APPENDIX 4 (REV.WRC-15)

Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III

1 The substance of this Appendix is separated into two parts: one concerning data and their use for terrestrial radiocommunication services and another concerning data and their use for space radiocommunication services or the radio astronomy service. (WRC-12)

2 Both parts contain a list of characteristics and a table indicating the use of each of the characteristics in specific circumstances.

Annex 1: Characteristics of stations in the terrestrial services

Annex 2: Characteristics of satellite networks, earth stations or radio astronomy stations.

ANNEX 1

Characteristics of stations in the terrestrial services[1]

In application of Appendix **4** there are many cases when the data requirements involve the use of standard symbols in submissions to the Radiocommunication Bureau. These standard symbols may be found in the Preface to the BR International Frequency Information Circular (BR IFIC) (Terrestrial Services). In the Tables, this is referred to simply as "the Preface". Also additional information may be found in the guidelines published on the Bureau's website.

Key to the symbols used in Annex 1

X	Mandatory information
+	Mandatory under the conditions specified in Column 3 of Table 1 and Column 2 of Table 2
O	Optional information
C	Mandatory if used as a basis to effect coordination with another administration
	The data item is not applicable to the corresponding notice

[1] The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Terrestrial Services).

Reading Appendix 4 Tables 1 and 2

The rules used to link the sign with the text are based on the Table column headings covering specific procedures, services and frequency bands.

1 If any data item has the indication "+", it shows that the data item is subject to a mandatory requirement under specific conditions. If these conditions are not met, the corresponding item is not applicable unless otherwise specified. These conditions are listed after the data item name and are normally presented as shown below.

2 "Required" without any reference to a column heading is used in the case that the associated condition is valid for every applicable column.

1.5.2	1B	the reference frequency, as defined in Article **1** Required if the modulation envelope is asymmetric	+	+	1B

"In the case of", followed by a reference to the column heading is used, as shown below, when the associated conditions are different for individual columns, or if the indication is not the same across all applicable columns.

7.1	7A	the class of emission In the case of a VHF/UHF broadcasting station, required for assignments subject to § 5.1.3 of the GE06 Regional Agreement	+	**X**	7A

3 A subheading title limits the range of procedures, services or frequency bands to which the data items grouped under that subheading are applicable. Unless further specific conditions apply, the data items grouped under that subheading have an "X" as the conditional nature is shown in the subheading title. (WRC-12)

1.4.3		**For assignments in the bands and services governed by the Geneva 06 Regional Agreement only**			
...	...	...	...	...	...
1.4.3.4	DAC	the digital broadcasting assignment code	**X**		DAC

Footnotes to Tables 1 and 2

1 The most recent version of Recommendation ITU-R SF.675 should be used to the extent applicable in calculating the maximum power density per Hz.

TABLE 1 (Rev.WRC-15)

Characteristics for terrestrial services

Column No.	Item identifier	Notice related to / Description of data items and requirements
1		**GENERAL INFORMATION AND FREQUENCY CHARACTERISTICS**
1.1	**B**	the symbol of the notifying administration (see the Preface)
1.2	**D**	the provision code of the Radio Regulations under which the notice has been submitted
1.3	**E**	the resubmission indicator In the case of a VHF/UHF broadcasting station, or a typical transmitting station, required for an assignment subject to the GE06 Regional Agreement if the notice is resubmitted in the application of Article **11** In the case of a transmitting station, or a receiving land station, required for an assignment subject to the GE06 Regional Agreement or Nos. **9.16**, **9.18** or **9.19** if the notice is resubmitted in the application of Article **11**
1.4		**Assignment and allotment identification information**
1.4.1	**SYNC**	the identification symbols for the synchronized, or single-frequency, network In the case of a VHF/UHF broadcasting station, required for a digital broadcasting assignment in a synchronized or single frequency network subject to the GE06 Regional Agreement In the case of an LF/MF broadcasting station, required for an assignment in a synchronized or single frequency network
1.4.2	**ID1**	the unique identification code given by the administration to the assignment or allotment Required for assignments subject to the GE06 Regional Agreement, and optional for assignments not subject to this Agreement
1.4.3		**For assignments in the bands and services governed by the GE06 Regional Agreement only:**
1.4.3.1	**ID2**	the unique identification code given by the administration for the associated allotment Required for a digital broadcasting assignment linked to an allotment, or converted from an allotment, within the GE06 Plan
1.4.3.2	**ID3**	the unique identification code given by the administration to the digital broadcasting Plan entry for which § 5.1.3 of the GE06 Agreement is to be applied Required if the notified assignment is to be operated under the mask of a digital broadcasting Plan entry in accordance with § 5.1.3 of the GE06 Regional Agreement
1.4.3.3	**DEC**	the digital broadcasting plan entry code that identifies the category of Plan entry to which the assignment belongs
1.4.3.4	**DAC**	the digital broadcasting assignment code

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
B	X	X	X	X	X	X	X
D	X	X	X	X	X	X	X
E			+	+	+		+
SYNC						+	+
ID1		O	+	+	+	O	+
ID2							+
ID3				+	+		+
DEC							X
DAC							X

Column No.	Item identifier	Notice related to / Description of data items and requirements
1.5		**Frequency information**
1.5.1	**1A**	the assigned frequency, as defined in Article **1** In the case of a transmitting station, required for all services, except adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution **729 (Rev.WRC-07)**) In the case of an HF broadcasting station under Article **12**, required if neither the preferred band nor reference frequency is provided
1.5.2	**1B**	the reference frequency, as defined in Article **1** Required if the modulation envelope is asymmetric
1.5.3	**1G**	the alternative frequency
1.5.4	**1X**	the channel number of the proposed or allotted channel Required for submissions in accordance with Nos. **25**/1.1.1, **25**/1.1.2 or **25**/1.25 of Appendix **25** if the assistance of the Bureau is not requested under No. **25**/1.3.1 of Appendix **25**
1.5.5	**1Y**	the channel number of the alternative proposed channel
1.5.6	**1Z**	the channel number of the channel to be replaced Required if the administration needs to replace its existing allotted channel
1.5.7	**1AA**	the lower limit of the usable frequency range within which the carrier and the bandwidth of the emission will be located Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution **729 (Rev.WRC-07**))
1.5.8	**1AB**	the upper limit of the usable frequency range within which the carrier and the bandwidth of the emission will be located Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution **729 (Rev.WRC-07)**)
1.5.9	**1C**	the preferred band, in MHz In the case of maritime mobile frequency allotment, required if the assistance of the Bureau is requested under No. **25**/1.3.1 of Appendix **25** In the case of an HF broadcasting station under Article **12**, required for notices if assistance is requested in accordance with No. **7.6**
1.5.10		**For digital broadcasting (except assignments subject to § 5.1.3 of the GE06 Regional Agreement):**
1.5.10.1	**1EO**	the frequency offset, in kHz Required if the centre frequency of the emission is offset from the assigned frequency

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
X	X	+	X	X		+	1A
		+	+	+		+	1B
						O	1G
					+		1X
					O		1Y
					+		1Z
		+					1AA
		+					1AB
					+	+	1C
+							1EO

Column No.	Item identifier	Notice related to / Description of data items and requirements
1.5.11		**For analogue television broadcasting:**
1.5.11.1	**1E**	the vision carrier frequency offset, in multiples of 1/12 of the line frequency of the television system concerned, expressed by a number (positive or negative) Required if the vision carrier frequency offset, in kHz, (1E1) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.2	**1E1**	the vision carrier frequency offset, in kHz, expressed by a number (positive or negative) Required if the vision carrier frequency offset, in multiples of 1/12 of the line frequency (1E) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.3		**For the case where the sound carrier frequency offset is different from the vision carrier frequency offset:**
1.5.11.3.1	**1EA**	the sound carrier frequency offset, in multiples of 1/12 of the line frequency of the television system concerned, expressed by a number (positive or negative) Required if the sound carrier frequency offset, in kHz, (1E1A) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.3.2	**1E1A**	the sound carrier frequency offset, in kHz, expressed by a number (positive or negative) Required if the sound carrier frequency offset, in multiples of 1/12 of the line frequency (1EA) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
2		**DATE OF OPERATION**
2.1	**2C**	the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use
2.2	**2E**	the date for the end of operation of a frequency assignment In the case of a VHF/UHF broadcasting station, required, in the application of Article **11**, when the operation of an assignment is limited to a specific period of time under § 4.1.5.4 of the GE06 Regional Agreement In the case of a transmitting station, a receiving land station, or a typical transmitting station, required, in the application of Article **11**, when the operation of an assignment is limited to a specific period of time under § 4.2.5.5 of the GE06 Regional Agreement
2.3	**2F**	the season of operation code
2.4	**10CA**	the start date for the transmission
2.5	**10CB**	the stop date for the transmission
2.6	**10CC**	the days of operation for the transmission during the HFBC schedule
3		**CALL SIGN AND STATION IDENTIFICATION**
3.1	**3A1**	the call sign used in accordance with Article **19** In the case of a transmitting station, for the fixed service below 28 MHz, mobile service, meteorological aids service, radiolocation service between 3 and 50 MHz (operating in accordance with Resolution **612 (Rev.WRC-12)**), or standard frequency and time signal service, in application of Article **11**, required if the station identification (3A2) is not provided

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
+							1E
+							1E1
+							1EA
+							1E1A
X	X	X	X	X	X		2C
+		+	+	+			2E
						X	2F
						X	10CA
						X	10CB
						X	10CC
O	O	+				O	3A1

Column No.	Item identifier	Notice related to / Description of data items and requirements
3.2	**3A2**	the station identification used in accordance with Article **19** In the case of a transmitting station, for the fixed service below 28 MHz, mobile service, meteorological aids service, radiolocation service between 3 and 50 MHz (operating in accordance with Resolution **612 (Rev.WRC-12)**), or standard frequency and time signal service, in application of Article **11**, required if the call sign (3A1) is not provided
4		**LOCATION OF THE TRANSMITTING ANTENNA(S)**
4.1	**4A**	the name of the locality by which the transmitting station is known or in which it is situated
4.2	**4AA**	the name of the location of the intended coast station Required for submissions in accordance with No. **25**/1.1.1 of Appendix **25**
4.3	**4B**	the code of the geographical area in which the transmitting station is located (see the Preface)
4.4	**4C**	the geographical coordinates of the transmitter site Latitude and longitude are provided in degrees, minutes and seconds
4.5	**4CA**	the geographical coordinates of the intended coast station Latitude and longitude are provided in degrees, minutes and seconds Required for submissions in accordance with No. **25**/1.1.1 of Appendix **25**
4.6	**4H**	HFBC site code *Note* – The code is assigned by the Bureau prior to commencement of the Article **12** procedure and represents the location of the station, its geographical area and geographical coordinates
4.7		**For an area in which transmitting stations operate:**
4.7.1	**4CC**	the geographical coordinates of the centre of the circular zone, in which mobile transmitting stations associated with a receiving land station, or a typical transmitting station are operating Latitude and longitude are provided in degrees, minutes and seconds In the case of a receiving land station, required: – for the maritime radionavigation service; and – for other services if the code of a geographical area or standard defined area (4E) is not provided In the case of a typical transmitting station, required if a geographical area or standard defined area (4E) is not provided
4.7.2	**4D**	the nominal radius, in km, of the circular zone, in which mobile transmitting stations associated with a receiving land station, or a typical transmitting station are operating In the case of a receiving land station, required: – for the maritime radionavigation service; and – for other services if the code of a geographical area or standard defined area (4E) is not provided In the case of a typical transmitting station, required if a geographical area or standard defined area (4E) is not provided

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
O	O	+				O	3A2
X	X	X					4A
					+		4AA
X	X	X					4B
X	X	X					4C
					+		4CA
						X	4H
			+	+			4CC
			+	+			4D

Column No.	Item identifier	Notice related to / Description of data items and requirements
4.7.3	**4E**	the code of the geographical area or standard defined area (see the Preface) *Note* – The standard defined area for a receiving land station in the maritime mobile service may be a maritime zone. The standard defined area for a maritime mobile frequency allotment is the allotment area In the case of a receiving land station, for all services, except the maritime radionavigation service, required if a circular zone (4CC and 4D) is not provided In the case of a typical transmitting station, required if a circular zone (4CC and 4D) is not provided
4.8	**4G**	the ground conductivity Required for an assignment subject to the GE75 Regional Agreement
5		**LOCATION OF THE RECEIVING ANTENNA(S)**
5.1	**5A**	the name of the locality by which the receiving station is known or in which it is situated In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.2	**5B**	the code of the geographical area in which the receiving station(s) is located (see the Preface) In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.3	**5C**	the geographical coordinates of the site of the receiving station Latitude and longitude are provided in degrees, minutes and seconds In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.4		**For an area in which receiving stations operate:**
5.4.1	**5CA**	the geographical coordinates of a given reception zone A minimum of 3 geographical coordinates are to be provided. All geographical coordinates (latitude and longitude) are provided in degrees, minutes and seconds For an associated receiving station in the fixed service, required if the name of the locality (5A), geographical area (5B) and geographical coordinates (5C) are not provided For all other services, except where the assignment is subject to the GE06 Agreement, required if neither a circular area (5E and 5F) nor a geographical area or standard defined area of reception (5D) is provided

