix **30** (protection of broadcasting-satellite service by space stations in the fixed-satellite service sharing the same frequency bands) and to find out whether the test points having a pfd excess belong to the service area associated to the beam under protection, the service area contours should be provided with Annex **2** data.

Moreover, some administrations have sent to the Bureau modifications or additions to the Appendices **30** and **30A** plans involving steerable beams for which the service area and antenna radiation patterns are only defined by a simple series of test points. Service area contours would here again be required. Annex **2** of the Appendices **30** and **30A** should be put in line with paragraphs 2.B6) *d)* and 2.C3) *d)* of Appendix **3/S4** of the Radio Regulations.

2.6.7 *Appendix **30B***

Before the Appendix **30B** assignments are notified under Article **13** of the Radio Regulations for recording in the Master Register, they must first successfully apply the procedure specified in Article **6** of Appendix **30B**. In examining the submissions of administrations, the Radiocommunication Bureau has encountered some regulatory and technical problems which are not currently covered by the provisions of Appendix **30B**. Most of these problems were considered by the former IFRB and the Radio Regulations Board on a case by case basis, whereby solutions were included in the Rules of Procedure. Some other problems would need decisions from the next competent world radiocommunication conference.

2.6.7.1 *The PDA concept*

The nominal orbital positions of the Plan of Appendix **30B** were associated with orbital segments of a given size, i.e. "predetermined arcs" (PDA) to provide flexibility to the Plan.* The application of this concept results in modifying the nominal orbital position of an administration contained in the Plan or in the Appendix **30B** List within its predetermined arc. Such modification may be initiated by an administration for its own orbital position or may be the result of the application of the PDA by another administration or by the Bureau, if its assistance/action is requested.

So far, the Bureau has a limited experience in the application of the PDA concept and its implementation to practical cases. These cases show nevertheless that its application is very complex both technically and administratively. Application of the PDA procedure for more than one case at the same time is not practical because of different orbital positions being identified pursuant to the different PDA procedures for the same allotment. It

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* The PDA concept is specified in paragraphs 5.3 and 5.4 of Article **5**, paragraphs 6.13, 6.16, 6.21, 6.31, 6.48 of Article **6**, paragraph 7.3 of Article **7**, paragraph 8.2 of Article **8** and Annex **5** of Appendix **30B**. The conditions under which the nominal orbital position could be moved within the predetermined arc are specified in paragraph 5.3 *c)* of Article **5** and in Annex **5** of Appendix **30B**.

seems, therefore, that the goal of seeking commonality of the FSS Plan, as contained in Appendix **30B**, with the BSS and Feeder-Link Plans of Regions 1 and 3 when revising these Plans, may be difficult for the majority of cases.

For the resolution of incompatibilities, the concept of PDA implies the moving of the orbital position of the allotment, within its predetermined arc, of a given administration (Adm. B) affected by the proposed allotment conversion of Administration A. Some cases were observed in which an Administration A proposed to move the orbital position of the allotment of Administration B outside its PDA. Even if the agreement of Administration B is obtained, or requirements specified in Annex **4** are met, it is unclear what size of PDA should be associated with the new orbital position of the allotment of Administration B that is moved outside its original PDA. The same problem may exist even for modifications of orbital positions within the initial PDA when the same size of the predetermined arc cannot be reallocated.

2.6.7.2 *Treatment of new ITU Member Administrations*

The Bureau's experience in application of the procedures of Appendix **30B** confirms the conclusions of WARC Orb-88 that in certain regions of the World the spectrum/orbit capacity is fully used by the Plan. In fact the first trial applications of Article **7** of Appendix **30B** (Addition of new allotments to the Plan for new Members) show that the provision of new allotments or the incorporation of modifications to orbital positions will not be possible in all regions of the World without degradation of the C/I criteria of the Plan (vis-à-vis allotments, "existing systems" and assignments recorded in the Appendix **30B** List).

Moreover, in searching for an optimal orbital position for a new country (or in providing assistance to administrations, when requested, for the selection of an alternative orbital position), workable means/tools are not available. Conducting such a study depends on the availability of an

internationally agreed optimization method together with appropriate computer software. The Radiocommunication Bureau has neither the manpower resources nor the agreed methodology to develop the necessary computer software.

2.6.7.3 *Conclusion of the application of the procedure*

Similarly to other Plan modification procedures, Appendix **30B** may also be inconclusive for the cases in which an administration with which coordination is sought does not reply to the administration seeking coordination or to the Bureau acting on the case at the request of that administration. Continuing disagreement between administrations on coordination or lack of reply to the requesting administrations may cause unacceptable delays for the administration proposing an allotment conversion.

Additionally, in the case of a return of frequency assignments to the notifying administration (as a result of unfavourable finding, lack of agreement from affected administration), by the date of resubmission of the same assignment, the reference protection situation of the Plan could undergo several changes. Due to the these modifications in the reference situation, the resubmitted assignment which might have now been successfully coordinated with all administrations initially identified as affected may receive again an unfavourable finding due to the new coordination requirement resulting from the updated reference situation in force at the time of resubmission. In that case, the coordination process should be restarted by the notifying administration and may result in an open-ended process.

RESOLUTION 643 (WRC-95)

Inter-Satellite Links Between 50 and 70 GHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the band 54.25 - 58.2 GHz is allocated on a primary basis to the inter-satellite and Earth exploration-satellite (passive) services;

b) that this band is an oxygen absorption band essential for meteorological observations;

c) that it is absolutely necessary to protect the application referred to in *considering b)* and that this is incompatible with the implementation of a large number of inter-satellite links,

noting

a) that the recommended agenda of the 1997 World Radiocommunication Conference (WRC-97) includes an item 1.9.4.3 for consideration of the existing frequency allocations near 60 GHz and if necessary their reallocation, with a view to protecting the Earth exploration-satellite (passive) service systems operating in the only oxygen absorption frequency range from about 50 GHz to about 70 GHz;

b) that consideration of this item by WRC-97 could result in the allocation of a different band to the inter-satellite service,

resolves

to urge administrations to refrain from implementing inter-satellite links in the band 54.25 - 58.2 GHz pending a decision on the matter by WRC-97,

instructs ITU-R

to carry out the necessary studies to identify the bands most suitable for the inter-satellite service in order to enable WRC-97 to make appropriate allocations to that service.

RESOLUTION 712 (Rev.WRC-95)

Consideration by a Future Competent World Radiocommunication Conference of Issues Dealing with Allocations to Space Services

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the agenda of the World Administrative Radio Conference (Malaga-Torremolinos, 1992) (WARC-92) called for the development of new Recommendations and Resolutions relating to allocations to space services which were not placed on the agenda of that Conference;

b) that Recommendation ITU-R **SA.363-5** recommends that frequencies below 1 GHz are technically suitable for telecommand of satellites operating below an altitude of 2 000 km;

c) that the United Nations Conference on Environment and Development (UNCED) (Rio de Janeiro, 1992) identified an urgent need for systematic observations of forest cover, and that such observations can best be performed using frequencies in the range 420 - 470 MHz;

d) that Resolution **35** of the ITU Plenipotentiary Conference (Kyoto, 1994) considered that application of the latest telecommunication and information technologies, especially those associated with space systems, can be extremely useful in implementing and conducting environment protection activities such as monitoring air, river, harbour and sea pollution, remote sensing, wildlife studies, forestry development, and others;

e) that the status of existing allocations available for use by active space-based sensors between 1 and 25 GHz, in frequency bands shared with radiolocation or radionavigation systems, needs to be reviewed in order to facilitate worldwide usage by active space-based sensors;

f) that the allocations to the Earth exploration-satellite service in the frequency bands 8.025 - 8.4 GHz and 18.6 - 18.8 GHz are complex and not uniform worldwide, and that the band 18.6 - 18.8 GHz is vital for passive sensing of ecologically important data;

g) that the allocation of the frequency band 13.75 - 14 GHz to the fixed-satellite service by WARC-92 reduced the total bandwidth available for active space-based sensors in the frequency range 13 - 14 GHz, which is important for wideband sensor instruments, e.g. radar altimeters, scatterometers;

h) that future active Earth sensing requirements for monitoring environmental data in the 35 and 95 GHz ranges have been identified;

i) that ITU-R has agreed to certain important technical parameters required for coordination of the space services under Appendix **28 (S7)** of the Radio Regulations,

resolves

that, based on proposals from administrations and taking into account the results of studies in the ITU-R study groups and the Conference Preparatory Meeting (CPM-97), the 1997 World Radiocommunication Conference should consider the following matters:

1. provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operation services in the frequency range between 100 MHz and 1 GHz;

2. provision of up to 3.5 MHz of frequency spectrum to the Earth exploration-satellite service (active sensors) in the frequency range 420 to 470 MHz;

3. use of existing allocations by space-based active sensors operating in the Earth exploration-satellite and space research services in frequency bands shared with the radiolocation or radionavigation services, between 1 and 25 GHz, with a view to the possibility of establishing common worldwide primary allocations;

4. use of existing allocations in the frequency range from 7 to 20 GHz to the Earth exploration-satellite, meteorological-satellite, space research and space operation services, with a view to the possibility of establishing common worldwide primary allocations to these services in appropriate bands, taking into account Recommendation **706**;

5. provision of up to 500 MHz of frequency spectrum around 35 GHz and up to 1 GHz of frequency spectrum around 95 GHz for use by space-based active Earth sensors;

6. inclusion of ITU-R approved technical coordination parameters in Appendix **28 (S7)** of the Radio Regulations, taking into account Resolution **60** and Recommendation **711**,

invites the ITU-R study groups

to carry out the necessary studies, taking into account the present uses of allocated bands, with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of the Conference,

instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

RESOLUTION 713 (WRC-95)

Consideration of Certain Operational Matters Concerning the Radio Regulations in the Aeronautical Mobile and Maritime Mobile Services*

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that its decision regarding the recommendations proposed by the Voluntary Group of Experts has resulted in a considerable simplification of the Radio Regulations;

b) that the Radio Regulations contain various provisions, in particular for the aeronautical mobile and maritime mobile services, which mainly relate to the operational aspects of these services;

c) that ICAO and IMO have already in place internationally recognized operational provisions pertaining to the aeronautical mobile and the maritime mobile services,

recognizing

that the relevant provisions in the Radio Regulations may be better defined in close collaboration with those organizations,

recognizing also

that the regulatory instruments of ICAO, IMO and ITU have different legal foundations and status in such areas as membership, legal status of regulatory instruments, scope of aeronautical mobile and maritime mobile services, and implications for administrations,

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* This Resolution refers to the aeronautical mobile and the maritime mobile services as well as to the aeronautical mobile-satellite and the maritime mobile-satellite services.

resolves to instruct the Secretary-General

1. to arrange for appropriate studies within ITU, in consultation with ICAO and IMO in order to identify the provisions in the Radio Regulations, particularly with respect to Chapters **SVIII** and **SIX**, which specify operational procedures affecting only the aeronautical mobile and maritime mobile services;

2. to investigate the legal issues raised by the differences between ICAO, IMO and ITU as mentioned in *recognizing also* above;

3. to report on the progress of this work to the 1997 World Radiocommunication Conference;

4. to bring this Resolution to the attention of ICAO and IMO.

RESOLUTION 714 (WRC-95)

Power Flux-Density Level Applicable in the Frequency Band 137 - 138 MHz Shared by the Mobile-Satellite Service and Terrestrial Services

The World Radiocommunication Conference (Geneva, 1995),

noting

a) the provisions of Nos. **S5.204**, **S5.206** and **S5.208** of the Radio Regulations;

b) the recommendations of the Conference Preparatory Meeting (CPM-95) with regard to No. **S5.208** of the Radio Regulations;

c) Question ITU-R **84/8** assigned to Study Group 8,

considering

a) that the mobile-satellite service has allocations on a primary basis in several bands between 137 and 138 MHz;

b) that the coordination under Resolution **46 (Rev.WRC-95)** required in No. **S5.208** of the Radio Regulations is currently based on a power flux-density threshold level for coordination with terrestrial services of –125 dB (W/m^2/4 kHz) for the mobile-satellite service in these bands;

c) that there are systems of the aeronautical mobile (OR) service which operate on a primary basis in accordance with Nos. **S5.204** and **S5.206** of the Radio Regulations;

d) that CPM-95 indicated that the power flux-density threshold level of –125 dB(W/m^2/4 kHz) for coordination with terrestrial services is appropriate at this time;

e) that CPM-95 also indicated that, for aeronautical mobile (OR) service systems operating in accordance with Nos. **S5.204** and **S5.206** of the Radio

Regulations, further study is required in order to assess sharing between such systems and systems of the space services which have allocations in the band 137 - 138 MHz;

f) that non-geostationary-satellite meteorological and space operations satellites have been operating for many years in the 137 - 138 MHz band with power flux-density levels of the order of –125 dB(W/m^2/4 kHz) with no reported interference to terrestrial services, including the aeronautical mobile (OR) service;

g) that non-geostationary mobile satellite systems planning to use these bands are at an advanced stage of implementation,

resolves

1. to invite ITU-R to study, as a matter of urgency, and taking note of *considering a)* to *g)* above:

i) sharing between the space services, including the mobile-satellite service, and the aeronautical mobile (OR) service, and

ii) the basis for a power flux-density threshold in the band 137 - 138 MHz, in order to confirm or revise the current threshold level used to trigger coordination; and

iii) the possibility of having a recommendation available for consideration at the 1997 World Radiocommunication Conference (WRC-97);

2. that, in the interim period until WRC-97, information submitted by administrations to the Radiocommunication Bureau on non-geostationary mobile-satellite service systems proposed to operate in these bands should be sent by the Radiocommunication Bureau to those administrations listed in Nos. **S5.204** and **S5.206** of the Radio Regulations;

3. that, in the interim period until WRC-97, administrations proposing mobile-satellite service systems utilizing these bands, consult with those administrations employing aeronautical mobile (OR) in these bands on a primary basis, upon request, in order to resolve any difficulties regarding their systems.

RESOLUTION 715 (WRC-95)

Studies Concerning Sharing Between the Radionavigation-Satellite Service and the Mobile-Satellite Service in the Bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz

The World Radiocommunication Conference (Geneva, 1995),

considering,

a) that the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz are allocated to and used by radionavigation-satellite service (RNSS) on a primary basis;

b) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) allocated the band 149.9 - 150.05 MHz (Earth-to-space) to the land mobile-satellite service on primary basis;

c) that this Conference has allocated the band 399.9 - 400.05 MHz (Earth-to-space) to the land mobile-satellite service;

d) that requirements of the RNSS and the mobile-satellite service (MSS) should be met in these frequency bands;

e) that the MSS requirements are not limited solely to use by the land mobile-satellite service;

f) that there may be difficulties in the sharing between the RNSS and the MSS;

g) that there is a need to study the operational and technical means to facilitate sharing between the RNSS and the MSS (in the Earth-to-space and space-to-Earth directions) in these bands,

recognizing

that No. **953** of the Radio Regulations applies to the use of these bands by the RNSS,

resolves

to invite ITU-R, as a matter of urgency, in preparation for the Conference Preparatory Meeting for the 1997 World Radiocommunication Conference (WRC-97), to carry out studies in order to identify the operational and technical measures necessary to facilitate sharing between the MSS and the RNSS,

instructs the Secretary-General

to bring this Resolution to the attention of the Council, at its next session, with a view to including this item in the agenda of WRC-97,

urges

1. administrations to participate in such studies by submitting contributions to ITU-R relating to the above-mentioned studies as soon as possible;

2. ITU-R to bring the results of these studies to the attention of WRC-97 and of preparatory meetings, in order to determine operational criteria for sharing between the RNSS and the MSS.

