|  |  |
| --- | --- |
| **World Radiocommunication Conference (WRC-19)Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
|  |  |
|  |  |
| PLENARY MEETING | **Addendum 9 toDocument 24(Add.21)-E** |
|  | **23 September 2019** |
|  | **Original: English** |
|  |
| Asia-Pacific Telecommunity Common Proposals |
| Proposals for the work of the conference |
|  |
| Agenda item 9.1(9.1.9) |

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:

9.1 on the activities of the Radiocommunication Sector since WRC-15;

9.1 (9.1.9) Resolution **162 (WRC-15) -** Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space)

Introduction

APT Members support a new primary allocation to the fixed-satellite service (Earth-to-space) in the frequency band 51.4-52.4 GHz limited to FSS gateway links for geostationary orbit use subject to regulatory provisions to ensure protection of currently allocated services in the same frequency band and in adjacent frequency bands.

Proposals

ARTICLE 5

Frequency allocations

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

MOD ACP/24A21A9/1

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7‑50.2 GHz, 50.4-50.9 GHz, 51.452.4 GHz, 52.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-19)** applies.     (WRC19)

**Reasons:** Application of the limits for FSS ES unwanted emissions as contained in the proposed revision to Resolution **750 (Rev.WRC-15)**.

MOD ACP/24A21A9/2

51.4-55.78 GHz

|  |
| --- |
| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 51.4-**52.4** FIXED FIXED-SATELLITE (Earth-to-space) ADD 5.A919 MOBILE 5.547 5.556 MOD 5.338A |
| **52.4**-**52.6** FIXED MOD 5.338A MOBILE 5.547 5.556 |

**Reasons:** Allocation to the FSS (Earth-to-space).

ADD ACP/24A21A9/3

5.A919 The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary satellite networks and the fixed-satellite service earth stations shall have a minimum antenna diameter of 4.5 metres.     (WRC‑19)

**Reasons:** To limit the new allocation to gateways operating in FSS GSO networks.

ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

Section II − Power limits for terrestrial stations

MOD ACP/24A21A9/4

TABLE **21-2**     (Rev.WRC‑19)

|  |  |  |
| --- | --- | --- |
| Frequency band | Service | Limit as specifiedin Nos. |
| ... | ... | ... |
| 10.7-11.7 GHz 5 (Region 1)12.5-12.75 GHz 5 (Nos. 5.494 and 5.496)12.7-12.75 GHz 5 (Region 2)12.75-13.25 GHz13.75-14 GHz (Nos. 5.499 and 5.500)14.0-14.25 GHz (No. 5.505)14.25-14.3 GHz (Nos. 5.505 and 5.508)14.3-14.4 GHz 5 (Regions 1 and 3)14.4-14.5 GHz14.5-14.8 GHz51.2-52.4 GHz | Fixed-satellite | 21.2**,** 21.3and21.5 |
| ... | ... | ... |

**Reasons:** Inclusion of the frequency band proposed for the new allocation to FSS (Earth-to-space) for applicability of the limits in RR Nos. **21.2**, **21.3** and **21.5**.

Section III − Power limits for earth stations

MOD ACP/24A21A9/5

TABLE **21-3**     (Rev.WRC‑19)

|  |  |
| --- | --- |
| Frequency band | Services |
| ... |  |  |
| 14.4-14.8 GHz |  |  |
| 17.7-18.1 GHz |  | Fixed-satellite |
| 22.55-23.15 GHz |  | Earth exploration-satellite |
| 27.0-27.5 GHz 6  | (for Regions 2 and 3) | Mobile-satellite |
| 27.5-29.5 GHz |  | Space research |
| 31.0-31.3 GHz | (for the countries listed in No. 5.545) |  |
| 34.2-35.2 GHz | (for the countries listed in No. 5.550 with respect to the countries listed in No. 5.549) |  |
| 51.4-52-4 |  | Fixed-satellite |

**Reasons:** Inclusion of the frequency band proposed for the new allocation to FSS (Earth-to-space) for applicability of the limits in RR No. **21.8**.

APPENDIX 4 (REV.WRC‑15)

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 stations[[1]](#footnote-1)2    (Rev.WRC‑12)

Footnotes to Tables A, B, C and D

MOD ACP/24A21A9/6

**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‑19)

| **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*** | **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** | **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** |  |
| ... | ... |  |  |  |  |  |  |  |  |  |  |  |
| C.10.d.7 | the antenna diameter, in metresIn 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) 24.65-24.75 GHz (Region 3), and 51.4-52.4 GHz and for maritime mobile-satellite service networks operating in the frequency band 14‑14.5 GHz |  |  |  | **+** | **+** |  |  | **X** |  | C.10.d.7 |  |
| ... | ... |  |  |  |  |  |  |  |  |  |  |  |

**Reasons:** Limitations for antenna diameter for the frequency band 51.4-52.4 GHz is proposed in footnote RR No. **5.A919**.

