MULTILATERAL

Partial Revision of Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications

Signed at Geneva July 17, 1971;
Ratification advised by the Senate of the United States of America June 13, 1972;
Ratified by the President of the United States of America July 14, 1972;
Ratification of the United States of America deposited with the Secretary-General of the International Telecommunication Union July 28, 1972;
Proclaimed by the President of the United States of America September 4, 1972;
Date of entry into force January 1, 1973.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

CONSIDERING THAT:

A Partial Revision of the Radio Regulations (Geneva, 1959) relating to space telecommunications, with a Final Protocol, was signed at Geneva on July 17, 1971 by the respective plenipotentiaries of the United States of America and certain other countries the text of which in the English, French, and Spanish languages is hereto annexed;

The Senate of the United States of America by its resolution of June 13, 1972, two-thirds of the Senators present concurring, gave its advice and consent to the ratification of the said Partial Revision with Final Protocol,

The said Partial Revision and Final Protocol were duly ratified by the President of the United States of America on July 14, 1972, and the instrument of ratification of the United States of America was deposited with the Secretary-General of the International Telecommunication Union on July 28, 1972; and

93-163 O 73 - 23

It is provided in the said Partial Revision that the revised provisions of the Radio Regulations shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention and that the said provisions shall come into force on January 1, 1973, on which date the provisions of the Radio Regulations which are cancelled or modified by the revision shall be abrogated;

Now therefore, I, Richard Nixon President of the United States of America, proclaim and make public the said Partial Revision of the Radio Regulations (Geneva, 1959), with Final Protocol, to the end that the same and every article and clause thereof may be observed and fulfilled in good faith on and after January 1, 1973 by the United States of America and by the citizens of the United States of America and all other persons subject to the jurisdiction thereof.

In testimony whereof, I have signed this proclamation and caused the Seal of the United States of America to be affixed.

Done at the city of Washington this fourth day of September in the year of our Lord one thousand nine hundred and [SEAL] seventy-two and of the Independence of the United States of America the one hundred ninety-seventh.

Richard Nixon

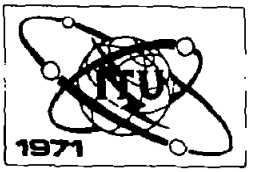
By the President

William P Rogers
Secretary of State

FINAL ACTS

OF THE WORLD ADMINISTRATIVE RADIO CONFERENCE FOR SPACE TELECOMMUNICATIONS

GENEVA, 1971



ABBREVIATIONS

The following abbreviations are used in the Annexes, to indicate the nature of amendments made in the partial revision of the Radio Regulations

Symbol	Meaning
MOD	Modification
SUP	Suppression
ADD	Addition
NOC	No change

Note If a modification affects only the drafting of a number, without changing the substance, the following symbol is used

(MOD)

TABLE OF CONTENTS

FINAL ACTS

of the World Administrative Radio Conference
for Space Telecommunications
Geneva 1971

[Related Documents]

RESOLUTIONS

RECOMMENDATIONS

PARTIAL REVISION OF THE RADIO REGULATIONS[1][2]

In its Recommendation No Spa 9, the Extraordinary Administrative Radio Conference to allocate frequency bands for space radiocommunication purposes, held in Geneva in 1963, recommended that the Administrative Council of the Union should review annually the progress in space radiocommunications made by administrations and the available reports and recommendations of the permanent organs of the Union with respect thereto The Conference also recommended that the Administrative Council should, in the light of its annual review and at a date which it would determine, recommend to administrations the convening of an Administrative Conference to work out further agreements for the international regulation of the use of radio frequency bands allocated for space radiocommunications by the 1963 Conference

At its 23rd Session in 1968, the Administrative Council, in its Resolution No 632, recommended that a World Administrative Radio Conference should be convened during the latter part of 1970 or early 1971 and invited Administrations to send to the Secretary-General their proposals for the agenda thereof

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[1] Namely the Radio Regulations, Geneva 1959 as partially revised by the Extraordinary Administrative Radio Conference to allocate frequency bands for Space Radiocommunication purposes (Geneva 1963) by the Extraordinary Administrative Radio Conference for the preparation of a revised allotment plan for the Aeronautical Mobile (R) Service (Geneva, 1966) and, by the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service (Geneva, 1967)

TIAS 4893, 5603, 6332, 6590, 12 UST 2377, 15 UST 887, 18 UST 2091, 19 UST 6717. (Footnote added by the Department of State.)

In accordance with Nos. 56 and 64 of the International Telecommunication Convention (Montreux, 1965),[1] the Administrative Council, at its 1969 Session, with the concurrence of a majority of the Members of the Union, determined in its Resolution No 653 the agenda of the World Administrative Radio Conference for Space Telecommunications and decided that it would meet in Geneva on 7 June, 1971 for a duration of six weeks, provision being made for one additional week if necessary

However, in 1970, the Administrative Council, taking into account the provisions of Resolution No 40 of the XIIth Plenary Assembly of the C.C I R relative to the convening, prior to the Conference, of a Special Joint Meeting of C C I R Study Groups, decided in its Resolution No 665 that the duration of the Conference would be six weeks

* * *

The World Administrative Radio Conference for Space Telecommunications, accordingly convened on the appointed date,considered and revised, in conformity with its agenda, the relevant parts of the Radio Regulations Particulars of the revision of the Radio Regulations are given in Annexes 1 to 19 hereto

The revised provisions of the Radio Regulations shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 January 1973, on which date the provisions of the Radio Regulations which are cancelled or modified by this revision shall be abrogated

* * *

The delegates signing this revision of the Radio Regulations hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration

* * *

[1] TIAS 6267, 18 UST 591, 592 [Footnote added by the Department of State]

Members and Associate Members of the Union shall inform the Secretary-General of their approval of the revision of the Radio Regulations by the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) The Secretary-General will inform Members and Associate Members of the Union regarding receipt of such notifications of approval as they are received

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In witness whereof the delegates of the Members of the Union represented at the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) have signed in the names of their respective countries this revision of the Radio Regulations in a single copy which will remain in the archives of the International Telecommunication Union and of which a certified copy will be delivered to each Member and Associate Member of the Union

Done at Geneva, 17 July, 1971

ANNEX 1

Revision of Article 1 of the Radio Regulations*

Article 1 of the Radio Regulations shall be amended as follows

Section II. Radio Systems Services and Stations

After Regulation No. 21 add the following new Regulations

ADD **21A** *Space Station*
Spa2

A station located on an object which is beyond is intended to go beyond or has been beyond the major portion of the Earth's atmosphere

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* *Note by the General Secretariat*

Certain definitions were rearranged and renumbered by the Conference. Some were amended while others were maintained unchanged
The definitions concerned are the following

New number	*Definition*	*Old number*	*Remarks*
21A	Space Station	84AE	MOD
21B	Earth Station	84AD	MOD
21C	Space Radiocommunication	84AC	MOD
21D	Terrestrial Radiocommunication	84AA	MOD
21E	Terrestrial Station	84AB	MOD
84AFA	Satellite System	84AL	MOD
84ATD	Space Research Service	84AM	MOD
84ATF	Space Operation Service	84AC	MOD
84ATF	Inter Satellite Service	84AC	MOD
84BAA	Spacecraft	84BH	MOD
84BAC	Active Satellite	84AJ	NOC
84BAD	Passive Satellite	84AK	NOC

ANN 1 (ART 1)

ADD 21B Spa2 *Earth Station*

A station located either on the Earth's surface or within the major portion of the Earth's atmosphere intended for communication

— with one or more space stations, or

— with one or more stations of the same kind by means of one or more passive satellites or other objects in space

ADD 21C Spa2 *Space Radiocommunication*

Any radiocommunication involving the use of one or more space stations or the use of one or more passive satellites or other objects in space

ADD 21D Spa2 *Terrestrial Radiocommunication* [1]

Any radiocommunication other than space radiocommunication or radio astronomy

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ADD 21D 1 Spa2 [1] In these Regulations, unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication

ADD 21E Spa2 *Terrestrial Station* [1]

A station effecting terrestrial radiocommunication

ADD 21E 1 Spa2 [1] In these Regulations unless otherwise stated, any station is a terrestrial station

Replace Regulation No 69 by the following new text

MOD 69 Spa2 *Safety Service*

A radiocommunication service used permanently or temporarily for the safeguarding of human life and property on the Earth's surface, in the air or in space

ANN 1 (ART 1)

Delete Regulations Nos 844A and 844B

Section IIA Space Systems, Services and Stations

Delete Regulations Nos 844C 844D and 844E

Replace Regulation No 844F by the following new text

MOD **84AF** *Space System*
Spa2

Any group of co-operating earth and/or space stations employing space radiocommunication for specific purposes

After Regulation No 844F add the following new Regulations

ADD **84AFA** *Satellite System*
Spa2

A space system using one or more artificial earth satellites

ADD **84AFB** *Satellite Network*
Spa2

A satellite system or a part of a satellite system, consisting of only one satellite and the co-operating earth stations

ADD **84AFC** *Satellite Link*
Spa2

A radio link between a transmitting earth station and a receiving earth station through one satellite

A satellite link comprises one up-path and one down-path

ANN 1 (ART 1)

ADD **84AFD** *Multi-Satellite Link*
Spa2

A radio link between a transmitting earth station and a receiving earth station through two or more satellites, without any intermediate earth station

A multi-satellite link comprises one up-path, one or more satellite-to-satellite paths and one down-path

Replace Regulation No 84AG by the following new text

MOD **84AG** *Fixed-Satellite Service*
Spa2

A radiocommunication service

— between earth stations at specified fixed points when one or more satellites are used, in some cases this service includes satellite to satellite links which may also be effected in the inter-satellite service

— for connection between one or more earth stations at specified fixed points and satellites used for a service other than the fixed-satellite service (for example, the mobile-satellite service broadcasting-satellite service, etc)

After Regulation No 84AG add the following new Regulations

ADD **84AGA** *Mobile-Satellite Service*
Spa2

A radiocommunication service

— between mobile earth stations and one or more space stations or between space stations used by this service,

- or between mobile earth stations by means of one or more space stations

— and if the system so requires for connection between these space stations and one or more earth stations at specified fixed points

ANN I (ART I)

ADD **84AGB** *Aeronautical Mobile-Satellite Service*
Spa2

A mobile-satellite service in which mobile earth stations are located on board aircraft. Survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.

ADD **84AGC** *Maritime Mobile-Satellite Service*
Spa2

A mobile-satellite service in which mobile earth stations are located on board ships. Survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.

ADD **84AGD** *Land Mobile-Satellite Service*
Spa2

A mobile-satellite service in which mobile earth stations are located on land.

Delete Regulations Nos. 84AH to 84AO.

Replace Regulation No. 84AP by the following new text:

MOD **84AP** *Broadcasting-Satellite Service*
Spa2

A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception [1] by the general public.

ADD **84AP.1** [1] In the broadcasting-satellite service, the term "direct reception" shall
Spa2 encompass both individual reception and community reception.

ANN 1 (ART 1)

After Regulation No 84AP, add the following new Regulations

ADD **84APA** *Individual reception* (in the broadcasting-satellite service)
Spa2

The reception of emissions from a space station in the broadcasting-satellite service by simple domestic installations and in particular those possessing small antennae

ADD **84APB** *Community reception* (in the broadcasting-satellite service)
Spa2

The reception of emissions from a space station in the broadcasting-satellite service by receiving equipment, which in some cases may be complex and have antennae larger than those used for individual reception, and intended for use

— by a group of the general public at one location, or

— through a distribution system covering a limited area

ADD **84APC** *Radiodetermination-Satellite Service*
Spa2

A radiocommunication service involving the use of radiodetermination and the use of one or more space stations

Replace Regulation No 84AQ by the following new text

MOD **84AQ** *Radionavigation-Satellite Service*
Spa2

A radiodetermination-satellite service used for the same purposes as the radionavigation service, in certain cases this service

ANN 1 (ART 1)

includes transmission or retransmission of supplementary information necessary for the operation of radionavigation systems

After Regulation No 84AQ add the following new Regulations

ADD **84AQA** *Aeronautical Radionavigation-Satellite Service*
Spa2

A radionavigation-satellite service in which mobile earth stations are located on board aircraft

ADD **84AQB** *Maritime Radionavigation-Satellite Service*
Spa2

A radionavigation-satellite service in which mobile earth stations are located on board ships

Delete Regulations Nos 84AR and 84AS

Before Regulation No 84AT add the following new Regulation

ADD **84ASA** *Earth Exploration-Satellite Service*
Spa2

A radiocommunication service between earth stations and one or more space stations in which

— information relating to the characteristics of the Earth and its natural phenomena is obtained from instruments on earth satellites

— similar information is collected from air-borne or earth-based platforms.

— such information may be distributed to earth stations within the system concerned.

— platform interrogation may be included

93-163 O - 73 25

ANN I (ART I)

Replace Regulation No 84AT by the following new text

MOD **84AT** *Meteorological-Satellite Service*
Spa2

An earth exploration-satellite service for meteorological purposes

After Regulation No 84AT, add the following new Regulations

ADD **84ATA** *Amateur-Satellite Service*
Spa2

A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service

ADD **84ATB** *Standard Frequency-Satellite Service*
Spa2

A radiocommunication service using space stations on earth satellites for the same purposes as those of the standard frequency service

ADD **84ATC** *Time Signal-Satellite Service*
Spa2

A radiocommunication service using space stations on earth satellites for the same purposes as those of the time signal service

ADD **84ATD** *Space Research Service*
Spa2

A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes

ADD **84ATE** *Space Operation Service*
Spa2

A radiocommunication service concerned exclusively with the operation of spacecraft, in particular tracking, telemetry and telecommand

These functions will normally be provided within the service in which the space station is operating

ANN 1 (ART 1)

ADD **84ATF** *Inter-Satellite Service*
Spa2

A radiocommunication service providing links between artificial earth satellites

Delete Regulations Nos 84AU and 84A1

Section IIB Space, Orbits and Types of Objects in Space

Replace Regulation No 84B4 by the following new text

MOD **84BA** *Deep Space*
Spa2

Space at distances from the Earth approximately equal to, or greater than, the distance between the Earth and the Moon

After Regulation No 84B4 add the following new Regulations

ADD **84BAA** *Spacecraft*
Spa2

A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere

ADD **84BAB** *Satellite*
Spa2

A body[1] which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body

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ADD **84BAB1** [1] A body so defined which revolves around the Sun is called a planet or planetoid

ADD **84BAC** *Active Satellite*
Spa2

An earth satellite carrying a station intended to transmit or retransmit radiocommunication signals

ANN 1 (ART 1)

ADD **84BAD** *Passive Satellite*
Spa2

An earth satellite intended to transmit radiocommunication signals by reflection

Replace Regulations Nos 84BB to 84BE by the following new texts

MOD **84BB** *Orbit*
Spa2

1 The path relative to a specified frame of reference, described by the centre of mass of a satellite or other object in space, subjected solely to natural forces mainly the force of gravity

2 By extension the path described by the centre of mass of an object in space subjected to natural forces and occasional low-energy corrective forces exerted by a propulsive device in order to achieve and maintain a desired path

MOD **84BC** *Inclination of an Orbit* (of an earth satellite)
Spa2

The angle determined by the plane containing an orbit and the plane of the Earth's equator

MOD **84BD** *Period* (of a satellite)
Spa2

The time elapsing between two consecutive passages of a satellite or planet through a characteristic point on its orbit

MOD **84BE** *Altitude of the Apogee (Perigee)*
Spa2

The altitude of the apogee (perigee) above a specified reference surface serving to represent the surface of the Earth

Delete Regulation No 84BF

ANN I (ART I)

Before Regulation No 84BG add the following new Regulation

ADD **84BFA** *Geosynchronous Satellite*
Spa2

An earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis

Replace Regulation No 84BG by the following new text

MOD **84BG** *Geostationary Satellite*
Spa2

A satellite the circular orbit of which lies in the plane of the Earth's equator and which turns about the polar axis of the Earth in the same direction and with the same period as those of the Earth's rotation

The orbit on which a satellite should be placed to be a geostationary satellite is called the "geostationary satellite orbit"

Delete Regulation No 84BH

Section III. Technical Characteristics

After Regulation No 98, add the following new Regulation

ADD **98A** *Equivalent Isotropically Radiated Power (e i r p)*
Spa2

The product of the power of an emission as supplied to an antenna and the antenna gain in a given direction relative to an isotropic antenna

After Regulation No 103, add the following new Regulations

ADD **103A** *Equivalent Satellite Link Noise Temperature*
Spa2

The noise temperature at the input of the earth station receiver corresponding to the radio-frequency noise power which

produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and from terrestrial systems

ADD **103B** *Co-ordination Distance*
Spa2

Distance from an earth station in a given azimuth within which a terrestrial station sharing the same frequency band may cause or be subject to more than a permissible level of interference

ADD **103C** *Co-ordination Contour*
Spa2

The line joining the points which are on all azimuths around an earth station at a distance from this station equal to the co-ordination distance corresponding to each azimuth

ADD **103D** *Co-ordination Area*
Spa2

Area around an earth station enclosed by the co-ordination contour

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ANNEX 2

Revision of Article 2 of the Radio Regulations

Article 2 of the Radio Regulations shall be amended as follows

Section III Nomenclature of the Frequency and Wavelength Bands used in Radiocommunication

Replace Regulation No 112 by the following new text

MOD **112** Spa2 § 7 The radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table Frequencies shall be expressed

— in kilohertz (kHz) up to and including 3000 kHz

— in megahertz (MHz) thereafter up to and including 3000 MHz

— in gigahertz (GHz) thereafter up to and including 3000 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

ANN 2 (ART 2)

Band Number	Frequency Range (lower limit exclusive upper limit inclusive)	Corresponding Metric Subdivision
4	3 to 30 kHz	Myriametric waves
5	30 to 300 kHz	Kilometric waves
6	300 to 3000 kHz	Hectometric waves
7	3 to 30 MHz	Decametric waves
8	30 to 300 MHz	Metric waves
9	300 to 3000 MHz	Decimetric waves
10	3 to 30 GHz	Centimetric waves
11	30 to 300 GHz	Millimetric waves
12	300 to 3000 GHz or 3 THz	Decimillimetric waves

Note 1 "Band Number N" extends from 0.3×10^N to 3×10^N Hz

Note 2 Symbols and prefixes
Hz = hertz
k = kilo (10^3) M = mega (10^6), G = giga (10^9), T = tera (10^{12})

Note 3 Abbreviations for adjectival band designations

Band 4 = VLF	Band 8 = VHF
Band 5 = LF	Band 9 = UHF
Band 6 = MF	Band 10 = SHF
Band 7 = HF	Band 11 = EHF

ANNEX 3

Revision of Article 5 of the Radio Regulations

Article 5 of the Radio Regulations shall be amended as follows

Replace the title of Article 5 by the following new title

MOD Spa2

Frequency Allocations [1]
10 kHz to 275 GHz

Section I. Regions and Areas

Replace Regulation No 125 by the following new text

(MOD) **125** Spa2 § 1 For the allocation of frequencies the world has been subdivided into three Regions [2] (see Appendix 24)

Insert the following new foot-note

ADD Spa2 [1] See Resolution No 6

Replace Regulation 125.1 by the following new text

(MOD) **125.1** Spa2 [2] It should be noted that where the words regions or regional are without a capital "R" in these Regulations, they do not relate to the three Regions here defined for purposes of frequency allocation

ANN 3 (ART 5)

MOD Spa2 **Section IV Table of Frequency Allocations – 10 kHz to 275 GHz**

In the Table of Frequency Allocations replace the provisions for the band 1 800 - 2 000 kHz in Regions 2 and 3 by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
	1 800 - 2 000	
	AMATEUR	
	FIXED	
NOC	MOBILE except aeronautical mobile	
	RADIONAVIGATION	
	198	

NOC 198

SUP 199 199 1

In the Table of Frequency Allocations replace the provisions for the band 2 170 - 2 194 kHz by the following

kHz

Region 1	Region 2	Region 3
2 170 2 194		
	MOBILE (distress and calling)	
	201 201 A	

NOC 201

ADD 201 A Spa2 The frequencies 2 182 kHz 3 023 5 kHz 5 680 kHz 8 364 kHz 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 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

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 2 498 - 2 502 kHz in Region 1 and for the band 2 495 - 2 505 kHz in Regions 2 and 3 by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
2 300 - 2 498 NOC	**2 300 2 495** NOC	
2 498 - 2 502 STANDARD FREQUENCY 203 203A	**2 495 - 2 505** STANDARD FREQUENCY 203 203A	
2 502 - 2 625 NOC	**2 505 - 2 625** NOC	

NOC **203**

ADD **203A** **Spa2** The bands 2 501 - 2 502 kHz, 5 003 - 5 005 kHz, 10 003 - 10 005 kHz, 15 005 - 15 010 kHz, 19 990 - 19 995 kHz, 20 005 - 20 010 kHz and 25 005 - 25 010 kHz are also allocated on a secondary basis to the space research service

SUP **204**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 2 850 – 3 025 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
2 850 – 3 025 AERONAUTICAL MOBILE (R) 201A		

In the Table of Frequency Allocations, replace the provisions for the band 4 995 – 5 005 kHz by the following

kHz

Region 1	Region 2	Region 3
4 995 – 5 005 STANDARD FREQUENCY 203A 210		

NOC **210**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 5 480 - 5 730 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
5 480 - 5 680	AERONAUTICAL MOBILE (R) 201A	
5 680 - 5 730	AERONAUTICAL MOBILE (OR) 201A	

In the Table of Frequency Allocations replace the provisions for the band 7 000 - 7 100 kHz by the following

kHz

Region 1	Region 2	Region 3
7 000 - 7 100	AMATEUR AMATEUR-SATELLITE	

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 8 195 – 8 815 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
8 195 – 8 815	MARITIME MOBILE	
	201A 21[illegible]	

NOC 213

In the Table of Frequency Allocations, replace the provisions for the band 9 995 – 10 100 kHz by the following

kHz

Region 1	Region 2	Region 3
9 995 10 005	STANDARD FREQUENCY	
	201A 203A 214	
10 005 – 10 100	AERONAUTICAL MOBILE (R)	
	201A	

NOC 214

SUP 215 215A

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 14 000 - 14 350 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
14 000 - 14 250	AMATEUR AMATEUR-SATELLITE	
14 250 - 14 350	AMATEUR 218	

NOC **218**

In the Table of Frequency Allocations replace the provisions for the band 14 990 - 15 010 kHz by the following

kHz

Region 1	Region 2	Region 3
14 990 - 15 010	STANDARD FREQUENCY 201A 203A 219	

NOC **219**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 15 762 – 15 768 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
15 762 – 15 768	FIXED	

In the Table of Frequency Allocations, replace the provisions for the band 18 030 – 20 010 kHz by the following

kHz

Region 1	Region 2	Region 3
18 030 – 18 052	FIXED	
18 052 – 18 068	FIXED *Space Research*	
18 068 – 19 990	FIXED	
19 990 – 20 010	STANDARD FREQUENCY 201A 203A 220	

NOC **220**

SUP **221 221A**

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 21 000 - 21 450 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
21 000 - 21 450	AMATEUR AMATEUR-SATELLITE	

In the Table of Frequency Allocations replace the provisions for the band 21 850 - 22 000 kHz by the following

kHz

Region 1	Region 2	Region 3
21 850 - 21 870	RADIO ASTRONOMY 221B	
21 870 22 000	AERONAUTICAL FIXED AERONAUTICAL MOBILE (R)	

ADD **221B Spa2** In Bulgaria, Hungary, Poland, Roumania Czechoslovakia and the U S S R the band 21 850 - 21 870 kHz is also allocated to the aeronautical fixed and the aeronautical mobile (R) services The administrations concerned will take all practicable steps to protect radio astronomy observations in this band from harmful interference

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 23 350 – 25 010 kHz by the following

kHz

Allocation to Services		
Region 1	Region 2	Region 3
23 350 - 24 990	FIXED LAND MOBILE 222 222A	
24 990 - 25 010	STANDARD FREQUENCY 203A 223	

NOC 222

ADD 222A Spa2 In Argentina and Uruguay the band 24 528 – 24 538 kHz may be used by the space research service subject to agreement between the administrations concerned and those having services operating in accordance with the Table, which may be affected

NOC 223

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 28 - 47 MHz in Region 1 for the band 28 - 50 MHz in Region 2 and for the band 28 - 44 MHz in Region 3 by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
28 - 29 7	AMATEUR AMATEUR SATELLITE	
29 7 - 30 005	FIXED 228 229 231 232 MOBILE	
30 005 - 30 01	SPACE OPERATION (Satellite identification) FIXED 228 229 231 MOBILE SPACE RESEARCH	
30 01 - 37 75	FIXED 228 229 230 231 MOBILE 233A	

NOC **228 229 230 231 232**

SUP **233**

ADD **233A Spn2** In Argentina and Uruguay the bands 36 65 - 36 85 MHz, 41 15 - 41 35 MHz and 45 65 - 45 85 MHz, and in Argentina Brazil and Uruguay, the band 170 55 - 170 95 MHz, are allocated to the radio astronomy service and no assignments shall be made to the fixed and mobile services in these bands

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
37 75 - 38 25	FIXED 228 229 231 MOBILE *Radio Astronomy* 233B	
38 25 - 41	FIXED 228 229 230 231 MOBILE 235 236 236A	
41 - 47 BROADCASTING *Fixed* 228 237 *Mobile* 236A 238 239 240 241	**41 - 50** FIXED 228 231 237 MOBILE 233A 236A	**41 - 44** FIXED 228 237 MOBILE 236A **44 - 50** NOC