RESOLUTION 716 (WRC-95)

Use of the Frequency Bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all Three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 by the Fixed and Mobile-Satellite Services and Associated Transition Arrangements

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the 1992 World Administrative Radio Conference (WARC-92) allocated the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz for the mobile-satellite service with a date of entry into force of 1 January 2005, these allocations being co-primary with fixed and mobile service allocations;

b) that the use of the frequency bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 by the mobile-satellite service (MSS) is subject to a date of entry into force of 1 January 2000 or 1 January 2005, in accordance with the provisions of Nos. **S5.389A**, **S5.389C** and **S5.389D** of the Radio Regulations, as adopted by this Conference;

c) that these bands are shared with the fixed and mobile[1] services on a primary basis and that they are widely used by the fixed service in many countries;

d) that the studies made have shown that, while sharing of the MSS with the fixed service in the short to medium term would be generally feasible, in the long term sharing will be complex and difficult in both bands, so that it would be advisable to transfer the fixed service stations operating in the bands in question to other segments of the spectrum;

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[1] This Resolution does not apply to the mobile service. In this respect, the use of these bands by the mobile-satellite service is subject to coordination with the mobile service under the provisions of Resolution **46 (Rev.WRC-95)**/No. **S9.11A**.

e) that for many developing countries, the use of the 2 GHz band offers a substantial advantage for their radiocommunication networks and that it is not attractive to transfer these systems to higher frequency bands because of the economic consequences that this would entail;

f) that in response to Resolution **113 (WARC-92)** the ITU-R has developed a new frequency plan for the fixed service in the 2 GHz band, set out in Recommendation ITU-R **F.1098** which will facilitate the introduction of new fixed service systems in band segments that do not overlap with the above-mentioned MSS allocations at 2 GHz;

g) that sharing between fixed service systems using tropospheric scatter and Earth-to-space links in the MSS in the same frequency band segments is generally not feasible;

h) that some countries utilize these bands in application of Article **48** of the Constitution of the International Telecommunication Union (Geneva, 1992),

recognizing

a) that WARC-92 identified the bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz for worldwide use by FPLMTS, the satellite component being limited to the frequencies 1 980 - 2 010 MHz and 2 170 - 2 200 MHz, and that the development of FPLMTS can offer great potential in helping the developing countries develop more rapidly their telecommunications infrastructure;

b) that in Resolution **22 (WARC-92)**, "Assistance to the Developing Countries to Facilitate the Implementation of Changes in Frequency Band Allocations Which Necessitate the Transfer of Existing Assignments", WARC-92 resolved to request the Telecommunication Development Bureau (BDT), when formulating its immediate plans for assistance to the developing countries, to consider the introduction of specific modifications in the radiocommunication networks of the developing countries and that a future world development conference should examine the needs of developing countries and should assist them with the resources needed to implement the required modifications to their radiocommunication networks,

resolves

1. to request administrations to notify to the Radiocommunication Bureau the basic characteristics of frequency assignments to existing or planned fixed stations requiring protection, or those typical[1] of existing and planned fixed stations brought into use before 1 January 2000 in the frequency bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2;

2. that administrations proposing to bring an MSS system into service must take account of the fact that, when coordinating their system with administrations having terrestrial services, such administrations may have existing or planned installations covered by Article **48** of the Constitution;

3. that in respect of stations of the fixed service taken into account in the application of Resolution **46 (Rev.WRC-95)**, administrations responsible for MSS networks operating in the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 shall ensure that unacceptable interference is not caused to fixed service stations notified and brought into use before 1 January 2000;

4. that to facilitate the introduction and future use of the 2 GHz bands by the MSS:

4.1 administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after 1 January 2000, do not overlap with the 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 MSS allocations, for example by using the channel plans of Recommendation ITU-R **F.1098**;

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[1] With respect to the notification of frequency assignments to stations in the fixed and mobile services, the characteristics of typical stations may be notified in accordance with No. **1223 (S11.17)** without restriction up until 1 January 2000.

4.2 administrations are urged to take all practicable steps to phase out troposcatter systems operating in the band 1980 - 2010 MHz in all three Regions and 2010 - 2025 MHz in Region 2 by 1 January 2000. New troposcatter systems shall not be brought into operation in these bands;

4.3 administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the bands 1980 - 2010 MHz and 2170 - 2200 MHz in all three Regions and 2010 - 2025 MHz and 2160 - 2170 MHz in Region 2 to non-overlapping bands, giving priority to the transfer of their frequency assignments in the band 1980 - 2010 MHz in all three Regions and 2010 - 2025 MHz in Region 2, considering the technical, operational and economical aspects;

5. that administrations responsible for the introduction of mobile-satellite systems should take into account and address the concerns of affected countries, especially developing countries, to minimize the possible economic impact of transition measures in respect to existing systems;

6. to invite the Radiocommunication Bureau to provide assistance to developing countries requesting it for the introduction of specific modifications to their radiocommunication networks that will facilitate their access to the new technologies being developed in the 2 GHz band as well as in all coordination activities;

7. that administrations responsible for the introduction of mobile-satellite systems urge their mobile-satellite system operators to participate in the protection of terrestrial fixed services especially in the least developed countries,

requests

1. the ITU-R to conduct, as a matter of urgency, further studies, in conjunction with the Radiocommunication Bureau, to:

1.1 develop and provide to administrations the necessary tools in a timely manner to assess the impact of interference in the detailed coordination of mobile-satellite systems;

1.2 develop the necessary planning tools as soon as possible to assist those administrations considering a replanning of their terrestrial fixed networks in the 2 GHz range;

2. the Telecommunication Development Sector to evaluate, as a matter of urgency, the financial and economic impact on the developing countries of the transfer of fixed services, and to present its results to a future competent WRC and/or WDC,

instructs the Director of the Radiocommunication Bureau

to submit a report on the implementation of this Resolution to world radiocommunication conferences.

RESOLUTION 717 (WRC-95)

Review of Allocations to the Mobile-Satellite Service in the 2 GHz Range

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that, in the Report of the Conference Preparatory Meeting (CPM-95), it was noted that over 250 mobile-satellite networks have undergone advance publication, coordination or notification to ITU in the 1 - 3 GHz range;

b) that in the Report of the CPM-95 it is estimated, based on the information available to the CPM, that the minimum and likely spectrum requirements for the global mobile-satellite service (MSS) will range from 150 MHz to 300 MHz by the year 2005;

c) that this Conference has adopted an additional allocation for Region 2 in the 2 GHz range to MSS and has developed Resolution **716 (WRC-95)** on use of the 2 GHz bands and associated transitional arrangements;

d) that administrations have varying uses of spectrum in the 2 GHz range, and that such use could lead to difficulty in coordination and sharing with the MSS;

e) that the situation described in *considering d)* above may lead to a shortfall of usable MSS spectrum and to inefficient use of spectrum that is available;

f) that in the long term it may be desirable, if further studies and consideration indicate such a necessity, to obtain common worldwide MSS allocations,

recognizing

a) that many administrations have long-term requirements to use spectrum in the 2 GHz range for existing terrestrial services that will affect transitional arrangements;

