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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | |  |
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| PLENARY MEETING | | **Addendum 19 to Document 65-E** | |
|  | | **30 October 2023** | |
|  | | **Original: English** | |
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| European Common Proposals | | | |
| Proposals for the work of the conference | | | |
|  | | | |
| Agenda item 1.19 | | | |

1.19to consider a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2, while protecting existing primary services in the band, in accordance with Resolution **174 (WRC‑19)**;

Introduction

This ECP proposes modifications to the Radio Regulations towards facilitating a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2, while protecting the services allocated in the frequency band and in adjacent frequency bands.

Proposals

ARTICLE 5

Frequency allocations

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

MOD EUR/65A19/1#1921

15.4-18.4 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 17.3-17.7  FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) MOD 5.484A MOD 5.516A 5.516B  Radiolocation | 17.3-17.7  FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) MOD 5.484A MOD 5.516A MOD 5.517  BROADCASTING-SATELLITE  Radiolocation | 17.3-17.7  FIXED-SATELLITE (Earth-to-space) 5.516  Radiolocation |
| 5.514 | 5.514 5.515 | 5.514 |

**Reasons:** Introduce the FSS (space-to-Earth) allocation in the frequency band 17.3-17.7 GHz in Region 2 and apply the modified RR Nos. **5.516A** and **5.517** to this new allocation. Also, RR No. **5.484A** is modified to extend the use of the frequency band 17.3-17.7 GHz (space-to-Earth) in Region 2, for application of the provisions of RR No. **9.12** for non-GSO satellite systems.

MOD EUR/65A19/2#1924

5.484AThe use of the frequency bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.3-17.7 GHz (space-to-Earth) in Regions 1 and 2, 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.     (WRC‑23)

**Reasons:** RR No. **5.484A** is modified to extend the use of the frequency band 17.3-17.7 GHz (space-to-Earth) in Regions 1 and 2, for application of the provisions of RR No. **9.12** for non-GSO satellite systems in order to introduce coordination between non-GSO FSS systems under RR No. **9.12** in the frequency band 17.3-17.7 GHz. In Region 1, non-GSOs are subject to coordination under RR No. **9.12** as per RoP of RR No. **9.11A**, Table **9.11A-1**. The RoP of RR No. **9.11A** should be updated by the Radio Regulations Board after WRC-23 to include the frequency bands considered under revised RR No. **5.484A** which would imply that RR No. **9.12** would be applied in both directions by default.

MOD EUR/65A19/3#1922

5.516A In the band 17.3-17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Regions 1 and 2 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix 30A, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link.     (WRC‑23)

**Reasons:** To extend the applicability of this footnote to Region 2.

MOD EUR/65A19/4#1925

5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.3-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations.     (WRC-23)

**Reasons:** To extend the applicability of this footnote to the frequency band 17.3-17.7 GHz in Region 2.

ARTICLE 22

Space services1

Section II − Control of interference to geostationary-satellite systems

MOD EUR/65A19/5#1928

TABLE **22-1B**     (WRC‑23)

Limits to the epfd↓ radiated by non‑geostationary-satellite systems  
in the fixed-satellite service in certain frequency bands3, 6, 8, X

| 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 pattern7 |
| --- | --- | --- | --- | --- |
| 17.3-17.7  in Regions 1 and 2;  17.8-18.6 | −175.4  −175.4  −172.5  −167  −164  −164 | 0  90  99  99.714  99.971  100 | 40 | 1 m Recommendation ITU‑R S.1428-1 |
| −161.4  −161.4  −158.5  −153  −150  −150 | 0  90  99  99.714  99.971  100 | 1 000 |
|  | −178.4  −178.4  −171.4  −170.5  −166  −164  −164 | 0  99.4  99.9  99.913  99.971  99.977  100 | 40 | 2 m Recommendation ITU‑R S.1428-1 |
| −164.4  −164.4  −157.4  −156.5  −152  −150  −150 | 0  99.4  99.9  99.913  99.971  99.977  100 | 1 000 |
|  | −185.4  −185.4  −180  −180  −172  −164  −164 | 0  99.8  99.8  99.943  99.943  99.998  100 | 40 | 5 m Recommendation ITU‑R S.1428-1 |
| −171.4  −171.4  −166  −166  −158  −150  −150 | 0  99.8  99.8  99.943  99.943  99.998  100 | 1 000 |

**Reasons:** To extend the applicability in Regions 1 and 2 of RR Table **22-1B** epfd limits to the frequency band 17.3-17.7 GHz to non-GSO systems to protect downlink operations (space-to-Earth) for the fixed-satellite service (FSS) of GSO satellite networks.