ADD **233B** Spa2 In making assignments to stations of other services to which the bands 37 75 - 38 25 MHz 150 05 - 153 MHz, 406 1 - 410 MHz, 2 690 - 2 700 MHz and 4 700 - 5 000 MHz are allocated, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference

MOD **235** Spa2 The band 39 986 - 40 02 MHz is also allocated, on a secondary basis, to the space research service

NOC **236**

ADD **236A** Spa2 The band 40 98 - 41 015 MHz is also allocated, on a secondary basis, to the space research service in particular for measurements of the differential Faraday effect

NOC **237 238 239 240 241**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 80 - 100 MHz in Region 3 by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
NOC	NOC	**80 87** FIXED MOBILE 254 255 256 257 261 266
NOC	NOC	**87 - 100** FIXED MOBILE BROADCASTING 254 267 268

NOC **254 255 256 257 261 266**

MOD **267** In New Zealand the bands 87 - 88 MHz and 94 - 108 MHz are allocated **Spa2** to the fixed and mobile services

NOC **268**

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 117 975 – 174 MHz in Region 1, for the bands 117 975 – 146 MHz and 148 – 174 MHz in Region 2 and for the bands 117 975 – 146 MHz and 148 – 170 MHz in Region 3 by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
117 975 - 132	AERONAUTICAL MOBILE (R) 201A 271 273A	
132 - 136	AERONAUTICAL MOBILE (R) 273A 274 274A 274B 275	
136 137	SPACE RESEARCH (Space-to-Earth) 281A 281AA	
137 138	SPACE OPERATION (Telemetering and tracking) METEOROLOGICAL-SATELLITE SPACE RESEARCH (Space to Earth) 275A 279A 281C 281E	

NOC **273 273A**

MOD **274** In Bulgaria, Cuba, Poland, Portugal, Portuguese Overseas Provinces in Region 1 south of the equator, Roumania, Sweden, Czechoslovakia and the U.S.S.R., existing stations in the aeronautical mobile (OR) service in the band 132 – 136 MHz may continue to operate for an unspecified period on a primary basis.
Spa2

ADD **274A** In Regions 2 and 3, stations of the fixed and mobile services may continue to use the band 132 – 136 MHz until 1 January 1976. Until that date, frequency assignments to stations of the aeronautical mobile (R) service shall be co-ordinated between the administrations concerned and shall be protected from harmful interference.
Spa2

ANN 3 (ART 5)

ADD **274B** **Spa2** In Cuba and Mexico, the band 132 - 136 MHz is also allocated to the fixed and mobile services

MOD **275** **Spa2** In Burundi, Ethiopia, Gambia, Malawi, Nigeria, Portuguese Oversea Provinces in Region I south of the equator, Rhodesia, Rwanda Sierra Leone and in the Republic of South Africa the band 138 - 144 MHz is allocated to the fixed and mobile services In these countries, existing stations in the fixed and mobile services may continue to operate in the band 132 - 136 MHz until 1 January 1976

NOC **275A**

SUP **276 277**

MOD **278** **Spa2** In New Zealand the band 138 - 144 MHz is allocated to the aeronautical mobile (OR) service

SUP **279**

NOC **279A 281A**

ADD **281AA** **Spa2** In Bulgaria China Cyprus, Korea Spain Ethiopia Ghana, Hungary India, Indonesia, Iran, Iraq, Kenya, Kuwait, Malaysia, Uganda, Pakistan Philippines, Poland, Portugal the United Arab Republic Roumania Senegal, Syria Tanzania Czechoslovakia and the U S S R the band 136 - 137 MHz is also allocated to the fixed and mobile services

SUP **281B**

MOD **281C** **Spa2** In Bulgaria Hungary, Kuwait Lebanon, Poland the United Arab Republic Roumania Czechoslovakia the U S S R and in Yugoslavia the band 137 - 138 MHz is also allocated to the aeronautical mobile (OR) service

SUP **281D**

MOD **281E** **Spa2** In Malaysia Pakistan and the Philippines the band 137 - 138 MHz is also allocated to the fixed and mobile services

SUP **281F**

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
138 - 143 6 AERONAUTICAL MOBILE (OR) 275 281G 282A 283	138 - 143 6 FIXED MOBILE Radiolocation *Space Research* (Space-to-Earth) 283A	138 - 143 6 FIXED MOBILE *Space Research* (Space-to-Earth) 278 279A 284

ADD **281G** Spa2 In the F R of Germany the band 138 - 140 MHz is also allocated, on a secondary basis to the space research service (space to-Earth)

SUP **282**

ADD **282A** Spa2 In Belgium France Israel Italy Liechtenstein Netherlands the United Kingdom and Switzerland the bands 138 - 143 6 MHz and 143 65 - 144 MHz are also allocated on a secondary basis to the space research service (space-to-Earth)

MOD **283** Spa2 In Austria Denmark Greece, Norway Netherlands, Portugal, F R of Germany United Kingdom Sweden Switzerland and Turkey the band 138 - 144 MHz is also allocated to the fixed and mobile except aeronautical mobile (R) services

ADD **283A** Spa2 In Argentina the frequency 138 54 MHz 7 5 kHz and the band 143 6 - 143 65 MHz may be used by the space research service (telecommand), subject to agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected

NOC **284**

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
143 6 - 143 65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (Space-to-Earth) 275 283	**143 6 143 65** FIXED MOBILE SPACE RESEARCH (Space-to-Earth) Radiolocation 283A	**143 6 - 143 65** FIXED MOBILE SPACE RESEARCH (Space-to-Earth) 278 279A 284
143 65 - 144 AERONAUTICAL MOBILE (OR) 275 282A 283	**143 65 144** FIXED MOBILE Radiolocation *Space Research* (Space-to-Earth)	**143 65 144** FIXED MOBILE *Space Research* (Space-to-Earth) 278 279A 284
144 - 146 AMATEUR AMATEUR-SATELLITE		
146 149 9 FIXED MOBILE except aeronautical mobile (R) 285 285A	**146 148** NOC **148 - 149 9** FIXED MOBILE 285A 290	
149 9 - 150 05 RADIONAVIGATION-SATELLITE 285B 285C		

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
150 05 - 151 FIXED MOBILE except aeronautical mobile (R) RADIO ASTRONOMY 233B 285 286A	**150 05 - 174** FIXED MOBILE	**150 05 - 170** FIXED MOBILE
151 - 153 FIXED MOBILE except aeronautical mobile (R) RADIO ASTRONOMY Meteorological Aids 233B 285 286A		
153 154 FIXED MOBILE except aeronautical mobile (R) Meteorological Aids 285		
154 - 156 FIXED MOBILE except aeronautical mobile (R) 285		201A 287 287A 290
156 174 FIXED MOBILE except aeronautical mobile 201A 285 287 287A 288	201A 287 287A	**170 174** NOC

ANN 3 (ART 5)

SUP **284A**

NOC **285**

MOD **285A** **Spa2** The band 148 - 149 9 MHz may be authorized for space telecommand subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected The bandwidth of an individual transmission shall not exceed 15 kHz

MOD **285B** **Spa2** In Austria Bulgaria Cuba Hungary Iran Kuwait Pakistan Poland the United Arab Republic Roumania and Yugoslavia the band 149 9 150 05 MHz is also allocated to mobile services (see Recommendation No Spa2 5)

ADD **285C** **Spa2** Emissions of the radionavigation satellite service in the bands 149 9 150 05 MHz and 399 9 400 05 MHz may also be used by receiving earth stations of the space research service

SUP **286** (*see* ADD **233B**)

NOC **286A** **287**

ADD **287A** **Spa2** In the frequency bands designated for the maritime mobile service in accordance with Appendix 18 to the Radio Regulations the use of satellite systems for safety and distress may be authorized on certain channels on an exclusive basis in the band 157 3125 - 157 4125 MHz for transmissions from ships to satellites and in the band 161 9125 - 162 0125 MHz for transmissions from satellites to ships The satellite systems shall not be brought into use before 1 January 1976 (see Resolution No **Spa2** 5)

NOC **288** **289** **290**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the bands 235 - 470 MHz and 582 - 790 MHz in Region 1 for the band 235 - 942 MHz in Region 2 and for the bands 235 - 470 MHz and 585 - 890 MHz in Region 3 by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
235 - 267	FIXED MOBILE 201A 305 305A 308A 309	
267 - 272	FIXED MOBILE *Space operation* (Telemetering) 309A 309B 308A	
272 - 273	SPACE OPERATION (Telemetering) 309A FIXED MOBILE 308A	
273 328.6	FIXED MOBILE 308A 310 310A	
328.6 335.4	AERONAUTICAL RADIONAVIGATION 311	

ANN 3 (ART 5)

NOC **305**

ADD **305A** **Spa2** In New Zealand the band 235 - 239.5 MHz is also allocated to the aeronautical radionavigation service

ADD **308A** **Spa2** The bands 240 - 328.6 MHz and 335.4 - 399.9 MHz may also be used by the mobile-satellite service. The use and development of this service shall be subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

NOC **309** **309A** **309B**

MOD **310** **Spa2** Radio astronomy observations in the band 322 - 328.6 MHz are carried out in a number of countries under national arrangements. Administrations should bear in mind the needs of the radio astronomy service in using this band

ADD **310A** **Spa2** In India the band 322 - 328.6 MHz is also allocated to the radio astronomy service

NOC **311**

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
335 4 - 399 9	FIXED MOBILE 308A	
399 9 - 400 05	RADIONAVIGATION-SATELLITE 285C 311A	
400 05 400 15	STANDARD FREQUENCY-SATELLITE 312B 313 314	
400 15 401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (Maintenance telemetering) SPACE RESEARCH (Telemetering and tracking) 313 314	

MOD 311A Spa2 In Bulgaria Cuba Greece Hungary Indonesia Iran Kuwait Lebanon, the United Arab Republic Syria and Yugoslavia the band 399 9 - 400 05 MHz is also allocated to fixed and mobile services (see Recommendation No Spa 8)

SUP 312A

ADD 312B Spa2 In this band the standard frequency 400 1 MHz Emissions shall be confined in a band of 25 kHz about this frequency

NOC 313 314

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
401 - 402	METEOROLOGICAL AIDS SPACE OPERATION (Telemetering) 315A *Fixed* *Meteorological Satellite* (Earth-to-space) *Mobile* except aeronautical mobile 314 315 315B 315C 316	
402 - 403	METEOROLOGICAL AIDS *Fixed* *Meteorological Satellite* (Earth-to-space) *Mobile* except aeronautical mobile 314 315 315C 316	
403 406	METEOROLOGICAL AIDS *Fixed* *Mobile* except aeronautical mobile 314 315 316	

NOC **315 315A 315B**

ADD **315C** In the band 401 - 403 MHz earth exploration satellite applications other
Spa2 than the meteorological-satellite service may also be used for Earth-to-space transmissions on condition that no harmful interference is caused to stations operating in accordance with the Table

NOC **316**

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
406 406 1	MOBILE SATELLITE (Earth-to-space) 314 317A 317B	
406 1 410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 233B 314	
410 420	FIXED MOBILE except aeronautical mobile 314	

SUP 317 (See ADD 233B)

ADD 317A Spa2 The band 406 406 1 MHz is reserved solely for the use and development of low power (not to exceed 5 W) emergency position indicating radiobeacon (EPIRB) systems using space techniques

ADD 317B Spa2 In Austria Bulgaria Chile Cuba Ethiopia Hungary India, Iran Kenya Kuwait Liechtenstein Malaysia Uganda Poland the United Arab Republic, Rwanda Sweden Switzerland Syria Tanzania Czechoslovakia and in the U S S R the band 406 406 1 MHz is also allocated to the fixed service and the mobile except aeronautical mobile service

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
420 - 430 FIXED MOBILE except aeronautical mobile *Radiolocation* 318 319	**420 450**	
430 - 440 AMATEUR RADIOLOCATION 318 319 319B 320 320A 321 322	RADIOLOCATION *Amateur*	
440 450 FIXED MOBILE except aeronautical mobile *Radiolocation* 318 319 319A	318 319A 319B 320A 323 324	
450 - 460 FIXED MOBILE 318 319A		
460 - 470 FIXED MOBILE *Meteorological Satellite* (Space to Earth) 318A 324B		

93-163 O - 73 - 28

ANN 3 (ART 5)

MOD 318 Spa2 Radio altimeters may also be used until 31 December 1974 in the band 420 – 460 MHz However, after this date, they may be authorized to continue to operate on a secondary basis except in the U S S R where they will continue to operate on a primary basis

NOC 318A 319

MOD 319A Spa2 The band 449 75 – 450 25 MHz may be used for space telecommand and space research (Earth to-space) subject to agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected

ADD 319B Spa2 In France and the French Department of Guyana (Region 2) the frequency 434 MHz – 0 25 MHz may be used for space operation (Earth-to space) subject to agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected

NOC 320

ADD 320A Spa2 In the band 435 – 438 MHz the amateur-satellite service may be authorized, on condition that no harmful interference shall be caused to other services operating in accordance with the Table Administrations authorizing such use shall ensure that any harmful interference caused by emissions from an amateur satellite is immediately eliminated in accordance with the provisions of No 1567A

NOC 321

MOD 322 Spa2 In Denmark Norway and Sweden the bands 430 – 432 MHz and 438 – 440 MHz are also allocated to the fixed and mobile services

NOC 323 324

(MOD) 324A Spa2 It is intended that meteorological satellite space stations operating in the band 1 670 – 1 690 MHz shall transmit to selected earth stations The location of such earth stations is subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

ADD 324B Spa2 Earth exploration-satellite service applications other than the meteorological-satellite service may also be used in the bands 460 – 470 MHz and 1 690 – 1 700 MHz for space-to-Earth transmissions on condition that no harmful interference is caused to stations operating in accordance with the Table

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
470 - 582 NOC	**470 890** BROADCASTING	**470 585** NOC
582 606 BROADCASTING RADIONAVIGATION 325 327 328 329		**585 610** RADIONAVIGATION 335B 336 337
606 - 790 BROADCASTING 329 330 330A 331 332 332A		**610 890** FIXED MOBILE BROADCASTING
790 - 890 NOC	329A 332 332A	330B 332 332A 338 339
890 - 942 NOC	**890 - 942** FIXED RADIOLOCATION 339A 340	**890 942** NOC

NOC 325

SUP 326

ANN 3 (ART 5)

NOC **327 328 329**

ADD **329A** In Argentina and Uruguay, the band 602 – 608 MHz is allocated to the radio
Spa2 astronomy service

NOC **330 330A**

ADD **330B** In India the band 608 – 614 MHz is also allocated to the radio astronomy
Spa2 service

NOC **331 332**

ADD **332A** Within the frequency band 620 – 790 MHz assignments may be made to
Spa2 television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services operating in accordance with the Table, which may be affected (see Resolutions Nos **Spa2** – 2 and **Spa2** – 3) Such stations shall not produce a power flux density in excess of the value —129 dBW/m² for angles of arrival less than 20 (see Recommendation No **Spa2** – 10) within the territories of other countries without the consent of the administrations of those countries

NOC **336 337 338 339 339A**

MOD **340** In Region 2 the frequency 915 MHz is designated for industrial, scientific
Spa2 and medical purposes Emissions must be confined within the limits of ± 13 MHz of that frequency Radiocommunication services operating within these limits must accept any harmful interference that may be experienced from the operation of industrial scientific and medical equipment

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 1 350 - 1 400 MHz by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
1 350 - 1 400	1 350 - 1 400	
FIXED	RADIOLOCATION	
MOBILE		
RADIOLOCATION		
349	349A	

NOC **349**

ADD **349A** **Spa2** Radio astronomy observations on the Hydrogen line displaced towards lower frequencies are carried out in a number of countries under national arrangements. Administrations should bear in mind the needs of the radio astronomy service in their future planning of the band 1 350 - 1 400 MHz

In the Table of Frequency Allocations replace the provisions for the band 1 427 - 1 429 MHz by the following

MHz

Region 1	Region 2	Region 3
1 427 - 1 429	SPACE OPERATION (Telecommand)	
	FIXED	
	MOBILE except aeronautical mobile	

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 1 525 – 2 300 MHz by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
1 525 - 1 535	**1 525 - 1 535**	**1 525 - 1 535**
SPACE OPERATION (Telemetering) 350A	SPACE OPERATION (Telemetering) 350A	SPACE OPERATION (Telemetering) 350A
FIXED 350B	*Earth Exploration-Satellite*	FIXED 350B
Earth Exploration-Satellite	*Fixed*	*Earth Exploration-Satellite*
Mobile except aeronautical mobile 350C	*Mobile* 350D	*Mobile*

MOD 350A Space stations employing frequencies in the band 1 525 - 1 535 MHz for **Spa2** telemetering purposes may also transmit tracking signals in this band

NOC 350B 350C 350D

SUP 350E

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
1 535 1 542 5	MARITIME MOBILE-SATELLITE 352 352D 352F	
1 542 5 1 543 5	AERONAUTICAL MOBILE-SATELLITE (R) MARITIME MOBILE SATELLITE 352 352D 352F	
1 543 5 1 558 5	AERONAUTICAL MOBILE-SATELLITE (R) 352 352D 352G	
1 558 5 - 1 636 5	AERONAUTICAL RADIONAVIGATION 352 352A 352B 352D 352K	
1 636 5 1 644	MARITIME MOBILE-SATELLITE 352 352D 352H	
1 644 1 645	AERONAUTICAL MOBILE-SATELLITE (R) MARITIME MOBILE-SATELLITE 352 352D 352I	
1 645 - 1 660	AERONAUTICAL MOBILE SATELLITE (R) 352 352D 352J	

ANN 3 (ART 5)

SUP **351**

NOC **352**

MOD **352A** **Spa2** The bands 1 558 5 – 1 636 5 MHz, 4 200 – 4 400 MHz, 5 000 – 5 250 MHz and 15 4 – 15 7 GHz are reserved on a world-wide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities

MOD **352B** **Spa2** The bands 1 558 5 – 1 636 5 MHz 5 000 – 5 250 MHz and 15 4 – 15 7 GHz are also allocated to the aeronautical mobile (R) service for the use and development of systems using space radiocommunication techniques Such use and development is subject to agreement and co-ordination between the administrations concerned and those having services operating in accordance with the Table which may be affected

SUP **352C**

NOC **352D**

ADD **352E** **Spa2** The use of the band 1 535 – 1 542 5 MHz , limited to transmissions from space to earth stations in the maritime mobile-satellite service for communication and or radiodetermination purposes Transmissions from coast stations directly to ship stations or between ship stations are also authorized when such transmissions are used to extend or supplement the satellite-to-ship links

ADD **352F** **Spa2** The use of the band 1 542 5 – 1 543 5 MHz is limited to transmissions from space to earth stations in the aeronautical mobile satellite (R) and maritime mobile-satellite services for communication and/or radiodetermination purposes Transmissions from land stations directly to mobile stations or between mobile stations of the aeronautical mobile (R) and maritime mobile services, are also authorized The utilization of this band is subject to prior operational co-ordination between the two services

ADD **352G** **Spa2** The use of the band 1 543 5 – 1 558 5 MHz is limited to transmissions from space to earth stations in the aeronautical mobile-satellite (R) service for communication and or radiodetermination purposes Transmissions from terrestrial aeronautical stations directly to aircraft stations or between aircraft stations in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links

ADD **352H** **Spa2** The use of the band 1 636 5 – 1 644 MHz is limited to transmissions from earth to space stations in the maritime mobile-satellite service for communication and or radiodetermination purposes Transmissions from ship stations directly to coast stations or between ship stations are also authorized when such transmissions are used to extend or supplement the ship to-satellite links

ANN 3 (ART 5)

ADD 352I Spa2 The use of the band 1 644 – 1 645 MHz is limited to transmissions from earth to space stations in the aeronautical mobile-satellite (R) and maritime mobile satellite services for communication and or radiodetermination purposes Transmissions from mobile stations directly to land stations or between mobile stations of the aeronautical mobile (R) and maritime mobile services are also authorized The utilization of this band is subject to prior operational coordination between the two services

ADD 352J Spa2 The use of the band 1 645 – 1 660 MHz is limited to transmissions from earth to space stations in the aeronautical mobile satellite (R) service for communication and or radiodetermination purposes Transmissions from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations or between aircraft stations are also authorized when such transmissions are used to extend or supplement the aircraft-to satellite links

ADD 352K Spa2 Radio astronomy observations on important spectral lines due to the hydroxyl radicle OH at frequencies 1 612 231 MHz and 1 720 530 MHz are carried out in a number of countries under national arrangements the bands observed being 1 611 5 – 1 612 5 MHz and 1 720 – 1 721 MHz respectively Administrations should bear in mind the needs of radio astronomy service in their future planning of the bands 1 558 5 – 1 636 5 MHz and 1 710 – 1 770 MHz

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
1 660 - 1 670	METEOROLOGICAL AIDS RADIO ASTRONOMY 353A 354 354A 354B	
1 670 1 690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL SATELLITE (Space-to Earth) 324A MOBILE except aeronautical mobile 354	
1 690 1 700 METEOROLOGICAL AIDS METEOROLOGICAL SATELLITE (Space to Earth) *Fixed* *Mobile* except aeronautical mobile 324B 354A	**1 690 1 700** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (Space to Earth) 324B 354A 354C	
1 700 1 710 FIXED SPACE RESEARCH (Space to Earth) *Mobile* 354D	**1 700 1 710** FIXED MOBILE SPACE RESEARCH (Space to Earth) 354D	

ANN 3 (ART 5)

SUP 353

MOD 353A Spa2 In view of the successful detection by instruments on board spacecraft of the hydroxyl spectral lines in the regions of 1 665 MHz and 1 667 MHz, administrations are urged to give all practicable protection in the band 1 660 - 1 670 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 354

MOD 354A Spa2 In Bulgaria, Cuba, Ethiopia, Hungary, Israel, Jordan, Kenya, Kuwait, Lebanon, Uganda, Pakistan, Poland, the United Arab Republic, Roumania, Syria, Tanzania, Czechoslovakia, the U.S.S.R. and Yugoslavia, the bands 1 660 - 1 670 MHz and 1 690 - 1 700 MHz are also allocated to the fixed service and the mobile except aeronautical mobile service.

NOC 354B 354C

ADD 354D Spa2 The band 1 700 - 1 700.2 MHz may be used on a secondary basis for the transmission from space stations on board satellites of frequencies harmonically related to those emitted in the bands 49.9 - 150.05 MHz and 399.9 - 400.05 MHz for the requirements of ionospheric investigation and geodesy.