b) that many administrations plan to implement future public land mobile telecommunication systems (FPLMTS) in bands adjacent to or overlapping with the MSS bands in the 2 GHz range and certain other administrations are implementing terrestrial mobile personal communication systems in part of these bands;

c) that personal communication systems and FPLMTS on the one hand, and the MSS on the other, could complement each other;

d) that at present it is difficult to adopt uniform, primary worldwide MSS allocations in the 2 GHz range with a common access date;

e) that current technology allows satellites to operate in different bands in different Regions,

resolves

to review, at the 1997 World Radiocommunication Conference (WRC-97), the MSS allocations in the 2 GHz range that result from the decisions of this Conference with a view to harmonizing in the long term, if necessary, common, primary worldwide MSS allocations in the 2 GHz range, having due regard for the continuing protection of terrestrial services,

urges administrations

to review their specific situations in order to assist, if necessary, in the long-term development of common, primary worldwide MSS allocations in the 2 GHz range,

instructs the Director of the Radiocommunication Bureau

to propose to the Council that it place the issues raised in this Resolution on the agenda of WRC-97, in order to assess the situation in the 2 GHz range at that time.

RESOLUTION 718 (WRC-95)

Agenda for the 1997 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that in accordance with Nos. **118** and **126** of the Convention of the International Telecommunication Union (Geneva, 1992), and having regard to Resolution **1** of the Additional Plenipotentiary Conference (Geneva, 1992), the general scope of the agenda for a world radiocommunication conference should be established four years in advance and a final agenda shall be established two years before the conference;

b) Resolution **3** of the Plenipotentiary Conference (Kyoto, 1994);

c) the relevant Resolutions and Recommendations of previous world administrative radio conferences (WARC) and world radiocommunication conferences (WRC),

recognizing

that this Conference identified a number of urgent issues requiring further examination by the 1997 World Radiocommunication Conference (WRC-97),

resolves

to recommend to the Council that a world radiocommunication conference be held in Geneva in late 1997 for a period of four weeks, with the following agenda:

1. on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-95,

to consider and take appropriate action in respect of the following topics:

1.1 requests from administrations to delete their country footnotes or to have their country's name deleted from footnotes, if no longer required, within the limits of Resolution **26 (WRC-95)**;

1.2 issues remaining from WRC-95 including consideration of the VGE Report in accordance with Resolution **71 (WRC-95)** and any essential changes to Articles **S4**, **S7**, **S8**, **S9**, **S11**, **S13**, **S14** and Appendices **S4** and **S5** of the simplified Radio Regulations adopted by WRC-95 to ensure consistency between all of their provisions;

1.3 review of Appendix **28 (S7)** to the Radio Regulations, taking into account Resolution **60**, Resolution **712 (Rev.WRC-95)** and Recommendation **711**;

1.4 examination of, and taking necessary decisions on, the question of the HF bands allocated to the broadcasting service in the light of developments to date and the results of the studies carried out by the Radiocommunication Sector, and review of Article **17 (S12)** of the Radio Regulations in accordance with Resolution **530 (WRC-95)**;

1.5 based on the results of the studies to be carried out under Recommendation **720 (WRC-95)**, consider changes to the Radio Regulations, as appropriate;

1.6 matters related to the maritime mobile and maritime mobile-satellite services:

1.6.1 the provisions of Chapters **IX** (Appendix **S13**) and **NIX** (Chapter **SVII**) of the Radio Regulations, as stipulated in Resolution **331 (Mob-87)**, and appropriate action in respect of the issues dealt with in Resolutions **200 (Mob-87)**, **210 (Mob-87)** and **330 (Mob-87)**, including maritime certification and licensing issues related to Chapter **SIX** of the Radio Regulations, taking into account that the global maritime distress and safety system (GMDSS) shall be fully implemented in 1999;

1.6.2 the use of Appendix **18** (**S18**) to the Radio Regulations in respect of the VHF band for maritime mobile communications, and the use and extension of UHF channels contained in No. **S5.287**, taking into account Resolution **310** (**Mob-87**);

1.6.3 Article **61** (**S53**) of the Radio Regulations relating to the order of priority of communications in the maritime mobile service and in the maritime mobile-satellite service;

1.6.4 review, and if necessary, revision of the provisions related to the NAVTEX coordination in order to release ITU from the obligation to undertake operational coordination for this service operating on 490 kHz, 518 kHz and 4 209.5 kHz, in the light of the consultations undertaken with the International Maritime Organization (IMO) (see Resolution **339** (**WRC-95**));

1.6.5 use of the new digital technology in the maritime radiotelephony channels;

1.7 review of Appendix **8** to the Radio Regulations taking into account Recommendation **66** (**Rev.WARC-92**);

1.8 the possible deletion of all secondary allocations from the band 136 - 137 MHz, which is allocated to the aeronautical mobile (R) service on a primary basis, in accordance with Resolution **408** (**Mob-87**) and in order to meet the special needs of the aeronautical mobile (R) service;

1.9 taking into account the needs of other services to which the relevant frequency bands are already allocated:

1.9.1 issues concerning existing and possible additional frequency allocations and regulatory aspects as related to the mobile-satellite and fixed-satellite services including consideration of Resolutions **116** (**WRC-95**), **117** (**WRC-95**), **118** (**WRC-95**), **121** (**WRC-95**), **214** (**WRC-95**), **215** (**WRC-95**), **714** (**WRC-95**), **715** (**WRC-95**), **717** (**WRC-95**) and Recommendation **717** (**Rev.WRC-95**);

1.9.2 Resolutions **211** (**WARC-92**), **710** (**WARC-92**) and **712** (**Rev. WRC-95**);

1.9.3 Recommendation **621 (WARC-92)**;

1.9.4 frequency allocation issues related to the needs of the Earth exploration-satellite service, which are not covered in the above-mentioned Resolutions, namely:

1.9.4.1 allocation of frequency bands above 50 GHz to the Earth exploration-satellite (passive) service;

1.9.4.2 frequency allocations near 26 GHz to the Earth exploration-satellite service (space-to-Earth);

1.9.4.3 the existing frequency allocations near 60 GHz and, if necessary, their re-allocation, with a view to protecting the Earth exploration-satellite (passive) service systems operating in the unique oxygen absorption frequency range from about 50 GHz to about 70 GHz;

1.9.5 allocations to the space research service (space-to-space) near 400 MHz;

1.9.6 the identification of suitable frequency bands above 30 GHz for use by the fixed service for high-density applications;

1.10 review of Appendices **30 (S30)** and **30A (S30A)** for Regions 1 and 3 in response to Resolution **524 (WARC-92)**, and taking particular account of *resolves* 2 of that Resolution, in accordance with Resolution **531 (WRC-95)** and taking into account Recommendation **35 (WRC-95)**;

2. to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the associated Radiocommunication Assembly, in accordance with Resolution **28 (WRC-95)**; and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (WRC-95)**;

3. to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4. in accordance with Resolution **94 (WARC-92)**, to review those Resolutions and Recommendations of world administrative radio conferences and world radiocommunication conferences which are relevant to agenda items 1 and 2 above with a view to their possible revision, replacement or abrogation;

5. to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. **135** and **136** of the Convention (Geneva, 1992);

6. to identify those items requiring urgent actions by the radiocommunication study groups in preparation for the 1999 World Radiocommunication Conference (WRC-99);

7. to consider the final report of the Director of the Radiocommunication Bureau on activities related to Resolution **18** (Kyoto, 1994);

8. in accordance with Article **7** of the Convention (Geneva, 1992):

8.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since the last Conference;

8.2 to recommend to the Council items for inclusion in the agenda for the WRC-99, and to give its views on the preliminary agenda for the 2001 Conference and on possible agenda items for future conferences,

invites the Council

to establish the agenda and make provision for WRC-97 and to initiate as soon as possible the necessary consultation with Members,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC-97,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.

