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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| **PLENARY MEETING** | **Addendum 19 to Document 9-E** |
|  | **24 June 2015** |
|  | **Original: English** |
|  | |
| European Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 2 | |

2 to examine the revised ITU‑R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC‑03)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Resolution **27 (Rev.WRC‑12)**;

Introduction

Agenda item 2 is a standing WRC agenda item, which aims at examining revised ITU-R Recommendations incorporated by reference in the Radio Regulations in order to update the reference as appropriate. This agenda item covers also situations where an ITU-R Recommendation is cited using mandatory text in the "*resolves*" of a WRC Resolution, which is itself cited using mandatory text in a footnote or a provision of the Radio Regulations. Moreover any actions necessary to clarify the status of ambiguous references to ITU-R Recommendations generally shall be solved under agenda item 2 as well.

Identified revised ITU-R Recommendations incorporated by reference with associated proposed changes are listed below as follows.

Proposals

1 Update of ITU-R Recommendations incorporated by reference

1.1 European Proposal(s) regarding Recommendation ITU-R M.690

APPENDIX 15 (REV.WRC‑12)

Frequencies for distress and safety communications for the Global  
Maritime Distress and Safety System (GMDSS)

MOD EUR/9A19/1

TABLE 15-2     (WRC‑15)

Frequencies above 30 MHz (VHF/UHF)

|  |  |  |
| --- | --- | --- |
| Frequency (MHz) | Description of usage | Notes |
| \*121.5 | AERO-SAR | The aeronautical emergency frequency 121.5 MHz is used for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service using frequencies in the band between 117.975 MHz and 137 MHz. This frequency may also be used for these purposes by survival craft stations. Use of the frequency 121.5 MHz by emergency position-indicating radio beacons shall be in accordance with Recommendation ITU‑R M.690‑3.  ... |

**Reasons:** Modification of mandatory reference in accordance with updated version of the Recommendation.

1.2 European Proposal(s) regarding Recommendation ITU-R P.526 and M.1827

MOD EUR/9A19/2

RESOLUTION 748 (REV.WRC‑15)

Compatibility between the aeronautical mobile (R) service and the fixed-satellite service (Earth-to-space) in the band 5 091-5 150 MHz

The World Radiocommunication Conference (Geneva, 2015),

...

resolves

...

2 that any AM(R)S systems operating in the frequency band 5 091-5 150 MHz shall meet the SARPs requirements published in Annex 10 of the ICAO Convention on International Civil Aviation and the requirements of Recommendation ITU‑R M.1827-1, to ensure compatibility with FSS systems operating in that band;

3 that, in part to meet the provisions of No. **4.10**, the coordination distance with respect to stations in the FSS operating in the band 5 091-5 150 MHz shall be based on ensuring that the signal received at the AM(R)S station from the FSS transmitter does not exceed −143 dB(W/MHz), where the required basic transmission loss shall be determined using the methods described in Recommendations ITU‑R P.525‑2 and ITU‑R P.526‑13,

**Reasons:** Modification of references to incorporated by reference Recommendations ITU-R P.526 and M.1827 in accordance with their updated versions.

1.3 European Proposal(s) regarding Recommendation ITU-R M.625

ARTICLE 19

Identification of stations

Section V − Selective call numbers in the maritime mobile service

MOD EUR/9A19/3

19.83 § 36 When stations of the maritime mobile service use selective calling devices in accordance with Recommendations ITU‑R M.476-5 and ITU‑R M.625-4, their call numbers shall be assigned by the responsible administrations in accordance with the provisions below.     (WRC‑15)

ARTICLE 51

Conditions to be observed in the maritime services

Section I − Maritime mobile service

51.39 CA − Ship stations using narrow-band direct-printing telegraphy

MOD EUR/9A19/4

51.41 2) The characteristics of the narrow-band direct-printing equipment shall be in accordance with Recommendations ITU‑R M.476‑5 and ITU‑R M.625‑4. The characteristics should also be in accordance with the most recent version of Recommendation ITU‑R M.627.    (WRC‑15)

**Reasons:** Modification of references to incorporated by reference Recommendation ITU-R P.625 (in provisions 19.83 and 51.41) in accordance with its updated version.