ADD EUR/65A19/6#1927

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X 22.5C.X In Region 2, a non-geostationary-satellite system in the fixed-satellite service, shall meet the limits of this table for the frequency band 17.3-17.7 GHz with respect to geostationary-satellite systems in the broadcasting-satellite service and the reference patterns of Recommendation ITU‑R BO.1443‑3 shall be used when calculating the equivalent power flux-density.     (WRC‑23)

**Reasons:** For non-GSO systems operating in Region 2, extend the applicability of RR Table **22‑1B** epfd limits to the frequency band 17.3-17.7 GHz to protect the broadcasting-satellite service. The footnote makes the use of Recommendation ITU-R BO.1443-3 mandatory.

MOD EUR/65A19/7

TABLE **22-3**     (WRC‑23)

Limits to the epfdis radiated by non-geostationary-satellite systems in the fixed-  
satellite service in certain frequency bands19

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Frequency band (GHz) | epfdis (dB(W/m2)) | Percentage of time during which epfdis level may not be exceeded | Reference bandwidth (kHz) | Reference antenna beamwidth and reference radiation pattern20 |
| 10.7-11.7  (Region 1)  12.5-12.75  (Region 1)  12.7-12.75  (Region 2) | −160 | 100 | 40 | 4° Recommendation ITU‑R S.672-4, *Ls* = −20 |
| 17.3-17.7  17.8-18.4 | −160 | 100 | 40 | 4° Recommendation ITU‑R S.672-4, *Ls* = −20 |

**Reasons:** To extend the applicability of RR Table **22-3** epfd limits to ensure the protection of the assignments of receiving geostationary satellite systems under RR Appendix **30A** from the interference produced by non-geostationary satellite systems of the fixed-satellite service.

ADD EUR/65A19/8

22.5IA An administration operating a non-geostationary-satellite system in the fixed-satellite service in the frequency band 17.3-17.7 GHz used in Regions 1 and 2 which is in compliance with the limits in Nos. 22.5C and 22.5F shall be considered as having fulfilled its obligations under No. 22.2 and No. 5.517 with respect to any geostationary-satellite network in the broadcasting-satellite service or any receiving space station of the fixed-satellite service of Appendix 30A, as appropriate, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite system and the geostationary-satellite network, provided that the epfd↓ radiated by the non-geostationary-satellite system in the fixed-satellite service into any operating geostationary broadcasting-satellite service earth station does not exceed the operational limits given in Table 22‑4B, when the gain of the earth station is equal to or greater than the values given in Table 22‑4B for the corresponding orbital inclination of the geostationary broadcasting-satellite service satellite. Except as otherwise agreed between concerned administrations, an administration operating a non-geostationary-satellite system in the fixed-satellite service in the frequency band 17.3-17.7 GHz used in Regions 1 and 2 that is subject to the limits in Nos. 22.5C and 22.5F and which radiates epfd↓ into any operating geostationary-satellite broadcasting-satellite service earth station at levels in excess of the operational limits given in Table 22‑4B, when the gain of the earth station is equal to or greater than the values given in Table 22‑4B for the corresponding orbital inclination of the geostationary broadcasting-satellite service satellite, shall be considered to be in violation of its obligations under No. 22.2 and No. 5.517, and the provisions of Article 15 (Section V) apply. In addition, administrations are encouraged to use the relevant ITU‑R Recommendations to determine whether such a violation has occurred.     (WRC‑23)

**Reasons:** To extend the applicability of RR No. **22.5I** to a non-geostationary-satellite system in the fixed-satellite service in the frequency band 17.3-17.7 GHz used in Regions 1 and 2 and to avoid application of RR Nos. **22.2** and **5.517** in addition to the compliance with the epfd limits.

MOD EUR/65A19/9#1933

TABLE **22-4B**     (WRC‑23)

Operational limits to the epfd↓ radiated by non-geostationary-satellite  
systems in the fixed-satellite service in certain frequency bands21,25

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Frequency band (GHz) | epfd↓ (dB(W/m2)) | Percentage of time during which epfd↓ may not be exceeded | Reference bandwidth (kHz) | Geostationary-satellite system receive earth station antenna gain (dBi) | Orbital inclination of geostationary satellite (degrees) |
| 19.7-20.2 | −157  −157  −155 | 100  100  100 | 40  40  40 | ≥ 49  ≥ 43  25  ≥ 49 | ≤ 2.5  ≤ 2.5  > 2.5 and ≤ 4.5 |
| 19.7-20.2 | −143  −143  −141 | 100  100  100 | 1 000  1 000  1 000 | ≥ 49  ≥ 43  25  ≥ 49 | ≤ 2.5  ≤ 2.5  > 2.5 and ≤ 4.5 |
| 17.3-17.7  17.8-18.6 | −164  −162 | 100  100 | 40  40 | ≥ 49  ≥ 49 | ≤ 2.5  > 2.5 and ≤ 4.5 |
| 17.3-17.7  17.8-18.6 | −150  −148 | 100  100 | 1 000  1 000 | ≥ 49  ≥ 49 | ≤ 2.5  > 2.5 and ≤ 4.5 |