RESOLUTION 719 (WRC-95)

Urgent Studies Required in Preparation for the 1997 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the agenda of this Conference included consideration of items for the agendas for the 1997 World Radiocommunication Conference (WRC-97) and the 1999 World Radiocommunication Conference (WRC-99);

b) that items for the agenda for WRC-97 have been identified in Resolution **718 (WRC-95)**;

c) that the 1995 Radiocommunication Assembly established a Special Committee to Address the Review of Regulatory/Procedural Matters, *inter alia*, regulatory issues for WRC-97,

noting

the important progress in ITU-R studies relevant to the preliminary agenda for WRC-97,

resolves

1. that ITU-R Task Group 10/5 shall present a report on the progress of studies on Question ITU-R **212/10** to the 1996 Conference Preparatory Meeting (CPM-96);

2. that both the ITU-R Special Committee to Address the Review of Regulatory/Procedural Matters and ITU-R Task Group 10/5 shall complete the work identified in Resolution **529 (WRC-95)**;

3. that ITU-R Working Party 10-11S shall present a report on the progress of studies on Question ITU-R **85-1/11** to CPM-96;

4. that both the ITU-R Special Committee to Address the Review of Regulatory/Procedural Matters and Working Party 10-11S shall complete the work identified in Resolution **531 (WRC-95)**;

5. that ITU-R shall complete studies on the topics identified in this Resolution and its Annex and report the results of those studies to CPM-97,

instructs

1. CPM-96 to take this Resolution into account when planning the work in preparation for WRC-97;

2. the Director of the Radiocommunication Bureau to bring this Resolution to the attention of the meeting of ITU-R study group Chairmen and Vice-Chairmen.

ANNEX TO RESOLUTION 719 (WRC-95)

Urgent studies required in preparation for WRC-97

- Sharing studies concerning the possible use of the band 1 675 - 1 710 MHz by the mobile-satellite service, in accordance with Resolution **213 (Rev.WRC-95)**.
- Issues dealing with allocations to space services, in accordance with Resolution **712 (Rev.WRC-95)**.
- Issues relating to frequency sharing between the mobile-satellite service and terrestrial services at frequencies below 3 GHz, in accordance with Recommendation **717 (Rev.WRC-95)**.
- Criteria to be applied for the non-GSO fixed-satellite service sharing situations listed in *considering further* of Resolution **118 (WRC-95)**.

- Sharing between the FSS and the FS in the 20 GHz band when used bidirectionally by the FSS to provide feeder links for non-geostationary satellite systems in the mobile-satellite service, in accordance with Resolution **119 (WRC-95)**.

- Calculation of the power flux-density at the geostationary orbit in the 7 GHz band used for feeder links for non-geostationary-satellite systems of the mobile-satellite service in the space-to-Earth direction of transmission, in accordance with Resolution **115 (WRC-95)**.

- Allocation of frequencies to the FSS in the band 15.4 - 15.7 GHz for use as feeder links for non-geostationary-satellite networks operating in the mobile-satellite service, in accordance with Resolution **116 (WRC-95)**.

- Allocation of frequencies to the fixed-satellite service in the band 15.45 - 15.65 GHz (Earth-to-space) for use as feeder links for non-geostationary satellite networks operating in the mobile-satellite service, in accordance with Resolution **117 (WRC-95)**.

- Development of interference criteria and methodologies for coordination between feeder links for non-GSO/MSS networks and GSO/FSS networks in the 20 GHz and 30 GHz bands, in accordance with Resolution **121 (WRC-95)**.

- Power flux-density level applicable in frequency band 137 - 138 MHz shared by the mobile-satellite service and the terrestrial services, in accordance with Resolution **714 (WRC-95)**.

- Determination of coordination areas between geostationary and non-geostationary feeder-link earth stations of different administrations operating in opposite directions of transmission, in accordance with Recommendation **105 (WRC-95)**.

- Sharing studies concerning the use of the bands below 1 GHz by the non-GSO mobile-satellite service, in accordance with Resolution **214 (WRC-95)**.

- Sharing between the radionavigation-satellite service and the mobile-satellite service in the bands 149.9 - 150.5 MHz and 399.9 - 400.5 MHz, in accordance with Resolution **715 (WRC-95)**.

- Flexible and efficient use of the radio spectrum by the fixed and some mobile services in the MF and HF bands using block allocations for adaptive systems, in accordance with Recommendation **720 (WRC-95)**.

- Simplification of Article **17** of the Radio Regulations, in accordance with Resolution **530 (WRC-95)**.

- Further studies concerning application of Article **S19** (Identification of Stations), in accordance with Resolution **71 (WRC-95)**.

- References to ITU-R Recommendations in the Radio Regulations, in accordance with Resolution **27 (WRC-95)**.

- Consideration of certain operational matters concerning the Radio Regulations in the aeronautical mobile and maritime mobile services, in accordance with Resolution **713 (WRC-95)**.

- Principles for the allocation of frequency bands, in accordance with Recommendation **34 (WRC-95)**.

- Coordination process between mobile-satellite systems, in accordance with Resolution **215 (WRC-95)**.

- Use of the frequency bands near 2 GHz by the fixed- and mobile-satellite services and associated transition arrangements, in accordance with Resolution **716 (WRC-95)**.

RESOLUTION 720 (WRC-95)

Preliminary Agenda for the 1999 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that in accordance with Nos. **118** and **126** of the Convention of the International Telecommunication Union (Geneva, 1992), the general scope of the agenda for the 1999 World Radiocommunication Conference (WRC-99) should be established four years in advance;

b) Article **13** of the Constitution of the International Telecommunication Union (Geneva, 1992) regarding the competence and scheduling of world radiocommunication conferences and Article **7** of the Convention (Geneva, 1992) regarding their agendas;

c) the relevant Resolutions and Recommendations of previous world administrative radio conferences and world radiocommunication conferences,

resolves to give the view

that the following items should be included in the preliminary agenda of WRC-99, to be held in late 1999:

1. to take appropriate action in respect of those urgent issues that were specifically requested by the 1997 World Radiocommunication Conference (WRC-97);

2. on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-97, to consider and take appropriate action in respect of the following topics:

2.1 requests from administrations to delete their country footnotes or to have their country's name deleted from footnotes, if no longer required, taking into account Resolution **26 (WRC-95)**;

2.2 consideration of Article **S25** concerning the amateur and amateur-satellite services;

2.3 examination of the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz taking into account the planning procedures, if any, adopted by WRC-97 and the needs of other existing services;

2.4 review of the channel arrangements in HF bands for the maritime mobile service, taking into account the use of new digital technology;

2.5 definition of a new category of orbit, namely the quasi-geostationary orbit, to be considered as falling under the regulations applicable to the geostationary orbit or non-geostationary orbits;

3. to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations which have been communicated by the associated radiocommunication assembly in accordance with Resolution **28 (WRC-95)** and decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in Annex to Resolution **27 (WRC-95)**;

4. to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

5. in accordance with Resolution **94 (WARC-92)**, to review those Resolutions and Recommendations of world administrative radio conferences and world radiocommunication conferences which are relevant to agenda items 1 and 2 above, with a view to their possible revision, replacement or abrogation;

6. to review, and take appropriate action on, the report from the Radiocommunication Assembly submitted in accordance with Nos. **135** and **136** of the Convention of the ITU (Geneva, 1992);

7. to identify those items requiring urgent action by the radiocommunication study groups;

8. in accordance with Article 7 of the Convention of the ITU (Geneva, 1992):

8.1 to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since the last conference;

8.2 to recommend to the Council items for inclusion in the agenda for the 2001 World Radiocommunication Conference, and to give its views on the preliminary agenda for the 2003 Conference and on possible agenda items for future conferences,

invites the Council

to consider the views given in this Resolution,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a Report to WRC-99,

instructs the Secretary-General

to communicate this Resolution to concerned international and regional organizations.