1.4 European Proposal(s) regarding Recommendation ITU-R M.1084

MOD EUR/9A19/5

APPENDIX 18 (REV.WRC‑15)

Table of transmitting frequencies in the  
VHF maritime mobile band

(See Article 52)

NOTE B – The Table below defines the channel numbering for maritime VHF communications based on 25 kHz channel spacing and use of several duplex channels. The channel numbering and the conversion of two-frequency channels for single-frequency operation shall be in accordance with Recommendation ITU‑R M.1084‑5 Annex 4, Tables 1 and 3. The Table below also describes the harmonized channels where the digital technologies defined in the most recent version of Recommendation ITU‑R M.1842 could be deployed.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R M.1084 in accordance with its updated version.

1.5 European Proposal(s) regarding Recommendation ITU-R M.1173

ARTICLE 52

Special rules relating to the use of frequencies

Section VI − Use of frequencies for radiotelephony

52.176 A − General

MOD EUR/9A19/6

52.181 § 85 Single-sideband apparatus in radiotelephone stations of the maritime mobile service operating in the bands allocated to this service between 1 606.5 kHz and 4 000 kHz and in the bands allocated exclusively to this service between 4 000 kHz and 27 500 kHz shall satisfy the technical and operational conditions specified in Recommendation ITU‑R M.1173-1.     (WRC‑15)

52.216 C − Bands between 4 000 kHz and 27 500 kHz

C3 − Traffic

MOD EUR/9A19/7

52.229 4) Transmitters used for radiotelephony in the bands between 4 000 kHz and 27 500 kHz shall comply with technical characteristics specified in Recommendation ITU‑R M.1173-1.     (WRC‑15)

APPENDIX 17 (REV.WRC‑12)

Frequencies and channelling arrangements in the  
high-frequency bands for the maritime mobile service

Annex 1\*     (WRC‑12)

Frequencies and channelling arrangements in the high-frequency   
bands for the maritime mobile service, in force   
until 31 December 2016     (WRC‑12)

PART B – Channelling arrangements     (WRC‑07)

MOD EUR/9A19/8

Section I – Radiotelephony

2 The technical characteristics for single-sideband transmitters are specified in the most recent version of Recommendation ITU‑R M.1173.

...

6 *a)* Maritime radiotelephone stations using single-sideband emissions in the bands between 4 000 kHz and 27 500 kHz exclusively allocated to the maritime mobile service shall operate only on the carrier frequencies shown in the Sub-Sections A and B and, in the case of analogue radiotelephony, shall be in conformity with the technical characteristics specified in Recommendation ITU‑R M.1173-1.

*b)* Ship stations, when using frequencies for single-sideband emissions in the bands 4 000-4 063 kHz and ship and coast stations, when using frequencies for single-sideband emissions in the band 8 100-8 195 kHz should operate on the carrier frequencies indicated in Sub-Sections C‑1 and C‑2 respectively. In the case of analogue radiotelephony technical characteristics of the equipment shall be those specified in Recommendation ITU‑R M.1173-1.

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R M.1173 (in No. 52.181, No. 52.229, Appendix 17 - Annex 1 - Section 1 - paragraph 6a, b) in accordance with its updated version. Reference in paragraph 2 of Appendix 17 - Annex 1 - Section 1, is considered to be non-mandatory, no modification is proposed.