SUP 355A

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
1 710 - 1 770 FIXED *Mobile* 352K 356	**1 710 - 1 770** FIXED MOBILE 352K 356A	
1 770 1 790 FIXED *Meteorological Satellite* 356AA *Mobile* 356	**1 770 - 1 790** FIXED MOBILE *Meteorological-Satellite* 356AA 356A	
1 790 2 290 FIXED *Mobile* 356 356AB 356ABA 356AC	**1 790 - 2 290** FIXED MOBILE 356A 356AB 356ABA	
2 290 - 2 300 FIXED SPACE RESEARCH (Space-to Earth) *Mobile* 356C	**2 290 - 2 300** FIXED MOBILE SPACE RESEARCH (Space-to Earth)	

ANN 3 (ART 5)

MOD **356** Spa2 In Switzerland the band 1 710 - 2 290 MHz is allocated to the fixed service and the mobile except the aeronautical mobile, service and the band 1 770 - 1 790 MHz is also allocated on a secondary basis to the meteorological satellite service

MOD **356A** Spa2 In Region 2, in Australia and Japan the band 1 750 - 1 850 MHz may also be used for Earth-to-space transmissions and in Regions 2 and 3 the band 2 200 - 2 290 MHz may also be used for space-to-Earth transmissions in the space research service subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

NOC **356AA** [NOC **356AA** is (MOD) **356AA** *in the French and Spanish version*]

ADD **356AB** Spa2 In Regions 2 and 3 and in Spain in the band 2 025 - 2 120 MHz Earth-to-space transmissions in the earth exploration-satellite service may be authorized with equality of right to operate with stations of other space radiocommunication services in this band and subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

ADD **356ABA** Spa2 In Region 2 in Australia and Spain, in the band 2 025 - 2 120 MHz and in Regions 1 and 3, in the band 2 110 - 2 120 MHz Earth-to-space transmissions in the space research service may be authorized with equality of right to operate with other space radiocommunication services in these bands and subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

ADD **356AC** Spa2 In Region 1, in the band 2 096 - 2 120 MHz, Earth to-space transmissions in the earth exploration-satellite service may be authorized with equality of right to operate with stations of other space radiocommunication services in this band and subject to agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected (see No **356AB**)

SUP **356B**

NOC **356C**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 2 450 – 2 700 MHz by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
2 450 2 500 FIXED MOBILE *Radiolocation* 357 361	**2 450 - 2 500** FIXED MOBILE RADIOLOCATION 357	
2 500 - 2 550 FIXED 364C MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B 361A 362 364F	**2 500 2 535** FIXED 364C FIXED-SATELLITE (Space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B 361A 364E 364F	
	2 535 2 550 FIXED 364C MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B 361A 364F	
2 550 2 655	FIXED 364C MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B 362 363 364 364F	

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
2 655 - 2 690	**2 655 - 2 690**	
FIXED 364C 364D	FIXED 364C 364D	
MOBILE except aeronautical mobile	FIXED-SATELLITE (Earth-to-space)	
BROADCASTING-SATELLITE 361B 364H	MOBILE except aeronautical mobile	
	BROADCASTING-SATELLITE 361B 364H	
363 364 364F 364G	364F 364G	
2 690 - 2 700		
RADIO ASTRONOMY		
233B 363 364A 364B		

NOC **357**

MOD **361** **Spa2** In France and the United Kingdom the band 2 450 - 2 500 MHz is allocated on a primary basis to the radiolocation service and on a secondary basis to the fixed and mobile services

ADD **361A** **Spa2** In France the band 2 500 - 2 550 MHz is also allocated on a primary basis to the radiolocation service and on a secondary basis to the fixed and mobile services. In Canada the band 2 500 - 2 550 MHz is also allocated on a primary basis to the radiolocation service

ADD **361B** **Spa2** The use of the band 2 500 - 2 690 MHz by the broadcasting satellite service is limited to domestic and regional systems for community reception and such use is subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected (see Resolutions Nos **Spa2 - 2** and **Spa2 - 3**). The power flux density at the Earth's surface shall not exceed the values given in Nos **470NH** **470NK**

MOD **362** **Spa2** In the United Kingdom the band 2 500 - 2 600 MHz is also allocated on a secondary basis, to the radiolocation service

NOC **363**

ANN 3 (ART 5)

MOD **364** **Spa2** In Region 1, tropospheric scatter systems may operate in the band 2 550 – 2 690 MHz, subject to agreement between the administrations concerned and those having terrestrial radiocommunication services, operating in accordance with the Table, which may be affected

MOD **364A** **Spa2** In Bulgaria, Cuba, Hungary, India, Israel, Kuwait, Lebanon, Morocco, Pakistan, the Philippines, Poland, the United Arab Republic, Roumania, Czechoslovakia the U S S R and Yugoslavia, the band 2 690 – 2 700 MHz is also allocated to the fixed and mobile services

NOC **364B**

ADD **364C** **Spa2** When planning new tropospheric scatter radio-relay links in the band 2 500 – 2 690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary satellite orbit

ADD **364D** **Spa2** Administrations shall make all practicable effort to avoid developing new tropospheric scatter systems in the band 2 655 - 2 690 MHz

ADD **364E** **Spa2** The use of the bands 2 500 - 2 535 MHz and 2 655 - 2 690 MHz by the fixed-satellite service is limited to domestic and regional systems and such use is subject to agreement between the administrations concerned and those having services operating in accordance with the Table, which may be affected (see Article 9A) In the direction space-to-Earth the power flux density at the Earth s surface shall not exceed the values given in No **470NE**

ADD **364F** **Spa2** In Bulgaria, Iran, Portugal and the U S S R , the band 2 500 – 2 690 MHz is allocated to the fixed service and the mobile, except aeronautical mobile service

ADD **364G** **Spa2** Radio astronomy observations in the band 2 670 – 2 690 MHz are carried out in a number of countries under national arrangements Administrations should bear in mind the needs of the radio astronomy service in their future planning of this band

ADD **364H** **Spa2** In the design of systems in the broadcasting-satellite service, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690 - 2 700 MHz

SUP **365** (*see* ADD **233B**)

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 3 400 - 5 250 MHz by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
3 400 - 3 600 FIXED FIXED SATELLITE (Space to Earth) MOBILE *Radiolocation* 372 373 374 375	**3 400 - 3 500** FIXED SATELLITE (Space to Earth) RADIOLOCATION *Amateur* 376	
3 600 - 4 200 FIXED FIXED-SATELLITE (Space-to-Earth) *Mobile*	**3 500 - 3 700** FIXED FIXED-SATELLITE (Space to Earth) MOBILE RADIOLOCATION	**3 500 - 3 700** FIXED-SATELLITE (Space-to-Earth) RADIOLOCATION *Fixed* *Mobile* 377 378
	3 700 - 4 200 FIXED FIXED SATELLITE (Space-to-Earth) MOBILE	
374	379	
4 200 - 4 400 AERONAUTICAL RADIONAVIGATION 352A 379A 381 382 383		
4 400 - 4 700 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		

93-164 O - 73 - 23

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
4 700 - 4 990	FIXED MOBILE 233B 354 382A 382B	
4 990 - 5 000 FIXED MOBILE RADIO ASTRONOMY 233B	4 990 - 5 000 RADIO ASTRONOMY 383A	4 990 - 5 000 FIXED MOBILE RADIO ASTRONOMY 233B
5 000 - 5 250	AERONAUTICAL RADIONAVIGATION 352A 352B 383B	

NOC 372

(MOD) 373 In Denmark, Norway, Sweden and Switzerland the fixed, mobile radiolocation and fixed-satellite services operate on a basis of equality of rights in the band 3 400 - 3 600 MHz
Spa2

NOC 374

SUP 374A

NOC 375 376

MOD 377 In China and Japan the band 3 500 - 3 700 MHz is also allocated to the fixed and mobile services
Spa2

NOC 378

(MOD) 379 In Australia the band 3 700 - 3 770 MHz is allocated to the radiolocation and fixed-satellite services
Spa2

ANN 3 (ART 5)

ADD 379A Spa2 The standard frequency-satellite service and the 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 and shall be subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected

NOC 381 382

ADD 382A Spa2 Radio astronomy observations on the formaldehyde line rest frequency 4 829 649 MHz) are being carried out in a number of countries under national arrangements. Administrations should bear in mind the needs of the radio astronomy service in their future planning of the band 4 825 - 4 835 MHz

ADD 382B Spa2 Radio astronomy observations in the band 4 950 - 4 990 MHz are being carried out in a number of countries under national arrangements. Administrations should bear in mind the needs of the radio astronomy service in the future planning of this band

NOC 383

(MOD) 383A Spa2 In Cuba the band 4 990 - 5 000 MHz is also allocated to the fixed and mobile services and the provisions of No 233B apply

ADD 383B Spa2 The band 5 000 - 5 250 MHz is also allocated to the fixed satellite service for connection between one or more earth stations at specified fixed points on the Earth and satellites used by the aeronautical mobile (R) service and or the radio determination service. Such use and development shall be subject to agreement and co-ordination between the administrations concerned and those having services operating in accordance with the Table which may be affected

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 5 725 – 7 750 MHz in Regions 1 and 3 and for the bands 5 725 – 5 850 MHz and 5 925 – 7 750 MHz in Region 2 by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
5 725 – 5 850 FIXED SATELLITE (Earth to-space) RADIOLOCATION *Amateur* 354 388 390 391 391A	**5 725 – 5 850** RADIOLOCATION *Amateur* 389 391 391A	

NOC **388 389**

(MOD) **390** Spa2 In Albania Bulgaria, Hungary, Poland, Roumania, Czechoslovakia and the U S S R the band 5 800 – 5 850 MHz is allocated to the fixed, mobile and fixed-satellite services

NOC **391**

ADD **391A** Spa2 Radio astronomy observations are being carried out in the bands 5 750 – 5 770 MHz and 36 458 – 36 488 GHz in a number of countries under national arrangements Administrations are urged to take all practicable steps to protect radio astronomy observations in these bands from harmful interference

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
5 850 - 5 925 FIXED FIXED-SATELLITE (Earth to space) MOBILE 391	5 850 - 5 925 NOC	**5 850 - 5 925** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE *Radiolocation* 391
5 925 - 6 425	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	
6 425 - 7 250	FIXED MOBILE 379A 392AA 392B 393	
7 250 - 7 300	FIXED-SATELLITE (Space-to-Earth) 392D 392G	

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
7 300 – 7 450	FIXED FIXED-SATELLITE (Space-to-Earth) MOBILE 392D	
7 450 – 7 550	FIXED FIXED-SATELLITE (Space-to-Earth) METEOROLOGICAL-SATELLITE (Space-to-Earth) MOBILE 392D	
7 550 – 7 750	FIXED FIXED-SATELLITE (Space-to Earth) MOBILE 392D	

ANN 3 (ART 5)

SUP **392A**

ADD **392AA** In Brazil Canada and the United States of America the band 6 625 - 7 125 MHz is also allocated on a secondary basis to the fixed-satellite service for space-to-Earth transmissions In Region 2, the power flux density produced by space stations in this band shall be in accordance with the provisions of No **470NM** In Regions 1 and 3 it shall be at least 6 dB lower Receiving earth stations in this band may not impose restrictions on the locations or technical parameters of existing or future terrestrial stations of other countries
Spa2

MOD **392B** The band 7 145 - 7 235 MHz may be used for Earth-to space transmissions in the space research service subject to agreement between the administrations concerned and those having services operating in accordance with the Table which may be affected
Spa2

SUP **392C**

MOD **392D** As an exception passive fixed-satellite systems also may be accommodated in the band 7 250 - 7 750 MHz subject to
Spa2

a) agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected

b) the co ordination procedures laid down in Articles 9 and 9A

Such systems shall not cause any more interference at active earth station receivers than would be caused by the fixed or mobile service Power flux density limitations at the Earth s surface after reflection from the passive fixed-satellites shall not exceed those prescribed in the present Regulations for active fixed-satellite systems

SUP **392F**

NOC **392G** **392H** **393**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 7 900 – 8 500 MHz by the following

MHz

Allocation to Services		
Region 1	Region 2	Region 3
7 900 – 7 975	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	
7 975 – 8 025	FIXED-SATELLITE (Earth-to-space) 392H	

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
8 025 - 8 175 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth) 394B	**8 025 - 8 175** EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	**8 025 - 8 175** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth)
8 175 - 8 215 FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth) 394B	**8 175 - 8 215** EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE	**8 175 - 8 215** FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth)
8 215 - 8 400 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth) 394 394B	**8 215 - 8 400** EARTH EXPLORATION-SATELLITE (Space to Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	**8 215 - 8 400** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE *Earth Exploration-Satellite* (Space-to-Earth) 394

ANN 3 (ART 5)

MHz

Allocation to Services		
Region 1	Region 2	Region 3
8 400 - 8 500		
	FIXED	
	MOBILE	
	SPACE RESEARCH (Space-to-Earth)	
	394A 394D	

(MOD) **394** **Spa2** In Australia and the United Kingdom, the band 8 250 - 8 400 MHz is allocated to the radiolocation and fixed-satellite services

MOD **394A** **Spa2** In the United Kingdom the band 8 400 - 8 500 MHz is allocated to the radiolocation and space research services

(MOD) **394B** **Spa2** In Israel, the band 8 025 - 8 400 MHz is allocated on a primary basis to the fixed and mobile services and, on a secondary basis to the fixed-satellite service

SUP **394C**

NOC **394D**

ANN 3 (ART 5)

In the Table of Frequency Allocations replace the provisions for the band 10 55 - 15 35 GHz by the following

GHz

Allocation to Services		
Region 1	Region 2	Region 3
10 55 - 10 6	NOC	
10 6 - 10 68	FIXED MOBILE RADIO ASTRONOMY *Radiolocation* 404A	
10 68 - 10 7	RADIO ASTRONOMY 405B	

ADD **404A** **Spa2** In the F R of Germany, in the band 10 6 - 10 68 GHz the radio astronomy service is a secondary service

SUP **405A**

NOC **405B**

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
10 7 – 10 95	FIXED MOBILE	
10 95 – 11 2 FIXED FIXED-SATELLITE (Space-to-Earth) (Earth-to-space) MOBILE	**10 95 – 11 2** FIXED FIXED-SATELLITE (Space-to-Earth) MOBILE	
11 2 – 11 45	FIXED MOBILE	
11 45 – 11 7	FIXED FIXED-SATELLITE (Space-to-Earth) MOBILE	

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
11 7 - 12 5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	**11 7 - 12 2** FIXED FIXED-SATELLITE (Space-to-Earth) MOBILE except aeronautical mobile BROADCASTING BROADCASTING SATELLITE 405BB 405BC	**11 7 - 12 2** FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 405BA
405BA	**12 2 - 12 5** FIXED MOBILE except aeronautical mobile BROADCASTING	
12 5 - 12 75 FIXED-SATELLITE (Space-to-Earth) (Earth-to-space) 405BD 405BE	**12 5 - 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
12 75 - 13 25 FIXED MOBILE		
13 25 - 13 4 AERONAUTICAL RADIONAVIGATION 406 407 407A		
13 4 - 14 RADIOLOCATION 407 407A 408 409		

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
14 - 14·3	FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION 408A 407 407A	
14 3 - 14 4	FIXED-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 408A	
14 4 - 14 5	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 408B 408C	
14 5 - 15 35	FIXED MOBILE 408B 408C	

ADD **405BA Spa2** In the band 11 7 - 12 2 GHz in Region 3 and in the band 11 7 - 12 5 GHz in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the appropriate broadcasting frequency assignment planning conference (see Resolution No **Spa2** - 2) and this requirement shall be taken into account in the decisions of that conference

ADD **405BB Spa2** Terrestrial radiocommunication services in the band 11 7 - 12 2 GHz in Region 2 shall be introduced only after the elaboration and approval of plans for the space radiocommunication services, so as to ensure compatibility between the uses that each country decides for this band

ADD **405BC Spa2** The use of the band 11 7 - 12 2 GHz in Region 2 by the broadcasting-satellite and fixed-satellite services is limited to domestic systems and is subject to previous agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Article 9A and Resolution No **Spa2** - 3)

ANN 3 (ART 5)

ADD **405BD** **Spa2** In Bulgaria Cameroon Congo (Brazzaville) the Ivory Coast Gabon Ghana Hungary Iraq Israel, Jordan, Kuwait, Libya Mali Niger, Poland Syria United Arab Republic, Roumania Senegal Czechoslovakia Togo and the U S S R the band 12 5 - 12 75 GHz is also allocated to the fixed service and the mobile except aeronautical mobile service

ADD **405BE** **Spa2** In Algeria Belgium Denmark Spain, Ethiopia, Finland France Greece Kenya Liechtenstein, Luxembourg Monaco Norway Uganda Netherlands Portugal the F R of Germany Sweden Switzerland Tanzania and Tunisia the band 12 5 - 12 75 GHz is also allocated, on a secondary basis to the fixed service and the mobile except aeronautical mobile service

NOC **406**

MOD **407** **Spa2** In Albania Bulgaria Hungary Poland Roumania Czechoslovakia and the U S S R the bands 13 25 - 13 5 GHz 14 175 - 14 3 GHz 15 4 - 15 7 GHz 23 6 - 24 GHz 24 05 - 24 25 GHz and 33 4 - 36 GHz are also allocated to the fixed and mobile services

ADD **407A** **Spa2** The band 13 25 - 14 2 GHz may also be used on a secondary basis for Earth-to-space transmissions in the space research service, subject to agreement between the administrations concerned and those having services, operating in accordance with the Table which may be affected

MOD **408** **Spa2** In Sweden the bands 13 4 - 14 GHz 15 7 - 17 7 GHz and 33 4 - 36 GHz are also allocated to the fixed and mobile services

ADD **408A** **Spa2** The use of the bands 14 - 14 3 GHz and 14 3 - 14 4 GHz by the radionavigation service and radionavigation-satellite service respectively shall be such as to provide sufficient protection to space stations of the fixed-satellite service (see Recommendation No **Spa2** - 15 paragraph 2 14)

ADD **408B** **Spa2** The band 14 4 - 15 35 GHz may also be used on a secondary basis for space to-Earth transmissions in the space research service subject to agreement between the administrations concerned and those having services operating in accordance with the Table, which may be affected

ADD **408C** **Spa2** Radio astronomy observations on the formaldehyde line (rest frequency 14 489 GHz) are being carried out in a number of countries under national arrangements In making assignments to stations in the fixed and mobile services, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference in the band 14 485 - 14 515 GHz

NOC **409**

SUP **409A** **409B**

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 17 7 - 24 25 GHz by the following

GHz

Allocation to Services		
Region 1	Region 2	Region 3
17 7 – 19 7	FIXED FIXED SATELLITE (Space-to-Earth) MOBILE	
19 7 – 21 2	FIXED-SATELLITE (Space-to-Earth) 409E	
21 2 – 22	EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED MOBILE	
22 – 22 5	FIXED MOBILE 410A	
22 5 – 23 FIXED MOBILE		22 5 – 23 FIXED MOBILE BROADCASTING-SATELLITE 410B
23 – 23 6	FIXED MOBILE	

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
23 6 - 24	RADIO ASTRONOMY	
	407	
24 - 24 05	AMATEUR	
	AMATEUR-SATELLITE	
	410C	
24 05 - 24 25	RADIOLOCATION	
	Amateur	
	407 410C	

SUP **409D**

ADD **409E Spa2** In Japan, the bands 19 7 - 21 2 GHz and 29 5 - 31 GHz are also allocated to the fixed and mobile services This additional use shall not impose any limitation on the power flux density of space stations in the fixed satellite service

SUP **410**

ADD **410A Spa2** The band 22 21 - 22 26 GHz is also allocated to the radio astronomy service for observations of a spectral line due to water vapour (rest frequency 22 235 GHz) Administrations are urged to give all practicable protection in this band for future research in radio astronomy

ADD **410B Spa2** In Region 3, the broadcasting-satellite service is authorized in the band 22 5 - 23 0 GHz, subject to power flux density limits for the protection of the terrestrial services in this band

ADD **410C Spa2** The frequency 24 125 GHz is designated for industrial, scientific and medical purposes Emissions must be confined within the limits of ±125 MHz of that frequency Radiocommunication services operating within those limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment

93 183 O - 73 3C

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the provisions for the band 25 25 - 31 3 GHz by the following

GHz

Allocation to Services		
Region 1	Region 2	Region 3
25 25 - 27 5	FIXED MOBILE	
27 5 - 29 5	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	
29 5 31	FIXED-SATELLITE (Earth-to-space) **409E**	
31 - 31 3	FIXED MOBILE *Space Research* **412H 412I**	

NOC **412E 412H**

ADD **412I** Radio astronomy observations in the band 31 2 - 31 3 GHz are carried out **Spa2** in a number of countries under national arrangements Administrations are urged to take all practicable steps to protect radio astronomy observations in this band from harmful interference

In the Table of Frequency Allocations, replace the provisions for the band 36 – 40 GHz by the following

GHz

Region 1	Region 2	Region 3
36 - 40	FIXED MOBILE **391A 412E**	

ANN 3 (ART 5)

In the Table of Frequency Allocations, replace the indication "above **40** (Not allocated)" *by the following new Table*

GHz

Allocation to Services		
Region 1	Region 2	Region 3
40 - 41	FIXED-SATELLITE (Space-to-Earth)	
41 - 43	BROADCASTING-SATELLITE	
43 - 48	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION-SATELLITE	
48 - 50	(Not allocated)	
50 - 51	FIXED-SATELLITE (Earth-to-space)	
51 - 52	EARTH EXPLORATION-SATELLITE SPACE RESEARCH	
52 - 54 25	SPACE RESEARCH (Passive) 412J	
54 25 - 58 2	INTER-SATELLITE	

ADD **412J** **Spa2** All emissions in the bands 52 - 54 25 GHz, 58 2 - 59 GHz 64 - 65 GHz 86 - 92 GHz, 101 - 102 GHz, 130 - 140 GHz, 182 - 185 GHz and 230 - 240 GHz are prohibited The use of passive sensors by other services is also authorized

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
58.2 – 59	SPACE RESEARCH (Passive) 412J	
59 – 64	INTER-SATELLITE	
64 – 65	SPACE RESEARCH (Passive) 412J	
65 – 66	EARTH EXPLORATION-SATELLITE SPACE RESEARCH	
66 – 71	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION-SATELLITE	
71 – 84	(Not allocated)	
84 – 86	BROADCASTING-SATELLITE	
86 – 92	RADIO ASTRONOMY SPACE RESEARCH (Passive) 412J	

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
92 - 95	FIXED-SATELLITE (Earth-to-space)	
95 - 101	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION-SATELLITE	
101 - 102	SPACE RESEARCH (Passive) 412J	
102 - 105	FIXED-SATELLITE (Space-to-Earth)	
105 - 130	INTER-SATELLITE 412K	
130 - 140	RADIO ASTRONOMY SPACE RESEARCH (Passive) 412J	
140 - 142	FIXED-SATELLITE (Earth-to-space)	

ADD **412K** **Spa2** Radio astronomy observations on the carbon monoxide line at 115 271 GHz are carried out in a number of countries under national arrangements. In making assignments to other services in the Table, administrations should bear in mind the need to protect radio astronomy observations from harmful interference in the band 115 16 - 115 38 GHz

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
142 - 150	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION-SATELLITE	
150 - 152	FIXED-SATELLITE (Space-to-Earth)	
152 - 170	(Not allocated)	
170 - 182	INTER-SATELLITE	
182 - 185	SPACE RESEARCH (Passive) 412J	
185 - 190	INTER-SATELLITE	
190 - 200	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION SATELLITE MARITIME RADIONAVIGATION-SATELLITE	
200 - 220	(Not allocated)	
220 - 230	FIXED-SATELLITE	

ANN 3 (ART 5)

GHz

Allocation to Services		
Region 1	Region 2	Region 3
230 – 240	RADIO ASTRONOMY SPACE RESEARCH (Passive) 412J	
240 – 250	(Not allocated)	
250 – 265	AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION SATELLITE	
265 – 275	FIXED-SATELLITE	
Above 275	(Not allocated)	

ANNEX 4

Revision of Article 6 of the Radio Regulations

Article 6 of the Radio Regulations shall be amended as follows

Replace Regulation No 415 by the following new text

MOD **415** **Spa2** § 2 (1) When special circumstances make it indispensable to do so, an administration may, as an exception to the normal methods of working authorized by these Regulations have recourse to the special methods of working enumerated below, on the sole condition that the characteristics of the stations still conform to those inserted in the Master International Frequency Register

a) a fixed station in the terrestrial radiocommunication service or an earth station in the fixed-satellite service may, on a secondary basis, transmit to mobile stations on its normal frequencies.

b) a land station may communicate, on a secondary basis, with fixed stations in the terrestrial radiocommunication service or earth stations in the fixed-satellite service or other land stations of the same category

Replace Regulation No 417 by the following new text

MOD **417** **Spa2** § 3 Any administration may assign a frequency in a band allocated to the fixed service or allocated to the fixed-satellite service to a station authorized to transmit, unilaterally, from one specified fixed point to one or more specified fixed points provided that such transmissions are not intended to be received directly by the general public

116 ANN 4 (ART 6)

Add the following new text after Regulation No 419

ADD **419A** § 5A Earth stations on board aircraft are authorized to use
Spa2 frequencies in the bands allocated to the maritime mobile-satellite service for the purpose of communicating via the stations of that service, with the public telegraph and telephone networks

ANNEX 5

Revision of Article 7 of the Radio Regulations

Article 7 of the Radio Regulations shall be amended as follows

Add the following new sub-title and text after Section I

ADD Spa2 **Section 1A. Broadcasting-Satellite Service**

ADD 428A Spa2 § 2A 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

Replace the title of Section VII by the following new title

MOD Spa2 **Section VII. Terrestrial Radiocommunication Services sharing Frequency Bands with Space Radiocommunication Services above 1 GHz**

Choice of Sites and Frequencies

Replace Regulation No 470A by the following new text

(MOD) 470A Spa2 § 18 Sites and frequencies for terrestrial stations, operating in frequency bands shared with equal rights between terrestrial radiocommunication and space radiocommunication services shall be selected having regard to the relevant Recommendations of the C C I R with respect to geographical separation from earth stations

ANN 5 (ART 7)

After Regulation No 470A, add the following new Regulations

ADD 470AA Spa2 § 18A (1) As far as practicable sites for transmitting[1] stations, in the fixed or mobile service employing maximum values of equivalent isotropically radiated power exceeding – 35 dBW in the frequency bands between 1 and 10 GHz should be selected so that the direction of maximum radiation of any antenna will be at least 2° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction[2]

ADD 470AB Spa2 (2) As far as practicable, sites for transmitting[3] stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power exceeding – 45 dBW in the frequency bands between 10 and 15 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least 1.5° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction[4]

ADD 470AC Spa2 (3) In the frequency bands above 15 GHz there shall be no restriction as to the direction of maximum radiation for stations in the fixed or mobile service

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ADD 470AA 1 Spa2 [1] For their own protection receiving stations in the fixed or mobile services operating in bands shared with space radiocommunication services (space to Earth) should also avoid directing their antennae towards the geostationary satellite orbit if their sensitivity is sufficiently high that interference from space station transmissions may be significant

ADD 470AA 2 Spa2 [2] Information on this subject is given in the most recent version of C C I R Report No 393

ADD 470AB 1 Spa2 [3] See No 470AA 1

ADD 470AB 2 Spa2 [4] See No 470AA 2

ANN 5 (ART 7)

Power Limits

Replace Regulation No 470B by the following new text

MOD **470B** Spa2 § 19 (1) The maximum equivalent isotropically radiated power of a station in the fixed or mobile service shall not exceed +55 dBW

After Regulation No 470B, add the following new Regulations

ADD **470BA** Spa2 (1A) Where compliance with No **470AA** is impracticable the maximum equivalent isotropically radiated power 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]

Replace Regulation No 470C by the following new text

MOD **470C** Spa2 (2) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service in frequency bands between 1 and 10 GHz, shall not exceed −13 dBW

After Regulation No 470C, add the following new Regulation

ADD **470CA** Spa2 (2A) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service in frequency bands above 10 GHz shall not exceed −10 dBW