RECOMMENDATION 34 (WRC-95)

Principles for the Allocation of Frequency Bands

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that ITU should maintain an international Table of Frequency Allocations covering the usable radio-frequency spectrum;

b) that it may be desirable, in certain cases, to allocate frequency bands to the most broadly defined services in order to improve flexibility of use but without detriment to other services;

c) that the development of common worldwide allocations is desirable in order to improve and harmonize utilization of the radio-frequency spectrum;

d) that adherence to these principles for the allocation of spectrum will allow the Table of Frequency Allocations to focus on matters of regulatory significance while enabling greater flexibility in national spectrum use,

recommends that future world radiocommunication conferences

1. should, wherever possible, allocate frequency bands to the most broadly defined services with a view to providing the maximum flexibility to administrations in spectrum use, taking into account safety, technical, operational, economic and other relevant factors;

2. should, wherever possible, allocate frequency bands on a worldwide basis (aligned services, categories of service and frequency band limits) taking into account safety, technical, operational, economic and other relevant factors;

3. should take into account relevant studies by the Radiocommunication Sector and the reports of the relevant Conference Preparatory Meetings,

recommends administrations

in making proposals to world radiocommunication conferences, to take account of *recommends* 1 to 3,

instructs the Director of the Radiocommunication Bureau and requests the ITU-R study groups

1. when carrying out technical studies relating to a frequency band, to examine the compatibility of a broad definition of services with the existing utilizations and the possibility of aligning allocations on a worldwide basis, having regard to *considerings a), b), c)* and *d)* and *recommends* 1, 2 and 3 above;

2. to conduct these studies, where appropriate in cooperation with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO);

3. to submit a report to future world radiocommunication conferences containing the results of these studies,

invites

the relevant Conference Preparatory Meetings and ITU-R study groups to identify areas for study and to undertake the studies necessary to determine the impact on existing services of those agenda items of future world radiocommunication conferences which involve broadening the scope of existing service allocations,

instructs the Secretary-General

to communicate this Recommendation to ICAO and IMO.

RECOMMENDATION 35 (WRC-95)

Procedures for Modification of a Frequency Allotment or Assignment Plan

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that preceding conferences have developed plans;

b) that these plans may relate to assignments or to allotments;

c) that assignment and allotment plans fundamentally differ as to the complexity of their maintenance;

d) that, in addition to worldwide plans, regional plans exist catering for specialized needs in particular parts of the world,

considering in particular

a) that the Voluntary Group of Experts (VGE) is to be commended for undertaking the development of a procedure (Article **S10**) to be applied for modification of any type of plan;

b) the difficulties presently faced by administrations, which have to be involved in the application of a large number of different procedures, and the need to reduce the number and complexity of such procedures;

c) that the question of universal applicability of one single procedure requires greater consideration than most,

noting

a) that VGE Recommendation 2/5 foresaw that the 1997 World Radiocommunication Conference (WRC-97) might consider that Recommendation with respect to its possible applicability to Appendices **30 (S30)** and **30A (S30A)**;

b) that the VGE foresaw the need to decide upon that Recommendation before considering the applicability of Article **S10**;

c) that Appendix **S6** of the VGE Report, which is associated with Article **S10**, would have to be developed further if Article **S10** was to apply to Appendices **25 (S25)**, **30 (S30)** and **30A (S30A)**;

d) that this Conference has developed a modified version of Article **S10** aimed at resolving the aforementioned difficulties, as set out in the Annex hereto;

e) that the modification procedure for Appendix **25 (S25)**, as contained in Article **16** of the Radio Regulations, has been satisfactorily applied for several years;

f) that this Conference, in reviewing the VGE Report, has decided to incorporate the existing modification procedure for Appendix **25 (S25)** within that Appendix, thereby rendering it self-contained for simplification of use;

g) that this Conference, in reviewing the VGE Report, has decided to defer to a future world radiocommunication conference the question of whether Article **S10** could be applied to Appendices **30 (S30)** and **30A (S30A)**;

h) that, in the light of the foregoing and having regard to the VGE Report, no further action is required on Appendix **S6**, and the provisions of Appendices **30 (S30)** and **30A (S30A)** shall continue in force;

i) that this Conference, in reviewing the VGE Report, has decided not to modify Appendices **26 (S26)**, **27 (S27)** and **30B (S30B)**;

j) that the matter of one universal modification procedure for all plans, or all subsequent plans, has not sufficiently matured to permit a decision to be taken at this Conference,

recommends

that the plan modification procedure, contained in the Annex to this Recommendation for information purposes, be considered by future world or regional radiocommunication conferences for possible application for modification of the plans.

ANNEX TO RECOMMENDATION 35 (WRC-95)

Possible Procedure for Modification of a Frequency Allotment or Assignment Plan

T10.1 For the frequency allotment or assignment Plans contained in Appendices to these Regulations, the Bureau shall maintain the master copies of the Plans, incorporating any agreed modifications, and shall provide such copies in an appropriate form for publication by the Secretary-General when justified by circumstances.

T10.2 Before notifying any assignment which is subject to a plan, the administration shall ensure that it is in conformity with the Plan[1]. If the assignment is not in conformity, the administration shall apply the procedure[2] to effect an appropriate modification to the Plan by seeking the agreement of the administrations, which are identified in accordance with Appendix **S6**, as having planned allotments or assignments which may be affected by the proposed modification.

T10.3 A proposed modification to a Plan may consist of:

T10.4 *a)* a change in the characteristics of an entry in the Plan; or

T10.5 *b)* the inclusion of a new entry in the Plan; or

T10.6 *c)* the cancellation of an entry in the Plan.

T10.2.1 [1] An assignment is subject to a Plan when it is for a station in a radiocommunication service and in a frequency band and in a geographical area covered by a Plan. An assignment is in conformity with the Plan, if it appears in the Plan, or corresponds to an allotment in the Plan, or if the procedure for modification of the Plan has been successfully applied.

T10.2.2 [2] Where an existing Plan contains a supplementary or alternative procedure that procedure shall continue to be applied.

T10.7 Before an administration proposes to include in the Plan under the provisions of **T10.5**, a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should normally have been brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan. Should this not be the case, the administration concerned shall inform the Bureau of the reasons therefor.

T10.8 For the purpose of effecting a modification to a Plan, the administration concerned shall, having regard to the relevant provisions associated with the Plan, send to the Bureau the relevant information listed in Appendix **S4**. This action shall be taken within the time limits specified in the relevant appendix.

T10.9 The Bureau, upon receiving the information under No. **T10.8:**

T10.10 *a)* determine in accordance with Appendix **S6** the administrations whose allotments or assignments are considered to be affected;

T10.11 *b)* include their names in the information received under No. **T10.8;**

T10.12 *c)* publish the complete information in its Weekly Circular;

T10.13 *d)* promptly inform all administrations affected of its actions and the results of its calculations, drawing their attention to the relevant Weekly Circular.

T10.14 Following receipt of the Weekly Circular, an administration believing that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Bureau to include its name. The Bureau shall study this request on the basis of Appendix **S6** and the relevant Rules of Procedure. In the event that the request to be included in the list of affected administrations is accepted by the Bureau, an addendum to the publication mentioned in **T10.12** shall be published by the Bureau. Should the Bureau reach a negative conclusion, it shall inform the administrations concerned.