1.6 European Proposal(s) regarding Recommendation ITU-R BO.1443

ARTICLE 22

Space services1

Section II − Control of interference to geostationary-satellite systems

MOD EUR/9A19/9

TABLE **22-1D**     (Rev.WRC‑15)

Limits to the epfd↓ radiated by non-geostationary-satellite systems in the fixed-satellite  
service in certain frequency bands into 30 cm, 45 cm, 60 cm, 90 cm, 120 cm,  
180 cm, 240 cm and 300 cm broadcasting-satellite service antennas6, 9, 10, 11

| Frequency band (GHz) | epfd↓ (dB(W/m2)) | Percentage of time during which epfd↓ may not be exceeded | Reference bandwidth (kHz) | Reference antenna diameter and reference radiation patternMOD12 |
| --- | --- | --- | --- | --- |
| 11.7-12.5 in Region 1;  11.7-12.2 and 12.5-12.75 in Region 3;  12.2-12.7 in Region 2 | −165.841  −165.541  −164.041  −158.6  −158.6  −158.33  −158.33 | 0  25  96  98.857  99.429  99.429  100 | 40 | 30 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −175.441  −172.441  −169.441  −164  −160.75  −160  −160 | 0  66  97.75  99.357  99.809  99.986  100 | 40 | 45 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −176.441  −173.191  −167.75  −162  −161  −160.2  −160  −160 | 0  97.8  99.371  99.886  99.943  99.971  99.997  100 | 40 | 60 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| 11.7-12.5 in Region 1;  11.7-12.2 and 12.5-12.75 in Region 3;  12.2-12.7 in Region 2 | −178.94  −178.44  −176.44  −171  −165.5  −163  −161  −160  −160 | 0  33  98  99.429  99.714  99.857  99.943  99.991  100 | 40 | 90 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −182.44  −180.69  −179.19  −178.44  −174.94  −173.75  −173  −169.5  −167.8  −164  −161.9  −161  −160.4  −160 | 0  90  98.9  98.9  99.5  99.68  99.68  99.85  99.915  99.94  99.97  99.99  99.998  100 | 40 | 120 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −184.941  −184.101  −181.691  −176.25  −163.25  −161.5  −160.35  −160  −160 | 0  33  98.5  99.571  99.946  99.974  99.993  99.999  100 | 40 | 180 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −187.441  −186.341  −183.441  −178  −164.4  −161.9  −160.5  −160  −160 | 0  33  99.25  99.786  99.957  99.983  99.994  99.999  100 | 40 | 240 cm Recommendation ITU‑R BO.1443-3, Annex 1 |
| −191.941  −189.441  −185.941  −180.5  −173  −167  −162  −160  −160 | 0  33  99.5  99.857  99.914  99.951  99.983  99.991  100 | 40 | 300 cm Recommendation ITU‑R BO.1443-3, Annex 1 |

MOD EUR/9A19/10

12 22.5C.11 For this Table, reference patterns of Annex 1 to Recommendation ITU‑R BO.1443‑3 shall be used only for the calculation of interference from non‑geostationary-satellite systems in the fixed-satellite service into geostationary-satellite systems in the broadcasting-satellite service.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R BO.1443 (in TABLE 22-1D and No. 22.5C.11) in accordance with its updated version.

1.7 European Proposal(s) regarding Recommendation ITU-R M.585

ARTICLE 19

Identification of stations

Section VI − Identities in the maritime mobile service    (WRC‑12)

19.98 A − General

MOD EUR/9A19/11

19.99 § 39 When a station6 operating in the maritime mobile service or the maritime mobile-satellite service is required to use maritime mobile service identities, the responsible administration shall assign the identity to the station in accordance with the provisions described in Annex 1 of Recommendation ITU‑R M.585‑7. In accordance with No. **20.16**, administrations shall notify the Radiocommunication Bureau immediately when assigning maritime mobile service identities.    (WRC‑15)

MOD EUR/9A19/12

19.102 3) The types of maritime mobile service identities shall be as described in Annex 1 of Recommendation ITU‑R M.585‑7.    (WRC‑15)

19.110 C − Maritime mobile service identities    (WRC‑07)

MOD EUR/9A19/13

19.111 § 43 1) Administrations shall follow Annex 1 of Recommendation ITU‑R M.585‑7 concerning the assignment and use of maritime mobile service identities.    (WRC‑15)

**Reasons:** Modification of references to incorporated by reference Recommendation ITU-R M.585 (in provisions 19.99, 19.102 and 19.111) in accordance with its updated version.