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
4E		X	+	+			
4G						+	
5A				X	+		
5B				X	+		
5C				X	+		
5CA					+		

Column No.	Item identifier	Notice related to / Description of data items and requirements
5.4.2	**5D**	the code of the geographical area or standard defined area of reception (see the Preface) *Note* – The standard defined area of a transmitting station may be represented by a maritime zone or aeronautical zone. The standard defined area of a maritime mobile frequency allotment is a maritime zone. The standard defined area of an HF broadcasting station subject to Article **12** is represented by a CIRAF zone In the case of a transmitting station, except transmitting stations in the fixed service, maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement, required if neither a circular receiving area (5E and 5F) nor geographical coordinates of a given reception zone (5CA) is provided
5.4.3	**5E**	the geographical coordinates of the centre of the circular receiving area Latitude and longitude are provided in degrees, minutes and seconds Required: – for the maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement; and – for all other services, except the fixed service, if neither a geographical area or standard defined area of reception (5D) nor the geographical coordinates of a given reception zone (5CA) is provided
5.4.4	**5F**	the radius, in km, of the circular receiving area Required: – for the maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement; and – for all other services, except the fixed service, if neither the geographical area or standard defined area of reception (5D) nor the geographical coordinates of a given reception zone (5CA) is provided
5.5	**5G**	the maximum length of the circuit, in km, for non-circular receiving areas Stations in the HF bands only
6		**CLASS OF STATION AND NATURE OF SERVICE**
6.1	**6A**	the class of station, using the symbols from the Preface
6.2	**6B**	the nature of service, using the symbols from the Preface In the case of a transmitting station, required for all services, except the broadcasting service
7		**CLASS OF EMISSION AND NECESSARY BANDWIDTH** *(in accordance with Article **2** and Appendix **1**)*
7.1	**7A**	the class of emission In the case of a VHF/UHF broadcasting station, required for digital broadcasting assignments
7.2	**7AB**	the necessary bandwidth In the case of a VHF/UHF broadcasting station, required for analogue sound and digital broadcasting assignments

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
5D	X	X			+		
5E					+		
5F					+		
5G		O			O		
6A	X	X	X	X	X	X	X
6B		X	X	X	+		
7A		X	X	X	X	X	+
7AB	X	X	X	X	X	X	+

Column No.	Item identifier	Description of data items and requirements / Notice related to
7.3		**System characteristics:**
7.3.1	**7A1**	the code describing the frequency stability (RELAXED, NORMAL or PRECISION) Required for analogue television broadcasting
7.3.2	**7AA**	the code for the type of modulation The type of modulation denotes the use of DSB, SSB or any new modulation techniques recommended by ITU-R
7.3.3	**7B1**	the adjacent channel protection ratio, in dB Required for the GE75 Regional Agreement
7.3.4	**7B2**	the "RJ 81 class" (A, B or C) Required for the RJ81 Regional Agreement
7.3.5	**7G**	the system code *Note* – The code identifies the category of system to which the station belongs and hence its protection requirements In the VHF band two codes are required for protection from T-DAB and DVB-T In the UHF band only one code is required for protection from DVB-T Required for an assignment subject to the GE06 Regional Agreement
7.3.6	**7C1**	the code identifying the television system (see the Preface) Required for television broadcasting assignments, except assignments subject to § 5.1.3 of the GE06 Regional Agreement
7.3.7	**7C2**	the code corresponding to the colour system (see the Preface) Required for analogue television broadcasting
7.3.8	**7D**	the code corresponding to the sound broadcasting transmission system (see the Preface) *Note* – For LF/MF systems, the signal may consist of analogue or digital modulation or data or some combination of them: the latter case is referred to as hybrid modulation In the case of a VHF/UHF broadcasting station, required for sound broadcasting assignments, except assignments subject to the GE06 Regional Agreement In the case of an LF/MF broadcasting station, required for an assignment with digital or hybrid modulation
7.3.9		**For the GE06 Regional Agreement (except notices subject to § 5.1.3 of the GE06 Regional Agreement):**
7.3.9.1	**7H**	the reference planning configuration (see the Preface) Required for digital sound broadcasting
7.3.9.2	**7J**	the type of spectrum mask
7.3.9.3	**7K**	the reception mode (see the Preface) Required for digital television broadcasting
7.3.10		**For the fixed service in the bands shared with space services and any type of modulation as applicable:**
7.3.10.1	**7E**	the peak to peak frequency deviation, in MHz
7.3.10.2	**7F**	the sweep frequency, in kHz, of the energy dispersal waveform

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
+							7A1
						X	7AA
	+						7B1
	+						7B2
		+	+	+			7G
+							7C1
+							7C2
+	+						7D
+							7H
X							7J
+							7K
		C					7E
		C					7F

Column No.	Item identifier	Description of data items and requirements / Notice related to
8		**POWER CHARACTERISTICS**
8.1	**8**	the symbol (X, Y or Z, as appropriate) describing the type of power (see Article **1**) corresponding to the class of emission
8.2	**8A**	the power delivered to the antenna transmission line, in kW
8.3	**8AA**	the power delivered to the antenna, in dBW In the case of a transmitting station, required for an assignment: – in the bands below 28 MHz, in all services except the radionavigation service; or – in the bands above 28 MHz shared with space services; or – in the bands above 28 MHz not shared with space services: • in the aeronautical mobile service, meteorological aids service; or • in all other services, if the radiated power is not supplied In the case of a receiving land station, required if the associated transmitting station's radiated power is not supplied In the case of a typical transmitting station, required if the radiated power is not supplied
8.4	**8AB**	the maximum power density[1] (dB(W/Hz)) for each carrier type averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz, supplied to the antenna transmission line For the fixed service in the bands shared with space services
8.5	**8AC**	the maximum power density (dB(W/Hz)) averaged over the worst 4 kHz band, calculated for the maximum effective radiated power *Note* – For a receiving land station, the maximum power density refers to the associated transmitting station In the case of a VHF/UHF broadcasting station, required for assignments subject to § 5.1.3 of the GE06 Regional Agreement In the case of a transmitting station, a receiving land station, or a typical transmitting station, required for assignments subject to the GE06 Regional Agreement
8.6	**8B**	the radiated power, in dBW, in one of the forms described in Nos. **1.161** to **1.163** *Note* – Where adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution **729 (Rev.WRC-07)**) use automatic power control, the radiated power includes the level of power control listed under 8BA For assignments in all services and frequency bands, except assignments subject to the GE06 Regional Agreement, required if the power delivered to the antenna (8AA), or the maximum antenna gain (9G), is not provided For an assignment subject to the GE06 Regional Agreement, required if the power delivered to the antenna (8AA) is not provided
8.7	**8BA**	the range of power control, in dB Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution **729 (Rev.WRC-07)**), if automatic power control is used
8.8	**8BH**	the maximum effective radiated power, in dBW, of the horizontally polarized component Required for horizontal or mixed polarization

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
8	X	X	X	X	X	X	X
8A	X					X	
8AA		X	+	+	+		
8AB					C		
8AC			+	+	+		+
8B			+	+	+		
8BA					+		
8BH							+

Column No.	Item identifier	Notice related to / Description of data items and requirements
8.9	**8BV**	the maximum effective radiated power, in dBW, of the vertically polarized component Required for vertical or mixed polarization
8.10	**8BT**	the maximum effective radiated power, in dBW, in the plane defined by the beam tilt angle For a digital broadcasting assignment in the UHF band subject to the GE06 Regional Agreement only
8.11	**8D**	the vision-to-sound carrier power ratio, in dB Required for analogue television broadcasting
8.12	**9L**	the maximum effective monopole radiated power, in dB(kW) Required for the GE75 Regional Agreement
8.13		**For the RJ81 and RJ88 Regional Agreements:**
8.13.1	**9I**	the r.m.s. value of radiation The product of the r.m.s. characteristic field strength in the horizontal plane and the square root of the power
8.13.2	**9IA**	the value of the radiation at the central azimuth of the augmentation, in mV/m at 1 km Required for antenna radiation pattern type "M" (see 9O)
8.13.3	**9P**	the value of the special quadrature factor, in mV/m at 1 km *Note* – A special quadrature factor may be used with antenna pattern type "M" or "E" to replace the normal expanded quadrature factor when special precautions are taken to ensure pattern stability
9		**ANTENNA CHARACTERISTICS**
9.1		**For a transmitting or receiving antenna:**
9.1.1	**9**	the indicator showing whether the antenna is directional (D) or non-directional (ND) In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement
9.1.2	**9D**	the code indicating the type of polarization (see the Preface) In the case of a transmitting station, required for an assignment: – in the fixed service in the bands shared with space services; or – subject to the GE06 Regional Agreement In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement
9.1.3	**9E**	the height of the antenna above ground level, in metres In the case of a VHF/UHF broadcasting station, required for the ST61, GE84, GE89 or GE06 Regional Agreements, and optional for assignments not subject to these Agreements In the case of a transmitting station, required for an assignment: – in the bands shared with space services; or – subject to the GE06 Regional Agreement In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
8BV							+
8BT							O
8D							+
9L						+	
9I						X	
9IA						+	
9P						O	
9	X	X		+	X		X
9D				+	+		X
9E				+	+		+

Column No.	Item identifier	Notice related to / Description of data items and requirements
9.2		**For a directional transmitting or receiving antenna:**
9.2.1	**9C**	the total angular width of the radiation main lobe (beamwidth) measured horizontally in a plane containing the direction of maximum radiation, in degrees, within which the power radiated in any direction does not fall more than 3 dB below the power radiated in the direction of maximum radiation In the case of a transmitting station, required for all assignments, except assignments subject to GE06 Regional Agreement where it is optional In the case of a receiving land station, for an assignment subject to the GE06 Regional Agreement only
9.2.2	**9GL**	the antenna gain towards the local horizon For an assignment subject to the GE06 Regional Agreement only
9.2.3	**9K**	the lowest total receiving system noise temperature, in kelvins For an associated receiving antenna in the fixed service operating in the bands shared with space services only
9.3		**For a transmitting antenna:**
9.3.1	**9EA**	the altitude of the site above mean sea level, in metres In the case of a VHF/UHF broadcasting station, required for assignments subject to the ST61, GE84, GE89, or GE06 Regional Agreements, and optional for assignments not subject to these Agreements In the case of a transmitting station, required for an assignment: – in the fixed or mobile service in the bands shared with space services; or – subject to the GE06 Regional Agreement
9.3.2	**9EB**	the maximum effective height of the antenna, in metres, above the mean level of the ground between 3 and 15 km from the transmitting antenna In the case of a transmitting station, required for an assignment subject to the GE06 Regional Agreement
9.3.3	**9EC**	the effective height of the antenna, in metres, above the mean level of the ground between 3 and 15 km from the transmitting antenna, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction In the case of a VHF/UHF broadcasting station, required for an assignment subject to the ST61, GE84, GE89 or GE06 Regional Agreements In the case of a transmitting station, required for an assignment subject to the GE06 Regional Agreement

Item identifier	Broadcasting stations in the HF bands, for the application of No. 12.16	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Typical transmitting stations, for the application of No. 11.17	Receiving land stations, for the application of No. 11.9 and No. 9.21	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21
9C		X		O	+		
9GL				O	O		
9K					C		
9EA					+		+
9EB					+		X
9EC					+		+

Column No.	Item identifier	Notice related to / Description of data items and requirements
9.3.4	**9G**	the maximum antenna gain (isotropic, relative to a short vertical antenna or relative to a half-wave dipole, as appropriate) of the transmitting antenna (see No. **1.160**) For a directional antenna, the gain is in the direction of maximum radiation In the case of a transmitting station, or a typical transmitting station: – for all frequency bands and services, except assignments subject to the GE06 Regional Agreement, required if the antenna is: – directional, including where the antenna beam is rotating or swept; or – non-directional, and the power to the antenna (8AA) or the radiated power (8B) is not provided – for an assignment subject to the GE06 Regional Agreement required if the radiated power (8B) is not provided In the case of a maritime mobile frequency allotment, required if the antenna is directional, including where the antenna beam is rotating or swept
9.3.5	**9M**	the transmitting antenna design frequency
9.3.6	**9S**	the beam tilt angle, in degrees The beam tilt angle is measured from the horizontal plane towards ground and the sign of the angle is negative *Note* – In some broadcasting definitions, the angle may have the opposite sign For a digital broadcasting assignment in the UHF band subject to the GE06 Regional Agreement only
9.3.7	**9J**	the measured radiation pattern of the antenna, the reference radiation pattern or the symbols in standard references to be used for coordination
9.4		**For a directional transmitting antenna where the antenna beam is rotating or swept:**
9.4.1	**9AB1**	the start azimuth for the range of operational angles for the antenna's main beam axis, measured in the horizontal plane from True North in a clockwise direction
9.4.2	**9AB2**	the end azimuth for the range of operational angles for the antenna's main beam axis, measured in the horizontal plane from True North in a clockwise direction
9.5		**For a directional transmitting antenna where the antenna beam is not rotating or swept:**
9.5.1	**9A**	the azimuth of maximum radiation of the transmitting antenna, measured in the horizontal plane from True North in a clockwise direction
9.5.2	**9B**	the elevation angle of maximum directivity, in degrees Required for an assignment in the bands shared with space services
9.5.3	**9R**	the slew angle measured between the azimuth of maximum radiation and the direction of unslewed radiation
9.5.4	**9NH**	the value of attenuation of the horizontally polarized component, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum effective radiated power of this component, in dB For all assignments, except digital broadcasting assignments subject to the GE06 Regional Agreement and broadcasting assignments subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
		+		+	+		9G
						X	9M
O						X	9S
		O				X	9J
		X			X		9AB1
		X			X		9AB2
		X			X	X	9A
		+					9B
						X	9R
+							9NH