ADD **470BA.1** Spa2 [1] See No **470AA.2**

ANN 5 (ART 7)

Replace Regulation No 470D by the following new text

MOD **470D** Spa2 (3) The limits given in Nos **470AA**, **470B**, **470BA** and **470C** apply in the following frequency bands allocated to the fixed-satellite service and the meteorological-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service

2 655 - 2 690 MHz (for Regions 2 and 3)
5 800 - 5 850 MHz (for the countries mentioned in No **390**)
5 850 - 5 925 MHz (for Regions 1 and 3)
5 925 - 6 425 MHz
7 900 - 7 975 MHz
7 975 - 8 025 MHz (for the countries mentioned in No **392H**)
8 025 - 8 400 MHz

After Regulation No 470D, add the following new Regulations

ADD **470DA** Spa2 (4) The limits given in Nos **470AB**, **470B** and **470CA** apply in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service

10 95 - 11 20 GHz (Region 1)
12 50 - 12 75 GHz (Regions 1 and 2)
14 175 - 14 300 GHz (for the countries mentioned in No **407**)
14 4 - 14 5 GHz

ADD **470DB** Spa2 (5) The limits given in Nos **470B** and **470CA** apply in the following frequency bands allocated to the fixed-satellite service for

ANN 5 (ART 7)

reception by space stations, where these bands are shared with equal rights with the fixed or mobile service

27 5 - 29 5 GHz
29 5 - 31 0 GHz (for the country mentioned in No **409E**)

Replace the title of Section VIII by the following new title

MOD Spa2 **Section VIII Space Radiocommunication Services sharing Frequency Bands with Terrestrial Radiocommunication Services above 1 GHz**

Choice of Sites and Frequencies

Replace Regulation No 470E by the following new text

(MOD) **470E** Spa2 § 20 Sites and frequencies for 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 Recommendations of the C C I R with respect to geographical separation from terrestrial stations

Power Limits

Replace Regulations Nos 470F and 470G by the following new texts

MOD **470F** Spa2 § 21 (1) Earth stations

MOD **470G** Spa2 (2) The equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided in Nos **470H** or **470GC**

-40 dBW in any 4 kHz band for θ 0

$-40 - 3\theta$ dBW in any 4 kHz band for 0 θ 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

After Regulation No 470G, add the following new Regulations

ADD Spa2 **470GA** (2A) The equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands above 15 GHz shall not exceed the following limits except as provided in Nos **470H** or **470GD**

-64 dBW in any 1 MHz band for θ 0

$+64 + 3\theta$ dBW in any 1 MHz band for 0 θ 5

where θ is as defined in No **470G**

ADD Spa2 **470GB** (2B) For angles of elevation of the horizon greater than 5 there shall be no restriction as to the equivalent isotropically radiated power transmitted by an earth station towards the horizon

ADD Spa2 **470GC** (2C) As an exception to the limits given in No **470G** the equivalent isotropically radiated power towards the horizon for an earth station in the space research service (deep-space) shall not exceed $+55$ dBW in any 4 kHz band

ADD Spa2 **470GD** (2D) As an exception to the limits given in No **470GA**, the equivalent isotropically radiated power towards the horizon for an

ANN 5 (ART 7)

earth station in the space research service (deep-space) shall not exceed −79 dBW in any 1 MHz band

Replace Regulation No 470H by the following new text

MOD 470H Spa2 (3) The limits given in No **470G**, No **470GA**, No **470GC** and No **470GD**, as applicable may be exceeded by not more than 10 dB However, when the resulting co-ordination area extends into the territory of another country such increase shall be subject to agreement by the administration of that country

Delete Regulation No 470I

Replace Regulation No 470J by the following new text

MOD 470J Spa2 (3A) The limits given in No **470G** apply in the following frequency bands allocated to transmission by earth stations in the fixed-satellite service and earth exploration-satellite service and in particular the meteorological-satellite service, where these bands are shared with equal rights with the fixed or mobile service

2 655	- 2 690	MHz	(Regions 2 and 3)
4 400	- 4 700	MHz	
5 800	- 5 850	MHz	(for the countries mentioned in No **390**)
5 850	- 5 925	MHz	(Regions 1 and 3)
5 925	- 6 425	MHz	
7 900	- 7 975	MHz	
7 975	- 8 025	MHz	(for the countries mentioned in No **392H**)
8 025	- 8 400	MHz	
10 95	- 11 20	GHz	(Region 1)
12 50	- 12 75	GHz	(Regions 2 and 3 and for the countries mentioned in No **405BD**)
14 175	- 14 300	GHz	(for the countries mentioned in No **407**)
14 4	- 14 5	GHz	

ANN 5 (ART 7)

After Regulation No 470J, add the following new Regulation

ADD **470JA** (3B) The limits given in No **470GA** apply in the following frequency band allocated to transmission by earth stations in the fixed-satellite service, where this is shared with equal rights with the fixed or mobile service

Spa2

27 5 - 29 5 GHz

Minimum Angle of Elevation

Replace Regulations Nos 470K and 470L by the following new texts

MOD **470K** § 22 (1) Earth stations

Spa2

MOD **470L** (2) Earth station antennae shall not be employed for transmission at elevation angles of less than 3 degrees measured from the horizontal plane to the direction of maximum radiation, except when agreed to by administrations concerned or those whose services may be affected In case of reception by an earth station, the above value shall be used for co-ordination purposes if the operating angle of elevation is less than that value

Spa2

After Regulation No 470L, add the following new Regulation

ADD **470LA** (2A) As an exception to No **470L** earth station antennae in the space research service (near-earth) shall not be employed for transmission at elevation angles of less than 5 degrees, and earth station antennae in the space research service (deep-space) shall not be employed for transmission at elevation angles of less than 10 degrees, both angles being those measured from the horizontal plane to the direction of maximum radiation In case of reception by an earth

Spa2

93 152 O 73 31

ANN 5 (ART 7)

station, the above values shall be used for co-ordination purposes if the operating angle of elevation is less than those values

Delete Regulation No 470M

Replace the sub-title "Power Flux Density Limits" as well as Regulation No 470N by the following new sub-title and text

MOD Spa2 *Limits of Power Flux Density from Space Stations*

MOD 470N Spa2 § 23 (1) Power flux density limits between 1 690 MHz and 1 700 MHz

After Regulation No 470N, add the following new Regulations

ADD 470NA Spa2 *a)* The power flux density at the Earth's surface produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed −133 dBW m^2 in any 1 5 MHz band This limit relates to the power flux density which would be obtained under assumed free-space propagation conditions

ADD 470NB Spa2 *b)* The limit given in No 470NA applies in the frequency band listed in No 470NC which is allocated to transmission by space stations in the earth exploration-satellite service and in particular the meteorological-satellite service where this band is shared with equal rights with the meteorological aids service

ADD 470NC Spa2 1 690 - 1 700 MHz

ANN 5 (ART 7)

ADD **470ND** (2) Power flux density limits between 1 670 MHz and 2 535
Spa2 MHz

ADD **470NE** *a)* The power flux density at the Earth's surface produced
Spa2 by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values

-154 dBW m^2 in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane,

$-154 - \frac{\delta - 5}{2}$ dBW m^2 in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane,

-144 dBW m^2 in any 4 kHz 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

ADD **470NF** *b)* The limits given in No **470NE** apply in the frequency
Spa2 bands listed in No **470NG** which are allocated to transmission by space stations in the following space radiocommunication services

— Earth exploration-satellite service and in particular meteorological-satellite service (space-to-Earth)

— space research service (space-to-Earth)

— fixed-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service

ANN 5 (ART 7)

ADD **470NG**
Spa2

1 670 - 1 690 MHz
1 690 - 1 700 MHz (for the countries mentioned in No **354A**)
1 700 - 1 710 MHz
1 770 - 1 790 MHz (for the countries mentioned in No **356AA**)
2 200 - 2 290 MHz
2 290 - 2 300 MHz
2 500 - 2 535 MHz

ADD **470NGA**
Spa2

c) The power flux density values given in No **470NE** 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 No **470NG** and where 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 to ensure that the interference power at the receiver input of the station of the fixed service does not exceed −168 dBW in any 4 kHz band

ADD **470NH**
Spa2

(3) Power flux density limits between 2 500 MHz and 2 690 MHz

ADD **470NI**
Spa2

a) The power flux density at the Earth's surface produced by emissions from a space station in the broadcasting-satellite service for all conditions and for all methods of modulation shall not exceed the following values:

−152 dBW m^2 in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane,

ANN 5 (ART 7)

$-152 + \frac{3(\delta - 5)}{4}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane,

— 137 dBW/m² in any 4 kHz 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

ADD **470NJ** Spa2 *b)* The limits given in No **470NI** apply in the frequency band

2 500 - 2 690 MHz

which is shared by the broadcasting-satellite service with the fixed or mobile service

ADD **470NK** Spa2 *c)* The power flux density values given in No **470NI** 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 band mentioned in No **470NJ** and where 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 to ensure that the interference power at the receiver input of the station of the fixed service does not exceed — 168 dBW in any 4 kHz band

ADD **470NL** Spa2 (4) Power flux density limits between 3 400 MHz and 7 750 MHz

ADD **470NM** Spa2 *a)* The power flux density at the Earth's surface produced by emissions from a space station or reflected from a

ANN 5 (ART 7)

passive satellite for all conditions and for all methods of modulation shall not exceed the following values:

-152 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

$-152 - \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane,

-142 dBW/m² in any 4 kHz 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

ADD **470NN** *b)* The limits given in No **470NM** apply in the frequency bands listed in No **470NO** which are allocated to transmission by space stations in the following space radiocommunication services

Spa2

— fixed-satellite service (space-to-Earth)

— meteorological-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service

ADD **470NO**

Spa2

3 400 - 4 200 MHz
7 250 - 7 300 MHz (for the countries mentioned in No **392G**)
7 300 - 7 750 MHz

ANN 5 (ART 7)

ADD **470NP** (5) Power flux density limits between 8 025 MHz and 11 7 GHz
Spa2

ADD **470NQ** *a)* The power flux density at the Earth's surface produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values
Spa2

— 150 dBW m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane

$-150 - \frac{\delta - 5}{2}$ dBW m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane.

— 140 dBW m² in any 4 kHz 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

ADD **470NR** *b)* The limits given in No **470NQ** apply in the frequency bands listed in No **470NS** which are allocated to transmission by space stations in the following space radiocommunication services
Spa2

— earth exploration-satellite service (space-to-Earth)

— space research service (space-to-Earth)

— fixed-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service

ANN 5 (ART 7)

ADD **470NS** **Spa2**

8 025 - 8 400 MHz
8 400 - 8 500 MHz
10 95 - 11 20 GHz
11 45 - 11 70 GHz

ADD **470NT** **Spa2** (6) Power flux density limits between 12 50 GHz and 12 75 GHz.

ADD **470NU** **Spa2** *a)* The power flux density at the Earth's surface, produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values

—148 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane,

$-148 - \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane,

—138 dBW m² in any 4 kHz 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

ADD **470NV** **Spa2** *b)* The limits given in No **470NU** apply in the frequency band indicated in No **470NW** which is allocated to the fixed-satellite service for transmission by space stations where this band is shared with equal rights with the fixed or mobile service

ADD **470NW** **Spa2** 12 50 - 12 75 GHz (Region 3 and for the countries mentioned in No **405BD**)

ANN 5 (ART 7)

ADD **470NX** Spa2 (7) Power flux density limits between 17 7 GHz and 22 0 GHz

ADD **470NY** Spa2 *a)* The power flux density at the Earth's surface produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values

– 115 dBW m² in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane

$-115 - \frac{\delta - 5}{2}$ dBW m² in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane,

– 105 dBW m² 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

ADD **470NZ** Spa2 *b)* The limits given in No **470NY** apply in the frequency bands listed in No **470NZA** which are allocated to transmission by space stations in the following space radiocommunication services

— fixed-satellite service (space-to-Earth)

— earth exploration-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service

ADD **470NZA** Spa2

17 7 - 19 7 GHz
21 2 - 22 0 GHz

ANN 5 (ART 7)

ADD **470NZB** Spa2 (8) The limits given in Nos **470NA**, **470NE**, **470NI**, **470NM**, **470NQ**, **470NU** and **470NY** may be exceeded on the territory of any country the administration of which has so agreed

Delete Regulations No 470O to 470U

Delete note [1] *on the foot of page 140 (Radio Regulations—1968 edition)*

Replace Section IX by the following new text

MOD Spa2 **Section IX Space Radiocommunication Services**

Cessation of Emissions

MOD **470V** Spa2 § 24 Space stations shall be fitted with devices to ensure immediate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations

ADD Spa2 *Control of Interference between Geostationary-Satellite Systems and non-synchronous inclined Orbit-Satellite Systems*

ADD **470VA** Spa2 § 25 Non-geostationary space stations in the fixed-satellite service shall cease or reduce to a negligible level radio emissions, and their associated earth stations shall not transmit to them whenever there is insufficient angular separation between the non-geostationary satellite and geostationary satellites and unacceptable interference [1] to geostationary satellite space systems operating in accordance with these Regulations

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ADD **470VA 1** Spa2 [1] The level of unacceptable interference shall be fixed by agreement between the administrations concerned using the relevant C C I R Recommendations as a guide

ANN 13 (APP 1)

Section C. Basic Characteristics to be furnished for Notification under No. 490 of the Regulations

Replace the paragraph "Supplementary information" *by the following*

MOD Spa2 Supplementary information

a) any co-ordination required by No 492A

b) the name of any administration with which an agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

ANN 5 (ART 7)

whichever is greater This provision applies only when such a beam is intended for less than global coverage

In the event that the beam is not rotationally symmetrical about the axis of maximum radiation, the tolerance in any plane containing this axis shall be related to the half power beamwidth in that plane

This accuracy shall be maintained only if it is required to avoid unacceptable interference [1] to other systems

ADD Spa2 *Power Flux Density at the Geostationary Satellite Orbit*

ADD Spa2 470VG§ 28 In the frequency band 8 025 to 8 400 MHz, which the Earth exploration-satellite service using non-geostationary satellites shares with the fixed-satellite service (Earth-to-space) or the meteorological-satellite service (Earth-to-space), the maximum power flux density produced at the geostationary satellite orbit by any earth exploration-satellite service space station shall not exceed -174 dBW/m^2 in any 4 kHz band

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ADD Spa2 470VF 1 [1] The level of unacceptable interference shall be fixed by agreement between the administrations concerned, using the relevant C C I R Recommendations as a guide

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ANNEX 6

Revision of Article 8 of the Radio Regulations

Article 8 of the Radio Regulations shall be amended as follows

Replace Regulation No 477 by the following new text

MOD 477 Spa2

e) the study on a long-term basis of the usage of the radio spectrum, with a view to making recommendations for its more effective use

ANNEX 7

Revision of Article 9 of the Radio Regulations

Article 9 of the Radio Regulations shall be amended as follows

The title of the article as well as the text of footnote [0] shown on page 143 of the Radio Regulations (1968 edition) are replaced by the following new title and notes

MOD Spa2 **Notification and Recording in the Master International Frequency Register of Frequency Assignments [1] to Terrestrial Radiocommunication Stations [2]**

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[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 *Master Register*)

[2] For the notification and recording in the Master International Frequency Register of frequency assignments to radio astronomy and space radiocommunication stations, see Article 9A

ANN 7 (ART 9)

Section I Notification of Frequency Assignments and Co-ordination Procedure to be Applied in Appropriate Cases

Delete Regulation No 486.1

Replace Regulations Nos 486, 486.2, 486.3 and 486.4 by the following new texts

(MOD) **486** Spa2 § 1 (1) Any frequency assignment [1] to a fixed, land, broadcasting [2] radionavigation land, radiolocation land or standard frequency station, or to a ground-based station in the meteorological aids service, shall be notified to the International Frequency Registration Board

a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration [3], or

b) if the frequency is to be used for international radiocommunication, or

c) if it is desired to obtain international recognition of the use of the frequency[3]

[(MOD) **487** *only concerns the French text*]

(MOD) **486.1** Spa2 [1] In the case where a frequency is used by numerous stations under the jurisdiction of the same administration, see Appendix 1 (Section E, II, Column 5a, paragraphs 2c and 2d)

(MOD) **486.2** Spa2 [2] With respect to assignments to broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 kHz and 26 100 kHz, see Article 10

MOD **486.3** Spa2 [3] The attention of administrations is specifically drawn to the application of the provisions of Nos **486** *a)* and **486** *c)* in those cases where they make a frequency assignment to a terrestrial station, located within co-ordination area of an earth station (see No **492A**), in a band which terrestrial radiocommunication services share with equal rights with space radiocommunication services in the frequency spectrum above 1 GHz

ANN 7 (ART 9)

Replace Regulations Nos 490, 491, 492, 492A, 492A 1, 492B, 492B 1, 492C, 492D, 492E and 492F by the following new texts

MOD **490** Spa2 (2) When stations of the same service, such as the land mobile service, use a band of frequencies above 28 000 kHz in a specific area or areas, an individual notice should be drawn up, as prescribed in Section C of Appendix 1, which specifies the basic characteristics to be furnished, for each frequency on which there are assignments within the band, however, the particulars should relate only to a typical station This does not apply to broadcasting stations or to other terrestrial stations to which the provisions of Sub-Section IIB of this article apply or to other stations of the fixed or mobile service which operate in frequency bands listed in Table II of Appendix 28 with equivalent isotropically radiated power exceeding the corresponding values listed in the table

MOD **491** Spa2 § 3 (1) Whenever practicable, each notice should reach the Board before the date on which the assignment is brought into use It must reach the Board not earlier than ninety days before the date on which it is to be brought into use, but in any case not later than thirty days after the date it is actually brought into use However, for a frequency assignment to one of the terrestrial stations mentioned in Sub-Section IIB of this article or in No **639AQ**, the notice must reach the Board not earlier than three years and not later than ninety days before the date on which the assignment is to be brought into use

MOD **492** Spa2 (2) Any frequency assignment the notice of which reaches the Board more than thirty days after the notified date of bringing into use, or in the case of a terrestrial station mentioned in Sub-Section IIB of this article any frequency assignment, the notice of which

reaches the Board less than ninety days before it is brought into use, shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with No **491**

MOD **492A** **Spa1** § 3A (1) Before an administration notifies to the Board, or brings into use any frequency assignment to a terrestrial station [1] for transmitting in a band allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space-to-Earth) in the frequency spectrum above 1 GHz, it shall initiate co-ordination of the proposed assignment with the administration responsible for the receiving earth station concerned if the assignment is for use within the co-ordination area of an existing receiving earth station or of one for which the co-ordination procedure referred to in No **639AN** has been initiated For the purpose of effecting co-ordination, it shall send to any other such administration by the fastest possible means a copy of a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other pertinent details of the proposed frequency assignment, and the approximate date on which it is planned to bring the station into use

MOD **492B** **Spa2** (2) An administration with which co-ordination is sought under No **492A** shall acknowledge receipt of the co-ordination data immediately by telegram If no acknowledgement is received within

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MOD **492A.1** **Spa2** [1] Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the fixed or the mobile service Until the C C I R , in accordance with Recommendation No **Spa2**-9 provides criteria for other terrestrial radiocommunication services, the criteria to be used in effecting co-ordination between earth stations and terrestrial stations other than those of the fixed or the mobile service, shall be agreed between the administrations concerned

ANN 7 (ART 9)

fifteen days of dispatch, the administration] seeking co-ordination may dispatch a telegram requesting acknowledgement of receipt of the co-ordination data, to which the receiving administration shall reply Upon receipt of the co-ordination data an administration shall promptly examine the matter with regard to interference [1] which would be caused to the services rendered by its earth stations operating in accordance with the Convention and these Regulations, or to be so operated within the next three years, with the proviso that in this latter case co-ordination specified in No **639AN** has been effected or that the co-ordination procedure has already been initiated, and shall, within an overall period of sixty days from dispatch of the co-ordination data, either notify the administration requesting co-ordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem

MOD **492C** Spa2 (3) No co-ordination under No **492A** is required when an administration proposes

a) to bring into use a terrestrial station which is located, in relation to an earth station, outside the co-ordination area, or

b) to change the characteristics of an existing assignment in such a way as not to increase the level of interference to the earth stations of other administrations

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ADD **492B 1** Spa2 [1] The criteria to be employed in evaluating interference levels shall be based upon relevant C C I R Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned

ANN 7 (ART 9)

MOD **492D** Spa2 (4) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination, in those cases where

a) an administration with which co-ordination is sought under No **492A** fails to acknowledge receipt under No **492B** within thirty days of dispatch of the co-ordination data,

b) an administration which has acknowledged receipt under No **492B** but fails to give a decision within ninety days of dispatch of the co-ordination data,

c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable level of interference, or

d) co-ordination between administrations is not possible for any other reason

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination

MOD **492E** Spa2 (5) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned

MOD **492F** Spa2 (6) Where the Board receives a request under No **492D** *a)*, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement

ANN 7 (ART 9)

After Regulation No 492F, add the following new Regulations

ADD Spa2 **492FA** (7) Where the Board receives an acknowledgement following its action under No. **492F**, or where the Board receives a request under No **492D** *b)*, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

ADD Spa2 **492FB** (8) Where the Board receives a request under No **492D** *d)*, it shall endeavour to effect co-ordination in accordance with the provisions of No **492A**. Where the Board receives no acknowledgement of its request for co-ordination within the period specified in No **492B**, it shall act in accordance with No **492F**.

ADD Spa2 **492FC** (9) Where an administration fails to reply within thirty days of dispatch of the Board's telegram sent under No. **492F** requesting an acknowledgement, or fails to give a decision in the matter within sixty days of dispatch of the Board's telegram of request sent under No **492FA**, it shall be deemed that the administration with which co-ordination 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 co-ordinated to the service rendered by its earth station.

Replace Regulation No 492G by the following new text

MOD Spa2 **492G** (10) Where necessary, as part of the procedure under No **492D**, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.

ANN 7 (ART 9)

After Regulation No 492G, add the following new Regulations

ADD Spa2 **492GA** (11) In the event of continuing disagreement between one administration seeking to effect co-ordination and one with which co-ordination has been sought, provided that the assistance of the Board has been requested, the administration seeking co-ordination may, after sixty days from the date of the request for the assistance of the Board, taking into consideration the provisions of No **491**, send its notice concerning the proposed assignment to the Board

ADD Spa2 **492GB** § 3B Where the Board receives information from an administration in accordance with the provisions of No **639AQ** in reply to a request for co-ordination for an earth station, it shall consider as notifications under this Section, only that information relating to assignments to existing terrestrial stations or to those to be brought into use within the time limits defined in No **491** Such notifications shall be examined by the Board with respect to the provisions of Nos **570AB** and **570AD**, as appropriate, and shall be treated accordingly.

Replace No 493 by the following new text

(MOD) Spa2 **493** § 3C (1) Whatever the means of communication, including telegraph, by which a notice is transmitted to the Board, it shall be considered complete if it contains at least those appropriate basic characteristics specified in Appendix 1

Replace the title of Sub-Section IIA by the following new title

MOD Spa2 **Sub-Section IIA. Procedure to be followed in cases not covered by Sub-Section IIB of this Article**

ANN 7 (ART 9)

[(MOD) **501** only concerns the French and the Spanish texts]

Replace the title of Sub-Section IIB by the following new title

MOD **Spa2** **Sub-Section IIB. Procedure to be followed in cases where terrestrial stations are in the same frequency band as, and within the co-ordination area of, an existing earth station or one for which co-ordination has been effected or initiated**

[(MOD) **570AB** *only concerns the French and the Spanish texts*]

Replace Regulation No 570AD by the following new text

(MOD) **570AD** **Spa2** *c)* where appropriate, with respect to the probability of harmful interference to the service rendered by an earth receiving station for which a frequency assignment already recorded in the Master Register is in conformity with the provisions of No **639BM**, and if the corresponding frequency assignment to the space trans-

ANN 7 (ART 9)

mitting station has not, in fact, caused harmful interference to any frequency assignment in conformity with No **501** or **570AB**, as appropriate, previously recorded in the Master Register

Replace Regulation No 570AG by the following new text

MOD **570AG** Spa2 (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No **115**, it shall be examined immediately with respect to Nos **570AC** and **570AD**

After Regulation No 570AG, add the following new Regulations

ADD **570AGA** Spa2 (3) If the finding is favourable with respect to No **570AC** or **570AD**, as appropriate, the assignment shall be recorded in the Master Register The date of receipt by the Board of the notice shall be entered in Column 2d

ADD **570AGB** Spa2 (4) If the finding is unfavourable with respect to No **570AC** or **570AD**, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding Should the administration insist upon reconsideration of the notice, the assignment shall be recorded in the Master Register However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received The date of receipt by the Board of the original notice shall be entered in Column 2d The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column

ANN 7 (ART 9)

ADD **570AGC** Spa2 (5) The period of one hundred and twenty days mentioned in Nos **570AGB** and **570AX** shall count

— from the date when the assignment to the terrestrial station which received an unfavourable finding is brought into use, if the assignment to the earth station is then in use,

— otherwise, from the date when the assignment to the earth station is brought into use

But if the assignment to the earth station has not been brought into use by the notified date, the period of one hundred and twenty days shall be counted from that date Allowance, if necessary, may be made for the additional period mentioned in No **570BF.**

Replace Regulations Nos 570AH to 570AK by the following new texts

(MOD) **570AH** Spa2 (6) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No **115**, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem

(MOD) **570AI** Spa2 (7) If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of No **570AH**

MOD **570AJ** Spa2 (8) If the notifying administration resubmits the notice with a specific reference to the fact that the station will be operated in accordance with the provisions of No **115** it shall be treated in accordance with the provisions of Nos **570AG** and **570AGA** or No **570AGB** as appropriate

ANN 7 (ART 9)

(MOD) **570AK** (9) If the notifying administration resubmits the notice with
Spa2 modifications which, after re-examination, result in a favourable finding by the Board with respect to No **570AB**, the notice shall be treated under the provisions of Nos **570AL** to **570AX**. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in Column 2d.