1.8 European Proposal(s) regarding Recommendation ITU-R M.1638 and RS.1632

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A19/14

5.447F In the band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU‑R M.1638-1 and ITU‑R RS.1632-0.     (WRC-15)

MOD EUR/9A19/15

5.450A In the band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU‑R M.1638-1.     (WRC-15)

**Reasons:** Modification of references to incorporated by reference ITU-R Recommendation M.1638 (in Nos. 5.447F and 5.450A) in accordance with its updated version and modification of reference to incorporated by reference Recommendation ITU-R RS.1632 (in No. 5.447F) in order to clarify that the first version is referenced.

1.9 European Proposal(s) regarding Recommendation ITU-R SA.1154

MOD EUR/9A19/16

5.391 In making assignments to the mobile service in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU‑R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R SA.1154 in order to clarify that the first version is referenced.

1.10 European Proposal(s) regarding Recommendation ITU-R M.1171

ARTICLE 52

Special rules relating to the use of frequencies

Section VI − Use of frequencies for radiotelephony

52.182 B − Bands between 1 606.5 kHz and 4 000 kHz     (WRC‑03)

B2 − Call and reply

MOD EUR/9A19/17

52.192 *b)* by coast stations to announce the transmission, on another frequency, of traffic lists as specified in Recommendation ITU‑R M.1171-0.     (WRC‑15)

MOD EUR/9A19/18

52.195 § 89 1) Before transmitting on the carrier frequency 2 182 kHz, a station shall, in accordance with Recommendation ITU‑R M.1171-0, listen on this frequency for a reasonable period to make sure that no distress traffic is being sent.     (WRC‑15)

B4 − Additional provisions applying to Region 1

MOD EUR/9A19/19

52.213 2) In exceptional circumstances, if frequency usage according to Nos. 52.203 to 52.208 or No. 52.210 is not possible, a ship station may use one of its own assigned national ship-to-shore frequencies for communication with a coast station of another nationality, under the express condition that the coast station as well as the ship station shall take precautions, in accordance with Recommendation ITU‑R M.1171-0, to ensure that the use of such a frequency will not cause harmful interference to the service for which the frequency in question is authorized.     (WRC‑15)

52.216 C − Bands between 4 000 kHz and 27 500 kHz

C2 − Call and reply

MOD EUR/9A19/20

52.224 § 99 1) Before transmitting on the carrier frequencies 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz or 16 420 kHz a station shall, in accordance with Recommendation ITU‑R M.1171-0, listen on the frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 52.221A).     (WRC‑15)

52.230 D − Bands between 156 MHz and 174 MHz

D1 − Call and reply

MOD EUR/9A19/21

52.234 *b)* by coast stations to announce the transmission on another frequency of traffic lists, in accordance with Recommendation ITU‑R M.1171-0, and important maritime information.     (WRC‑15)

MOD EUR/9A19/22

52.240 8) Before transmitting on the frequency 156.8 MHz, a station shall, in accordance with Recommendation ITU‑R M.1171-0, listen on this frequency for a reasonable period to make sure that no distress traffic is being sent.     (WRC‑15)

ARTICLE 57

Radiotelephony

MOD EUR/9A19/23

57.1 § 1 The procedure detailed in Recommendation ITU‑R M.1171-0 shall be applicable to radiotelephone stations, except in cases of distress, urgency or safety.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R M.1171 in order to clarify that the first version is referenced.

1.11 European Proposal(s) regarding Recommendation ITU-R M.1172

ARTICLE 19

Identification of stations

Section III − Formation of call signs

MOD EUR/9A19/24

19.48 *b)* combinations in Recommendation ITU‑R M.1172-0 that are reserved for the abbreviations to be used in the radiocommunication services.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R M.1172 in order to clarify that the first version is referenced.