Column No.	Item identifier	Notice related to / Description of data items and requirements
9.5.5	**9NV**	the value of attenuation of the vertically polarized component, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum effective radiated power of this component, in dB For all assignments, except digital broadcasting assignments subject to the GE06 Regional Agreement and broadcasting assignments subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed
9.5.6	**9UH**	the value of attenuation of the horizontally polarized component in the horizontal plane, normalized to 0 dB, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum radiated power of this component, in dB In the case of a VHF/UHF broadcasting station, for a digital broadcasting assignment subject to the GE06 Regional Agreement and an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed In the case of a transmitting station, for an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed
9.5.7	**9UV**	the value of attenuation of the vertically polarized component in the horizontal plane, normalized to 0 dB, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum radiated power of this component, in dB In the case of a VHF/UHF broadcasting station, for a digital broadcasting assignment subject to the GE06 Regional Agreement and an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed In the case of a transmitting station, for an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed
9.6	**9Q**	the symbol identifying the type of antenna Type A – a simple vertical antenna Type B – a directional or omnidirectional antenna of complex construction
9.7		**For a type A antenna (simple vertical antenna):**
9.7.1	**9EP**	the transmitting antenna's physical length in metres Required for the GE75 Regional Agreement
9.7.2	**9F**	the electrical height of the antenna, in degrees Required for the RJ81 or RJ88 Regional Agreements
9.8		**For a station subject to the GE75 Regional Agreement with a type B antenna (a directional antenna, or omnidirectional antenna of complex construction):**
9.8.1	**9GH**	the antenna gain, in dB, in the horizontal plane, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction

Item identifier	9GH		9F	9EP		9Q	9UV	9UH	9NV
Broadcasting stations in the HF bands, for the application of No. 12.16									
Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)									
Typical transmitting stations, for the application of No. 11.17									
Receiving land stations, for the application of No. 11.9 and No. 9.21									
Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21							+	+	
Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	X		+	+		X			
Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21							+	+	+

Column No.	Item identifier	Notice related to / Description of data items and requirements
9.8.2	**9GV**	the antenna gain, in dB, in the vertical plane, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°) measured in the horizontal plane from True North in a clockwise direction, and at ten different elevations in 10° intervals (i.e. 0°, 10°, ..., 90°) measured in the vertical plane *Note* – If administrations have difficulty in providing this information, they can provide a reference to any other information that may be of assistance (e.g. ITU-R Recommendation, antenna pattern) Required for an assignment to be used for night-time operation
9.9		**For a station subject to the RJ81 or RJ88 Regional Agreements with a type B antenna (a directional antenna, or omnidirectional antenna of complex construction):**
9.9.1	**9O**	the symbol identifying the type of antenna radiation pattern (T, M, or E)
9.9.2		**For antenna radiation pattern type M:**
9.9.2.1	**9NA**	the serial number of the augmentation as described by items 9IA, 9AA and 9CA
9.9.2.2	**9AA**	the central azimuth of the augmentation (centre of the span) in degrees
9.9.2.3	**9CA**	the total span of the augmentation, in degrees
9.9.3		**For each tower of a type B antenna in the RJ81 or RJ88 Regional Agreements:**
9.9.3.1	**9T1**	the serial number of each of the towers whose characteristics are described in items 9T2 to 9T8
9.9.3.2	**9T8**	the symbol corresponding to the tower structure
9.9.3.3	**9T7**	the electrical height, in degrees, of the tower under consideration Required if the tower is not top-loaded nor sectionalized (see 9.9.4)
9.9.3.4	**9T2**	the ratio of the tower field to the field of the reference tower Required if the antenna consists of two or more towers
9.9.3.5	**9T3**	the positive or negative phase difference in the tower field with respect to the field of the reference tower, in degrees Required if the antenna consists of two or more towers
9.9.3.6	**9T4**	the electrical spacing of the tower from the reference point, in degrees Required if the antenna consists of two or more towers
9.9.3.7	**9T5**	the angular orientation of the tower from the reference point, in degrees (clockwise) from True North Required if the antenna consists of two or more towers
9.9.4		**For each tower of a type B antenna that is top-loaded or sectionalized in accordance with the Regional Administrative MF Broadcasting Conference (Region 2) Rio de Janeiro, 1981 or 1988 Agreements:**
9.9.4.1	**9T9A**	the description of a top-loaded or sectionalized tower
9.9.4.2	**9T9B**	the description of a top-loaded or sectionalized tower Required if tower structure symbol (9T8) is 1, 2, 5, 6, 7, 8 or 9
9.9.4.3	**9T9C**	the description of a top-loaded or sectionalized tower Required if the tower structure symbol (9T8) is 2, 5, 7 or 8

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
	+						9GV
	X						9O
	X						9NA
	X						9AA
	X						9CA
	X						9T1
	X						9T8
	+						9T7
	+						9T2
	+						9T3
	+						9T4
	+						9T5
	X						9T9A
	+						9T9B
	+						9T9C

Column No.	Item identifier	Notice related to / Description of data items and requirements
9.9.4.4	**9T9D**	the description of a top-loaded or sectionalized tower Required if tower structures symbol (9T8) is 2, 5 or 8
10		**HOURS OF OPERATION**
10.1	**10B**	the regular hours of operation (in hours and minutes from ... to ...) of the frequency assignment, in UTC
10.2	**10BA**	the local operation period code (see the Preface)
10.3	**10D**	the estimated peak hours of traffic
10.4	**10E**	the estimated daily volume of traffic
11		**COORDINATION AND AGREEMENT**
11.1	**11**	the symbol of each administration with which coordination has been successfully effected Required if coordination is necessary and has been obtained pursuant to the relevant provisions of the Radio Regulations
11.2	**11D**	a declaration by the notifying administration that all conditions associated with the remark are fully met for recording the submitted assignment in the Master International Frequency Register Required for a digital broadcasting assignment subject to § 5.1.2 of the GE06 Regional Agreement and for the broadcasting and other primary services assignments notified pursuant to No. 5.1.3 of the Agreement
11.3	**11C**	a signed commitment from the notifying administration that the submitted assignment for recording in the Master International Frequency Register shall not cause unacceptable interference and shall not claim protection Required for an assignment subject to § 5.1.8 of the GE06 Regional Agreement
11.4	**11E**	a signed commitment from the notifying administration that the submitted assignment for recording in the Master International Frequency Register shall not cause unacceptable interference and shall not claim protection Required for an assignment subject to § 5.2.6 of the GE06 Regional Agreement
11.5	**11F**	Recognition by the notifying administration that the registration of assignments in the aeronautical mobile (R) service in the 5 030-5 091 MHz frequency band accords with the purposes of ITU, including No. 7 of Article 1 of the ITU Constitution. Required for an assignment in aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz
12		**OPERATING ADMINISTRATION OR AGENCY**
12.1	**12A**	the symbol for the operating agency
12.2	**12B**	the symbol for the address of the administration responsible for the station and to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article **15**, also the Preface) In the case of a VHF/UHF broadcasting station, transmitting station, or a receiving land station, required for application of Article **11**
13		**REMARKS**
13.1	**13C**	Remarks for assisting the Bureau in processing the notice

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
	+						9T9D
X	O	X	X	X	X	X	10B
	X						10BA
					X		10D
					X		10E
+	O	+	+	O	+		11
+		+	+				11D
+							11C
		+	+	+			11E
		+	+	+			11F
O	O	O	O	O		O	12A
+	X	+	+	X		X	12B
O	O	O	O	O	O	O	13C

TABLE 2

Characteristics for high altitude platform stations (HAPS) frequency assignments in the terrestrial services

Item identifier	*1 – GENERAL CHARACTERISTICS OF THE HAPS*	Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2	Receiving station in the bands listed in No. 5.388A for the application of No. 11.9	Transmitting station in the bands listed in Nos. 5.537A and 5.552A for the application of No. 11.2	Receiving station in the bands listed in Nos. 5.543A and 5.552A for the application of No. 11.9	Item identifier
	GENERAL INFORMATION					
1.B	the symbol of the notifying administration (see the Preface)	**X**	**X**	**X**	**X**	1.B
1.D	the provision code of the Radio Regulations under which the notice has been submitted	**X**	**X**	**X**	**X**	1.D
1.ID1	the unique identifier given by the administration to the station	**X**	**X**	**X**	**X**	1.ID1
	LOCATION OF THE STATION					
1.4.a	the name by which the station is known	**X**	**X**	**X**	**X**	1.4.a
1.4.b	the code of the geographical area, above which the station is located (see the Preface)	**X**	**X**	**X**	**X**	1.4.b
1.4.c	the nominal geographical coordinates of the station Latitude and longitude are provided in degrees, minutes and seconds	**X**	**X**	**X**	**X**	1.4.c
1.4.h	the nominal altitude of the station above mean sea level, in metres	**X**	**X**	**X**	**X**	1.4.h
1.4.t	**Station location tolerances:**					1.4.t
1.4.t.1.a	the planned latitudinal tolerance northerly limit, using d.m.s units	**X**	**X**	**X**	**X**	1.4.t.1.a
1.4.t.1.b	the planned latitudinal tolerance southerly limit, using d.m.s units	**X**	**X**	**X**	**X**	1.4.t.1.b
1.4.t.2.a	the planned longitudinal tolerance easterly limit, using d.m.s units	**X**	**X**	**X**	**X**	1.4.t.2.a
1.4.t.2.b	the planned longitudinal tolerance westerly limit, using d.m.s units	**X**	**X**	**X**	**X**	1.4.t.2.b
1.4.t.3	the planned altitudinal tolerance, in metres	**X**	**X**	**X**	**X**	1.4.t.3
	COMPLIANCE WITH TECHNICAL OR OPERATIONAL LIMITS					
1.14.b	a commitment that the HAPS does not exceed an out-of-band pfd of −165 dB(W/(m^2 · 4 kHz)) at the Earth's surface in the bands 2 160-2 200 MHz in Region 2 and 2 170-2 200 MHz in Regions 1 and 3 (see Resolution **221 (Rev.WRC-07)**)	**X**				1.14.b
1.14.c	a commitment that the HAPS does not exceed the out-of-band pfd limits of −165 dB(W/(m^2 · MHz)) for angles of arrival (θ) less than 5° above the horizontal plane, −165 + 1.75 (θ − 5) dB(W/(m^2 · MHz)) for angles of arrival between 5° and 25° and −130 dB(W/(m^2 · MHz)) for angles of arrival between 25° and 90° (see Resolution **221 (Rev.WRC-07)**)	**X**				1.14.c
1.14.d	a commitment that the unwanted power density into the HAPS ground station antenna in the band 31.3-31.8 GHz shall not exceed −106 dB(W/MHz) under clear-sky conditions and −100 dB(W/MHz) under rainy conditions (see Resolution **145 (Rev.WRC-07)**) Required in the band 31-31.3 GHz				+	1.14.d

Item identifier	*1 - GENERAL CHARACTERISTICS OF THE HAPS*	Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2	Receiving station in the bands listed in No. 5.388A for the application of No. 11.9	Transmitting station in the bands listed in Nos. 5.537A and 5.552A for the application of No. 11.2	Receiving station in the bands listed in Nos. 5.543A and 5.552A for the application of No. 11.9	Item identifier
1.14.e	a commitment that the maximum power density into an ubiquitous HAPS ground station antenna in the Urban Area Coverage (UAC) shall not exceed 6.4 dB(W/MHz) for elevation angles of ground station antenna greater than 30° and less than or equal to 90° (see Resolution **122 (Rev.WRC-07)**) Required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz				+	1.14.e
1.14.f	a commitment that the maximum power density into an ubiquitous HAPS ground station antenna in the Suburban Area Coverage (SAC) shall not exceed 22.57 dB(W/MHz) for elevation angles of ground station antenna greater than 15° and less than or equal to 30° (see Resolution **122 (Rev.WRC-07)**) Required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz				+	1.14.f
1.14.g	a commitment that the maximum power density into an ubiquitous HAPS ground station antenna in the Rural Area Coverage (RAC) shall not exceed 28 dB(W/MHz) for elevation angles of ground station antenna greater than 5° and less than or equal to 15° (see Resolution **122 (Rev.WRC-07)**) Required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz				+	1.14.g
1.14.h	a commitment that the separation distance between the nadir of the HAPS and a radio astronomy station operating in the band 48.94-49.04 GHz within the territory of another administration shall exceed 50 km (see Resolution **122 (Rev.WRC-07)**) Required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz			+		1.14.h
	COORDINATION AND AGREEMENT					
1.11.a	the symbol of each administration with which coordination has been successfully effected, including where the agreement is to exceed the limits prescribed in the Radio Regulations Required if coordination is necessary and has been obtained pursuant to the relevant provisions of the Radio Regulations	+	+	+	+	1.11.a
	OPERATING ADMINISTRATION OR AGENCY					
1.12.a	the symbol for the operating agency	**O**	**O**	**O**	**O**	1.12.a
1.12.b	the symbol for the address of the administration responsible for the station and to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article **15**)	**X**	**X**	**X**	**X**	1.12.b
	REMARKS					
1.13.c	Remarks for assisting the Bureau in processing the notice	**O**	**O**	**O**	**O**	1.13.c