T10.15 The administration seeking agreement and those with which it is sought, or the Bureau, may request any additional information they consider necessary. The Bureau shall be sent copies of any such requests and the replies.

T10.16 Comments from administrations on the information published pursuant to **T10.12** should be sent either directly to the administration proposing the modification or through the Bureau. In any event the Bureau shall be informed that comments have been made. The Bureau shall inform the administration proposing the modification of the comments that have been made.

T10.17 An administration which has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of the Weekly Circular referred to in **T10.12** shall be understood to have agreed to the proposed modification. This time-limit may be extended by up to three months for an administration that has requested additional information under **T10.15** or for an administration that has requested the assistance of the Bureau under **T10.18.** In the latter case the Bureau shall inform the administrations concerned of this request.

T10.18 Any administration involved in this procedure may request the assistance of the Bureau in seeking agreement:

T10.19 *a)* in applying any step of this procedure;

T10.20 *b)* in carrying out any technical study necessary for the application of this procedure.

T10.21 If, following action by the Bureau in response to a request for assistance under No. **T10.18,** the Bureau receives no reply or decision within three months of its request for a decision in the matter from an administration whose agreement has been sought, the administration which requested the agreement shall be deemed to have fulfilled its obligations under this procedure. It shall also be deemed that the administration which did not give its decision has undertaken:

T10.22 That no complaint will be made in respect of harmful interference affecting the services rendered by its stations which may be caused by the use of the assignment in conformity with the proposed modification to the Plan, and

T10.23 If no comments have been received on the expiry of the periods specified in **T10.17,** or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, or if the provisions of **T10.21** have been applied, the administration proposing the modification shall inform the Bureau, indicating the final characteristics of the frequency assignment, together with the names of the administrations with which agreement has been reached.

T10.24 The Bureau shall publish in a special section of its Weekly Circular the information received under **T10.23** together with the names of any administrations with which the provisions of this Article have been successfully applied. The Bureau shall then up-date the master copy of the Plan. The new or modified entry in the Plan shall then have the same status as others appearing in the Plan and shall be considered as being in conformity with the Plan.

T10.25 The relevant provisions of the Plan shall be applied when frequency assignments are notified to the Bureau.

T10.26 If no agreement is reached between the administrations concerned the Bureau shall carry out any study that may be requested by those administrations. The Bureau shall inform them of the results and of any recommendations it may be able to offer for a solution of the problem.

T10.27 When a proposed modification to a Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economic development of the radiocommunications systems of those countries.

RECOMMENDATION 100 (Rev.WRC-95)

Preferred Frequency Bands for Systems Using Tropospheric Scatter

The World Radiocommunication Conference (Geneva, 1995),

considering

a) the technical and operational difficulties pointed out by Recommendation ITU-R **F.698** in the frequency bands shared by tropospheric scatter systems, space systems and other terrestrial systems;

b) the additional allocation of frequency bands made by the World Administrative Radio Conference (Geneva, 1979) (WARC-79) and the World Administrative Radio Conference (Malaga-Torremolinos, 1992) (WARC-92) for the space services in view of their increasing development;

c) that the Radiocommunication Bureau requires administrations to supply specific information on systems using tropospheric scatter in order to verify compliance with certain provisions of the Radio Regulations (such as Nos. **S5.410** and **S21.16**),

recognizing nevertheless

that, to meet certain telecommunication requirements, administrations will wish to continue using tropospheric scatter systems,

noting

that the proliferation of such systems in all frequency bands and particularly in those shared with space systems is bound to aggravate an already difficult situation,

recommends that administrations

1. for the assignment of frequencies to new stations in systems using tropospheric scatter, take into account the latest information prepared by ITU-R to ensure that systems established in the future use a limited number of certain frequency bands;

2. in frequency assignment notifications to the Radiocommunication Bureau, indicate expressly whether they relate to stations of tropospheric scatter systems,

instructs the Director of the Radiocommunication Bureau

to report on the application of this Recommendation to the 1997 World Radiocommunication Conference (WRC-97),

invites the Council

to make the necessary arrangements for a future world radiocommunication conference to consider the frequency bands of the fixed service which shall be preferred for use by the new tropospheric scatter systems, taking into account the allocations to space radiocommunication services and the relevant ITU-R Recommendations.

RECOMMENDATION 104 (WRC-95)

Development of Power Flux-Density and Equivalent Isotropically Radiated Power Limits to be met by Feeder Links of Non-Geostationary Satellite Networks in the Mobile-Satellite Service for the Protection of Geostationary-Satellite Networks in the Fixed-Satellite Service in Bands where No. 2613 (S22.2) of the Radio Regulations Applies

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that, for operators both of geostationary-satellite networks in the fixed-satellite service (GSO/FSS) and of feeder links of non-geostationary satellite networks in the mobile-satellite service (non-GSO/MSS), it would be beneficial to have a precise definition of the level of protection implied by No. **2613 (S22.2)** of the Radio Regulations in order to reduce regulatory uncertainties;

b) that, in particular, for GSO/FSS operators, knowledge of the level of protection to be expected from existing and future non-GSO/MSS feeder links is essential for the design of future systems and for ensuring the protection of existing GSO/FSS systems;

c) that, in particular, for non-GSO/MSS feeder link operators, knowledge of the level of protection to be granted to existing and future GSO/FSS networks is essential in order to guarantee that the capability of providing this protection be fully considered during the design of the feeder-link network;

d) that the benefits of precisely defining the level of protection to be granted, as referred to in *considering c)*, would be better achieved by specifying the maximum levels of interfering emissions rather than the maximum levels of their effect;

e) that the several aspects addressed in *considering b), c)* and *d)* could be satisfied by limiting the equivalent isotropically radiated power (e.i.r.p.) that a feeder-link station in a non-GSO/MSS system can radiate towards the geostationary-satellite orbit and by limiting the power flux-density that a non-GSO/MSS space station transmitting to any of its feeder-link stations can produce at any given point on the Earth's surface,

recommends that ITU-R

1. continue to study, as a matter of urgency, the possibility of developing e.i.r.p. and power flux-density limits to be met by non-GSO/MSS feeder links in order to protect GSO/FSS networks in accordance with No. **2613 (S22.2)** of the Radio Regulations in bands where Resolution **46 (Rev.WRC-95)** does not apply;

2. develop an appropriate Recommendation (or Recommendations) reflecting the results of those studies within the next two years.

RECOMMENDATION 105 (WRC-95)

Further Work by ITU-R on Determination of the Coordination Area Around Earth Stations Operating with Geostationary-Satellite Networks in the Fixed-Satellite Service and Earth Stations Providing Feeder Links to Non-Geostationary Satellite Networks in the Mobile-Satellite Service Operating in Opposite Directions of Transmission

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has identified certain frequency allocations to the fixed-satellite service (FSS) for use by feeder links of non-geostationary-satellite networks in the mobile-satellite service (non-GSO/MSS);

b) that these frequency bands are also used by stations in the FSS operating with geostationary (GSO) satellites, in the opposite direction of transmission from non-GSO/MSS feeder links;

c) that, in order to avoid mutual interference between GSO and non-GSO/MSS feeder-link earth stations operating in opposite directions of transmission, there is a need to determine the coordination area of such earth stations;

d) that Recommendation ITU-R **IS.849**, supported by Recommendation ITU-R **IS.847**, can be used to determine the coordination area of GSO and non-GSO/MSS feeder-link earth stations operating in opposite directions of transmission;

e) that, in order to utilize these Recommendations, the parameters of typical transmitting and receiving non-GSO/MSS feeder-link earth stations operating in these frequency bands are required;

f) that the required parameters could not be made available until the frequency allocations to the FSS, for use by non-GSO/MSS feeder links, were known,

noting

that the 1997 World Radiocommunication Conference (WRC-97), under its agenda, will review the procedures set forth in Appendix **28** (**S7**) of the Radio Regulations,

recommends

that ITU-R conduct the necessary studies, as a matter of urgency, in order to develop the appropriate technical coordination parameters and/or Recommendations necessary for the determination of coordination areas around earth stations operating with geostationary-satellite networks in the FSS and earth stations providing feeder links to non-GSO/MSS networks,

invites

administrations to participate in the work of ITU-R on this subject,

invites the Director of the Radiocommunication Bureau

to report on the progress of these studies to WRC-97.