1.12 European Proposal(s) regarding Recommendation ITU-R S.1256

ARTICLE 22

Space services1

Section II − Control of interference to geostationary-satellite systems

MOD EUR/9A19/25

22.5A § 5 In the frequency band 6 700-7 075 MHz, the maximum aggregate power flux-density produced at the geostationary-satellite orbit and within ±5° of inclination around the geostationary-satellite orbit by a non-geostationary-satellite system in the fixed-satellite service shall not exceed −168 dB(W/m2) in any 4 kHz band. The maximum aggregate power flux-density shall be calculated in accordance with Recommendation ITU‑R S.1256-0.     (WRC‑15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R S.1256 in order to clarify that the first version is referenced.

1.13 European Proposal(s) regarding Recommendation ITU-R S.1340

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A19/26

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340-0. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. **4.10** applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340-0.     (WRC-15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R S.1340 in order to clarify that the first version is referenced.

1.14 European Proposal(s) regarding Recommendation ITU-R S.1341

MOD EUR/9A19/27

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space‑to‑Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341-0. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of −156 dB(W/m2) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time. (WRC‑2015)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R S.1341 in order to clarify that the first version is referenced.

1.15 European Proposal(s) regarding Recommendation ITU-R F.1613

MOD EUR/9A19/28

5.447E *Additional allocation:*The band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People’s Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613-0. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations.     (WRC-15)

**Reasons:** Modification of reference to incorporated by reference Recommendation ITU-R F.1613 in order to clarify that the first version is referenced.

1.16 European Proposal(s) regarding Recommendation ITU-R RA.1631

MOD EUR/9A19/29

5.208B\* In the bands:

137-138 MHz,  
 387-390 MHz,  
 400.15-401 MHz,  
 1 452-1 492 MHz,  
 1 525-1 610 MHz,  
 1 613.8-1 626.5 MHz,  
 2 655-2 690 MHz,  
 21.4-22 GHz,

Resolution **739** **(Rev.WRC-15)** applies.     (WRC-15)

MOD EUR/9A19/30

RESOLUTION 739 (Rev.WRC-15)

Compatibility between the radio astronomy service and the active space services in certain adjacent and nearby frequency bands

The World Radiocommunication Conference (Geneva, 2015),

ANNEX 1 TO RESOLUTION 739 (Rev.WRC-15)

Unwanted emission threshold levels

...

In Table 1‑2 the epfd value given in the fourth, sixth and eighth columns (associated with the reference bandwidths contained in the adjacent column) should be met by all the space stations of a non-geostationary satellite systemoperating in the bands indicated in the second column at the radio astronomy station operating in the band mentioned in the third column. The epfd value at a given radio astronomy station shall be evaluated by using the antenna pattern and the RAS maximum antenna gain given in Recommendation ITU‑R RA.1631-0. Guidance on the calculation of epfd can be found in Recommendations ITU‑R S.1586 and ITU‑R M.1583. The elevation angles of the radio astronomy stations to be taken into account in the epfd calculation are those higher than the minimum elevation angle θ*min* of the radio telescope. In the absence of such information a value of 5° shall be taken. The percentage of time during which the epfd level shall not be exceeded is mentioned in Note (1) of Table 1‑2.

Some sections of Report ITU‑R SM.2091 indicate levels of unwanted emissions in radio astronomy bands that certain satellite systems, by design, do not exceed.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A19/31

5.443B In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth’s surface in the band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed −124.5 dB(W/m2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the band 5 010-5 030 MHz shall comply with the limits in the band 4 990-5 000 MHz defined in Resolution **741** **(Rev.WRC‑15)**.    (WRC‑15)

MOD EUR/9A19/32

RESOLUTION 741 (Rev.WRC‑15)

Protection of the radio astronomy service in the band 4 990-5 000 MHz from unwanted emissions of the radionavigation-satellite service (space-to-Earth) operating in the frequency band 5 010-5 030 MHz

The World Radiocommunication Conference (Geneva, 2015),

...

resolves

...