Item identifier	*2 – CHARACTERISTICS TO BE PROVIDED FOR EACH INDIVIDUAL OR COMPOSITE HAPS ANTENNA BEAM*	Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2	Receiving station in the bands listed in No. 5.388A for the application of No. 11.9	Transmitting station in the bands listed in Nos. 5.537A and 5.552A for the application of No. 11.2	Receiving station in the bands listed in Nos. 5.543A and 5.552A for the application of No. 11.9	Item identifier
	IDENTIFICATION AND DIRECTION OF THE HAPS ANTENNA BEAM					
2.1.a	the designation of the HAPS antenna beam	**X**	**X**	**X**	**X**	2.1.a
2.1.b	an indicator showing whether the antenna beam, under 2.1.a, is fixed or whether it is steerable and/or reconfigurable	**X**	**X**	**X**	**X**	2.1.b
2.1.c	an indicator showing whether the HAPS antenna tracks the service area	**X**		**X**		2.1.c
2.1.d	an indicator showing whether the antenna beam is individual or composite beam	**X**	**X**	**X**	**X**	2.1.d
	ANTENNA CHARACTERISTICS					
2.9.g	the maximum co-polar isotropic gain	**X**	**X**	**X**	**X**	2.9.g
2.9.j	the measured radiation pattern of the antenna, the reference radiation pattern or the symbols in standard references to be used for coordination	**X**	**X**			2.9.j
2.9.gp	the co-polar antenna gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the HAPS onto a plane perpendicular to the axis from the centre of the Earth to the HAPS The HAPS antenna gain contours shall be drawn as isolines of the isotropic gain, relative to the maximum antenna gain, when any of these contours is located either totally or partially outside the territory of the notifying administration The antenna gain contours shall include the effects of the planned longitudinal and latitudinal tolerance, planned altitudinal tolerance and the pointing accuracy of the antenna, taking in consideration the movement of the HAPS antenna boresight around the effective boresight area	**X**	**X**	**X**	**X**	2.9.gp

Item identifier	*3 – CHARACTERISTICS TO BE PROVIDED FOR EACH FREQUENCY ASSIGNMENT FOR EACH INDIVIDUAL OR COMPOSITE HAPS ANTENNA BEAM*	Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2	Receiving station in the bands listed in No. 5.388A for the application of No. 11.9	Transmitting station in the bands listed in Nos. 5.537A and 5.552Afor the application of No. 11.2	Receiving station in the bands listed in Nos. 5.543A and 5.552A for the application of No. 11.9	Item identifier
	ASSIGNED FREQUENCY					
3.1.a	the assigned frequency, as defined in No. **1.148**	**X**	**X**	**X**	**X**	3.1.a
3.1.b	the reference frequency, as defined in Article **1** Required if the modulation envelope is asymmetric	+	+	+	+	3.1.b
	DATE OF OPERATION					
3.2.c	the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use	**X**	**X**	**X**	**X**	3.2.c
	LOCATION OF THE ASSOCIATED ANTENNA(S)					
	For an area in which associated transmitting/receiving ground station(s) operate:					
3.5.c.a	the geographical coordinates of a given zone A minimum of six geographical coordinates are required, in degrees, minutes and seconds *Note* – For the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz the geographical coordinates are provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU-R F.1500) Required if neither a circular area (3.5.e and 3.5.f) nor a geographical area (3.5.d) are provided	+	+	+	+	3.5.c.a
3.5.d	the code of the geographical area (see the Preface) *Note* – For the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz separate geographical areas are provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU-R F.1500) Required if neither a circular area (3.5.e and 3.5.f) nor the geographical coordinates of a given zone (3.5.c.a) are provided	+	+	+	+	3.5.d
3.5.e	the geographical coordinates of the centre of the circular area in which the associated ground station(s) are operating The latitude and longitude are provided in degrees, minutes and seconds *Note* – For the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz different centres of the circular area may be provided for the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU-R F.1500) Required if neither a geographical area (3.5.d) or geographical coordinates of a given zone (3.5.c.a) are provided	+	+	+	+	3.5.e

Item identifier	*3 – CHARACTERISTICS TO BE PROVIDED FOR EACH FREQUENCY ASSIGNMENT FOR EACH INDIVIDUAL OR COMPOSITE HAPS ANTENNA BEAM*	Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2	Receiving station in the bands listed in No. 5.388A for the application of No. 11.9	Transmitting station in the bands listed in Nos. 5.537A and 5.552Afor the application of No. 11.2	Receiving station in the bands listed in Nos. 5.543A and 5.552A for the application of No. 11.9	Item identifier
3.5.f	the radius, in km, of the circular area *Note* – For the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz, a separate radius is provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU-R F.1500) Required if neither a geographical area (3.5.d) nor geographical coordinates of a given zone (3.5.c.a) are provided	+	+	+	+	3.5.f
	CLASS OF STATION AND NATURE OF SERVICE					
3.6.a	the class of station, using the symbols from the Preface	**X**	**X**	**X**	**X**	3.6.a
3.6.b	the nature of service, using the symbols from the Preface	**X**	**X**	**X**	**X**	3.6.b
	CLASS OF EMISSION AND NECESSARY BANDWIDTH *(in accordance with Article **2** and Appendix **1**)*					
3.7.a	the class of emission	**X**	**X**	**X**	**X**	3.7.a
3.7.b	the necessary bandwidth	**X**	**X**	**X**	**X**	3.7.b
	POWER CHARACTERISTICS OF THE TRANSMISSION					
3.8	the symbol (X, Y or Z, as appropriate) describing the type of power (see Article **1**) corresponding to the class of emission	**X**	**X**	**X**	**X**	3.8.
3.8.aa	the power delivered to the antenna, in dBW, including the level of power control in 3.8.BA *Note* – For a receiving HAPS, the power delivered to the antenna refers to the associated transmitting ground station(s)	**X**		**X**	**X**	3.8.aa
3.8.AB	the maximum power density[1] averaged over the worst 1 MHz band delivered to the antenna	**X**		**X**		3.8AB
3.8.BA	the range of power control, in dB *Note* – For a receiving HAPS, the power control refers to its use by the associated transmitting ground station(s) In the case of a receiving HAPS, required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz	**X**			+	3.8.BA
	POLARIZATION AND RECEIVING SYSTEM NOISE TEMPERATURE					
3.9.d	the code indicating the type of polarization (see the Preface)	**X**	**X**	**X**	**X**	3.9.d
3.9.j	the reference radiation pattern of the associated ground station(s) Required in the bands 47.2-47.5 GHz and 47.9-48.2 GHz			+	+	3.9.j
3.9.k	the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna		**X**		**X**	3.9.k
	HOURS OF OPERATION					
3.10.b	the regular hours of operation (in hours and minutes from ... to ...) of the frequency assignment, in UTC	**X**	**X**	**X**	**X**	3.10.b

ANNEX 2

Characteristics of satellite networks, earth stations or radio astronomy stations[2] (Rev.WRC-12)

Information relating to the data listed in the following Tables

In many cases the data requirements involve the use of standard symbols in submissions to the Radiocommunication Bureau. These standard symbols may be found in the "Preface to the BR International Frequency Information Circular", (BR IFIC) (Space Services), the ITU-R webpage and the Space Radiocommunication Stations on DVD-ROM. (In the Table, this is referred to simply as "the Preface".) Information relating to the provision of data may also be found in ITU-R Recommendations, for example, information on the mask data can be found in the most recent version of Recommendation ITU-R S.1503, and the most recent version of Recommendation ITU-R SM.1413 provides general information related to submission of data.

Key to the symbols used in Tables A, B, C and D

X	Mandatory information
+	Mandatory under the conditions specified in Column 2
O	Optional information
C	Mandatory if used as a basis to effect coordination with another administration
	The data item is not applicable to the corresponding notice

[2] The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Space Services). (WRC-12)

Reading the Appendix 4 Tables

The rules used to link the sign with the text are based on the Table column headings covering specific procedures and specific services.

1 If any data item has a condition attached to it, then it has a "+".

A.6.c	if agreement has been reached, the related provision code (see the Preface)	+	A.6.c

C.8.f.1	the space station's nominal equivalent isotropically radiated power(s) (e.i.r.p.) on the beam axis Required only for a space-to-space link	+	C.8.f.1

2 Data items grouped under a common subheading that limits the range of procedures, services or frequency bands have a "X" as the conditional nature is shown in the subheading title.

A.4.b.5	**For space stations operating in a frequency band subject to the provisions of Nos. 9.11A, 9.12 or 9.12A, the data elements to characterize properly the orbital statistics of the non-geostationary-satellite system:**		A.4.b.5
A.4.b.5.a	the right ascension of the ascending node (Ω_j) for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the direction of the vernal equinox to the point where the satellite makes its South-to-North crossing of the equatorial plane ($0° \leq \Omega_j < 360°$)	**X**	A.4.b.5.a

3 "In the case of", followed by a reference to the column heading, is used as shown below when the associated conditions are different for individual columns, or if the indication is not the same across all applicable columns.

A.3.a	the symbol for the operating administration or agency (see the Preface) that is in operational control of the space station, earth station or radio astronomy station In the case of Appendix **30B**, required only for notification under Article 8	**X**	+	A.3.a

Footnotes to Tables A, B, C and D

1 Not required for coordination under No. **9.7A**.

2 In calculating the maximum power density per Hz, see the most recent version of Recommendation ITU-R SF.675. For carriers below 15 GHz, the power density is averaged over the worst 4 kHz band. For carriers at or above 15 GHz, the power density is averaged over the worst 1 MHz band. (WRC-12)

Table of characteristics to be submitted for space and radio astronomy services
(Rev.WRC-12)

TABLE A

GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION (Rev.WRC-15)

Items in Appendix	*A - GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.1	**IDENTITY OF THE SATELLITE NETWORK, EARTH STATION OR RADIOASTRONOMY STATION**
A.1.a	the identity of the satellite network
A.1.b	the beam identification In the case of Appendix **30** or **30A**, required for modification, suppression or notification of Plan assignments In the case of Appendix **30B**, required for a network derived from the Allotment Plan
A.1.e	**Identity of the earth station or radio astronomy station:**
A.1.e.1	the type of earth station (specific or typical)
A.1.e.2	the name of the station
A.1.e.3	**For a specific earth station or radio astronomy station:**
A.1.e.3.a	the country or geographical area in which the station is located, using the symbols from the Preface
A.1.e.3.b	the geographical coordinates of each transmitting or receiving antenna site constituting the station latitude and longitude in degrees and minutes) For a specific earth station, seconds are to be provided if the coordination area of the earth station overlaps the territory of another administration
A.1.f	**Administration and intergovernmental organization symbol:**
A.1.f.1	the symbol of the notifying administration (see the Preface)
A.1.f.2	if the notice is submitted on behalf of a group of administrations, the symbols of each of the administrations in the group, submitting the information on the satellite network (see the Preface)
A.1.f.3	if the notice is submitted on behalf of an intergovernmental satellite organization, the symbol of that organization (see the Preface)
A.1.g	**Not used**
A.1.g.1	**Not used**
A.1.g.2	**Not used**

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.1	
X	**X**	**X**	**X**	**X**		**X**	**X**	**X**	A.1.a	
						+	+	+	A.1.b	
									A.1.e	
					X				A.1.e.1	
					X				A.1.e.2	**X**
									A.1.e.3	
					X				A.1.e.3.a	**X**
					X				A.1.e.3.b	**X**
									A.1.f	
X	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	A.1.f.1	**X**
+	+	+	+	+		+	+	+	A.1.f.2	
+	+	+	+	+		+	+	+	A.1.f.3	
									A.1.g	
									A.1.g.1	
									A.1.g.2	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.2	**DATE OF BRINGING INTO USE**
A.2.a	the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use For a frequency assignment to a GSO space station, including frequency assignments in Appendices **30, 30A** and **30B**, the date of bringing into use is as defined in Nos. **11.44B** and **11.44.2** Whenever the assignment is changed in any of its basic characteristics (except in the case of a change under A.1.a, the date to be given shall be that of the latest change (actual or foreseen, as appropriate) Required only for notification
A.2.b	for a space station, the period of validity of the frequency assignments (see Resolution **4 (Rev.WRC-03)**)
A.2.c	the date (actual or foreseen, as appropriate) on which reception of the frequency band begins or on which any of the basic characteristics are modified
A.3	**OPERATING ADMINISTRATION OR AGENCY**
A.3.a	the symbol for the operating administration or agency (see the Preface) that is in operational control of the space station, earth station or radio astronomy station In the case of Appendix **30B**, required only for notification under Article 8
A.3.b	the symbol for the address of the administration (see the Preface) to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the network or station (see Article **15**) In the case of Appendix **30B**, required only for notification under Article 8
A.4	**ORBITAL INFORMATION**
A.4.a	**For a space station onboard a geostationary-satellite:**
A.4.a.1	the nominal geographical longitude on the geostationary-satellite orbit (GSO)
A.4.a.2	**Orbital tolerances**
A.4.a.2.a	the planned longitudinal tolerance easterly limit
A.4.a.2.b	the planned longitudinal tolerance westerly limit
A.4.a.2.c	the planned inclination excursion
A.4.a.4	**Not used**
A.4.a.4.a	**Not used**
A.4.a.4.b	**Not used**