[(MOD) **570AM**, (MOD) **570AN**, (MOD) **570AO** *and* (MOD) **570AP** *only concerns the Spanish text*]

ANN 7 (ART 9)

[(MOD) **570AV** *only concerns the Spanish text*]

Replace Regulation No 570AX by the following new text

MOD **570AX** Spa2 (4) Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No **570AW** to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the assignment shall be recorded in the Master Register However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received The date of receipt by the Board of the original notice shall be entered in Column 2d The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column The period of one hundred and twenty days shall count from the date indicated in No **570AGC**

Delete Regulation No 570AY

ANN 7 (ART 9)

Replace Regulation No 570BA by the following new text

MOD **570BA** Spa2 (2) A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 (except those entered in Columns 3 and 4a of the Master Register) shall be examined by the Board according to Nos **570AB** and **570AC** and, where appropriate, No **570AD**, and the provisions of Nos **570AF** to **570AX** inclusive applied Where the change should be recorded the original assignment shall be amended according to the notice

Replace Regulation No 570BC by the following new text

(MOD) **570BC** § 23H Spa2 In applying the provisions of this Sub-Section any resubmitted notice which is received by the Board more than two years after the date of its return by the Board, shall be considered as a new notice

Replace Regulations Nos 570BF 570BG and 570BH by the following new texts

(MOD) **570BF** Spa2 (3) If, within the period of thirty days after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of bringing into use, the special symbol shall be deleted from the Remarks Column In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days

ANN 7 (ART 9)

MOD **570BG** (4) In the circumstances described in No **570AX**, and as long as
Spa2 an assignment which received an unfavourable finding cannot be resubmitted as a consequence of the provisions of No **570AGC**, the notifying administration may ask the Board to enter the assignment provisionally in the Master Register, in which event a special symbol to denote the provisional nature of the entry shall be entered in the Remarks Column The Board shall delete this symbol when it receives from the notifying administration, at the end of the period specified in No **570AX**, the information relating to the absence of complaint of harmful interference

MOD **570BH** (5) If the Board does not receive this confirmation within the
Spa2 period referred to in No **570BF** or at the end of the period referred to in No **570BG**, as appropriate, the entry concerned shall be cancelled The Board shall advise the notifying administration before taking such action

Replace Regulation No 611A by the following new text

(MOD) **611A** (6) If harmful interference to the reception of any station whose
Spa2 assignment is in accordance with No **639BM** is actually caused by the use of a frequency assignment which is not in conformity with No **501** or **570AB** the station using the latter frequency assignment must upon receipt of advice thereof immediately eliminate this harmful interference

ANN 7 (ART 9)

Section VIII Miscellaneous Provisions

After Regulation No 635, add the following new Regulations

ADD **635A** Spa2 § 47A (1) If it is requested by any administration particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant the Board using such means at its disposal as are appropriate in the circumstances, shall render the following assistance

a) verification of the diagram showing the co-ordination area referred to in No **639A**\

b) computation of the interference level as referred to in No **492B**

c) any other assistance of a technical nature for completion of the procedures in this Article

ADD **635B** Spa2 (2) In making a request to the Board under No **635A** the administration shall furnish the Board with the necessary information

ANNEX 8

Revision of Article 9A of the Radio Regulations

Article 9A of the Radio Regulations shall be amended as follows

The entire Article 9A is replaced by the following new text

MOD Spa2

ARTICLE 9A

Co-ordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments [1] to Radio Astronomy and Space Radiocommunication Stations except Stations in the Broadcasting-Satellite Service

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

639AA Spa2 § 1 (1) An administration (or one acting on behalf of a group of named administrations) which intends to establish a satellite system shall, prior to the co-ordination procedure in accordance with No **639AJ** where applicable, send to the International Frequency Registration Board not earlier than five years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix 1B

[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 *Master Register*)

639AB (2) Any amendments to the information sent concerning a
Spa2 planned satellite system in accordance with No **639AA** shall also be sent to the Board as soon as they become available

639AC (3) The Board shall publish the information sent under
Spa2 Nos **639AA** and **639AB** in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram

639AD (4) If, after studying the information published under
Spa2 No **639AC** any administration is of the opinion that interference, which may be unacceptable, may be caused to its existing or planned space radiocommunication services, it shall within ninety days after the date of the weekly circular publishing the information listed in Appendix 1B, send its comments to the administration concerned A copy of these comments shall also be sent to the Board If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned satellite network(s) of that system on which details have been published

639AE (5) An administration receiving comments sent in accordance
Spa2 with No **639AD** shall endeavour to resolve any difficulties that may arise

639AF (6) In case of difficulties arising when any planned satellite
Spa2 network of a system is intended to use the geostationary satellite orbit

a) the administration responsible for the planned system shall first explore all possible means of meeting its requirements, taking into account the characteristics of the geostationary satellite networks of other systems, and without considering the possibility of adjustment

ANN 8 (ART 9A)

to systems of other administrations If no such means can be found, the administration concerned is then free to apply to other administrations concerned to solve these difficulties,

b) an administration receiving a request under *a)* above shall, in consultation with the requesting administration, explore all possible means of meeting the requirements of the requesting administration, for example, by relocating one or more of its own geostationary space stations involved, or by changing the emissions, frequency usage (including changes in frequency bands) or other technical or operational characteristics;

c) if after following the procedure outlined in *a)* and *b)* above there are unresolved difficulties, the administrations concerned shall together make every possible effort to resolve these difficulties by means of mutually acceptable adjustments, for example, to geostationary space station locations and to other characteristics of the systems involved in order to provide for the normal operation of both the planned and existing systems

639AG (7) In their attempts to resolve the difficulties mentioned above
Spa2 administrations may seek the assistance of the Board

639AH (8) In complying with the provisions of Nos **639AE** to **639AG**,
Spa2 an administration responsible for a planned satellite system shall, if necessary, defer its commencement of the co-ordination procedure, or where this is not applicable the sending of its notices to the Board, until one hundred and fifty days after the date of the weekly circular containing the information listed in Appendix 1B on the relevant satellite network. However in respect of those administrations with

whom difficulties have been resolved or who have responded favourably, the co-ordination procedure, where applicable, may be commenced prior to the expiry of the one hundred and fifty days mentioned above

639AI (9) An administration on behalf of which details of planned
Spa2 satellite networks in its system have been published in accordance with the provisions of Nos **639AA** to **639AC**, shall periodically inform the Board whether or not comments have been received and of the progress made, with other administrations, in resolving any difficulties The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram

Section II Co-ordination Procedures to be applied in appropriate Cases

639AJ § 2 (1) Before an administration notifies to the Board or brings
Spa2 into use any frequency assignment to a space station on a geostationary satellite or to an earth station that is to communicate with a space station on a geostationary satellite, it shall effect co-ordination of the assignment with any other administration whose assignment in the same band for a space station on a geostationary satellite or for an earth station that communicates with a space station on a geostationary satellite is recorded in the Master Register, or has been co-ordinated or is being co-ordinated under the provisions of this paragraph For this purpose, the administration requesting co-ordination shall send to any other such administration the information listed in Appendix 1A

639AK (2) No co-ordination under No **639AJ** is required
Spa2

a) when the use of a new frequency assignment will cause, to any service of another administration, an increase in the noise temperature of any space station receiver or earth station receiver, or an increase in the equiv-

ANN 8 (ART 9A)

alent satellite link noise temperature, as appropriate, not exceeding the predetermined increase of noise temperature calculated in accordance with the method given in Appendix 29, or

b) when an administration proposes to change the characteristics of an existing assignment in such a way as will, in respect of any service of another administration, meet the requirements of sub-paragraph *a)* above, or, where this assignment has previously been coordinated, will cause an increase in noise temperature not exceeding the value agreed during co-ordination

639AL Spa2 (3) An administration initiating the co-ordination procedure referred to in No **639AJ** shall at the same time send to the Board a copy of the request for co-ordination, with the information listed in Appendix 1A and the name(s) of the administration(s) with which co-ordination is sought. The Board shall publish this information in a special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.

639AM Spa2 (4) An administration believing that it should have been included in the co-ordination procedure under No **639AJ** shall have the right to request that it be brought into the co-ordination procedure.

639AN Spa2 (1) Before an administration notifies to the Board or brings into use any frequency assignment to an earth station, whether for transmitting or receiving, in a particular band allocated with equal

rights to space and terrestrial [1] radiocommunication services in the frequency spectrum above 1 GHz, it shall effect co-ordination of the assignment with any other administration whose territory lies wholly or partly within the co-ordination area [2] of the planned earth station. For this purpose it shall send to any other such administration a copy of a diagram drawn to an appropriate scale indicating the location of the earth station and showing the co-ordination areas [2] of the earth station for the cases of transmission and reception by the earth station and the data on which they are based, including all pertinent details of the proposed frequency assignment as listed in Appendix 1A, and an indication of the approximate date on which it is planned to begin operations.

639AO Spa2 (2) An administration with which co-ordination is sought under No **639AJ** shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within thirty days after the date of the weekly circular publishing the information under No **639AI**, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement to which the receiving administration shall reply within a further period of thirty days. Upon receipt of the co-ordination data an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested

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639AN 1 Spa2 [1] Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the fixed or mobile service. Until the C C I R in accordance with Recommendation No **Spa2**-9 provides criteria relating to other terrestrial radiocommunication services, the criteria to be employed in effecting co-ordination between earth stations and terrestrial radiocommunication stations, other than those of the fixed or mobile service, shall be agreed between the administrations concerned.

639AN 2 Spa2 [2] Calculated, in relation to the fixed or mobile service, in accordance with the procedures described in Appendix 28.

ANN 8 (ART 9A)

promptly examine the matter with regard to interference [1] which would be caused to the service rendered by its stations in respect of which co-ordination is sought under No **639AJ**, and shall, within ninety days from the date of the relevant weekly circular, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree, it shall, within the same period, send to the administration seeking co-ordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem A copy of these comments shall also be sent to the Board

639AP (3) An administration with which co-ordination is sought under
Spa2 No **639AN** shall acknowledge receipt of the co-ordination data immediately by telegram If no acknowledgement is received within fifteen days of dispatch of the co-ordination data, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days Upon receipt of the co-ordination data an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard both to

a) interference [2] which would be caused to the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer, and to

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639AO 1 [1] The criteria to be employed in evaluating interference levels shall be based
Spa2 upon relevant C C I R Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned

639AP 1 [2] The criteria to be employed in evaluating interference levels shall be based
Spa2 upon relevant C C I R Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned

b) interference [1] which would be caused to reception at the earth station by the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer

The administration with which co-ordination is sought shall then, within sixty days from dispatch of the co-ordination data, notify the administration requesting co-ordination of its agreement If the administration with which co-ordination is sought does not agree it shall, within the same period, send to the administration seeking co-ordination a copy of a diagram drawn to an appropriate scale showing the location of its terrestrial radiocommunication stations which are or will be within the co-ordination area of the earth transmitting or receiving station as appropriate, together with all other relevant basic characteristics and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem

639AQ (4) When the administration with which co-ordination is sought
Spa2 sends to the administration seeking co-ordination the information mentioned in No **639AP**, a copy thereof shall also be sent to the Board The Board shall consider as notifications in accordance with Section I of Article 9, only that information relating to existing terrestrial radiocommunication stations or to those to be brought into use within the next three years

639AR (5) No co-ordination under No **639AN** is required when an
Spa2 administration proposes

639AP.1 [1] The criteria to be employed in evaluating interference levels shall be based
Spa2 upon relevant C C I R Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned

ANN 8 (ART 9A)

a) to bring into use an earth station, the co-ordination area of which does not include any of the territory of any other country,

b) to change the characteristics of an existing assignment in such a way as not to increase the level of interference to or from the terrestrial radiocommunication stations of other administrations,

c) to operate a mobile earth station However, if the co-ordination area associated with the operation of such a mobile earth station, in a frequency band referred to in No **639AN**, includes any of the territory of another country, it shall be subject to prior agreement between the administrations concerned in order to avoid harmful interference to existing terrestrial radiocommunication stations of that country 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 the probability of harmful interference caused by them shall not be greater than that caused by the typical earth station

639AS § 4 (1) An administration seeking co-ordination may request the Space Board to endeavour to effect co-ordination in these cases where

a) an administration with which co-ordination is sought under No **639AJ** fails to acknowledge receipt, under

No **639AO** within sixty days after the date of the weekly circular publishing the information relating to the request for co-ordination

b) an administration with which co-ordination is sought under No **639AN** fails to acknowledge receipt under No **639AP** within thirty days of dispatch of the co-ordination data

c) an administration has acknowledged receipt under No **639AO** but fails to give a decision within ninety days from the date of the relevant weekly circular

d) an administration has acknowledged receipt under No **639AP** but fails to give a decision within sixty days from dispatch of the co-ordination data

e) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable level of interference

f) co-ordination between administrations is not possible for any other reason

In so doing it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination

639AT (2) Either the administration seeking co-ordination or an admin-
Spa2 istration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned

ANN 8 (ART 9A)

639AU (3) Where the Board receives a request under No **639AS** *a)*
Spa2 or *b)*, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement

639AV (4) Where the Board receives an acknowledgement following
Spa2 its action under No **639AU**, or where the Board receives a request under No **639AS** *c)* or *d)*, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

639AW (5) Where the Board receives a request under No **639AS** *f)*,
Spa2 it shall endeavour to effect co-ordination in accordance with the provisions of Nos **639AJ** and **639AN**, as appropriate The Board shall also, where appropriate, act in accordance with No **639AL** Where the Board receives no acknowledgement to its request for co-ordination within the periods specified in No **639AO** or **639AP**, as appropriate it shall act in accordance with No **639AU**

639AX (6) Where an administration fails to reply within thirty days
Spa2 of dispatch of the Board's telegram requesting an acknowledgement sent under No **639AU**, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under No **639AV**, it shall be deemed that the administration with which co-ordination was sought has undertaken

a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its space or terrestrial radiocommunication stations by the use of the assignment for which co-ordination was requested,

b) that its space or terrestrial radiocommunication stations will not cause harmful interference to the use

of the assignment for which co-ordination was requested

639AY Spa2 (7) Where necessary, as part of the procedure under No **639AS** the Board shall assess the level of interference In any case, the Board shall inform the administrations concerned of the results obtained

639AZ § 5 Spa2 In the event of continuing disagreement between one administration seeking to effect co-ordination and one with which co-ordination has been sought, provided that the assistance of the Board has been requested, the administration seeking co-ordination may after one hundred and fifty days from the date of the request for co-ordination, taking into consideration the provisions of No **639BF** send its notice concerning the proposed assignment to the Board

Section III Notification of Frequency Assignments

639BA § 6 Spa2 (1) Any frequency assignment to an earth or space station shall be notified to the Board

a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration, or

b) if the frequency is to be used for international radiocommunications, or

c) if it is desired to obtain international recognition of the use of the frequency

639BB Spa2 (2) Similar notice shall be given for any frequency to be used for the reception of transmissions from earth or space stations by a particular space or earth station in each case where one or more of the conditions specified in No **639BA** are applicable

ANN 8 (ART 9A)

639BC Spa2 (3) Similar notice may be given for any frequency or frequency band to be used for reception by a particular radio astronomy station, if it is desired that such data should be included in the Master Register

639BD Spa2 (4) A notice submitted in accordance with No **639BA** or **639BB** and relating to a frequency assignment to mobile earth stations in a satellite system shall include the technical characteristics either of each mobile earth station, or of a typical mobile earth station, and an indication of the service area within which these stations are to be operated

639BE § 7 Spa2 For any notification under No **639BA**, **639BB**, **639BC** or **639BD** an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix 1A, the various Sections of which specify the basic characteristics to be furnished according to the case. It is recommended that the notifying administration should also supply the additional data called for in Section A of that Appendix, together with such further data as it may consider appropriate

639BF § 8 Spa2 (1) For a frequency assignment to an earth or space station, each notice must reach the Board not earlier than three years before the date on which the assignment is to be brought into use. The notice must reach the Board in any case not later than ninety days [1] before this date, except in the case of assignments in the space research service in bands allocated exclusively to this service or in shared bands in which this service is the sole primary service. In the case of such an assignment in the space research service, the notice should, whenever practicable, reach the Board before the date on which the assignment is brought into use, but it must in any case reach the Board not later than thirty days after the date it is actually brought into use

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639BF § 8 Spa2 [1] The notifying administration shall take this limit into account when deciding, where appropriate, to initiate the co-ordination procedure(s)

639BG Spa2 (2) Any frequency assignment to an earth or space station the notice of which reaches the Board after the applicable period specified in No **639BF** shall where it is to be recorded bear a mark in the Master Register to indicate that it is not in conformity with No **639BF**

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

639BH Spa2 § 9 Any notice which does not contain at least those basic characteristics specified in Appendix 1A shall be returned by the Board immediately, by airmail to the notifying administration with the reasons therefor

639BI Spa2 § 10 Upon receipt of a complete notice the Board shall include the particulars thereof, with the date of receipt in the weekly circular referred to in No **497** which shall contain the particulars of all such notices received since the publication of the previous circular

639BJ Spa2 § 11 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice

639BK Spa2 § 12 Complete notices shall be considered by the Board in the order of their receipt The Board shall not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice

639BL Spa2 § 13 The Board shall examine each notice

639BM Spa2 *a)* with respect to its conformity with the Convention, the Table of Frequency Allocations and the other pro-

ANN 8 (ART 9A)

visions of the Radio Regulations (with the exception of those relating to the co-ordination procedures and the probability of harmful interference),

639BN Spa2 *b)* where appropriate, with respect to its conformity with the provisions of No **639AJ**, relating to the co-ordination of the use of the frequency assignment with the other administrations concerned vis-a-vis space radiocommunication stations,

639BO Spa2 *c)* where appropriate, with respect to its conformity with the provisions of No **639AN** relating to the co-ordination of the use of the frequency assignment with the other administrations concerned vis-à-vis terrestrial radiocommunication stations,

639BP Spa2 *d)* where appropriate, with respect to the probability of harmful interference to the service rendered by a space radiocommunication station for which a frequency assignment already recorded in the Master Register is in conformity with the provisions of No **639BM** if this frequency assignment has not in fact caused harmful interference to any frequency assignment in conformity with No **639BM** previously recorded in the Master Register.

639BQ Spa2 *e)* where appropriate, with respect to the probability of harmful interference to the service rendered by a terrestrial radiocommunication station for which a frequency assignment already recorded in the Master Register is in conformity with the provisions of No **501** or **570AB**, as appropriate, if this frequency assignment has not, in fact, caused harmful interference to any frequency assignment in conformity with No **639BM** previously recorded in the Master Register

639BR *f)* where appropriate, with respect to the probability of
Spa2 harmful interference caused to the receiving earth station by a terrestrial radiocommunication station for which a frequency assignment already recorded in the Master Register is in conformity with No **501** or **570AB**, as appropriate

639BS § 14 When, following an examination of a notice with respect
Spa2 to No **639BP**, the Board reaches an unfavourable finding based upon the probability of harmful interference to a recorded assignment for a space station which the Board has reason to believe may not be in regular use, the Board shall forthwith consult the administration responsible for the registered assignment If it is established, after such consultation and on the basis of the information available, that the recorded assignment has not been in use for two years, it shall not be taken into account for the purposes of the examination in progress or any other further examination under No **639BP** conducted before the date on which the assignment is brought back into use Before the assignment is brought back into use, it shall be subject to further co-ordination in accordance with the provisions of No **639AJ** or further examination by the Board with respect to No **639BP**, as appropriate The date on which the assignment is brought back into use shall then be entered in the Master Register

639BT § 15 Depending upon the findings of the Board subsequent to
Spa2 the examination prescribed in Nos **639BM**, **639BN**, **639BO**, **639BP**, **639BQ** and **639BR**, as appropriate, further action shall be as follows

639BU § 16. (1) *Finding favourable with respect to No* **639BM** *in cases where*
Spa2 *the provisions of Nos* **639BN** *and* **639BO** *are not applicable*

639BV (2) The assignment shall be recorded in the Master Register
Spa2 The date of receipt by the Board of the notice shall be entered in Column 2d

ANN 8 (ART 9A)

639BW § 17 (1) *Finding unfavourable with respect to No* **639BM**
Spa2

639BX (2) Where the notice includes a specific reference to the fact
Spa2 that the station will be operated in accordance with the provisions of No **115** and the finding is favourable with respect to Nos **639BN**, **639BO**, **639BP** **639BQ** and **639BR** as appropriate, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

639BY (3) Where the notice includes a specific reference to the fact
Spa2 that the station will be operated in accordance with the provisions of No **115** and the finding is unfavourable with respect to No **639BN**, **639BO** **639BP** **639BQ** or **639BR** as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. Should the administration insist upon reconsideration of the notice, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.

639BZ (4) The period of one hundred and twenty days mentioned in
Spa2 Nos **639BY** and **639CP** shall count

- from the date when the assignment to the space radiocommunication station which received an unfavourable finding is brought into use, if the assignment to the station which was the basis for the unfavourable finding is then in use

- otherwise from the date when the assignment to the station which was the basis for the unfavourable finding is brought into use

But if the assignment to the station which was the basis for the unfavourable finding has not been brought into use by the notified date, the period of one hundred and twenty days shall be counted from this date Allowance shall if necessary be made for the additional period mentioned in No **639CY**

639CA Spa2 (5) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No **115** it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem

639CB Spa2 (6) If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of No **639CA** If it is resubmitted with a specific reference to the fact that the station will be operated in accordance with the provisions of No **115**, it shall be treated in accordance with the provisions of No **639BX** or **639BY** as appropriate If it is resubmitted with modifications which after re-examination, result in a favourable finding by the Board with respect to No **639BM** it shall be treated as a new notice

639CC § 18 Spa2 (1) *Finding favourable with respect to* No **639BM** *in cases where the provisions of* No **639BN** *or* **639BO** *are applicable*

639CD Spa2 (2) Where the Board finds that the co-ordination procedures mentioned in No **639BN** or **639BO** have been successfully completed with all administrations whose space or terrestrial radiocommunication stations may be affected the assignment shall be recorded in the Master Register The date of receipt by the Board of the notice shall be entered in Column 2d

ANN 8 (ART 9A)

639CE Spa2 (3) Where the Board finds that either of the co-ordination procedures mentioned in Nos **639BN** and **639BO** has not been applied, and the notifying administration requests the Board to effect the required co-ordination, the Board shall take appropriate action and shall inform the administrations concerned of the results obtained If the Board's efforts are successful, the notice shall be treated in accordance with No **639CD** If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of Nos **639BP**, **639BQ** and **639BR**, as appropriate.