2 that in order not to cause harmful interference to the RAS in the band 4 990-5 000 MHz, over the whole sky, for elevations higher than the minimum operating elevation angle θ*min*[[1]](#footnote-1)1 specified for the radio telescope, the epfd produced in this band by all space stations within any non-GSO RNSS system operating in the 5 010-5 030 MHz band shall not exceed −245 dB(W/m2) in a 10 MHz band at any radio astronomy station for more than 2% of the time, using the methodology in Recommendation ITU‑R M.1583‑1 and a reference antenna with a radiation pattern and maximum antenna gain given in Recommendation ITU‑R RA.1631-0;

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A19/33

5.551H The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:

−230 dB(W/m2) in 1 GHz and –246 dB(W/m2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

−209 dB(W/m2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

These epfd values shall be evaluated using the methodology given in Recommendation ITU‑R S.1586‑1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU‑R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ*min* of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

These values shall apply at any radio astronomy station that either:

– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or

– was notified before the date of receipt of the complete Appendix **4** information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC‑03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC‑15)

APPENDIX 4 (REV.WRC‑12)

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

ANNEX 2

Characteristics of satellite networks, earth stations  
or radio astronomy stations2     (Rev.WRC‑12)

MOD EUR/9A19/34

**TABLE A**

GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION

| **Items in Appendix** | ***A \_ GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK,  EARTH STATION OR RADIO ASTRONOMY STATION*** | **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.b.1 | the calculated aggregate power flux-density produced at the Earth’s surface by any geostationary radionavigation-satellite system in the band 4 990-5 000 MHz in a 10 MHz bandwidth, as defined in *resolves* 1 of Resolution **741 (WRC‑15)**  Required only for geostationary satellite systems operating in the radionavigation-satellite service in the band 5 010-5 030 MHz |  |  |  | **+** |  |  |  |  |  | A.17.b.1 |  |
| ... |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 band 4 990-5 000 MHz in a 10 MHz bandwidth, as defined in *resolves* 2 of Resolution **741 (WRC‑15)** |  |  |  |  | **+** |  |  |  |  | A.17.b.3 |  |

**Reasons:** Modifications of references to incorporated by reference ITU-R Recommendation S.1631 in order to clarify that the first version is referenced as well as associated modifications of references to Resolution 741 (Rev.WRC-15) which are necessary in related footnotes and other provisions.

1.17 European Proposal(s) regarding Recommendation ITU-R M.1643

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A19/35

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643-0, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa.     (WRC-15)

MOD EUR/9A19/36

5.504C In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d’Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU‑R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.    (WRC‑15)

MOD EUR/9A19/37

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d’Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU‑R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.    (WRC‑15)

MOD EUR/9A19/38

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d’Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU‑R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.    (WRC‑15)

**Reasons:** Modifications of references to incorporated by reference Recommendation ITU-R M.1643 in order to clarify that the first version is referenced.

1.18 European Proposal(s) regarding Recommendation ITU-R M.2013

MOD EUR/9A19/39

5.327A The use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service islimited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (Rev.WRC‑15)**.    (WRC‑15)

MOD EUR/9A19/40

RESOLUTION 417 (Rev.WRC‑15)

Use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service

The World Radiocommunication Conference (Geneva, 2015),

...

resolves

...

4 that administrations authorizing AM(R)S systems in the frequency band 960-1 164 MHz shall ensure compatibility with systems indicated under *considering* *f)* whose characteristics are described in Annex 1 of RecommendationITU‑R M.2013-0;

**Reasons:** Modifications of references to incorporated by reference Recommendation ITU‑R M.2013 in order to clarify that the first version is referenced.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 1 Until adoption of a definition of θ*min* by ITU‑R, and publication of notified radio astronomy observatory data, a value of 5° should be assumed in appropriate calculations. [↑](#footnote-ref-1)