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.2	
			+	+	+	+	+	+	A.2.a	
		X	**X**	**X**					A.2.b	
									A.2.c	**X**
									A.3	
		X	**X**	**X**	**X**	**X**	**X**	+	A.3.a	**X**
		X	**X**	**X**	**X**	**X**	**X**	+	A.3.b	**X**
									A.4	
									A.4.a	
X			**X**			**X**	**X**	**X**	A.4.a.1	
									A.4.a.2	
			X			**X**	**X**	**X**	A.4.a.2.a	
			X			**X**	**X**	**X**	A.4.a.2.b	
			X					**X**	A.4.a.2.c	
									A.4.a.4	
									A.4.a.4.a	
									A.4.a.4.b	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.4.b	**For space station(s) onboard non-geostationary satellite(s):**
A.4.b.1	the number of orbital planes
A.4.b.2	the reference body code
A.4.b.3	**For space stations of a non-geostationary fixed-satellite service system operating in the band 3 400-4 200 MHz:**
A.4.b.3.a	the maximum number of space stations (N_N) in a non-geostationary-satellite system simultaneously transmitting on a co-frequency basis in the fixed-satellite service in the Northern Hemisphere
A.4.b.3.b	the maximum number of space stations (N_S) in a non-geostationary-satellite system simultaneously transmitting on a co-frequency basis in the fixed-satellite service in the Southern Hemisphere
A.4.b.4	**For each orbital plane, where the Earth is the reference body:**
A.4.b.4.a	the angle of inclination (i_j) of the orbital plane with respect to the Earth's equatorial plane ($0° \leq i_j < 180°$)
A.4.b.4.b	the number of satellites in the orbital plane
A.4.b.4.c	the period
A.4.b.4.d	the altitude, in kilometres, of the apogee of the space station
A.4.b.4.e	the altitude, in kilometres, of the perigee of the space station
A.4.b.4.f	the minimum altitude of the space station above the surface of the Earth at which any satellite transmits
A.4.b.5	**For space stations operating in a frequency band subject to the provisions of Nos. 9.11A, 9.12 or 9.12A, the data elements to characterize properly the orbital statistics of the non-geostationary-satellite system:**
A.4.b.5.a	the right ascension of the ascending node (Ω_j) for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the direction of the vernal equinox to the point where the satellite makes its South-to-North crossing of the equatorial plane ($0° \leq \Omega_j < 360°$)
A.4.b.5.b	the initial phase angle (ω_i) of the i-th satellite in its orbital plane at reference time $t = 0$, measured from the point of the ascending node ($0° \leq \omega_i < 360°$)
A.4.b.5.c	the argument of perigee (ω_p), measured in the orbital plane, in the direction of motion, from the ascending node to the perigee ($0° \leq \omega_p < 360°$)
A.4.b.6	**For space stations operating in a frequency band subject to Nos. 22.5C, 22.5D or 22.5F, the data elements to characterize properly the orbital operation of the non-geostationary-satellite system:**
A.4.b.6.a	**For each range of latitudes:**
A.4.b.6.a.1	the maximum number of non-geostationary satellites transmitting with overlapping frequencies to a given location
A.4.b.6.a.2	the associated start of the latitude range
A.4.b.6.a.3	the associated end of the latitude range
A.4.b.6.b	**Not used**
A.4.b.6.c	an indicator showing whether the space station uses station-keeping to maintain a repeating ground track

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.4.b	
		X		X					A.4.b.1	
	X	X		X					A.4.b.2	
									A.4.b.3	
		X		X					A.4.b.3.a	
		X		X					A.4.b.3.b	
									A.4.b.4	
		X		X					A.4.b.4.a	
		X		X					A.4.b.4.b	
		X		X					A.4.b.4.c	
		X		X					A.4.b.4.d	
		X		X					A.4.b.4.e	
		X		X					A.4.b.4.f	
									A.4.b.5	
				X					A.4.b.5.a	
				X					A.4.b.5.b	
				X					A.4.b.5.c	
									A.4.b.6	
									A.4.b.6.a	
				X					A.4.b.6.a.1	
				X					A.4.b.6.a.2	
				X					A.4.b.6.a.3	
									A.4.b.6.b	
				X					A.4.b.6.c	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.4.b.6.d	if the space station uses station-keeping to maintain a repeating ground track, the time in seconds that it takes for the constellation to return to its starting position, i.e. such that all satellites are in the same location with respect to the Earth and each other
A.4.b.6.e	an indicator showing whether the space station should be modelled with a specific precession rate of the ascending node of the orbit instead of the J_2 term
A.4.b.6.f	if the space station is to be modelled with a specific precession rate of the ascending node of the orbit instead of the J_2 term, the precession rate in degrees/day, measured counter-clockwise in the equatorial plane
A.4.b.6.g	the longitude of the ascending node (θ_j) for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the Greenwich meridian to the point where the satellite orbit makes its South-to-North crossing of the equatorial plane ($0° \leq \theta_j < 360°$) *Note* – For the evaluation of epfd a reference to a point on the Earth is used and hence the "longitude of the ascending node" is required. All satellites in the constellation must use the same reference time
A.4.b.6.h	the date (day:month:year) at which the satellite is at the location defined by the longitude of the ascending node (θ_j), (see Note under A.4.b.6.g)
A.4.b.6.i	the time (hours:minutes) at which the satellite is at the location defined by the longitude of the ascending node (θ_j), (see Note under A.4.b.6.g)
A.4.b.6.j	the longitudinal tolerance of the longitude of the ascending node
A.4.b.7	**For space stations operating in a frequency band subject to Nos. 22.5C, 22.5D or 22.5F, the data elements to characterize properly the performance of the non-geostationary-satellite system:**
A.4.b.7.a	the maximum number of non-geostationary satellites receiving simultaneously with overlapping frequencies from the associated earth stations within a given cell
A.4.b.7.b	the average number of associated earth stations with overlapping frequencies per square kilometre within a cell
A.4.b.7.c	the average distance, in kilometres, between co-frequency cells
A.4.b.7.d	**For the exclusion zone about the geostationary-satellite orbit:**
A.4.b.7.d.1	the type of zone (based on topocentric angle, satellite-based angle or other method for establishing the exclusion zone)
A.4.b.7.d.2	if the zone is based on a topocentric angle or a satellite-based angle, the width of the zone, in degrees
A.4.b.7.d.3	if an alternative method is used for establishing the exclusion zone, a detailed description of the avoidance mechanism
A.4.c	**For an earth station:**
A.4.c.1	the identity of the associated space station(s) with which communication is to be established
A.4.c.2	if communication is to be established with a geostationary space station, its orbital position

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
				+					A.4.b.6.d	
				X					A.4.b.6.e	
				+					A.4.b.6.f	
				X					A.4.b.6.g	
				X					A.4.b.6.h	
				X					A.4.b.6.i	
				X					A.4.b.6.j	
									A.4.b.7	
				X					A.4.b.7.a	
				X					A.4.b.7.b	
				X					A.4.b.7.c	
									A.4.b.7.d	
				X					A.4.b.7.d.1	
				+					A.4.b.7.d.2	
				+					A.4.b.7.d.3	
									A.4.c	
					X				A.4.c.1	
					+				A.4.c.2	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.5	**COORDINATIONS**
A.5.a.1	the symbol of any administration (see the Preface) with which coordination has been successfully effected Required only in the case of notification
A.5.a.2	the symbol of any intergovernmental organization (see the Preface) with which coordination has been successfully effected Required only in the case of notification
A.5.b.1	the symbol of any administration (see the Preface) with which coordination has been sought but not completed
A.5.b.2	the symbol of any intergovernmental organization (see the Preface) with which coordination has been sought but not completed
A.5.c	the related provision code (see the Preface) under which coordination has been sought or completed if either A.5.a.1 (and A.5.a.2) or A.5.b.1 (and A.5.b.2) has been supplied
A.6	**AGREEMENTS**
A.6.a	if appropriate, the symbol of any administration or administration representing a group of administrations (see the Preface) with which agreement has been reached, including where the agreement is to exceed the limits prescribed in these Regulations
A.6.b	if appropriate, the symbol of any intergovernmental organization (see the Preface) with which agreement has been reached, including where the agreement is to exceed the limits prescribed in these Regulations
A.6.c	if agreement has been reached, the related provision code (see the Preface)
A.7	**SPECIFIC EARTH STATION OR RADIO ASTRONOMY STATION SITE CHARACTERISTICS**
A.7.a.1	the horizon elevation angle, in degrees, for each azimuth around the earth station
A.7.a.2	the distance, in kilometres, from the earth station to the horizon for each azimuth around the earth station
A.7.b.1	the planned minimum angle of elevation of the antenna's main beam axis, in degrees, from the horizontal plane For determining the minimum elevation angle of an earth station, due regard should be given to possible inclined-orbit operation of the associated geostationary space station In the case of an earth station, required for operation to geostationary satellites
A.7.b.2	the planned maximum angle of elevation of the antenna's main beam axis, in degrees, from the horizontal plane
A.7.c.1	the start azimuth for the planned range of operating azimuthal angles for the antenna's main beam axis, in degrees, clockwise from True North For determining the start azimuth of an earth station, due regard should be given to possible inclined-orbit operation of the associated geostationary space station In the case of an earth station, required for operation to geostationary satellites

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.5	
			+	+	+[1]				A.5.a.1	
			+	+	+[1]				A.5.a.2	
			O	**O**	**O**				A.5.b.1	
			O	**O**					A.5.b.2	
			+	+	+[1]				A.5.c	
									A.6	
			+	+	+[1]	+	+	+	A.6.a	
			+	+	+[1]	+	+	+	A.6.b	
			+	+	+[1]	+	+	+	A.6.c	
									A.7	
					+[1]				A.7.a.1	
					O				A.7.a.2	
					+[1]				A.7.b.1	**X**
									A.7.b.2	**X**
					+[1]				A.7.c.1	**X**

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.7.c.2	the end azimuth for the planned range of operating azimuthal angles for the antenna's main beam axis, in degrees, clockwise from True North For determining the end azimuth of an earth station, due regard should be given to possible inclined-orbit operation of the associated geostationary space station In the case of an earth station, required for operation to geostationary satellites
A.7.d	the altitude, in metres, of the antenna above mean sea level
A.7.e	the minimum angle of elevation of the antenna's main beam axis, in degrees, from the horizontal plane for each azimuth around the earth station Required for earth stations operating with non-geostationary space stations
A.7.f	the antenna diameter, in metres Required only for fixed-satellite service earth stations operating in the frequency bands 13.75-14 GHz, 14.5-14.75 GHz (in countries listed in Resolution **163 (WRC-15)** not for feeder links for the broadcasting-satellite service), 14.5-14.8 GHz (in countries listed in Resolution **164 (WRC-15)** not for feeder links for the broadcasting-satellite service), 24.65-25.25 GHz (Region 1) and 24.65-24.75 GHz (Region 3)
A.8	**Not used**
A.9	**Not used**
A.10	**EARTH STATION COORDINATION AREA DIAGRAMS**
A.10.a	the diagrams shall be drawn to an appropriate scale, indicating, for both transmission and reception, the location of the earth station and its associated coordination areas, or the coordination area related to the service area in which it is intended to operate the mobile earth station Required only for notification
A.11	**REGULAR HOURS OF OPERATION**
A.11.a	the start time UTC
A.11.b	the stop time UTC
A.12	**RANGE OF AUTOMATIC GAIN CONTROL, in dB**
A.13	**REFERENCES TO THE PUBLISHED SPECIAL SECTIONS OF THE BUREAU'S INTERNATIONAL FREQUENCY INFORMATION CIRCULAR (see the Preface)**
A.13.a	the reference and number of the advance publication information in accordance with No. **9.1** or No. **9.1A**
A.13.b	the reference and number of the coordination request in accordance with No. **9.6** In the case of notification of an earth station, the reference to the Special Section of the associated satellite network has to be provided In the case of notification of an earth station coordinated under No. **9.7A**, the coordination Special Section number of this earth station has to be provided
A.13.c	the reference and number of the information in accordance with Article 4 of Appendix **30**
A.13.d	the reference and number of the information in accordance with Article 4 of Appendix **30A**
A.13.e	the reference and number of the information in accordance with Article 6 of Appendix **30B**