639CF Spa2 (4) Where the Board finds that either of the co-ordination procedures mentioned in Nos **639BN** and **639BO** has not been applied, and the notifying administration does not request the Board to effect the required co-ordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem

639CG Spa2 (5) Where the notifying administration resubmits the notice and the Board finds that the co-ordination procedures mentioned in Nos **639BN** and **639BO** have been successfully completed with all administrations whose space or terrestrial radiocommunication stations may be affected, the assignment shall be recorded in the Master Register The date of receipt by the Board of the original notice shall be entered in Column 2d The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column

639CH Spa2 (6) Where the notifying administration resubmits the notice with a request that the Board effect the required co-ordination under No **639AJ** or **639AN**, it shall be treated in accordance with the provisions of No **639CE** However, in any subsequent recording

of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column

639CI Spa2 (7) Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the co-ordination, the Board shall inform the administrations concerned thereof The notice shall be examined by the Board with respect to the provisions of Nos **639BP** **639BQ** and **639BR**, as appropriate However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column

639CJ Spa2 § 19 (1) *Finding favourable with respect to Nos* **639BM**, **639BP**, **639BQ** *and* **639BR**, *as appropriate*

639CK Spa2 (2) The assignment shall be recorded in the Master Register The date of receipt by the Board of the notice shall be entered in Column 2d

639CL Spa2 (3) However, should the examination show that the level of the interference noise and the percentage of time during which it is likely to occur have values slightly greater than those used for assessing the probability of harmful interference (extreme propagation conditions, abnormal atmospheric humidity, etc), a remark shall be included in the Master Register to show that there may be a slight risk of harmful interference and hence additional precautions must be taken in the use of the assignment to avoid harmful interference to assignments already recorded in the Master Register

639CM Spa2 § 20 (1) *Finding favourable with respect to No* **639BM** *but unfavourable with respect to No* **639BP**, **639BQ** *or* **639BR**, *as appropriate*

639CN Spa2 (2) The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this

ANN 8 (ART 9A)

finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem

639CO Spa2 (3) Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to Nos **639BP**, **639BQ** and **639BR**, as appropriate, the assignment shall be recorded in the Master Register The date of receipt by the Board of the original notice shall be entered in Column 2d The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column

639CP Spa2 (4) Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No **639CO** to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged the assignment shall be recorded in the Master Register However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received The date of receipt by the Board of the original notice shall be entered in Column 2d The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column The period of one hundred and twenty days shall count from the date indicated in No **639BZ**

639CQ Spa2 § 21 (1) *Notices relating to radio astronomy stations*

639CR Spa2 (2) A notice relating to a radio astronomy station shall not be examined by the Board with respect to Nos **639BN**, **639BO**, **639BP** **639BQ** and **639BR** Whatever the finding, the assignment

shall be recorded in the Master Register with a date in Column 2c The date of receipt by the Board of the notice shall be recorded in the Remarks Column

639CS Spa2 § 22 (1) *Change in the basic characteristics of assignments already recorded in the Master Register*

639CT Spa2 (2) A notice of a change in the basic characteristics of an assignment already recorded as specified in Appendix 1A (except the name of the station or the name of the locality in which it is situated) shall be examined by the Board according to No **639BM** and, where appropriate, Nos **639BN 639BO 639BP 639BQ** and **639BR**, and the provisions of Nos **639BU** to **639CR** inclusive shall apply Where the change should be recorded the original assignment shall be amended according to the notice

639CU Spa2 (3) However, in the case of a change in the characteristics of an assignment which is in conformity with No **639BM** should the Board reach a favourable finding with respect to Nos **639BN 639BO 639BP, 639BQ** and **639BR** where 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 in Column 2d The date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column

639CV Spa2 § 23 In applying the provisions of this section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice

639CW Spa2 § 24 (1) *Recording of frequency assignments notified before being brought into use*

ANN 8 (ART 9A)

639CX Spa2 (2) If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to No **639BM** and, where appropriate, Nos **639BN**, **639BO**, **639BP**, **639BQ** and **639BR**, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry

639CY Spa2 (3) If, within thirty days after the projected date of bringing into use, the Board receives confirmation from the notifying administration of the date of putting into use, the special symbol shall be deleted from the Remarks Column In the case where the Board, in the light of a request from the notifying administration received before the end of the thirty-day period, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed one hundred and fifty days

639CZ Spa2 (4) In the circumstances described in Nos **639BY** and **639CP**, and as long as an assignment which received an unfavourable finding cannot be resubmitted as a consequence of the provisions of No **639BZ**, the notifying administration may ask the Board to enter the assignment provisionally in the Master Register, in which event a special symbol to denote the provisional nature of the entry shall be entered in the Remarks Column The Board shall delete this symbol when it receives from the notifying administration, at the end of the period specified in No **639BY** or **639CP**, as appropriate, the information relating to the absence of complaint of harmful interference

639DA Spa2 (5) If the Board does not receive this confirmation within the period referred to in No **639CY** or at the end of the period referred to in No **639BY** or **639CP** as appropriate, the entry concerned shall be cancelled The Board shall advise the administration concerned before taking such action

Section V. Recording of Findings in the Master Register

639DB § 25 Spa2 In any case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated

by a symbol in Column 13a In addition, a remark indicating the reasons for any unfavourable finding shall be inserted in the Remarks Column

Section VI. Categories of Frequency Assignments

639DC § 26 (1) The date in Column 2c shall be the date of putting into use
Spa2 notified by the administration concerned It is given for information only

639DD (2) If harmful interference is actually caused to the reception
Spa2 of any space radiocommunication station whose frequency assignment has been recorded in the Master Register as a result of a favourable finding with respect to Nos **639BM**, **639BN**, **639BO**, **639BP**, **639BQ** and **639BR**, as appropriate, by the use of a frequency assignment to a space radiocommunication station subsequently recorded in the Master Register in accordance with the provisions of No **639CP**, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference

639DE (3) If harmful interference to the reception of any station whose
Spa2 assignment is in accordance with No **501**, **570AB** or **639BM**, as appropriate, is actually caused by the use of a frequency assignment which is not in conformity with No **639BM**, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference

Section VII Review of Findings

639DF § 27 (1) The review of a finding by the Board may be undertaken
Spa2

— at the request of the notifying administration,

ANN 8 (ART 9A)

— *at the request of any other administration interested in* the question, but only on the grounds of actual harmful interference,

— on the initiative of the Board itself when it considers this is justified

639DG Spa2 (2) The Board, in the light of all the data at its disposal shall review the matter, taking into account No **639BM** and, where appropriate, Nos **639BN**, **639BO**, **639BP** **639BQ** and **639BR** and shall render an appropriate finding informing the notifying administration prior either to the promulgation of its finding or to any recording action

639DH Spa2 § 28 (1) After actual use for a reasonable period of an assignment which has been entered in the Master Register on the insistence of the notifying administration following an unfavourable finding with respect to No **639BP** **639BQ** or **639BR** this administration may request the Board to review the finding Thereupon, the Board shall review the matter having first consulted the administrations concerned

639DI Spa2 (2) If the finding of the Board is then favourable it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favourable

639DJ Spa2 (3) If the finding with regard to the probability of harmful interference remains unfavourable no change shall be made in the original entry

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

639DK Spa2 § 29 (1) Where the use of a recorded assignment to a space station is suspended for a period of eighteen months the notifying administration shall, within this eighteen-month period inform the Board

of the date on which such use was suspended and of the date on which the assignment is to be brought back into regular use

639DL Spa2 (2) Whenever it appears to the Board whether or not as a result of action under No **639DK** that a recorded assignment to a space station has not been in regular use for more than eighteen months, the Board shall inquire of the notifying administration as to when the assignment is to be brought back into regular use

639DM Spa2 (3) If no reply is received within six months of action by the Board under No **639DL**, or if the reply does not confirm that the assignment to a space station is to be brought back into regular use within this six-month limit a mark shall be applied against the entry in the Master Register Thereafter the assignment shall be treated in accordance with No **639BS** as one which has been established as having been out of regular use for two years

639DN § 30 Spa2 In case of permanent discontinuance of the use of any recorded frequency assignment the notifying administration shall inform the Board within ninety days of such discontinuance, whereupon the entry shall be removed from the Master Register

639DO § 31 Spa2 Whenever it appears to the Board from the information available that a recorded assignment has not been brought into regular operation in accordance with the notified basic characteristics, or is not being used in accordance with those basic characteristics, the Board shall consult the notifying administration and, subject to its agreement, shall either cancel or suitably modify the entry

639DP § 32 Spa2 If, in connection with an inquiry by the Board under No **639DO** the notifying administration has failed to supply the

ANN 8 (ART 9A)

Board within forty-five days with the necessary or pertinent information, the Board shall make suitable entries in the Remarks Column of the Master Register to indicate the situation

Section IX. Studies and Recommendations

639DQ § 33 Spa2 (1) If it is requested by any administration, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these Regulations, or of harmful interference

639DR Spa2 (2) The Board shall thereupon prepare and forward to the administration concerned a report containing its findings and recommendations for the solution of the problem

639DS § 34 Spa2 In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these administrations within a period of ninety days, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer If it was the requesting administration which failed to answer within this period, the Board shall close the study

Section X Miscellaneous Provisions

639DT § 35 Spa2 (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance

a) computation of the increases in noise temperatures in accordance with No **639AK**

b) preparation of diagrams showing the co-ordination areas as in No **639AN**

c) any other assistance of a technical nature for completion of the procedures in this Article

639DU Spa2 (2) In making a request to the Board under No **639DT**, the administration shall furnish the Board with the necessary information

639DV § 36 Spa2 The technical standards of the Board shall be based upon the relevant provisions of these Regulations and the Appendices thereto, the decisions of Administrative Conferences of the Union, as appropriate, the Recommendations of the C C I R , the state of the radio art and the development of new transmission techniques

639DW § 37 Spa2 The Board shall promulgate to administrations its findings and reasons therefor, together with all changes made to the Master Register, through the weekly circular referred to in No **497**

639DX § 38 Spa2 In case a Member or Associate Member of the Union avails itself of the provisions of Article 28 of the Convention, the Board shall, upon request, make its records available for such proceedings as are prescribed in the Convention for the settlement of international disputes

ANNEX 9

Revision of Article 14 of the Radio Regulations

Article 14 of the Radio Regulations shall be amended as follows

Replace Regulation No 695 by the following new text

MOD **695** Spa2 § 3 In order to avoid interference

— locations of transmitting stations and, where the nature of the service permits locations of receiving stations shall be selected with particular care,

— radiation in and reception from unnecessary directions shall be minimized, where the nature of the service permits by taking the maximum practical advantage of the properties of directional antennae,

— the choice and use of transmitters and receivers shall be in accordance with the provisions of Article 12,

— the conditions specified under No **470V** shall be fulfilled

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ANNEX 10

Revision of Article 15 of the Radio Regulations

Article 15 of the Radio Regulations shall be amended as follows

Replace Regulation No 717 by the following new text

MOD 717 Spa2 (2) In such a case, the administration concerned may also request the Board to act in accordance with the provisions of Sections VII and VIII of Article 9 and Sections IX and X of Article 9A but it shall then supply the Board with the full facts of the case including all the technical and operational details and copies of the correspondence

ANNEX 11

Revision of Article 27 of the Radio Regulations

Article 27 of the Radio Regulations shall be amended as follows

Replace Nos 951 and 952 by the following new texts

MOD 951 Spa2 § 3 (1) Stations on board aircraft may communicate with stations of the maritime mobile or maritime mobile-satellite services They shall conform to those provisions of these Regulations which relate to these services

MOD 952 Spa2 (2) For this purpose stations on board aircraft should use the frequencies allocated to the maritime mobile or maritime mobile-satellite services However, having regard to interference which may be caused by aircraft stations at high altitudes, maritime mobile frequencies in the bands above 30 MHz shall not be used by aircraft stations in any specific area without the prior agreement of all the administrations of the area in which interference is likely to be caused In particular, aircraft stations operating in Region I should not use frequencies in the bands above 30 MHz allocated to the maritime mobile service by virtue of any agreement between administrations in that Region

ANNEX 12

Revision of Article 41 of the Radio Regulations

Article 41 of the Radio Regulations shall be amended as follows

After Regulation No 1567, add the following new Regulation

ADD **1567A** **Spa2** § 6 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 15 Administrations authorizing such space stations shall inform the I F R B , and shall insure that sufficient earth command stations are established before launch to guarantee that any harmful interference that might be reported can be terminated by the authorizing Administration (see No 470V)

ANNEX 13

Revision of Appendix 1 to the Radio Regulations

Appendix 1 to the Radio Regulations shall be amended as follows

Section A. Basic Characteristics to be furnished for Notification under No. 486 of the Regulations

Replace the paragraph "Supplementary information" *by the following*

MOD Spa2 Supplementary information

a) reference frequency, if any, and any co-ordination required by No **492A**,

b) the name of any administration with which an agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

Section B Basic Characteristics to be furnished for Notification under No 487 of the Regulations

Replace the paragraph "Supplementary information" *by the following*

MOD Spa2 Supplementary information

a) any co-ordination required by No **492A**,

b) the name of any administration with which an agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

ANN 13 (APP 1)

Section C. Basic Characteristics to be furnished for Notification under No. 490 of the Regulations

Replace the paragraph "Supplementary information" *by the following*

MOD Spa2 Supplementary information

a) any co-ordination required by No. 492A

b) the name of any administration with which an agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

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ANNEX 14

Revision of Appendix 1A to the Radio Regulations

Appendix 1A to the Radio Regulations shall be amended as follows

The entire Appendix 1A is replaced by the following new text

MOD **Spa2**

APPENDIX 1A

Notices relating to Space Radiocommunication and Radio Astronomy Stations

(See Article 9A)

Section A General Instructions

1 A separate notice shall be sent to the International Frequency Registration Board for notifying

— each new frequency assignment,

— any change in the characteristics of a frequency assignment recorded in the Master International Frequency Register (hereinafter called the *Master Register*),

— any total deletion of a frequency assignment recorded in the Master Register

2 When submitting notices under No **639BA** for earth and space transmitting assignments and under No **639BB** for space and earth receiving assignments, separate notices shall be submitted to the Board for each assignment to an earth or space station In the case of a passive satellite system only earth transmitting and receiving assignments shall be notified

3 In the case of a satellite system employing multiple space stations with the same general characteristics a separate notice shall be submitted for each space station

— when it is aboard a geostationary satellite, or

— when it is aboard a non-geostationary satellite except when a number of satellites have the same radio frequency characteristics and orbital characteristics (excluding the ascending node position), in the latter case one notice covering all such space stations may be submitted

4 The following basic information shall be shown on the notice

a) the serial number of the notice and the date on which the notice is sent to the Board,

b) the name of the notifying administration,

c) sufficient data to identify the particular satellite network in which the earth or space station will operate

d) whether the notice reflects

1) the first use of a frequency by a station,

2) a change in the characteristics of a frequency assignment recorded in the Master Register (indicate whether the change is a replacement addition or deletion of existing characteristics), or

3) a deletion of an assignment in all of its notified characteristics,

e) reference to the I F R B weekly circular providing the advance publication information required in accordance with No **639AA**,

f) basic characteristics as outlined in Section B, C D E or F as appropriate,

g) any other information which the administration considers to be relevant, e g, any factors taken into account when applying Appendix 28 for determination of the co-ordination area and also any indication that the assignment concerned would be operating

ANN 14 (APP 1A)

in accordance with No **115**, information concerning the use of the notified frequency if such use is restricted, or, in the case of notices pertaining to space stations, if the transmissions of the station are to be permanently switched off after a certain period

Section B Basic Characteristics to be furnished in Notices relating to Frequencies used by earth Stations for Transmitting

Item 1 Assigned frequency

Indicate the assigned frequency as defined in Article 1, in kHz up to 30000 kHz inclusive, and in MHz above 30000 kHz (see No **85**)

Item 2 Assigned frequency band

Indicate the bandwidth of the assigned frequency band in kHz (see No **89**)

Item 3 Date of bringing into use

a) In the case of a new assignment, indicate the date (actual or foreseen as appropriate) of bringing the frequency assignment into use

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in Item 4 *a)*) the date to be given shall be that of the latest change (actual or foreseen, as appropriate)

Item 4 Identity and location of the transmitting earth station

a) Indicate the name by which the station is known or the name of the locality in which it is situated

b) Indicate the country in which the station is located Symbols from the Preface to the International Frequency List should be used

c) Indicate the geographical co-ordinates (in degrees and minutes) of the transmitter site

ANN 14 (APP 1A)

Item 5 Station(s) with which communication is to be established

Identify the associated receiving space station(s) by reference to the notification thereof or in any other appropriate manner, or, in the case of a passive satellite, the identity of the satellite and the location of the associated receiving earth station(s)

Item 6 Class of station and nature of service

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

Item 7 Class of emission, necessary bandwidth and description of transmission

In accordance with Article 2 and Appendix 5

a) indicate the class of emission

b) [1] indicate the carrier frequency or frequencies of the emission(s),

c) [1] indicate for each carrier, the class of emission, necessary bandwidth and description of transmission

Item 8 Power characteristics of the transmission

a) [1] Indicate for each carrier, the peak power supplied to the input of the antenna

b) Indicate the total peak power and the maximum power density per Hz 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

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[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration

ANN 14 (APP 1A)

Item 9 Transmitting antenna characteristics

a) Indicate the isotropic gain (dB) of the antenna in the direction of maximum radiation (see No **100**)

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

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

d) Indicate graphically the horizon elevation angle for each azimuth around the earth station

e) Indicate in degrees from the horizontal plane the planned minimum operating angle of elevation of the antenna in the direction of maximum radiation

f) Indicate in degrees, clockwise from true north, the planned range of operating azimuthal angles for the direction of maximum radiation

g)[1] Indicate the type of polarization of the transmitted wave in the direction of maximum radiation, also indicate the sense in the case of circular polarization and the plane in the case of linear polarization

h) Indicate the altitude (metres) of the antenna above mean sea level

Item 10[1] Modulation characteristics

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

[1] This information need only be furnished when such information has been used as a basis to effect co ordination with another administration

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 indicate the lowest and highest frequencies of the baseband and the r m s frequency deviation of the test tone as a function of baseband frequency,

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

c) carrier phase-shift modulated by a pulse code modulation signal (PCM PSK) indicate the bit rate and the number of phases,

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

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

f) for any type of modulation as applicable, indicate the characteristics of energy dispersal

Item 11 Maximum hours of operation

Indicate in G M T the maximum hours of operation on the frequency of each carrier

Item 12 Co-ordination

Give the name of any administration with which the use of this frequency has been successfully co-ordinated in accordance

ANN 14 (APP 1A)

with Nos **639AJ** and **639AN** and, if appropriate, the name of any administration with which co-ordination has been sought but not effected

Item 13 Agreements

Give, if appropriate, the name of any administration with which agreement has been effected to exceed the limits prescribed in these Regulations, and the contents of such agreement

Item 14 Operating administration or company

Give the name of the operating administration or company and the postal and telegraphic address of the administration to which communications should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of stations (see Article 15)

Section C. Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Earth Stations

Item 1 Assigned frequency

Indicate the assigned frequency of the emission to be received, as defined in Article 1, in kHz up to 30 000 kHz inclusive, and in MHz above 30 000 kHz (see No **85**)

Item 2 Assigned frequency band

Indicate the bandwidth of the assigned frequency band in kHz (see No **89**)

Item 3 Date of bringing into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) when reception of the assigned frequency begins

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in Item 4 *a)*) the date to be given shall be that of the latest change (actual or foreseen, as appropriate)

Item 4 Identity and location of the receiving earth station

a) Indicate the name by which the receiving earth station is known or the name of the locality in which it is situated

b) Indicate the country in which the receiving earth station is located Symbols from the Preface to the International Frequency List should be used

c) Indicate the geographical co-ordinates (in degrees and minutes) of the receiver site

Item 5 Station(s) with which communication is to be established

Identify the associated transmitting space station(s) by reference to the notification thereof or in any other appropriate manner, or in the case of a passive satellite, the identity of the satellite and the associated transmitting earth station(s)

Item 6 Class of station and nature of service

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

Item 7 Class of emission, necessary bandwidth and description of the transmission to be received

In accordance with Article 2 and Appendix 5

a) indicate the class of emission of the transmission to be received,

ANN 14 (APP 1A)

b, [1] indicate the carrier frequency or frequencies of the transmission to be received,

c) [1] indicate, for each carrier to be received, the class of emission, necessary bandwidth and description of the transmission

Item 8 Earth station receiving antenna characteristics

a) Indicate the isotropic gain (dB) of the antenna in the direction of maximum radiation (see No **100**)

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

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

d) Indicate graphically the horizon elevation angle for each azimuth around the earth station

e) Indicate in degrees from the horizontal plane the planned minimum operating angle of elevation of the antenna in the direction of maximum radiation

f) Indicate in degrees clockwise from True North, the planned range of operating azimuthal angles for the direction of maximum radiation

g) Indicate the altitude (metres) of the antenna above mean sea level

Item 9 Noise temperature

Indicate the lowest equivalent satellite link noise temperature in kelvins (see No 103A) under "quiet sky conditions" This

[1] This information need only be furnished when such information has been used as a basis to effect co ordination with another administration

value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is aboard a geostationary satellite and in other cases for the minimum value of angle of elevation

Item 10 Maximum hours of reception

Indicate in G M T the maximum hours of reception of the frequency of each carrier

Item 11 Co-ordination

Give the name of any administration with which the use of this frequency has been successfully co-ordinated in accordance with Nos **639AJ** and **639AN** and, if appropriate, the name of any administration with which co-ordination has been sought but not effected

Item 12 Agreements

Give also, if appropriate, the name of any administration with which agreement has been effected to exceed the limits prescribed in these Regulations, and the contents of such agreement

Item 13 Operating administration or company

Give the name of the operating administration or company and the postal and telegraphic addresses of the administration to which communications should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15)

Section D Basic Characteristics to be furnished in Notices relating to Frequencies used by Space Stations for Transmitting

Item 1 Assigned frequency

Indicate the assigned frequency as defined in Article 1, in kHz up to 30 000 kHz inclusive, and in MHz above 30 000 kHz (see

ANN 14 (APP 1A)

No **85**) At least one separate assignment notice should be made out for each antenna radiation beam

Item 2 Assigned frequency band

Indicate the bandwidth of the assigned frequency band in kHz (see No **89**)

Item 3 Date of bringing into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) of bringing the frequency assignment into use

b) Whenever the assignment is changed in any of its basic characteristics as shown in this Section (except in the case of a change in Item 4), the date to be given shall be that of the latest change (actual or foreseen as appropriate)

Item 4 Identity of the space station(s)

Indicate the identity of the space station(s)

Item 5 Orbital information

a) In the case of a space station aboard a geostationary satellite indicate the nominal geographical longitude on the geostationary satellite orbit and the longitudinal and inclination tolerances Indicate also

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

2) the arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas, and

3) in the event that the arc defined in paragraph 2) above is less than the arc defined in paragraph 1) above provide the reasons therefor

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

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

Item 6 Service area

Indicate the service area or areas on the Earth or the name of the locality and country in which the associated receiving station(s) is (are) located

Item 7 Class of station and nature of service

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

Item 8 Class of emission, necessary bandwidth and description of transmission

In accordance with Article 2 and Appendix 5

a) indicate the class of emission of the transmission,

b) [1] indicate the carrier frequency or frequencies of the transmission,

c) [1] indicate, for each carrier, the class of emission, necessary bandwidth and description of transmission

[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration

ANN 14 (APP 1A)

Item 9 Power characteristics of the transmission

a) [1] Indicate for each carrier the peak power supplied to the input of the antenna.

b) Indicate the total peak power and the maximum power density per Hz at 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

Item 10 Space station transmitting antenna characteristics

For each service area

a) in the case of a space station aboard a geostationary satellite, indicate the gain of the space station transmitting antenna by means of gain contours plotted on a map of the Earth's surface The isotropic gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter as necessary, below the maximum gain, shall be indicated,

b) in the case of a space station aboard a non-geostationary satellite indicate the isotropic gain of the space station transmitting antenna in the main direction of radiation and indicate the antenna radiation pattern in those directions which can intersect with the Earth's surface taking the gain in the main direction of radiation as a reference,

c) [1] indicate the type of polarization of the antenna, the sense in the case of circular polarization and the plane in the case of linear polarization, also indicate the worst case axial ratio in the half power beam,

d) for a geostationary satellite indicate the pointing accuracy of the antenna

[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration

ANN 14 (APP 1A)

Item 11[1] Modulation characteristics

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

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

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

c) carrier phase-shift-modulated by a pulse code modulation signal (PCM-PSK) indicate the bit rate and the number of phases,

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

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

f) for any type of modulation as applicable, indicate the characteristics of energy dispersal

[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration.