APPENDIX 7 (REV.WRC‑15)

Methods for the determination of the coordination area around an earth
station in frequency bands between 100 MHz and 105 GHz

ANNEX 7

System parameters and predetermined coordination distances for determination of the coordination area around an earth station

# 3 Horizon antenna gain for a receiving earth station with respect to a transmitting earth station

MOD ACP/24A21A9/7

TABLE 7c    (Rev.WRC‑19)

Parameters required for the determination of coordination distance for a transmitting earth station

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Transmitting spaceradiocommunication service designation | Fixed-satellite | Fixed-satellite 2 | Fixed-satellite 3 | Spaceresearch | Earth exploration-satellite,space research | Fixed-satellite,mobile-satellite,radionavigation-satellite | Fixed-satellite | Fixed-satellite 2 |
| Frequency bands (GHz) | 24.65-25.2527.0-29.5 | 28.6-29.1 | 29.1-29.5 | 34.2-34.7 | 40.0-40.5 | 42.5-4747.2-50.250.4-51.4 | 51.4-52.4 | 47.2-50.2 |
| Receiving terrestrial service designations | Fixed, mobile | Fixed, mobile | Fixed, mobile | Fixed, mobile, radiolocation | Fixed, mobile | Fixed, mobile,radionavigation | Fixed-mobile | Fixed,mobile |
| Method to be used | § 2.1 | § 2.2 | § 2.2 |  | § 2.1, § 2.2 | § 2.1, § 2.2 | § 2.1 | § 2.2 |
| Modulation at terrestrial station 1 | N | N | N |  | N | N | N | N |
| Terrestrial station interference parameters and criteria | *p*0 (%) | 0.005 | 0.005 | 0.005 |  | 0.005 | 0.005 | 0.005 | 0.001 |
| *n* | 1 | 2 | 1 |  | 1 | 1 | 1 | 1 |
| *p* (%) | 0.005 | 0.0025 | 0.005 |  | 0.005 | 0.005 | 0.005 | 0.001 |
| *NL* (dB) | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 |
| *Ms* (dB) | 25 | 25 | 25 |  | 25 | 25 | 25 | 25 |
| *W* (dB) | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 |
| Terrestrial station parameters | *Gx* (dBi) 4 | 50 | 50 | 50 |  | 42 | 42 | 42 | 46 |
| *Te* (K) | 2 000 | 2 000 | 2 000 |  | 2 600 | 2 600 | 2 600 | 2 000 |
| Reference bandwidth | *B* (Hz) | 106 | 106 | 106 |  | 106 | 106 | 106 | 106 |
| Permissible interference power | *Pr*( *p*) (dBW)in *B* | −111 | −111 | −111 |  | −110 | −110 | −110 | −111 |
|  | 1 A: analogue modulation; N: digital modulation.2 Non-geostationary satellites in the fixed-satellite service.3 Feeder links to non-geostationary-satellite systems in the mobile-satellite service.4 Feeder losses are not included. |

**Reasons:** To include parameters required for the determination of coordination distance for a transmitting earth station in the new allocation to the FSS in the frequency band 51.4-52.4 GHz.

SUP ACP/24A21A9/8

RESOLUTION 162 (WRC‑15)

Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space)

**Reasons:** To suppress the Resolution **162 (WRC-15)** due to completion of the work under the Resolution

MOD ACP/24A21A9/9

RESOLUTION 750 (Rev.WRC‑19)

Compatibility between the Earth exploration-satellite service (passive) and relevant active services

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

...

noting

*a)* that the compatibility studies between relevant active and passive services operating in adjacent and nearby frequency bands are documented in Report ITU‑R SM.2092 and in Report ITU‑R S.2463-0;

*b)* that the compatibility studies between IMT systems in the frequency bands 1 375‑1 400 MHz and 1 427-1 452 MHz and EESS (passive) systems in the frequency band 1 400‑1 427 MHz are documented in Report ITU‑R RS.2336;

*c)* that Report ITU‑R F.2239 provides the results of studies covering various scenarios between the fixed service, operating in the frequency band 81-86 GHz and/or 92-94 GHz, and the Earth exploration-satellite service (passive), operating in the frequency band 86-92 GHz;

*d)* that Recommendation ITU‑R RS.2017 provides the interference criteria for satellite passive remote sensing,

...

TABLE 1-1

|  |  |  |  |
| --- | --- | --- | --- |
| EESS (passive) band | Activeservice band | Active service | Limits of unwanted emission power fromactive service stations in a specified bandwidthwithin the EESS (passive) band1 |
| ... | ... | ... | ... |
| 52.6-54.25 GHz | 51.4-52.6 GHz | Fixed | For stations brought into use after the date of entry into force of the Final Acts of WRC‑07:−33 dBW in any 100 MHz of the EESS (passive) band |
| 52.6-54.25 GHz | 51.4-52.4 GHz | Fixed-satellite (E‑to‑s) | For stations brought into use after the date of entry into force of the Final Acts of WRC-19:a power level between −39 to −34 dBW in any 100 MHz of the EESS (passive) band for earth stations with antenna elevation angles lower than a value between 74° to 78°; a power level between −52 to −49 dBW in any 100 MHz of the EESS (passive) band for earth stations with antenna elevation angles equal or higher than a value between 74° to 78°.For earth stations operating with an FSS space station whose orbital separation Δ is equal or smaller than 3.2° from the GSO EESS (passive) space stations with nominal orbital positions: 0°, 3.5° E, 9.5° E, 41.5° E, 76° E, 79° E, 86.5° E, 99.5° E, 105° E, 112° E, 123.5° E, 133° E, 165.8° E, 3.2° W, 14.5° W, 75° W and 137° W:−84 + 200*δ* (dBW/100 MHz) for 0°≤*δ*< 0.1°−67 + 22.8*δ* (dBW/100 MHz) for 0.1°≤*δ*< 0.5°−61 + 11.3*δ* (dBW/100 MHz) for 0.5° ≤*δ*< 1.9°−47 + 4*δ* (dBW/100MHz） for 1.9° ≤*δ*≤ 3.2° |
| ... | ... | ... | ... |

…

**Reasons:** To include the limits of the unwanted emissions from the earth stations in the new allocation to the FSS falling in the frequency band 52.654.25 GHz to protect the EESS (passive) according to their antenna elevation angles.

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

1. 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) [↑](#footnote-ref-1)