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
					+[1]				A.7.c.2	X
					+[1]				A.7.d	
					+				A.7.e	
					+[1]				A.7.f	
									A.8	
									A.9	
									A.10	
					+				A.10.a	
									A.11	
						X	X		A.11.a	
						X	X		A.11.b	
							X		**A.12**	
									A.13	
			X	X	X				A.13.a	
			X	X	X				A.13.b	
						X			A.13.c	
							X		A.13.d	
					X			X	A.13.e	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.14	**FOR STATIONS OPERATING IN A FREQUENCY BAND SUBJECT TO Nos. 22.5C, 22.5D OR 22.5F: SPECTRUM MASKS**
A.14.a	**For each e.i.r.p. mask used by the non-geostationary space station:**
A.14.a.1	the mask identification code
A.14.a.2	the lowest frequency for which the mask is valid
A.14.a.3	the highest frequency for which the mask is valid
A.14.a.4	the mask pattern defined in terms of the power in the reference bandwidth for a series of off-axis angles with respect to a specified reference point
A.14.b	**For each associated earth station e.i.r.p. mask:**
A.14.b.1	the mask identification code
A.14.b.2	the lowest frequency for which the mask is valid
A.14.b.3	the highest frequency for which the mask is valid
A.14.b.4	the minimum elevation angle at which any associated earth station can transmit to a non-geostationary satellite
A.14.b.5	the minimum separation angle between the geostationary-satellite orbit arc and the associated earth station main beam-axis at which the associated earth station can transmit towards a non-geostationary satellite
A.14.b.6	the mask pattern defined in terms of the power in the reference bandwidth for a series of off-axis angles with respect to a specified reference point
A.14.c	**For each pfd mask used by the non-geostationary space station:** *Note* – The space station pfd mask is defined by the maximum power flux-density generated by any space station in the interfering non-geostationary-satellite system as seen from any point on the surface of the Earth
A.14.c.1	the mask identification code
A.14.c.2	the lowest frequency for which the mask is valid
A.14.c.3	the highest frequency for which the mask is valid
A.14.c.4	the type of mask
A.14.c.5	the mask pattern of the power flux-density defined in three dimensions
A.15	**COMMITMENT REGARDING COMPLIANCE WITH ADDITIONAL OPERATIONAL EQUIVALENT POWER FLUX-DENSITY, epfd↓, LIMITS**
A.15.a	a commitment that the filed for system will meet the additional operational epfd↓ limits that are specified in Table **22-4A1** under No. **22.5I** Required only for non-geostationary-satellite systems operating in the fixed-satellite service in the bands 10.7-11.7 GHz (in all Regions), 11.7-12.2 GHz (Region 2), 12.2-12.5 GHz (Region 3), and 12.5-12.75 GHz (Regions 1 and 3)

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.14	
									A.14.a	
				X					A.14.a.1	
				X					A.14.a.2	
				X					A.14.a.3	
				X					A.14.a.4	
									A.14.b	
				X					A.14.b.1	
				X					A.14.b.2	
				X					A.14.b.3	
				X					A.14.b.4	
				X					A.14.b.5	
				X					A.14.b.6	
									A.14.c	
				X					A.14.c.1	
				X					A.14.c.2	
				X					A.14.c.3	
				X					A.14.c.4	
				X					A.14.c.5	
									A.15	
				+					A.15.a	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.16	**COMMITMENT REGARDING COMPLIANCE WITH OFF-AXIS POWER LIMITATIONS, POWER FLUX-DENSITY (pfd) LIMITS OR SEPARATION DISTANCE**
A.16.a	a commitment that the associated earth stations operating with a geostationary-satellite network in the fixed-satellite service meet the off-axis power limitations given in Nos. **22.26** to **22.28** or **22.32** (as appropriate) under the conditions specified in Nos. **22.30**, **22.31** and **22.34** to **22.39** Required only where the earth stations are subject to those power limitations
A.16.b	a commitment by administrations that the filed system will meet the single entry power flux-density limits that are specified in No. **5.502** Required only for specific earth station antennas less than 4.5 m in diameter operating with geostationary space stations in the fixed-satellite service in the band 13.75-14 GHz
A.16.c	a commitment by administrations that the earth station associated with the filed system will meet the separation distance as specified in No. **5.509E** and the power flux-density limits that are specified in No. **5.509D**
A.17	**COMPLIANCE WITH POWER FLUX-DENSITY, pfd, LIMITS**
A.17.a	a commitment of compliance with per-satellite power-flux density level produced at the Earth's surface of −129 dB(W/(m^2 · MHz)) in any 1 MHz band under free space propagation conditions Required only for satellite systems operating in the radionavigation-satellite service in the band 1 164-1 215 MHz
A.17.b.1	the calculated aggregate power flux-density produced at the Earth's surface by any geostationary radionavigation-satellite system in the frequency band 4 990-5 000 MHz in a 10 MHz bandwidth, as defined in *resolves* 1 of Resolution **741 (Rev.WRC-15)** Required only for geostationary-satellite systems operating in the radionavigation-satellite service in the frequency band 5 010-5 030 MHz
A.17.b.2	the calculated aggregate power flux-density produced at the Earth's surface by all space stations within any radionavigation-satellite service system in the band 5 030-5 150 MHz in a 150 kHz bandwidth, as defined in No. **5.443B** Required only for satellite systems operating in the radionavigation-satellite service in the band 5 010-5 030 MHz
A.17.b.3	the equivalent power flux-density produced at the Earth's surface by all space stations within any non-geostationary radionavigation-satellite service system in the frequency band 4 990-5 000 MHz in a 10 MHz bandwidth, as defined in *resolves* 2 of Resolution **741 (Rev.WRC-15)** Required only for non-geostationary-satellite systems operating in the radionavigation-satellite service in the frequency band 5 010-5 030 MHz

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.16	
			+						A.16.a	
					+				A.16.b	
			+						A.16.c	
									A.17	
			+	+					A.17.a	
			+						A.17.b.1	
			+	+					A.17.b.2	
				+					A.17.b.3	

Items in Appendix	*A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION*
A.17.c	**Not used**
A.17.d	the mean power flux-density produced at the Earth's surface by any spaceborne sensor, as defined in No. **5.549A** for the frequency band 35.5-36 GHz or in Table **21-4** for the frequency band 9 900-10 400 MHz Required only for satellite systems operating in • the Earth exploration-satellite service (active) or space research service (active) in the frequency band 35.5-36 GHz • the Earth exploration-satellite service (active) in the frequency band 9 900-10 400 MHz
A.17.e.1	the calculated equivalent power flux-density produced at the site of a radio astronomy station in the band 42.5-43.5 GHz, as defined in No. **5.551H** Required only for non-geostationary-satellite systems operating in the fixed-satellite service and broadcasting-satellite service in the band 42-42.5 GHz
A.17.e.2	the calculated power flux-density produced at the site of a radio astronomy station in the band 42.5-43.5 GHz, as defined in No. **5.551I** Required only for geostationary-satellite systems operating in the fixed-satellite service and broadcasting-satellite service in the band 42-42.5 GHz
A.18	**COMPLIANCE WITH NOTIFICATION OF AIRCRAFT EARTH STATION(S)**
A.18.a	a commitment that the characteristics of the aircraft earth station (AES) in the aeronautical mobile-satellite service are within the characteristics of the specific and/or typical earth station published by the Bureau for the space station to which the AES is associated Required only for the band 14-14.5 GHz, when an aircraft earth station in the aeronautical mobile-satellite service communicates with a space station in the fixed-satellite service
A.19	**COMPLIANCE WITH § 6.26 OF ARTICLE 6 OF APPENDIX 30B**
A.19.a	a commitment that the use of the assignment shall not cause unacceptable interference to, nor claim protection from, those assignments for which agreement still needs to be obtained Required if the notice is submitted under § 6.25 of Article 6 of Appendix **30B**

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									A.17.c	
			+	+					A.17.d	
				+					A.17.e.1	
			+						A.17.e.2	
									A.18	
			+	+					A.18.a	
									A.19	
								+	A.19.a	

TABLE B

CHARACTERISTICS TO BE PROVIDED FOR EACH SATELLITE ANTENNA BEAM OR EACH EARTH STATION OR RADIO ASTRONOMY ANTENNA (Rev.WRC-15)

Items in Appendix	*B - CHARACTERISTICS TO BE PROVIDED FOR EACH SATELLITE ANTENNA BEAM OR EACH EARTH STATION OR RADIO ASTRONOMY ANTENNA*
B.1	**IDENTIFICATION AND DIRECTION OF THE SATELLITE ANTENNA BEAM**
B.1.a	the designation of the satellite antenna beam For an earth station, the designation of the satellite antenna beam of the associated space station
B.1.b	an indicator showing whether the antenna beam, under B.1.a, is fixed or whether it is steerable and / or reconfigurable
B.2	**TRANSMISSION / RECEPTION INDICATOR FOR THE BEAM OF THE SPACE STATION OR THE ASSOCIATED SPACE STATION**
B.2*bis*	**CONTINUOUS/NON-CONTINUOUS TRANSMISSION INDICATOR FOR THE BEAM OF THE SPACE STATION**
B.2*bis*.a	an indicator specifying whether the space station only transmits when visible from the notified service area In the case of advance publication, required only for frequency assignments of a non-geostationary satellite transmitting beam In the case of notification or coordination of a non-geostationary-satellite network, required only for frequency assignments of a non-geostationary satellite transmitting beam of a satellite network not subject to Nos. **22.5C**, **22.5D** or **22.5F**
B.2*bis*.b	in case of non-continuous transmission in item B.2*bis*.a, the minimum elevation angle above which transmissions occur when the space station is visible from the notified service area In the case of notification or coordination of a non-geostationary-satellite network, only for frequency assignments of a non-geostationary satellite transmitting beam of a satellite network not subject to Nos. **22.5C**, **22.5D** or **22.5F**
B.3	**SPACE STATION ANTENNA CHARACTERISTICS**
B.3.a	**For each space station antenna:**
B.3.a.1	the maximum co-polar isotropic gain, in dBi Where a steerable beam (see No. **1.191**) is used, if the effective boresight area (see No. **1.175**) is identical with the global service area, the maximum antenna gain, in dBi, is applicable to all points on the Earth's visible surface
B.3.a.2	if a non-elliptical beam, the maximum cross-polar isotropic antenna gain, in dBi

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									B.1	
		X	**X**	**X**	**X**	**X**	**X**	**X**	B.1.a	
		X	**X**	**X**		**X**	**X**	**X**	B.1.b	
		X	**X**	**X**	+[1]			**X**	**B.2**	
									B.2*bis*	
		+		+					B.2*bis*.a	
		O		**O**					B.2*bis*.b	
									B.3	
									B.3.a	
		X	**X**	**X**		**X**	**X**	**X**	B.3.a.1	
						+	+		B.3.a.2	

Items in Appendix	*B – CHARACTERISTICS TO BE PROVIDED FOR EACH SATELLITE ANTENNA BEAM OR EACH EARTH STATION OR RADIO ASTRONOMY ANTENNA*
B.3.b	**Antenna gain contours:**
B.3.b.1	the co-polar antenna gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite The space station antenna gain contours shall be drawn as isolines of the isotropic gain, at least for −2, −4, −6, −10 and −20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite Whenever possible, the gain contours of the space station antenna should also be provided in a numerical format (e.g. equation or table) Where a steerable beam (see No. **1.191**) is used, if the effective boresight area (see No. **1.175**) is less than the global service area, the contours are the result of moving the boresight of the steerable beam around the limit defined by the effective boresight area and are to be provided as described above but shall also include the 0 dB relative gain isoline. In addition, for a steerable beam, except for the case of Appendix **30B**, see also No. **21.16** (and its associated Rules of Procedure) The antenna gain contours shall include the effects of the planned inclination excursion, longitudinal tolerance and the planned pointing accuracy of the antenna *Note* – Taking due account of applicable technical restrictions and allowing some reasonable degree of flexibility for satellite operations, administrations should, to the extent practicable, align the areas the satellite steerable beams could cover with the service area of their networks with due regard to their service objectives. In the case of Appendix **30**, **30A** or **30B**, required only for non-elliptical beams
B.3.b.2	if a non-elliptical beam, the cross-polar gain contours shall be provided as defined under B.3.b.1
B.3.c	**Antenna radiation patterns:**
B.3.c.1	the co-polar antenna radiation pattern In the case of geostationary space stations required only where the antenna radiation beam is directed towards another satellite In the case of Appendix **30**, **30A** or **30B**, required only for elliptical antenna beams
B.3.c.2	if an elliptical beam, the cross-polar antenna radiation pattern
B.3.d	the pointing accuracy of the antenna In the case of Appendix **30**, **30A** or **30B**, required only for elliptical beams
B.3.e	if the space station is operating in a frequency band allocated in the Earth-to-space direction and in the space-to-Earth direction, the gain of the antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth. In the case of Appendix **30**, required only in the frequency band 12.5-12.7 GHz
B.3.f	**For a space station submitted in accordance with Appendix 30, 30A or 30B:**
B.3.f.1	the boresight or aim point of the antenna beam (longitude and latitude)
B.3.f.2	**For each elliptical beam:**
B.3.f.2.a	the rotational accuracy, in degrees
B.3.f.2.b	the major axis orientation, in degrees, anticlockwise from the Equator
B.3.f.2.c	the major axis, in degrees, at the half-power beamwidth
B.3.f.2.d	the minor axis, in degrees, at the half-power beamwidth