ANN 14 (APP 1A)

Item 12 Maximum hours of operation

Indicate in G M T the maximum hours of operation on the frequency of each carrier

Item 13 Co-ordination

Give the name of any administration or group of administrations with which the use of the satellite network to which the space station belongs has been successfully co-ordinated in accordance with No **639AJ.**

Item 14 Agreements

Give also, if appropriate, the name of any administration with which agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

Item 15 Operating administration or company

Give the name of the operating administration or company and the postal and telegraphic addresses of the administration to which communications should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of stations (see Article 15)

Section E. Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Space Stations

Item 1 Assigned frequency

Indicate the assigned frequency of the emission to be received, as defined in Article 1, in kHz up to 30 000 kHz inclusive, and in MHz above 30 000 kHz (see No **85**) At least one separate assignment notice should be made out for each antenna radiation beam

ANN 14 (APP 1A)

Item 2 Assigned frequency band

Indicate the bandwidth of the assigned frequency band in kHz (see No 89)

Item 3 Date of bringing into use

a) In the case of a new assignment, indicate the date (actual or foreseen, as appropriate) when reception of the assigned frequency begins

b) Whenever the assignment is changed in any of its basic characteristics, as shown in this Section (except in the case of a change in Item 4, the date to be given shall be that of the latest change (actual or foreseen, as appropriate)

Item 4 Identity of the receiving space station(s)

Indicate the identity of the receiving space station(s)

Item 5 Orbital information

a) In the case of a space station aboard a geostationary satellite, indicate the planned nominal geographical longitude on the geostationary satellite orbit and the planned longitudinal and inclination tolerances Indicate also

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

2) the arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas, and

3) in the event that the arc defined in paragraph 2) above is less than the arc defined in paragraph 1) above, provide the reasons therefor

ANN 14 (APP 1A)

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

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

Item 6 Associated transmitting earth station(s)

Identify the associated transmitting earth station(s) by reference to the notification thereof or in any other appropriate manner

Item 7 Class of station and nature of service

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

Item 8 Class of emission, necessary bandwidth and description of the transmission(s) to be received

In accordance with Article 2 and Appendix 5

a) indicate the class of emission of the transmission(s) to be received,

b) [1] indicate the carrier frequency or frequencies of the transmission(s) to be received,

c) [1] indicate for each carrier to be received, the class of emission necessary bandwidth and description of the transmission(s) to be received

[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration

ANN 14 (APP 1A)

Item 9 Space station receiving antenna characteristics

For each receiving beam

a) in the case of a space station aboard a geostationary satellite, indicate the gain of the space station receiving antenna by means of gain contours plotted on a map of the Earth's surface The isotropic gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter as necessary, below the maximum gain, shall be indicated,

b) in the case of a space station aboard a non-geostationary satellite, indicate the isotropic gain of the space station receiving antenna in the main direction of radiation and indicate the antenna radiation pattern in those directions which can intersect with the Earth's surface, taking the gain in the main direction of radiation as a reference

c) [1] indicate the type of polarization of the antenna the sense in the case of circular polarization, and the plane in the case of linear polarization, also indicate the worst case axial ratio in the half power beam,

d) indicate, for a geostationary satellite, the pointing accuracy of the antenna

Item 10 Noise temperature

Indicate the total receiving system noise temperature (in kelvins) at the input of the space station receiver

Item 11 Maximum hours of reception

Indicate in G M T the maximum hours of reception of the frequency of each carrier

[1] This information need only be furnished when such information has been used as a basis to effect co-ordination with another administration

ANN 14 (APP 1A)

Item 12 Co-ordination

Give the name of any administration or group of administrations with which the use of the satellite network to which the space station belongs has been successfully co-ordinated in accordance with No **639AJ**

Item 13 Agreements

Give also, if appropriate, the name of any administration with which agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement

Item 14 Operating administration or company

Give the name of the operating administration or company and the postal and telegraphic addresses of the administration to which communications should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15)

Section F. Basic *Characteristics to be furnished in Notices relating* to Frequencies to be received by Radio Astronomy Stations

Item 1 Observed frequency

Indicate the centre of the frequency band observed, in kHz up to 30 000 kHz inclusive, and in MHz above 30 000 kHz

Item 2 Date of bringing into use

a) Indicate the date (actual or foreseen, as appropriate) when reception of the frequency band begins

b) Whenever there is a change in any of the basic characteristics, as shown in this Section (except in the case of a change in Item 3 *b)*), the date to be given shall be that of the latest change (actual or foreseen, as appropriate)

ANN 14 (APP 1A)

Item 3 Name and location of the station

a) Indicate the letters "RA"

b) Indicate the name by which the station is known or the name of the locality in which it is situated or both

c) Indicate the country in which the station is located Symbols from the Preface to the International Frequency List should be used

d) Indicate the geographical co-ordinates (in degrees and minutes) of the station site

Item 4 Bandwidth

Indicate the width of the frequency band (in kHz) observed by the station

Item 5 Antenna characteristics

Indicate the antenna type and dimensions effective area and angular coverage in azimuth and elevation

Item 6 Maximum hours of reception

Indicate in G M T the maximum hours of reception of the frequency band shown in Item 4

Item 7 Noise temperature

Indicate the over-all receiving system noise temperature (in kelvins)

Item 8 Class of observations

Indicate the class of observations to be taken on the frequency band shown in Item 4 Class A observations are those in which the sensitivity of the equipment is not a primary factor Class B

ANN 14 (APP 1A)

observations are those of such a nature that they can be made only with advanced low-noise receivers using the best techniques

Item 9 Operating administration or company

Indicate the identity of the operating administration or company and the postal and telegraphic addresses of the administration to which communication should be sent on urgent matters regarding interference and questions referring to the technical operation of stations (see Article 15)

Section G. Form of Notice (Earth Station)

Form of Notice (1)

for use when notifying to the International Frequency Registration Board a Frequency Assignment or a Change to an Assignment recorded in the Master International Frequency Register (see Article 9A)

EARTH STATION { for transmitting (T), see Section B of Appendix 1A / for receiving (R), see Section C of Appendix 1A }

(a) { Notice No. / Date }

(c) [illegible] satellite network

(d) Reference of weekly circular relating to No. 639AA

kHz

MHz

Assigned frequency

(d1) New assignment

(d2) Change

(d3) Deletion of an assignment

4a Name of earth station

4b Country

4c Longitude and latitude of earth station

For I.F.R.B. use

Assigned frequency	Class of station and nature of service	Class of emission	Carrier frequency (frequencies) 7b	Class of emission, necessary bandwidth and description of transmission 7c	Power characteristics: Peak power 8a(T)	Total peak power 8a(T)	Max. power density 8a(T)	Antenna characteristics (3): [illegible] 8(R) 9(T)	Half-power beamwidth 8b(R) 9b(T)	Minimum elevation angle (2) 8c(R) 9c(T)	Azimuth [illegible] 8f(R) 9f(T)	Polarization 9g(T)	Altitude (m) 8g(R) 9(T)	Modulation characteristics 10(T)	Lowest predicted noise temperature 9(R)	Maximum hours of operation of each carrier 10(R) 11(T)	(g) Supplementary information

	Operating administration or company
	Name and address of administration

(3) This information need only be furnished when such information has been used as a basis to effect coordination with another administration.

(4) NOTE: For radiation diagram 8c(R), 9c(T) and horizon elevation angle diagram 8d(R), 9d(T) attach the relevant information to this form.

11(R), 12(T) COORD/

12(R), 13(E) Agreements/

(g) Other information

(1) The [illegible] of the notice is a notice for individual administrations

Section E Form of Notice (Space Station)

Form of Notice (1)

for use when notifying to the International Frequency Registration Board a Frequency Assignment or a Change to an Assignment recorded in the Master International Frequency Register (see Article 9A)

SPACE STATION — for transmitting (E) see Section D of Appendix 1A; for receiving (R) see Section E of Appendix 1A

Identity of satellite network

Reference of weekly circular relating to No. 639AA

For I.F.R.B. use

Number of space stations

Maximum hours of operation (G.M.T.)

(g) Supplementary information

(R)/(E) COORD

(R)/(E) Agreements

Other information

ANNEX 15

Addition of a new Appendix (Appendix 1B) to the Radio Regulations

The following new Appendix 1A shall be added to the Radio Regulations after Appendix 1A

ADD Spa2

APPENDIX 1B

Advance Publication Information to be furnished for a Satellite Network

(see Article 9A)

Section A. General Instructions

Item 1 Information shall be provided separately for each satellite network

Item 2 Information to be furnished for each satellite network shall include general characteristics (Section B), and, as applicable, characteristics in the Earth-to-space direction (Section C), characteristics in the space-to-Earth direction (Section D), and characteristics for space-to-space relay (Section E)

Section B General Characteristics to be furnished for a Satellite Network

Item 1 Identity of the satellite network

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

Item 2 Date of bringing into use

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

ANN 15 (APP 1B)

Item 3 Administration or group of administrations submitting the advance information

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

Item 4 Orbital information relating to the space station(s)

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

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

2) the arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas, and

3) in the event that the arc defined in paragraph 2) above is less than the arc defined in paragraph 1) above, provide the reasons therefor

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

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

ANN 15 (APP 1B)

of the space station(s) and the number of satellites used having the same characteristics

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

Item 1 Earth-to-space service area(s)

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

Item 2 Class of stations and nature of service

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

Item 3 Frequency range

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

Item 4 Power characteristics of the transmitted wave

a) For each Earth-to-space service area indicate the maximum spectral power density (W/Hz) to be delivered to the antenna of the transmitting earth stations (the bandwidth over which this is averaged depends on the nature of the service concerned)

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

ANN 15 (APP 1B)

Item 5 Characterisitcs of space station receiving antennae

For each Earth-to-space service area

a) in the case of a space station aboard a geostationary satellite, indicate the estimated gain of the space station receiving antenna by means of gain contours plotted on a map of the Earth's surface; the isotropic gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter as necessary, below the maximum gain, shall be indicated,

b) in the case of a space station aboard a non-geostationary satellite, indicate the estimated isotropic gain of the space station receiving antenna in the main direction of reception and indicate the antenna radiation pattern in those directions which can intersect with the Earth's surface, taking the gain in the main direction of radiation as a reference

Item 6 Noise temperature of the receiving space station

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

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

Item 1 Space-to-Earth service area(s)

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

Item 2 Class of stations and nature of service

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

ANN 15 (APP 1B)

Item 3 Frequency range

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

Item 4 Power characteristics of the transmission

For each space-to-Earth service area, indicate the maximum spectral power density (W/Hz) to be delivered to the transmitting antenna of the space station (the bandwidth over which this is averaged depends on the nature of the service concerned)

Item 5 Characteristics of space station transmitting antennae

For each space-to-Earth service area

a) in the case of a space station aboard a geostationary satellite indicate the estimated gain of the space station transmitting antenna by means of gain contours plotted on a map of the Earth's surface, the isotropic gain at each contour which corresponds to a gain of 2, 4, 6, 10 and 20 dB and at 10 dB intervals thereafter as necessary, below the maximum gain shall be indicated,

b) in the case of space station aboard a non-geostationary satellite, indicate the estimated isotropic gain of the space station transmitting antenna in the main direction of transmission and indicate the antenna radiation pattern in those directions which can intersect with the Earth's surface, taking the gain in the main direction of transmission as a reference

Item 6 Characteristics of receiving earth stations

a) For each space-to-Earth service area, when other than a simple frequency changing transponder is used aboard the space station, indicate the lowest total receiving system noise temperature of the earth stations

ANN 15 (APP 1B)

For each space-to-Earth service area and for each projected usage [1], when simple frequency changing transponders are used on the space station, indicate the lowest equivalent satellite link noise temperature and the associated value of transmission gain evaluated from the output of the receiving antenna of the space station to the output of the receiving antenna of the earth station For each projected usage, indicate also the receiving antenna(e) of the space station to which each simple frequency changing transponder will be connected

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

Section E. Characteristics to be furnished for Space-to-Space Relay

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

a) identity or identities of the other satellite network(s) to which the satellite network is connected,

b) transmit and receive frequency bands,

c) classes of emission,

d) nominal equivalent isotropically radiated power(s) on the beam axis

[1] A different usage will be considered to take place when different types of carriers are employed (different by virtue of maximum power spectral density) or when different types of receiving earth stations are employed (different by virtue of receiving antenna gain)

ANNEX 16

Revision of Appendix 9 to the Radio Regulations

Appendix 9 to the Radio Regulations shall be amended as follows

Replace the title of Appendix 9 by the following

APPENDIX 9

MOD Spa2

Service Documents

(See Articles 8 9 9A 10 and 20)

List I. International Frequency List

Replace footnotes 1 to 8 by the following (footnotes 3 and 5 are unchanged)

MOD Spa2 [1] In the case of television broadcasting stations in Region 1 the frequency in this column is that of the sound and vision carriers (*See Appendix 1 to the Radio Regulations*) [2] See Nos **607** and **608** of the Radio Regulations [3] A symbol instead of a date indicates an assignment notified pursuant to No **272** of the Extraordinary Administrative Radio Conference Agreement (*Geneva 1951*) or in the frequency bands above 27 500 kHz an assignment for which the notice was received by the I F R B before 1st April 1952 [4] See Appendix 1 to the *Radio Regulations* [5] Columns 12a and 12b contain numbers or letters which are explained in the Preface to the International Frequency List [6] See Article 9 Section II and Article 9A Section IV of the Radio Regulations [7] See Nos **516**, **517**, **621**, **622**, **639BS**, **6391M**, **6391IO** and **6391IP** of the Radio Regulations [8] Including dates referred to in Section II of Article 9 and Section IV of Article 9A of the Radio Regulations

Replace the title of List VIIIA by the following

MOD Spa2

List VIIIA. List of Space Radiocommunication Stations and Radio Astronomy Stations [1]

ANN 16 (APP 9)

Replace the title of Section I by the following

MOD Spa2

I - Earth stations in the fixed-satellite service

Replace the column heads of Section I by the following

MOD Spa2

1	2	Transmission						Reception						8	9	Remarks
Name by which the station is known or the name of the locality in which it is situated	Geographical co-ordinates (in degrees and minutes) of the transmitter site	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Power (kW)	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Power (kW)	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Identity of the associated space station(s) with which communication is to be established	Operating administration or company	1 Special channelling arrangements for a) telegraphy b) telephony c) other types of communication as appropriate 2 Special methods of modulation
		3a	3b	3c	4a	4b	4c	5a	5b	6a	6b	7a	7b			
		Telecommand where appropriate			Communications			Telemetering		Tracking		Communications				

* For the cases where these data must be supplied see Nos 639BA, 639BB and 639BC

Replace the title of Section 2 by the following

MOD Spa2

2 *Space stations in the fixed-satellite service*

Replace the column heads of Section 2 by the following

MOD Spa2

1	Transmission								Reception				7	8	9
Identity of the station	Telemetering			Tracking			Communications			Telecommand where appropriate		Communications	Service area or areas on the Earth or the name of the locality and country in which the associated earth station(s) is (are) located	Operating administration or company	Remarks
	2a Frequency (MHz or GHz)	2b Class of emission necessary bandwidth and description of transmission	2c Power (watts)	3a Frequency (MHz or GHz)	3b Class of emission necessary bandwidth and description of transmission	3c Power (watts)	4a Frequency (MHz or GHz)	4b Class of emission necessary bandwidth and description of transmission	4c Power (watts)	5a Frequency (MHz or GHz)	5b Class of emission necessary bandwidth and description of transmission	6a Frequency (MHz or GHz)	6b Class of emission necessary bandwidth and description of transmission			9 1 Orbital information *a)* angle of inclination of the orbit *b)* period of the object in space *c)* altitude of apogee (km) *d)* altitude of perigee (km) *e)* number of satellites used if appropriate, *f)* in the case of geostationary satellite nominal geographical longitude on the geostationary satellite orbit arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas 2 Special channelling arrangements for *a)* telegraphy, *b)* telephony *c)* other types of communication as appropriate 3 Special methods of modulation

ANN 16 (APP 9)

MOD Spa2

Replace the title of Section 3 by the following

3 — Earth stations in the earth exploration-satellite service

MOD Spa2

Replace the column heads of Section 3 by the following

		Transmission		Reception		Remarks
—	Name by which the station is known or the name of the locality in which it is situated					
2	Geographical co-ordinates (in degrees and minutes) of the transmitter site					
3a	Frequency (MHz or GHz)	Telecommand where appropriate		Telemetering		
3b	Class of emission necessary bandwidth and description of transmission					
3c	Power (kW)					
4a	Frequency (MHz or GHz)					
4b	Class of emission necessary bandwidth and description of transmission					
5a	Frequency (MHz or GHz)			Tracking		
5b	Class of emission necessary bandwidth and description of transmission					
6a	Frequency (MHz or GHz)			Reception of earth exploration information		
6b	Class of emission necessary bandwidth and description of transmission					
7	Identity of the associated space station(s) with which communication is to be established					
8	Operating administration or company					
9						Special methods of modulation

Replace the title of Section 4 by the following

MOD Spa2

4 Space stations in the earth exploration-satellite service

Replace the column heads of Section 4 by the following

MOD Spa2

1	Identity of the station												
		Transmission							Reception				
		Telemetering			Tracking			Transmission of earth exploration information					
		2a	2b	2c	3a	3b	3c	4a	4b	4c	5a	5b	6	7	8
		Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (watts)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (watts)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (watts)	Telecommand Frequency (MHz or GHz) where appropriate	Class of emission, necessary bandwidth and description of transmission	Service area or areas on the Earth or the name of the locality and country in which the associated earth station(s) is (are) located	Operating administration or company	Remarks 1 Orbital information *a)* angle of inclination of the orbit, *b)* period of the object in space *c)* altitude of apogee (km) *d)* altitude of perigee (km) *e)* number of satellites used if appropriate *f)* in the case of a geostationary satellite nominal geographical longitude on the geostationary satellite orbit, arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas 2 Special channelling arrangements for *a)* telegraphy *b)* telephony *c)* other types of communication as appropriate 3 Special methods of modulation

ANN 16 (APP 9)

Replace the title of Section 5 by the following

MOD Spa2 *5 — Earth stations in the radiodetermination-satellite service*

Replace the column heads of Section 5 by the following

MOD Spa2

Name by which the station is known or the name of the locality in which it is situated	Geographical co-ordinates (in degrees and minutes) of the transmitter site	Transmission — Telecommand where appropriate: Frequency (MHz or GHz)	Transmission — Telecommand where appropriate: Class of emission, necessary bandwidth and description of transmission	Transmission — Telecommand where appropriate: Power (kW)	Reception — Telemetering: Frequency (MHz or GHz)	Reception — Telemetering: Class of emission, necessary bandwidth and description of transmission	Reception — Tracking: Frequency (MHz or GHz)	Reception — Tracking: Class of emission, necessary bandwidth and description of transmission	Reception — Supplementary information necessary for the performance of the radiodetermination system: Frequency (MHz or GHz)	Reception — Supplementary information necessary for the performance of the radiodetermination system: Class of emission, necessary bandwidth and description of transmission	Identity of the associated space station(s) with which communication is to be established	Operating [illegible]	Remarks — Special methods of modulation
1	2	3a	3b	3c	4a	4b	5a	5b	6a	6b	7	8	9

Replace the title of Section 6 by the following

MOD Spa2 6 *Space stations in the radiodetermination-satellite service*

Replace the column heads of Section 6 by the following

MOD Spa2

	Transmission									Reception				
	Telemetering			Tracking			Transmission of radiodetermination information			Telecommand where appropriate				Remarks
Identity of the station	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Power (watts)	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Power (watts)	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Power (watts)	Frequency (MHz or GHz)	Class of emission necessary bandwidth and description of transmission	Service area or areas on the Earth or the name of the locality and country in which the associated earth station(s) is (are) located	Operating administration or company	1 Orbital information *a)* angle of inclination of the orbit *b)* period of the object in space *c)* altitude of apogee (km) *d)* altitude of perigee (km) *e)* number of satellites used if appropriate *f)* in the case of a geostationary satellite nominal geographical longitude on the geostationary satellite orbit, – arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas 2 Special channelling arrangements for *a)* telegraphy *b)* telephony, *c)* other types of communication, *as appropriate* 3 Special methods of modulation
1	2a	2b	2c	3a	3b	3c	4a	4b	4c	5a	5b	6	7	8

ANN 16 (APP 9)

Replace the title of Section 7 by the following

MOD Spa2 *7 — Earth stations in the space research service*

Replace the column heads of Section 7 by the following

MOD Spa2

Name by which the station is known or the name of the locality in which it is situated	Geographical co-ordinates (in degrees and minutes) of the transmitter site	Transmission: Telecommand where appropriate			Reception: Telemetering		Reception: Tracking		Reception: Reception of research information		Identity of the associated space station(s) with which communication is to be established	Operating administration or company	Remarks
		Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (kW)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission			Any special characteristics of the station and scope of research
1	2	3a	3b	3c	4a	4b	5a	5b	6a	6b	7	8	

Replace the title of Section 8 by the following

MOD Spa2 8 – *Space stations in the space research service*

Replace the column heads of Section 8 by the following

MOD Spa2

Identity of the station	Transmission									Reception		Service area or areas on the Earth or names of the associated earth stations	Operating administration or company	Remarks
	Telemetering			Tracking			[illegible]			Telecommand and, where appropriate, [illegible]				
	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (dBW)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (dBW)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission	Power (dBW)	Frequency (MHz or GHz)	Class of emission, necessary bandwidth and description of transmission			1. In the case of an earth satellite, orbital information: a) angle of inclination of the orbit b) period of the object in space c) altitude of apogee (km) d) altitude of perigee (km) e) number of satellites used, if appropriate f) In the case of geostationary satellite: – nominal geographical longitude on the geostationary satellite orbit – arc of the geostationary satellite orbit within which the space station could provide the required service to its associated earth stations or service areas 2. In the case of a space probe, general indication of its trajectory 3. Special methods of modulation
1	2a	2b	2c	3a	3b	3c	4a	4b	4c	5a	5b	6	7	8

Replace the title of Section 9 by the following

MOD Spa2 9 – *Stations in the radio astronomy service*

ANNEX 17

Revision of Appendix 10 to the Radio Regulations

Appendix 10 to the Radio Regulations shall be amended as follows:

Delete the symbol FE

Replace the symbols EC TC TH TM *and* TN *by the following*

MOD	EC	Space station in the fixed-satellite service
MOD	TC	Earth station in the fixed-satellite service
MOD	TH	Earth station in the space research service
MOD	TM	Earth station in the meteorological-satellite service
MOD	TN	Earth station in the radionavigation-satellite service

Add in alphabetical order the following new symbols

ADD	EA	Space station in the amateur-satellite service
ADD	EB	Space station in the broadcasting-satellite service (sound broadcasting)
ADD	EV	Space station in the broadcasting satellite service (television)
ADD	TA	Space operation earth station in the amateur-satellite service
ADD	TE	Transmitting earth station
ADD	TF	Fixed earth station in the radiodetermination-satellite service
ADD	TL	Mobile earth station in the radiodetermination-satellite service
ADD	TP	Receiving earth station
ADD	TT	Earth station in the space operation service

FINAL PROTOCOL

At the time of signing the Final Acts of the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) the undersigned delegates take note of the following statements made by signatory delegations

GENERAL

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) decided that the following statement by India should be included in the Final Protocol forming part of the Final Acts of the Conference

> In India, the band 845-935 MHz is also used in the experimentation of satellite broadcasting of television with frequency modulation including energy dispersal, subject to agreement with the administrations having services operating in accordance with the Table of Frequency Allocations which may be affected
>
> For the protection of terrestrial television services the power flux-density limit given in Radio Regulation **332A** will apply, and for the protection of fixed and mobile services operating in this band, the power flux-density limit given in Radio Regulation **470NJ** and the power flux-density limit in Radio Regulation **470NK** will apply "

FEDERAL REPUBLIC OF CAMEROON

The Delegation of the Federal Republic of Cameroon to the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), unable at the present state of its development to make pertinent comments on the proposed allocation of frequency bands between 40 and 275 GHz yet earnestly wishing to encourage technological progress,

signs the Final Acts of the present Conference but reserves for its Government the right to take such action as it may consider necessary to safeguard its interests, and to protect its telecommunication network

should certain Members or Associate Members fail to comply with the provisions of the Radio Regulations thus revised and amplified

CENTRAL AFRICAN REPUBLIC

The Delegation of the Central African Republic to the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) signs the Final Acts of the present Conference but reserves for the Government of the Central African Republic the right to take such action as it may consider necessary to safeguard its interests should certain Members or Associate Members fail in any way to comply with the decisions of the present Conference or should action resulting from the reservations made by other countries jeopardize the efficient operation of its telecommunication services

CEYLON

The Delegation of Ceylon reserves for its Government the right to take such action as it may consider necessary to safeguard its interests should certain Members fail in any way to comply with the decisions of the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), or should reservations by other countries jeopardize its telecommunication services

CHILE

The Chilean Delegation reserves the right for the Republic of Chile to take, in cooperation with the International Telecommunication Union, such action as it may consider legitimate to safeguard its sovereignty and interests should any Member or Associate Member fail to comply with any or all of the provisions of the revised Radio Regulations (Geneva, 1971) and the Montreux Convention (1965) or should reservations made by other countries affect directly or indirectly the interests and/or telecommunication systems of the Republic of Chile

FINAL PROTOCOL

DEMOCRATIC REPUBLIC OF THE CONGO

The Delegation of the Democratic Republic of the Congo to the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) reserves for its Government the right, in co-operation with the International Telecommunication Union, to take such action as it may consider necessary to safeguard its interests should certain Members or Associate Members fail to comply with the provisions of the revised Radio Regulations, or should reservations made by other countries jeopardize the efficient operation of its telecommunication services.

REPUBLIC OF THE IVORY COAST

The Delegation of the Ivory Coast wishes to declare that by virtue of the powers conferred on it, it reserves for its Government the right to take such action as it may consider necessary, in co-operation with the International Telecommunication Union, to safeguard its interests should certain Members or Associate Members fail in any way whatever to comply with the provisions in the revised version of the Radio Regulations (Geneva, 1959) prepared by the World Administrative Radio Conference for Space Telecommunications (Geneva, 197[illegible]) or should reservations made by other countries jeopardize the efficient operation of its telecommunication services.

REPUBLIC OF INDONESIA

The Indonesian Delegation is [illegible] the firm belief that only through close international co-operation on as broad a basis as possible could the tremendous potential of satellite communications be realized.

Indonesia being an archipelago with a vast land and sea area looks forward with great hope to the expansion of satellite communications as to help solving its tremendous communication problems.

The great importance of satellite communications in helping to diffuse education, information and other public services to the people in places far away from the capitals is being fully recognized by the developing countries.