**Reasons:** In order to extend the applicability of RR Table **22-4B** epfd limits to the frequency band 17.3-17.7 GHz.

APPENDIX 30A (REV.WRC‑19)\*

Provisions and associated Plans and List1 for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz  
in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands  
14.5-14.8 GHz2 and 17.3-18.1 GHz in Regions 1 and 3,  
and 17.3-17.8 GHz in Region 2     (WRC‑03)

MOD EUR/65A19/10#1934

ARTICLE 7     (Rev.WRC‑23)

Coordination, notification and recording in the Master International   
Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in Regions 1 and 2 in the frequency band 17.3-18.1 GHz and in Region 3 in the frequency band 17.7-18.1 GHz, to stations in the fixed‑satellite service (Earth-to-space) in Region 2 in the frequency bands 14.5‑14.8 GHz and 17.8‑18.1 GHz, to stations in the fixed-satellite service (Earth-to-space) in countries listed in Resolution 163 (WRC‑15) in the frequency band 14.5‑14.75 GHz and in countries listed in Resolution 164 (WRC‑15) in the frequency band 14.5-14.8 GHz where those stations are not for feeder links for the broadcasting-satellite service, and to stations in the broadcasting-satellite service in Region 2 in the frequency band 17.3-17.8 GHz when frequency assignments to feeder links for broadcasting-satellite stations in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3 or in the   
frequency band 17.3-17.8 GHz in Region 2 are involved28     (Rev.WRC‑23)

Section I – Coordination of transmitting space or earth stations in the fixed-satellite   
service or transmitting space stations in the broadcasting-satellite service  
with assignments to broadcasting-satellite service feeder links

MOD EUR/65A19/11#1935

7.1 The provisions of No. 9.7[[1]](#footnote-1)29 and the associated provisions under Articles 9 and 11 are applicable to transmitting space stations in the fixed-satellite service in Regions 1 and 2 in the frequency band 17.3-18.1 GHz, to transmitting space stations in the fixed-satellite service in Region 3 in the frequency band 17.7-18.1 GHz, to transmitting earth stations in the fixed-satellite service in Region 2 in the frequency bands 14.5-14.8 GHz and 17.8‑18.1 GHz, to transmitting earth stations in the fixed-satellite service in countries listed in Resolution **163 (WRC‑15)** in the frequency band 14.5-14.75 GHz and in countries listed in Resolution **164 (WRC‑15)** in the frequency band 14.5-14.8 GHz where those stations are not for feeder links for the broadcasting-satellite service, and to transmitting space stations in the broadcasting-satellite service in Region 2 in the frequency band 17.3-17.8 GHz.     (WRC‑23)

**Reasons:** To extend the applicability of the provisions in RR Appendix **30A**, Article 7, to the FSS (space-to-Earth) in the frequency band 17.3-17.7 GHz in Region 2.

APPENDIX 5 (REV.WRC‑19)

Identification of administrations with which coordination is to be effected or  
agreement sought under the provisions of Article 9

MOD EUR/65A19/12#1939

TABLE 5-1     (Rev.WRC‑23)

Technical conditions for coordination

(see Article 9)

…

TABLE 5-1 (*continued*)     (Rev.WRC‑23)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Reference of Article 9 | Case | Frequency bands (and Region) of the service for which coordination is sought | Threshold/condition | Calculation  method | Remarks |
| … | … | … | … | … | … |
| No. **9.7** GSO/GSO (*cont.*) |  | 2*bis*) 13.4-13.65 GHz (Region 1) | i) Bandwidth overlap, and  ii) any network in the space research service (SRS) or any network in the FSS and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±6° of the nominal orbital position of a proposed network in the FSS or SRS |  |  |
|  | 3) 17.7‑19.7 GHz, (Region 3),  17.3-19.7 GHz  (Regions 1 and 2) and 27.5‑29.5 GHz | i) Bandwidth overlap, and  ii) any network in the FSS and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±8° of the nominal orbital position of a proposed network in the FSS |  |  |
|  | 3*bis*)19.7-20.2 GHz and 29.5-30 GHz | i) Bandwidth overlap, and  ii) any network in the FSS or in the mobile-satellite service (MSS) and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±8° of the nominal orbital position of a proposed network in the FSS or in the MSS. |  |  |
|  |  |  |  |  |

…

**Reasons:** Covers the coordination of two GSO networks of the FSS (except earth stations operating in opposite directions of transmission) under RR No. **9.7**.

SUP EUR/65A19/13#1940

RESOLUTION 174 (WRC‑19)

Primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2

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1. 29 (SUP – WRC-19) [↑](#footnote-ref-1)