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									B.3.b	
			X			+	+	+	B.3.b.1	
						+	+		B.3.b.2	
									B.3.c	
		X	+	X		+	+	+	B.3.c.1	
						+	+		B.3.c.2	
			X			+	+	+	B.3.d	
			+			+	+		B.3.e	
									B.3.f	
						X	X	X	B.3.f.1	
									B.3.f.2	
						X	X	X	B.3.f.2.a	
						X	X	X	B.3.f.2.b	
						X	X	X	B.3.f.2.c	
						X	X	X	B.3.f.2.d	

Items in Appendix	*B - CHARACTERISTICS TO BE PROVIDED FOR EACH SATELLITE ANTENNA BEAM OR EACH EARTH STATION OR RADIO ASTRONOMY ANTENNA*
B.4	**ADDITIONAL CHARACTERISTICS FOR NON-GEOSTATIONARY SPACE STATION ANTENNA**
B.4.a.1	the reference number of each orbital plane in which the space station antenna characteristics are used
B.4.a.2	if the antenna characteristics of a space station are not common to every satellite in the specified orbital plane, the reference number of each satellite in the specified orbital plane, on which the space station antenna characteristics are used
B.4.a.3	**For a space station submitted in accordance with Nos. 9.11A, 9.12, 9.12A or for active or passive sensors on board a non-geostationary-satellite network not subject to coordination under Section II of Article 9:**
B.4.a.3.a	**For the orientation angles of the satellite transmitting and receiving antenna beams:**
B.4.a.3.a.1	the orientation angle alpha, in degrees, (see the most recent version of Recommendation ITU-R SM.1413)
B.4.a.3.a.2	the orientation angle beta, in degrees, (see the most recent version of Recommendation ITU-R SM.1413)
B.4.b	**For a space station submitted in accordance with Nos. 9.11A, 9.12 or 9.12A:**
B.4.b.1	**Not used**
B.4.b.1.a	**Not used**
B.4.b.1.b	**Not used**
B.4.b.2	the satellite antenna gain $G(\theta_e)$ as a function of elevation angle (θ_e) at a fixed point on the Earth
B.4.b.3	the spreading loss as a function of elevation angle (to be determined by equations or provided in graphical format)
B.4.b.4	**For each beam:**
B.4.b.4.a	the maximum beam peak e.i.r.p./4 kHz
B.4.b.4.b	the average beam peak e.i.r.p./4 kHz
B.4.b.4.c	the maximum beam peak e.i.r.p./1 MHz
B.4.b.4.d	the average beam peak e.i.r.p./1 MHz
B.4.b.5	the calculated peak value of power flux-density produced within ±5° inclination of the geostationary-satellite orbit Required only for the fixed-satellite service (space-to-Earth) in the band 6 700-7 075 MHz
B.5	**EARTH STATION ANTENNA CHARACTERISTICS**
B.5.a	the isotropic gain, in dBi, of the antenna in the direction of maximum radiation (see No. **1.160**)
B.5.b	the half-power beamwidth, in degrees
B.5.c	either the measured radiation pattern of the antenna or the reference radiation pattern to be used for coordination For coordination under No. **9.7A**, the reference radiation pattern is to be provided
B.5.d	antenna dimension aligned with the geostationary arc (D_{GSO}), in metres (see the most recent version of Recommendation ITU-R S.1855) except in the case of Appendix **30** or **30A**
B.6	**RADIO ASTRONOMY STATION ANTENNA CHARACTERISTICS**
B.6.a	the antenna type (see the Preface)
B.6.b	the antenna dimensions (see the Preface)
B.6.c	the effective area of the antenna (see the Preface)

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									B.4	
		X		**X**					B.4.a.1	
		+		+					B.4.a.2	
									B.4.a.3	
									B.4.a.3.a	
		X		**X**					B.4.a.3.a.1	
		X		**X**					B.4.a.3.a.2	
									B.4.b	
									B.4.b.1	
									B.4.b.1.a	
									B.4.b.1.b	
				X					B.4.b.2	
				X					B.4.b.3	
				X					B.4.b.4	
				X					B.4.b.4.a	
				X					B.4.b.4.b	
				X					B.4.b.4.c	
				X					B.4.b.4.d	
				+					B.4.b.5	
									B.5	
					X				B.5.a	
					+[1]				B.5.b	
					X				B.5.c	
					O				B.5.d	
									B.6	
									B.6.a	**X**
									B.6.b	**X**
									B.6.c	**X**

TABLE C

CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA (Rev.WRC-15)

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.1	**FREQUENCY RANGE**
C.1.a	the lower limit of the frequency range within which the carriers and the bandwidth of the emission will be located for each Earth-to-space or space-to-Earth service area, or for each space-to-space relay
C.1.b	the upper limit of the frequency range within which the carriers and the bandwidth of the emission will be located for each Earth-to-space or space-to-Earth service area, or for each space-to-space relay
C.2	**ASSIGNED FREQUENCY (FREQUENCIES)**
C.2.a.1	the assigned frequency (frequencies), as defined in No. **1.148** – in kHz up to 28 000 kHz inclusive – in MHz above 28 000 kHz to 10 500 MHz inclusive – in GHz above 10 500 MHz If the basic characteristics are identical, with the exception of the assigned frequency, a list of frequency assignments may be provided In the case of advance publication, required only for active sensors In the case of geostationary and non geo-stationary satellite networks, required for all space applications except passive sensors In the case of Appendix **30B**, required only for notification under Article 8
C.2.a.2	the channel number
C.2.b	the centre of the frequency band observed – in kHz up to 28 000 kHz inclusive – in MHz above 28 000 kHz to 10 500 MHz inclusive – in GHz above 10 500 MHz In the case of satellite networks, required only for passive sensors
C.2.c	if the frequency assignment is to be filed under No. **4.4**, an indication to that effect
C.3	**ASSIGNED FREQUENCY BAND**
C.3.a	the bandwidth of the assigned frequency band, in kHz (see No. **1.147**) In the case of advance publication, required only for active sensors In the case of geostationary and non geo-stationary satellite networks, required for all space applications except passive sensors In the case of Appendix **30B**, required only for notification under Article 8
C.3.b	the bandwidth of the frequency band, in kHz, observed by the station In the case of satellite networks, required only for passive sensors
C.4	**CLASS OF STATION AND NATURE OF SERVICE**
C.4.a	the class of station, using the symbols from the Preface
C.4.b	the nature of service performed, using the symbols from the Preface

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									C.1	
X	**X**	**X**						**X**	C.1.a	
X	**X**	**X**						**X**	C.1.b	
									C.2	
		+	+	+	**X**	**X**	**X**	+	C.2.a.1	
						X	**X**		C.2.a.2	
		+	+	+					C.2.b	**X**
		+	+	+	+				C.2.c	+
									C.3	
		+	+	+	**X**	**X**	**X**	+	C.3.a	
		+	+	+					C.3.b	**X**
									C.4	
		X	**X**	**X**	**X**	**X**	**X**	**X**	C.4.a	**X**
		X	**X**	**X**	**X**				C.4.b	**X**

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.5	**RECEIVING SYSTEM NOISE TEMPERATURE**
C.5.a	the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the space station In the case of satellite networks, required for all space applications except for active or passive sensors
C.5.b	the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the earth station under clear-sky conditions This value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is onboard a geostationary satellite and, in other cases, for the minimum value of the angle of elevation
C.5.c	the overall receiving system noise temperature, in kelvins, referred to the output of the receiving antenna
C.5.d	**For active sensors:**
C.5.d.1	the system noise temperature at the output of the signal processor
C.5.d.2	the receiver noise bandwidth
C.6	**POLARIZATION**
C.6.a	the type of polarization (see the Preface) In the case of circular polarization, this includes the sense of polarization (see Nos. **1.154** and **1.155**) In the case of a space station submitted in accordance with Appendix **30** or **30A**, see § 3.2 of Annex 5 to Appendix **30**
C.6.b	if linear polarization is used, the angle, in degrees, measured counter-clockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the waves as seen from the satellite In the case of a space station submitted in accordance with Appendix **30** or **30A**, see § 3.2 of Annex 5 to Appendix **30**
C.7	**NECESSARY BANDWIDTH AND CLASS OF EMISSION** *(in accordance with Article **2** and Appendix **1**)* For advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article **9**, changes to this information within the limits specified under C.1 shall not affect consideration of notification under Article **11** Not required for active or passive sensors
C.7.a	the necessary bandwidth and the class of emission: for each carrier In the case of Appendix **30B**, required only for notification under Article 8
C.7.b	the carrier frequency or frequencies of the emission(s)
C.8	**POWER CHARACTERISTICS OF THE TRANSMISSION** *Not required for passive sensors*
C.8.a	**For the case where individual carriers can be identified:**
C.8.a.1	the maximum value of the peak envelope power, in dBW, supplied to the input of the antenna for each carrier type Required if neither C.8.b.1 nor C.8.b.3.a is provided

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									C.5	
		+	+	+			**X**	**X**	C.5.a	
					X				C.5.b	
									C.5.c	**X**
									C.5.d	
		X	**X**	**X**					C.5.d.1	
		X	**X**	**X**					C.5.d.2	
									C.6	
		X	**X**	**X**	+[1]	**X**	**X**		C.6.a	
		+	+	+	+[1]	+	+		C.6.b	
									C.7	
		X	**X**	**X**	**X**	**X**	**X**	+	C.7.a	
		X	**C**	**C**	**C**				C.7.b	
									C.8	
									C.8.a	
		+	+	+	**C**				C.8.a.1	

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.8.a.2	the maximum power density, in dB(W/Hz), supplied to the input of the antenna for each carrier type[2] In the case of Appendix **30B**, required only for notification under Article 8 Required if neither C.8.b.2 nor C.8.b.3.b is provided
C.8.b	**For the case where it is not appropriate to identify individual carriers:**
C.8.b.1	the total peak envelope power, in dBW, supplied to the input of the antenna For coordination or notification of an Appendix **30A** earth station the values shall include the maximum range of power control Required if neither C.8.a.1 nor C.8.b.3.a is provided
C.8.b.2	the maximum power density, in dB(W/Hz), supplied to the input of the antenna[2] For coordination or notification of an Appendix **30A** earth station the values shall include the maximum range of power control In the case of Appendix **30B**, required only for submission under Article 6 Required if neither C.8.a.2 nor C.8.b.3.b is provided
C.8.b.3	**For the case of active sensors:**
C.8.b.3.a	the mean peak envelope power, in dBW, supplied to the input of the antenna Required if neither C.8.a.1 nor C.8.b.1 is provided
C.8.b.3.b	the mean power density, in dB(W/Hz), supplied to the input of the antenna Required if neither C.8.a.2 nor C.8.b.2 is provided
C.8.c	**For all space applications, except active or passive sensors:**
C.8.c.1	the minimum value of the peak envelope power, in dBW, supplied to the input of the antenna for each carrier type If not provided, the reason for absence under C.8.c.2
C.8.c.2	if C.8.c.1 is not provided, the reason for absence of the minimum value of the peak envelope power
C.8.c.3	the minimum power density, in dB(W/Hz), supplied to the input of the antenna for each carrier type[2] If not provided, the reason for absence under C.8.c.4
C.8.c.4	if C.8.c.3 is not provided, the reason for absence of the minimum power density
C.8.d.1	the maximum total peak envelope power, in dBW, supplied to the input of the antenna for each contiguous satellite bandwidth For a satellite transponder, this corresponds to the maximum saturated peak envelope power Required only for a space-to-Earth or space-to-space link
C.8.d.2	each contiguous satellite bandwidth For the maximum saturated peak envelope power of the satellite transponder, this corresponds to the bandwidth of each transponder Required only for a space-to-Earth or space-to-space link, if different from item C.3.a

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
		+	+	+	**O**			+	C.8.a.2	
									C.8.b	
		+	+	+	+[1]	**X**	**X**		C.8.b.1	
		+	+	+	+[1]	**X**	**X**	+	C.8.b.2	
									C.8.b.3	
		+	+	+					C.8.b.3.a	
		+	+	+					C.8.b.3.b	
									C.8.c	
		+	+	+	+[1]				C.8.c.1	
		+	+	+	+[1]				C.8.c.2	
		+	+	+	+[1]				C.8.c.3	
		+	+	+	+[1]				C.8.c.4	
		O	+	+					C.8.d.1	
		O	+	+					C.8.d.2	