There is, however, great need for the developing countries to fully participate in the discussions and in important decisions concerning the future of the satellite systems They need to be continuously informed with regard to its further progress and development

Furthermore the developing countries should not be left with a feeling as being dependent on the goodwill of a small group in order to enjoy the progress of this technology The use of the satellite system should not be limited to a few rich assistance measures have therefore to be devised so as to allow even the poorest among the developing countries to take advantage of the progress in the satellite communication systems

If the progress of this technology is to benefit mankind as a whole and if it is to become a substantial contribution towards the success of the Second Development Decade then it is necessary that more attention be given to the interest of the developing countries

Indonesia is grateful to the I T U and the U N D P for the assistance given so far in the improvement of its communication system There are however, projects which are still to be completed such as the regional telecommunication network in South East Asia educational projects telecommunication projects in West Irian in the framework of the Funds for Development for West Irian and others for which further assistance is being required It is the sincere hope of Indonesia that it could be given technical assistance in developing its own national satellite communication system

IRAN

The Imperial Government of Iran reserves the right to take such action as it may consider necessary to protect and use its services as operated at present or to be brought into operation in the future should they be affected by the services of other countries

It also reserves the right not to accept the I F R B procedures for registering the frequencies now used or to be used in the future in respect of its equipment and on its territory

The Delegation of Iran therefore reserves for its country the right to take such action as may be necessary to meet its requirements in telecommunications and to protect its existing and future services without restriction

93 162 O 73 41

of any sort as to the equipment used or to be used in the future in all frequency bands

JAMAICA

The Delegation of Jamaica reserves for its Government the right to take such action as it may consider necessary to safeguard its interests should any Member fail in any way to comply with the decisions of the World Administrative Radio Conference for Space Telecommunications (Geneva 1971) and in so doing jeopardize the telecommunication services of Jamaica

ISLAMIC REPUBLIC OF MAURITANIA

The Delegation of the Islamic Republic of Mauritania to the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), *in signing the Final Acts of this Conference, reserves for its Government* the right, in co-operation with the International Telecommunication Union, to take such action as it may consider necessary to

— safeguard its interests or

protect in all the frequency bands concerned its existing, projected or future telecommunication network should certain Members or Associate Members fail in any way to comply with the revised and supplemented provisions of the Radio Regulations, or should reservations made by other countries jeopardize the normal operation of its telecommunication services

REPUBLIC OF THE NIGER

The Delegation of the Republic of the Niger reserves for its Government the right to take any steps it may deem fit and adequate to safeguard its interests should any country fail in any way to comply with the provisions contained in the Final Acts of this Conference or should reservations made by any country jeopardize the efficient operation of its telecommunications

FINAL PROTOCOL

PAKISTAN

In signing the Final Acts of the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971) the Delegation of Pakistan reserves the right of its Government to adhere to all or to some of the provisions of the revised Radio Regulations (Geneva 1959)

The Delegation of Pakistan further declares that it reserves the right of its Government in accepting implications that may arise through the non-adherence by any other country Member of the Union to the provisions of these revised Radio Regulations

REPUBLIC OF RWANDA

The Delegation of the Republic of Rwanda, in signing the Final Acts of the World Administrative Radio Conference for Space Telecommunications (Geneva 1971) reserves for its Government the right to take such action as it may consider necessary to safeguard its interests should any Members or Associate Members fail in any way to comply with the provisions of the Radio Regulations (Geneva 1959) as revised by this Conference or should reservations made by other countries jeopardize the efficient operation of its telecommunication services

REPUBLIC OF THE SENEGAL

The Delegation of the Republic of the Senegal , the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), in signing the Final Acts of this Conference, reserves for its Government the right to take such action as it may consider useful or necessary

— to safeguard its interests in the use of the frequency bands above 40 GHz

— or should certain Members fail in any way to comply with the decisions of this Conference or should acts deriving from reservations made by other Members jeopardize the efficient operation of its telecommunication services

FINAL PROTOCOL

REPUBLIC OF SINGAPORE

In signing the Final Acts of the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), the Delegation of the Republic of Singapore reserves for its Government the right to take such action as it may consider necessay to safeguard its interests should any country fail in any way to comply with the requirements of the Final Acts of this Conference or should reservations made by any country jeopardize the telecommunication services of the Republic of Singapore

REPUBLIC OF VENEZUELA

The Delegation of the Republic of Venezuela to the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), declares that, in signing the Final Acts of the Conference, it expressly reserves the right for its Government to adopt or not to adopt the conclusions of the Conference and to take any steps that it may deem fit to safeguard its interests and to protect its telecommunication networks should any Member or Associate Member fail to comply with the provisions of the Radio Regulations as amended or supplemented at the date mentioned above

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[*The signatures follow*

The signatures which follow the Final Protocol are the same as those reproduced on pages 5 to 36 of this volume][1]

[1] Pp 1537–1568 herein [Footnote added by the Department of State]

RESOLUTION No Spa2 - 1

Relating to the Use by all Countries, with equal Rights, of Frequency Bands for Space Radiocommunication Services

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971),

considering

that all countries have equal rights in the use of both the radio frequencies allocated to various space radiocommunication services and the geostationary satellite orbit for these services

taking into account

that the radio frequency spectrum and the geostationary satellite orbit are limited natural resources and should be most effectively and economically used,

having in mind

that the use of the allocated frequency bands and fixed positions in the geostationary satellite orbit by individual countries or groups of countries can start at various dates depending on requirements and readiness of technical facilities of countries

resolves

1 that the registration with the I T U of frequency assignments for space radiocommunication services and their use should not provide any permanent priority for any individual country or groups of countries and should not create an obstacle to the establishment of space systems by other countries.

RES Spa2-1 2

2 that, accordingly, a country or a group of countries having registered with the I T U frequencies for their space radiocommunication services should take all practicable measures to realize the possibility of the use of new space systems by other countries or groups of countries so desiring

3 that the provisions contained in paragraphs 1 and 2 of this Resolution should be taken into account by the administrations and the permanent organs of the Union

RESOLUTION No Spa2-2

Relating to the Establishment of Agreements and Associated Plans for the Broadcasting-Satellite Service

The World Administrative Radio Conference for Space Telecommunication (Geneva 1971)

considering

a) that it is important to make the best possible use of the geostationary-satellite orbit and of the frequency bands allocated to the broadcasting-satellite service

b) that the great number of receiving installations using such directional antennae as could be set up for a broadcasting-satellite service may be an obstacle to changing the location of space stations in that service on the geostationary-satellite orbit from the date of their bringing into use

c) that satellite broadcasts may create harmful interference over a large area of the Earth's surface

d) that the other services with allocations in the same band need to use the band before the broadcasting-satellite service is set up,

RES **Spa2**-2, 3

resolves

1 that stations in the broadcasting-satellite service shall be established and operated in accordance with agreements and associated plans adopted by World or Regional Administrative Conferences, as the case may be, in which all the administrations concerned and the administrations whose services are liable to be affected may participate,

2 that the Administrative Council be requested to examine as soon as possible the question of a World Administrative Conference, and/or Regional Administrative Conferences as required, with a view to fixing suitable dates, places and agenda,

3 that during the period before the entry into force of such agreements and associated plans the administrations and the I F R B shall apply the procedure contained in Resolution No **Spa2**-3

RESOLUTION No **Spa2**-3

Relating to the Bringing into Use of Space Stations in the Broadcasting-Satellite Service, prior to the Entry into Force of Agreements and Associated Plans for the Broadcasting-Satellite Service

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971)

considering

a) that while Resolution No **Spa2**-2 has been adopted by this Conference, envisaging plans for the broadcasting-satellite service, some administrations might nevertheless feel the need to bring stations in that service into use prior to such plans being established,

b) that administrations should, as far as possible, avoid proliferation of space stations in the broadcasting-satellite service before such plans have been established

c) that a space station in the broadcasting-satellite service may cause harmful interference to terrestrial stations operating in the same frequency

band even if the latter are outside the service area of the space station,

d) that the procedure specified in Article 9A of the Radio Regulations contains no provisions for co-ordination between space stations in the broadcasting-satellite service and terrestrial stations and between space stations in that service and space systems of other administrations,

resolves

1 that the following procedure shall be applied until agreements and associated plans pursuant to Resolution No Spa2-2 enter into force

Section A: Co-ordination Procedure between Space Stations in the Broadcasting-Satellite Service and Terrestrial Stations

2.1 Before an administration notifies to the I F R B or brings into use any frequency assignment to a space station in the broadcasting-satellite service in a frequency band where this frequency band is allocated, with equal rights, to the broadcasting-satellite service and to a terrestrial radiocommunication service, either in the same Region or sub-Region or in different Regions or sub-Regions, it shall co-ordinate the use of this assignment with any other administration whose terrestrial radiocommunication services may be affected For this purpose, it shall inform the Board of all the technical characteristics of the station, as listed in the relevant sections of Appendix 1A to the Radio Regulations, which are necessary to assess the risk of interference to a terrestrial radiocommunication service[1]

2.2 The Board shall publish this information in a special section of

[1] The technical data to be used in effecting co-ordination should be based on the most recent C C I R Recommendations as accepted by the administrations concerned under the terms of Resolution No Spa2-6 In the absence of relevant C C I R Recommendations, the technical data to be used in effecting co-ordination shall be determined by agreement among the administrations concerned

RES Spa2-3

its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram

2.3 Any administration which considers that its terrestrial radiocommunication services may be affected shall forward its comments to the administration seeking co-ordination and, in any case, to the Board. These comments must be forwarded within one hundred and twenty days from the date of the relevant I.F.R.B. weekly circular. It shall be deemed that any administration which has not forwarded comments within that period considers that its terrestrial radiocommunication services are unlikely to be affected.

2.4 Any administration which has forwarded comments on the projected station shall either give its agreement or, if this is not possible, send to the administration seeking co-ordination all the data on which its comments are based as well as any such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

2.5 The administration which plans to bring into use a space station in the broadcasting-satellite service as well as any other administration which believes that its terrestrial radiocommunication services are likely to be affected by the station in question may request the assistance of the Board at any time during the co-ordination procedure.

2.6 If the assistance of the Board has been sought and there is a continuing disagreement between the administration seeking co-ordination and the administration which has forwarded its comments, the administration seeking co-ordination may, after a total period of one hundred and eighty days, from the date of the relevant I.F.R.B. weekly circular, send to the Board its notice concerning the frequency assignment in question.

Section B. Co-ordination Procedure between Space Stations in the Broadcasting-Satellite Service and Space Systems of other Administrations

3 An administration intending to bring into use a space station in the broadcasting-satellite service shall, for the purpose of co-ordination

with space systems of other administrations, apply the following provisions of Article 9A of the Radio Regulations

3 1 Nos **639AA** to **639AI** inclusive

3 2 1 No **639AJ** [1]

3 2 2 No co-ordination under paragraph 3 2 1 is required when an administration proposes to change the characteristics of an existing assignment in such a way as not to increase the probability of harmful interference to stations in the space radiocommunication service of other administrations

3 2 3 Nos **639AL**, **639AM** **639AO** **639AS** *a*), *c*) *e*) *f*), **639AT** **639AU**, **639AV**, **639AW**, **639AX** **639AY** **639AZ**

Section C Notification, Examination and Recording in the Master Register of Assignments to Space Stations in the Broadcasting-Satellite Service dealt with under this Resolution

4 1 Any frequency assignment [2] to a space station in the broadcasting-satellite service shall be notified to the Board The notifying administration shall apply for this purpose the provisions of Nos **639BE** **639BF** and **639BG** of the Radio Regulations

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[1] The technical data to be used in effecting co-ordination should be based on the most recent C C I R Recommendations as accepted by the administrations concerned under the terms of Resolutions No **Spa2-6**. In the absence of relevant C C I R Recommendations, the technical data to be used in effecting co-ordination shall be determined by agreement among the administrations concerned

[2] The expression *frequency assignment* wherever it appears in this Resolution 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 *Master Register*)

RES Spa2-3

4 2 Notices made under paragraph 4 1 shall initially be treated in accordance with No **639BH** of the Radio Regulations

5 1 The Board shall examine each notice with respect to

5 2 *a)* its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations (with the exception of those relating to the co-ordination procedures and to the probability of harmful interference);

5 3 *b)* its conformity, where applicable, with the provisions of paragraph 2.1 of Section A above, relating to co-ordination of the use of the frequency assignment with the other administrations concerned,

5 4 *c)* its conformity, where applicable, with the provisions of paragraph 3 2 1 of Section B above, relating to co-ordination of the use of the frequency assignment with the other administrations concerned,

5 5 *d)* where appropriate, the probability of harmful interference to the service rendered by a station in a space or terrestrial radiocommunication service for which a frequency assignment has already been recorded in the Master Register in conformity with the provisions of No **501** or **639BM** of the Radio Regulations as appropriate, if that assignment has not in fact, caused harmful interference to the service rendered by a station for which an assignment has been previously recorded in the Master Register and which itself is in conformity with No **501** or **639BM** as appropriate

6 1 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 5 2 5 3, 5 4 and 5 5, further action shall be as follows

6 2 Where the Board reaches an unfavourable finding with respect to paragraph 5 2 the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem

6 3 Where the Board reaches a favourable finding with respect to paragraph 5 2 or where it reaches the same finding after resubmission of the notice, it shall examine the notice with respect to the provisions of paragraphs 5 3 and 5 4

6 4 Where the Board finds that the co-ordination procedures mentioned in paragraphs 5 3 and 5 4 have been successfully completed with all administrations whose services may be affected, the assignment shall be recorded in the Master Register The date of receipt by the Board of the notice shall be entered in Column 2d of the Master Register with an entry in the Remarks column indicating that such recording does not prejudge in any way the decisions to be included in the agreements and associated plans referred to in Resolution No Spa2-2

6 5 Where the Board finds that the co-ordination procedures mentioned in paragraph 5 3 or 5 4 have not, as appropriate been applied or have been unsuccessfully applied, the notice shall be returned immediately by airmail to the notifying administration with the reason for its return and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem

6 6 Where the notifying administration resubmits the notice and the Board finds that the co-ordination procedures have been successfully completed with all administrations whose services may be affected, the assignment shall be treated as indicated in paragraph 6 4

6 7 Where the notifying administration resubmits the notice and states that it has been unsuccessful in endeavouring to effect the co-ordination, the notice shall be examined by the Board with respect to paragraph 5 5

RES Spa2-3

6 8 Where the Board reaches a favourable finding with respect to paragraph 5 5, the assignment shall be recorded in the Master Register The appropriate symbol indicating the finding by the Board shall indicate that the co-ordination procedures, as appropriate, referred to in paragraph 2 1 or 3 2 1 were not successfully completed The date of receipt by the Board of the notice shall be entered in Column 2d of the Master Register, with the remark mentioned in paragraph 6 4

6 9 Where the Board reaches an unfavourable finding with respect to paragraph 5 5, the notice shall be returned immediately by airmail to the notifying administration with the reasons for the Board's finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem

6 10 If the administration resubmits the notice unchanged with the insistence that it be reconsidered, but should the Board's unfavourable finding under paragraph 5 5 remain unchanged, the assignment shall be recorded in the Master Register However this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least one hundred and twenty days without any complaint of harmful interference having been received The date of receipt by the Board of the original notice shall be entered in Column 2d of the Master Register with the remark mentioned in paragraph 6 4 An appropriate remark shall be placed in Column 13 to indicate that the assignment is not in conformity with the provisions of paragraphs 5 2 5 3 5 4 or 5 5, as appropriate In the event that the administration concerned receives no complaint of harmful interference concerning the operation of the station in question for a period of one year from the commencement of operation, the Board shall review its finding

6 11 If harmful interference is actually caused to the reception of any space station in the broadcasting-satellite service whose frequency assignment has been recorded in the Master Register as a result of a favourable finding with respect to paragraphs 5 2 5 3 5 4 and 5 5 of this Resolution, as appropriate, by the use of a frequency assignment to a space station which has been subsequently recorded in the Master Register in accordance with the provisions of paragraph 6 10 of this Resolution or of No 639CP

of the Radio Regulations, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference

6 12 If harmful interference is actually caused to the reception of any space radiocommunication station using an assignment recorded in the Master Register as a result of a favourable finding with respect to Nos **639BM**, **639BN**, **639BO** **639BP**, **639BQ** and **639BR** of the Radio Regulations, as appropriate, by the use of an assignment to a space station in the broadcasting-satellite service which has been subsequently recorded in the Master Register in accordance with the provisions of paragraph 6 10 of this Resolution, the station using the latter assignment must on receipt of advice thereof, immediately eliminate this harmful interference

6 13 If harmful interference is actually caused to the reception of any terrestrial station using an assignment recorded in the Master Register as a result of a favourable finding with respect to No **501** of the Radio Regulations, by the use of an assignment to a space station in the broadcasting-satellite service which has been subsequently recorded in the Master Register in accordance with the provisions of paragraph 6 10 of this Resolution the station using the latter assignment must, on receipt of advice thereof, immediately eliminate this harmful interference

6 14 If harmful interference to the reception of any station whose assignment is in accordance with paragraph 5 2 of this Resolution is actually caused by the use of a frequency assignment which is not in conformity with paragraph 5 2 of this Resolution or with No **501**, **570AB** or **639BM** of the Radio Regulations, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference

RES Spa2–4

RESOLUTION No Spa2–4

Relating to the experimental Use of Radio Waves by Ionospheric Research Satellites

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971),

considering

a) that research into the Earth's ionosphere is very important in the study of the relationship between the Sun and the Earth and also for the effective use of radio-wave transmission via the ionosphere,

b) that successful research has been conducted with satellites such as Alouette 1 and 2 and ISIS 1 and 2 in which top-side sounding equipment is installed,

c) that similar ionospheric research satellites will be used for further research into the ionosphere and beyond,

d) that top-side sounding equipment is operated mostly in a frequency-sweeping pulse mode,

e) that these types of satellite are usually operated intermittently during a limited period each day according to the orbital characteristics,

f) that operation of the sounder can be accurately commanded at will by the earth station concerned

resolves

that administrations may continue to permit the transmission of radio waves from ionospheric research satellites in orbit above the ionosphere in the MF and HF bands provided that suitable means are available for controlling the transmission from these satellites as required by No **470V** of the Radio Regulations to prevent harmful interference to other services

RESOLUTION No Spa2 - 5

Relating to the Use of the Band 156 - 174 MHz by the Maritime Mobile-Satellite Service

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971)

considering

a) that there is a need to develop the use of space radiocommunication techniques to meet the future requirements of the maritime mobile service,

b) that, of the bands used at present by the maritime mobile service, there may be advantages in using for the maritime mobile-satellite service narrow channels between 156 and 174 MHz for safety and distress

recognizing

a) that the maritime mobile bands between 156 and 174 MHz are also used for other services,

b) that the power flux densities laid down by maritime satellites in this band may cause harmful interference to terrestrial receivers and that the satellite receiver may suffer harmful interference from terrestrial radiocommunication transmissions,

c) that the terrestrial maritime mobile service makes extensive use of the channels given in Appendix 18 to the Radio Regulations,

is of the opinion

that it is important for the maritime mobile satellite service to be able to use some narrow channels on an exclusive basis for safety and distress as soon as practicable,

RES Spa2-5 6

having provided for

the possible use of narrow channels for safety and distress by the maritime mobile-satellite service in bands 157 3125 - 157 4125 MHz and 161 9125 - 162 0125 MHz not earlier than 1 January 1976 (see No. **287A** of the Radio Regulations),

resolves

that the World Administrative Radio Conference for Maritime Mobile Telecommunications to be held in 1974 be invited to consider this matter further and to decide if and to what extent the maritime mobile-satellite service should be introduced in the above bands on an exclusive basis and to make any consequential changes in the Radio Regulations and in the provisions governing the use of the channels in Appendix 18 to the Radio Regulations,

requests the Secretary-General

to transmit this Resolution to Members and Associate Members and to the Administrative Council for inclusion in the draft agenda for the 1974 Maritime Conference

RESOLUTION No Spa2-6

Relating to the Technical Criteria recommended by the C.C.I.R. for Sharing Frequency Bands between Space Radiocommunication and Terrestrial Radiocommunication Services or between Space Radiocommunication Services

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971)

considering

a) that, in frequency bands shared with equal rights by space radiocommunication and terrestrial radiocommunication services, it is necessary to impose certain technical limitations and co-ordination procedures on each of the sharing services in the interest of controlling mutual interference,

b) that in frequency bands shared by space stations located on geostationary satellites, it is necessary to impose co-ordination procedures in the interest of controlling mutual interference,

c) that the technical criteria and co-ordination procedures referred to in *a)* and *b)* above, and as set out in the Radio Regulations are mainly based upon Recommendations of the C C I R ,

d) that, in recognition of the successful sharing of frequency bands by space radiocommunication and terrestrial radiocommunication services, and the continuing improvements in space technology, each Plenary Assembly of the C C.I R subsequent to the Xth Plenary Assembly Geneva 1963, has improved upon some of the technical criteria recommended by the preceding Plenary Assembly,

e) that Plenary Assemblies of the C C I R are held triennially whereas Administrative Radio Conferences, which are empowered to modify the Radio Regulations making substantial use of the Recommendations of the C C I R , are in practice held less frequently and with much less regularity,

f) that the International Telecommunication Convention (Montreux, 1965) recognizes the right of Members and Associate Members of the Union to make special agreements on telecommunication matters, however, such agreements shall not be in conflict with the terms of the Convention or of the Regulations annexed thereto, so far as concerns the harmful interference to the radio services of other countries,

RES Spa2-6

is of the opinion

a) that subsequent Plenary Assemblies of the C C I R are likely to make further changes in the recommended technical criteria, and

b) that administrations should be afforded the opportunity to take advantage of the current C C I R Recommendations on sharing criteria when planning systems for use in frequency bands shared with equal rights by space radiocommunication and terrestrial radiocommunication services, or between radiocommunication services,

therefore resolves that

1 each Plenary Assembly of the C C I R should arrange for the Secretary-General of the I T U to be informed of those Recommendations of the C C I R affecting the technical criteria relating to sharing between space radiocommunication and terrestrial radiocommunication services or between space radiocommunication services,

2 following the distribution to administrations of the relevant C C I R. texts, the Secretary-General shall write to administrations asking them to indicate within one hundred and twenty days, to which of the C C.I R Recommendations or to which specific technical criteria defined in the Recommendations referred to in 1 above they agree for use in the application of the pertinent provisions of the Radio Regulations,

3 the administrations which do not respond to the Secretary-General's consultation within one hundred and twenty days shall be deemed to wish the specific technical criteria referred to in the current Radio Regulations to be applied for the time being,

4 in those cases where an administration, in its reply to the Secretary-General's consultation indicates that a specific C C I R Recommendation or a specific technical criterion defined in those Recommendations is not

acceptable to it, or where an administration has not replied to the Secretary-General's consultation as in paragraph 3 above, the relevant technical criteria defined in the Radio Regulations shall continue to apply with respect to cases involving that administration,

5 the Secretary-General shall publish, for the information of all administrations, a consolidated list prepared by the I F R B on the basis of the replies to the enquiry, of the C C I R Recommendations or of the specific relevant technical criteria defined in those Recommendations, and to which administrations each of those Recommendations or specific relevant technical criteria are acceptable or are not acceptable This list shall also include those administrations mentioned in paragraph 3 above,

6 the I F R B be directed to take into account

a) the applicability of the C C I R technical criteria in accordance with the list referred to in 5 above, when making technical examinations with respect to cases involving only administrations to which such criteria are acceptable,

b) the applicability of the technical criteria defined in the Radio Regulations in accordance with the list referred to in 5 above, when making technical examinations with respect to cases involving an administration which does not accept the relevant C C I R technical criteria,

7 if, at a later date, questions arise concerning the application of the relevant technical criterion or criteria to a case involving administrations described in paragraph 3 above, the I F R B shall enquire of the administrations concerned whether or not they would agree to the application of the technical criterion or criteria defined in the relevant C C I R Recommendations referred to in paragraph 1 above The list published pursuant to paragraph 5 above shall be updated on the basis of the reply of the administration or of the absence of reply

RES Spa2-7

RESOLUTION No Spa2 - 7

Relating to the Inclusion of additional Sections in List VIIIA (Article 20, Appendix 9)

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971),

considering

a) that it has modified the definitions which appeared in the Radio Regulations and has adopted a series of new definitions for the services,

b) that within the framework of these modifications, it has changed, in Appendix 9 to Radio Regulations, the headings and the contents of the existing nine Sections of List VIIIA (List of Space Radiocommunication Stations and Radio Astronomy Stations),

c) that however, in List VIIIA so modified, it is not possible to include all the categories of earth and space stations notified to the I F R B for inclusion in the Master International Frequency Register

d) that the Conference has not had the time to make the required modifications,

decides

to invite the Secretary-General, in collaboration with the I F R B, to take the necessary steps, on the basis of the existing Sections of List VIIIA to have additional Sections added to this List, so that the particulars of all the earth and space stations notified to the I F R B under Article 9A of the Radio Regulations, for recording in the Master International Frequency Register be included

RES Spa2-8

RESOLUTION No Spa2 - 8

Relating to the Abrogation of obsolete Resolutions and Recommendations of the Extraordinary Administrative Radio Conference to allocate Frequency Bands for Space Radiocommunication Purposes, Geneva, 1963 and a Recommendation of the Administrative Radio Conference, Geneva, 1959

The World Administrative Radio Conference for Space Telecommunications (Geneva, 1971),

considering

a) that all necessary action has been taken on the following Resolutions and Recommendations of the Extraordinary Administrative Radio Conference (Geneva, 1963)

Resolution No Spa 1 Relating to the Provision and Use of Information regarding International Satellite Systems,

Resolution No Spa 2 Relating to Space Vehicles in Distress and Emergency,

Resolution No Spa 3 Relating to the Category of the Fixed and Mobile Services in the Band 1 525 - 1 540 Mc s,

Recommendation No Spa 1 Relating to the Calculation of Co-ordination Distance for Earth Stations,

Recommendation No Spa 2 to the C C I R and to Administrations Relating to the Calculation of the Probability of Interference between Stations within Co-ordination Distance,

b) that Recommendation No Spa 6 of the Extraordinary Administrative Radio Conference (Geneva, 1963) Relating to the Frequency Requirements in the HF Bands Exclusively Allocated to the Aeronautical Mobile (R) Service, is now obsolete,

RES Spa2–8

c) that paragraphs 3 and 4 of Recommendation No Spa 9 of the Extraordinary Administrative Radio Conference (Geneva, 1963) Relating to the Review of Progress in the Field of Space Radiocommunications, are now obsolete,

d) that Recommendation No Spa 3 of the Extraordinary Administrative Radio Conference (Geneva, 1963) to the C C I R and to Administrations Relating to Frequency Bands shared between Space and Terrestrial Services has been replaced by Recommendation No Spa2–15 of the present Conference,

e) that Recommendation No 36 of the Administrative Radio Conference (Geneva, 1959) Relating to the Convening of an Extraordinary Administrative Radio Conference to allocate Frequency Bands for Space Radiocommunication Purposes, is no longer necessary,

resolves

that the said Resolutions and Recommendations or parts of Recommendation are abrogated

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