RECOMMENDATION 521 (WRC-95)

Technical Parameters for use in the revision of Appendices 30 (S30) and 30A (S30A) in response to Resolution 524 (WARC-92)

The World Radiocommunication Conference (Geneva, 1995),

considering

that the 1997 World Radiocommunication Conference (WRC-97) will take action, as appropriate, on the revision of Appendices **30 (S30)** and **30A (S30A)** for Regions 1 and 3 in response to Resolution **524 (WARC-92)**,

noting

a) the requirements of Resolution **524 (WARC-92)**;

b) the work carried out by the study groups and the Conference Preparatory Meeting of the Radiocommunication Sector,

recognizing

that it will be necessary to have improved technical parameters for both Appendices **30 (S30)** and **30A (S30A)** if the Plans resulting from the decisions of this Conference and WRC-97 are to be best able to satisfy the requirements of Resolution **524 (WARC-92)**,

recommends

1. that the following technical parameters be used in preparation for WRC-97 actions on the revision of Appendices **30 (S30)** and **30A (S30A)**:

1.1 e.i.r.p. planning values: a general reduction of 5 dB from the levels listed in Appendix **30 (S30)**;

1.2 use of an improved receive earth station reference antenna pattern based on Recommendation ITU-R **BO.1213**;

1.3 simultaneous planning of feeder links and downlinks, with calculation of overall equivalent protection margins;

1.4 aggregate C/I ratio values of:

- co-channel 23 dB, with no single-entry C/I lower than 28 dB;

- adjacent channel 15 dB;

2. that these updated parameters be applied to possible revisions to assignments not operating or notified; operating or notified systems, to the extent they are in accordance with Appendices **30 (S30)** and **30A (S30A),** will only be adjusted if the administrations concerned with such systems agree;

3. that the general e.i.r.p. reduction in *recommends* 1.1 above be applied, but for countries in high rainfall climatic zones adequate e.i.r.p. levels will be maintained.

RECOMMENDATION 717 (Rev.WRC-95)

Frequency Sharing in Bands Shared by the Mobile-Satellite Service and the Fixed, Mobile and other Terrestrial Services Below 3 GHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) made frequency allocations for the mobile-satellite service shared with other terrestrial services below 3 GHz;

b) that this Conference has adopted sharing criteria for these bands allocated to the mobile-satellite service which require further examination;

c) that both geostationary and non-geostationary satellites may be operated in the mobile-satellite service;

d) that the Radiocommunication Assembly (Geneva, 1995) approved Recommendations ITU-R **IS.1141**, **IS.1142** and **IS.1143**, while identifying certain issues related to frequency sharing between the mobile-satellite service and terrestrial services requiring further study, some of them urgent (see Questions ITU-R **201/8** and **118-1/9**),

recommends that ITU-R

study the remaining and urgent issues relating to frequency sharing between the mobile-satellite service and terrestrial services below 3 GHz and report to the 1997 World Radiocommunication Conference (WRC-97) through the Conference Preparatory Meeting,

recommends that administrations

submit contributions relating to these studies to ITU-R, as a matter of urgency,

recommends that the 1997 World Radiocommunication Conference

address the above issues and take appropriate action on them.

RECOMMENDATION 720 (WRC-95)

The Flexible and Efficient Use of the Radio Spectrum by Fixed and Some Mobile Services in the MF and HF Bands Using Block Allocations for Adaptive Systems

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the 1997 World Radiocommunication Conference (WRC-97) is recommended to consider improvements in the regulation and frequency management of the fixed service and of some of the mobile services in the frequency range between about 1.6 and 28 MHz;

b) that No. **339 (S4.1)** of the Radio Regulations requires, *inter alia*, that Members shall endeavour to limit the number of frequencies and the spectrum space used to the minimum essential and to apply the latest technical advances as soon as possible;

c) that HF fixed and mobile services are meeting increasing congestion and interference;

d) that new frequency management techniques are becoming available, employing newly available equipment techniques which could improve the spectrum utilization and quality of systems operating at HF,

noting

that Question ITU-R **204/1** is being studied by ITU-R Study Group 1,

recognizing

that further studies are essential to permit the introduction of frequency agile equipment coupled with the power of digital signal processing for frequency control and error-correction techniques,

instructs the Director of the Radiocommunication Bureau

to ensure, in consultation with the study group Chairmen, that the studies now in hand are completed as a matter of urgency and in time for WRC-97,

recommends

that administrations participate actively in these studies.

RECOMMENDATION 721 (WRC-95)

Frequency Sharing in the Bands 1 610.6 - 1 613.8 MHz and 1 660 - 1 660.5 MHz between the Mobile-Satellite Service and the Radio Astronomy Service

The World Radiocommunication Conference (Geneva, 1995),

with a view

to facilitating the use of frequency bands allocated to the mobile-satellite service (MSS) and with due regard to existing services to which those bands are also allocated,

considering

a) that the band 1 610.6 - 1 613.8 MHz is allocated to the radio astronomy service and the mobile-satellite service (Earth-to-space) on a shared, primary basis and the band 1 660 - 1 660.5 MHz is allocated to the radio astronomy service and the land mobile-satellite service (Earth-to-space) on a shared, primary basis;

b) that No. **733E (S5.372)** of the Radio Regulations states that "harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **2904 (S29.13)** applies)"; and that article **36 (S29)** also points out that emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service;

c) that the nature of objects studied by the radio astronomy service in the bands 1 610.6 - 1 613.8 MHz and 1 660 - 1 660.5 MHz demands maximum flexibility in the planning of observatory frequency selection;

d) that in the bands 1 610.6 - 1 613.8 MHz and 1 660 - 1 660.5 MHz, which are shared between the radio astronomy service and the mobile-satellite service, operational constraints are necessary for mobile earth stations of the mobile-satellite service;

e) that Recommendation ITU-R **M.829-1**, which relates to sharing between the mobile-satellite service and the radio astronomy service in the band 1 660 - 1 660.5 MHz, notes that further studies are required, particularly in the areas of propagation models and assumptions used for the determination of separation distances;

f) that other studies are currently being conducted within ITU-R on sharing between mobile earth stations of the mobile-satellite service and the radio astronomy service in the band 1 610.6 - 1 613.8 MHz;

g) that the threshold levels of interference detrimental to the radio astronomy service are given in Recommendation ITU-R **RA.769**,

invites ITU-R

1. to conclude its studies on propagation mechanisms, including those necessary for maritime and aeronautical environments, in order to establish appropriate separation distances between mobile earth stations of the mobile-satellite service and radio astronomy stations;

2. to conclude its studies on technical means to be adopted by stations of the mobile-satellite service, including blockage of emissions and the use of directional antennas where feasible, when mobile earth stations operate within the separation distances referred to in *invites* 1 above;

3. to report on the outcome of those studies in time for consideration by a competent conference,

urges administrations

to participate actively in those studies.

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