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.8.e.1	for space-to-Earth, Earth-to-space or space-to-space links. for each carrier type, the greater of either the carrier-to-noise ratio, in dB, required to meet the performance of the link under clear-sky conditions or the carrier-to-noise ratio, in dB, required to meet the short-time objectives of the link inclusive of necessary margins If not provided, the reason for absence under C.8.e.2
C.8.e.2	if C.8.e.1 is not provided, the reason for absence of the carrier-to-noise ratio
C.8.f.1	the space station's nominal equivalent isotropically radiated power(s) (e.i.r.p.) on the beam axis Required only for a space-to-space link
C.8.f.2	the associated space station's nominal equivalent isotropically radiated power(s) (e.i.r.p.) on the beam axis Required only for a space-to-space link
C.8.g.1	the maximum aggregate power, in dBW, of all carriers (per transponder, if applicable) supplied to the input of the transmitting antenna of the earth station or the associated earth station Not required for coordination of a specific earth station under Nos. **9.15**, **9.17** or **9.17A**
C.8.g.2	the aggregate bandwidth of all carriers (per transponder, if applicable) supplied to the input of the transmitting antenna of the earth station or the associated earth station Not required for coordination of a specific earth station under Nos. **9.15**, **9.17** or **9.17A**
C.8.g.3	an indicator showing whether the bandwidth of the transponder corresponds to the aggregate bandwidth of all carriers (per transponder, if applicable) supplied to the input of the transmitting antenna of the earth station or the associated earth station Not required for coordination of a specific earth station under Nos. **9.15**, **9.17** or **9.17A**
C.8.h	the maximum power density per Hz supplied to the input of the antenna, in dB(W/Hz), averaged over the necessary bandwidth
C.8.i	If power control is used, the maximum range of power control, in dB
C.8.j	**Not used**
C.9	**INFORMATION ON MODULATION CHARACTERISTICS** *For all space applications except active or passive sensors*
C.9.a	**For each carrier, according to the nature of the signal modulating the carrier:**
C.9.a.1	the type of modulation In the case of a non-geostationary space station required only for Nos. **9.11A**, **9.12** or **9.12A**
C.9.a.2	**For 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:**
C.9.a.2.a	the lowest frequency of the baseband
C.9.a.2.b	the highest frequency of the baseband

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
		+	+	+	+[1]				C.8.e.1	
		+	+	+	+[1]				C.8.e.2	
		+							C.8.f.1	
		+							C.8.f.2	
			C	**C**	**C**				C.8.g.1	
			C	**C**	**C**				C.8.g.2	
			C	**C**	**C**				C.8.g.3	
						X	**X**	**X**	C.8.h	
							+		C.8.i	
									C.8.j	
									C.9	
									C.9.a	
		O	**C**	+		**X**	**X**		C.9.a.1	
									C.9.a.2	
		O	**C**	**C**					C.9.a.2.a	
		O	**C**	**C**					C.9.a.2.b	

Items in Appendix	*C – CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.9.a.2.c	the r.m.s. frequency deviation of the pre-emphasized signal for a test tone as a function of baseband frequency
C.9.a.3	**For a carrier frequency modulated by a television signal:**
C.9.a.3.a	the peak-to-peak frequency deviation of the pre-emphasized signal
C.9.a.3.b	the pre-emphasis characteristic
C.9.a.3.c	if applicable, the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals
C.9.a.4	**For a carrier phase-shift modulated by a digital signal:**
C.9.a.4.a	the bit rate
C.9.a.4.b	the number of phases
C.9.a.5	**For an amplitude modulated carrier (including single sideband):**
C.9.a.5.a	the nature of the modulating signal, as precisely as possible
C.9.a.5.b	the kind of amplitude modulation used
C.9.a.6	**For a frequency modulated carrier:**
C.9.a.6.a	the peak-to-peak frequency deviation, in MHz, of the energy dispersal waveform
C.9.a.6.b	the sweep frequency, in kHz, of the energy dispersal waveform
C.9.a.6.c	the energy dispersal waveform
C.9.a.7	if other forms of modulation than frequency modulation, are being used, the type of energy dispersal
C.9.a.8	for all other types of modulation, such particulars as may be useful for an interference study
C.9.a.9	the TV standard
C.9.b	**For analogue carriers:**
C.9.b.1	the sound-broadcasting characteristics
C.9.b.2	the composition of the baseband
C.9.c	**For a non-geostationary space station submitted in accordance with Nos. 9.11A, 9.12 or 9.12A:**
C.9.c.1	the type of multiple access
C.9.c.2	the spectrum mask
C.9.d	**For stations operating in a frequency band subject to Nos. 22.5C, 22.5D or 22.5F:**
C.9.d.1	the type of mask
C.9.d.2	the pfd mask identification code
C.9.d.3	the space station’s e.i.r.p. mask identification code
C.9.d.4	the associated earth station’s e.i.r.p. mask identification code

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
		O	**C**	**C**					C.9.a.2.c	
									C.9.a.3	
		O	**C**	**C**		**X**	**X**		C.9.a.3.a	
		O	**C**	**C**		**X**	**X**		C.9.a.3.b	
		O	**C**	**C**		+	+		C.9.a.3.c	
									C.9.a.4	
		O	**C**	**C**					C.9.a.4.a	
		O	**C**	**C**					C.9.a.4.b	
									C.9.a.5	
		O	**C**	**C**					C.9.a.5.a	
		O	**C**	**C**					C.9.a.5.b	
									C.9.a.6	
		O	**C**	**C**		**X**	**X**		C.9.a.6.a	
		O	**C**	**C**		**X**	**X**		C.9.a.6.b	
		O	**C**	**C**		**X**	**X**		C.9.a.6.c	
		O	**C**	**C**		+	+		C.9.a.7	
		O	**C**	**C**					C.9.a.8	
		O	**C**	**C**		**X**	**X**		C.9.a.9	
									C.9.b	
						X	**X**		C.9.b.1	
						X	**X**		C.9.b.2	
									C.9.c	
				X					C.9.c.1	
				X					C.9.c.2	
									C.9.d	
				X					C.9.d.1	
				X					C.9.d.2	
				X					C.9.d.3	
				X					C.9.d.4	

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.10	**TYPE AND IDENTITY OF THE ASSOCIATED STATION(S)** *(the associated station may be another space station, a typical earth station of the network or a specific earth station)* *For all space applications except active or passive sensors*
C.10.a	**For an associated space station:**
C.10.a.1	the identity of the station
C.10.a.2	if the associated space station is in the geostationary orbit, its nominal longitude
C.10.b	**For an associated earth station:**
C.10.b.1	the name of the station
C.10.b.2	the type of station (specific or typical)
C.10.c	**For a specific associated earth station:**
C.10.c.1	the geographical coordinates of the antenna site
C.10.c.2	the country or geographical area in which the earth station is located, using the symbols from the Preface
C.10.d	**For an associated earth station (whether specific or typical):**
C.10.d.1	the class of station, using the symbols from the Preface
C.10.d.2	the nature of service performed, using the symbols from the Preface
C.10.d.3	the isotropic gain, in dBi, of the antenna in the direction of maximum radiation (see No. **1.160**)
C.10.d.4	the beamwidth, in degrees, between the half-power points (described in detail if not symmetrical)
C.10.d.5.a	either the measured co-polar radiation pattern of the antenna or the co-polar reference radiation pattern
C.10.d.5.b	either the measured cross-polar radiation pattern of the antenna or the cross-polar reference radiation pattern
C.10.d.6	if the associated station is a receiving earth station, the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna of the earth station under clear-sky conditions
C.10.d.7	the antenna diameter, in metres In cases other than Appendix **30A**, required for fixed-satellite service networks operating in the frequency bands 13.75-14 GHz, 14.5-14.75 GHz (in countries listed in Resolution **163 (WRC-15)** not for feeder links for the broadcasting-satellite service), 14.5-14.8 GHz (in countries listed in Resolution **164 (WRC-15)** not for feeder links for the broadcasting-satellite service), 24.65-25.25 GHz (Region 1) and 24.65-24.75 GHz (Region 3) and for maritime mobile-satellite service networks operating in the frequency band 14-14.5 GHz
C.10.d.8	the equivalent antenna diameter (i.e. the diameter, in metres, of a parabolic antenna with the same off-axis performance as the receiving associated earth station antenna)
C.10.d.9	antenna dimension aligned with the geostationary arc (D_{GSO}), in metres (see the most recent version of Recommendation ITU-R S.1855) except in the case of Appendix **30** or **30A**

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to coordination under Section II of Article 9	Advance publication of a non-geostationary-satellite network not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8)	Items in Appendix	Radio astronomy
									C.10	
									C.10.a	
		X	**X**	**X**					C.10.a.1	
		+	+	+					C.10.a.2	
									C.10.b	
		X	**X**	**X**			**X**		C.10.b.1	
		X	**X**	**X**					C.10.b.2	
									C.10.c	
		X	**X**	**X**			**X**		C.10.c.1	
		X	**X**	**X**			**X**		C.10.c.2	
									C.10.d	
		X	**X**	**X**					C.10.d.1	
		X	**X**	**X**					C.10.d.2	
		X	**X**	**X**		**X**	**X**	**X**	C.10.d.3	
		O	**X**	**X**		**X**	**X**	**X**	C.10.d.4	
		X	**X**	**X**		**X**	**X**	**X**	C.10.d.5.a	
						X	**X**		C.10.d.5.b	
		+	+	+				+	C.10.d.6	
			+	+			**X**		C.10.d.7	
						X			C.10.d.8	
			O					**O**	C.10.d.9	

Items in Appendix	*C - CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA*
C.11	**SERVICE AREA (S)** *For all space applications except active or passive sensors*
C.11.a	the service area or areas of the satellite beam on the Earth, when the associated transmitting or receiving stations are earth stations For a space station submitted in accordance with Appendix **30**, **30A** or **30B**, the service area identified by a set of a maximum of 100 test points and by a service area contour on the surface of the Earth or defined by a minimum elevation angle *Note* – When an assignment converted from an allotment is reinstated in the Appendix **30B** Plan, the notifying administration may choose a maximum of 20 test points within its national territory for the reinstated allotment
C.11.b	the appropriate information required to calculate the affected region (as defined in Recommendation ITU-R M.1187-1) Required only for a non-geostationary space station in the mobile-satellite service submitted in accordance with No. **9.11A**
C.12	**REQUIRED PROTECTION RATIO**
C.12.a	the minimum acceptable aggregate carrier-to-interference ratio, if less than 21 dB The carrier-to-interference ratio is to be expressed in terms of the power averaged over the necessary bandwidth of the modulated wanted and interfering signals, assuming both the desired carrier and interfering signals have equivalent bandwidths and modulation types
C.13	**CHARACTERISTICS OF OBSERVATIONS FOR RADIO ASTRONOMY STATIONS**
C.13.a	the class of observations to be taken on the frequency band shown under C.3.b – Class A observations are those in which the sensitivity of the equipment is not a primary factor – Class B observations are those of such a nature that they can be made only with advanced low-noise receivers using the best techniques
C.13.b	the type of radio astronomy station in the frequency band shown under C.3.b – Single-dish, “S”, telescope used for spectral-line or continuum observations using single-dishes or closely connected arrays – Very long baseline interferometry (VLBI), “V”, station used only for VLBI observations
C.13.c	the minimum elevation angle θ_{min} at which the radio astronomy station conducts single-dish or VLBI observations in the frequency band
C.14	**Not used**
C.15	**DESCRIPTION OF THE GROUP(S) REQUIRED IN THE CASE OF NON-SIMULTANEOUS EMISSIONS**
C.15.a	if part of an exclusive operation group, the group identification code
C.16	**DESCRIPTION OF ACTIVE AND PASSIVE SENSOR SYSTEMS**
C.16.a	**For active sensors:**
C.16.a.1	the pulse length, in μs
C.16.a.2	the pulse repetition frequency, in kHz
C.16.b	**For passive sensors:**
C.16.b.1	the sensitivity threshold, in kelvins

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									C.11	
		X	X	X		X	X	X	C.11.a	
				+					C.11.b	
									C.12	
								+	C.12.a	
									C.13	
									C.13.a	X
									C.13.b	X
									C.13.c	X
									C.14	
									C.15	
						+	+	+	C.15.a	
									C.16	
									C.16.a	
		X	X	X					C.16.a.1	
		X	X	X					C.16.a.2	
									C.16.b	
		X	X	X					C.16.b.1	

TABLE D

OVERALL LINK CHARACTERISTICS

Items in Appendix	*D – OVERALL LINK CHARACTERISTICS*
	For non-planned services, this data may be provided by administrations that so desire but only when simple frequency-changing transponders are used on the space station onboard a geostationary satellite
D.1	**CONNECTION BETWEEN EARTH-TO-SPACE AND SPACE-TO-EARTH FREQUENCIES IN THE NETWORK**
D.1.a	the connection between uplink and downlink frequency assignments for each intended combination of receiving and transmitting beams In the case of Appendix **30** or **30A**, required only in Region 2 In the case of Appendix **30B**, required except for submission of one link only
D.2	**TRANSMISSION GAINS AND ASSOCIATED EQUIVALENT SATELLITE LINK NOISE TEMPERATURES**
D.2.a	**For each entry under D.1.a:**
D.2.a.1	the lowest equivalent satellite link noise temperature These values shall be indicated for the nominal value of the angle of elevation
D.2.a.2	the associated transmission gain of the lowest equivalent satellite link noise temperature These values shall be indicated for the nominal value of the angle of elevation The transmission gain is evaluated from the output of the receiving antenna of the space station to the output of the receiving antenna of the earth station
D.2.b.1	the values of associated equivalent satellite link noise temperature that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature
D.2.b.2	the values of transmission gain that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature

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									D.1	
			O			+	+	+	D.1.a	
									D.2	
									D.2.a	
			O						D.2.a.1	
			O						D.2.a.2	
			O						D.2.b.1	
			O						D.2.b.2	