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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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|  | CPG(18)073 ANNEX V-08B |
| PLENARY MEETING | **Addendum 2 to Document XX(Add.8)-E** |
|  | **19 September 2018** |
|  | **Original: English** |
|  | |
| European Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 1.8 | |
| **Part 2 – Additional satellite systems for GMDSS** | |

1.8 to consider possible regulatory actions to support Global Maritime Distress Safety Systems (GMDSS) modernization and to support the introduction of additional satellite systems into the GMDSS, in accordance with Resolution **359** (**Rev.WRC-15**);

Introduction

Taking into account the studies performed during this study period under Resolution **359** (**Rev.WRC-15**) resolves to invite ITU-R 2 and the recognition of the Iridium mobile satellite system for use in the GMDSS by IMO, this ECP proposes some regulatory actions to introduce an additional satellite system into the GMDSS as follows:

– the frequency band 1621.35-1626.5 MHz used for GMDSS is allocated to the maritime mobile satellite service (for both space-to-Earth and Earth-to-space) on a primary basis

– regulatory provisions are reinforced in order to ensure the protection of services operating in the frequency bands concerned and in adjacent frequency bands.

Proposals

ARTICLE 5

Frequency allocations

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

MOD EUR/XXA8A2/1

1 610-1 660 MHz

|  |  |  |
| --- | --- | --- |
|  | | |
| Region 1 | Region 2 | Region 3 |
| 1 613.8-1 621.35  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth) | 1 613.8-1 621.35  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  RADIODETERMINATION- SATELLITE (Earth-to-space)  Mobile-satellite (space-to-Earth) | 1 613.8-1 621.35  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth)  Radiodetermination-satellite (Earth-to-space) |
| 5.341 5.355 5.359 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.369 5.371 MOD 5.372 | 5.341 MOD 5.364 5.365 5.366  5.367 MOD 5.368 5.370 MOD 5.372 | 5.341 5.355 5.359 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.369 MOD 5.372 |
| 1 621.35-1 626.5  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth)  MARITIME MOBILE-SATELLITE (space-to-Earth)  ADD 5.B18 | 1 621.35-1 626.5  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  RADIODETERMINATION- SATELLITE (Earth-to-space)  Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth)  MARITIME MOBILE-SATELLITE (space-to-Earth)  ADD 5.B18 | 1 621.35-1 626.5  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth)  MARITIME MOBILE-SATELLITE (space-to-Earth)  ADD 5.B18  Radiodetermination-satellite (Earth-to-space) |
| 5.341 5.355 5.359 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.369 5.371 MOD 5.372 | 5.341 MOD 5.364 5.365 5.366  5.367 MOD 5.368 5.370 MOD 5.372 | 5.341 5.355 5.359 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.369 MOD 5.372 |

**Reasons:** The frequency band 1621.35-1626.5 MHz used for GMDSS is allocated to the maritime mobile satellite service (for both space-to-Earth and Earth-to-space) on a primary basis.

MOD EUR/XXA8A2/2

5.208B\* In the frequency bands:

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

Resolution **739** **(Rev.WRC-15)** applies.     (WRC-19)

**Reasons:** The values contained in Resolution **739** **(Rev.WRC-15)** for the frequency bands 1 613.8-1 626.5 MHz are now included directly in the RR, therefore this frequency bands could be deleted from this footnote.

MOD EUR/XXA8A2/3

5.364 The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth‑to‑space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of ‑15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Except when used for distress and safety purposes in the band 1 621.35-1 626.5 MHz (see Appendix 15), stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.      (WRC-19)

**Reasons:** Modification of provisions RR No. **5.364** in order to avoid any inconsistency and ambiguity about the regulatory status of the maritime mobile-satellite service in the band 1 621.35‑1 626.5 MHz when used for GMDSS.

MOD EUR/XXA8A2/4

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. **4.10** do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service and of the maritime mobile-satellite service in the band 1 621.35-1 626.5 MHz when used for GMDSS. (WRC-19)

**Reasons:** Modification of provisions RR Nos. **5.368** in order to avoid any inconsistency and ambiguity about the regulatory status of the maritime mobile-satellite service in the band 1 621.35-1 626.5 MHz when used for GMDSS.

**MOD** EUR/XXA8A2/5

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6‑1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. **29.13** applies). Non-geostationary satellite systems operating in the band 1 613.8-1 626.5 MHz shall not exceed an epfd of –258 dBW/m²/20 kHz in the band 1 610.6-1 613.8 MHz unless the data loss resulting from exceeding this limit is less than 2%, and geostationary satellite networks operating in the band 1 613.8-1 626.5 MHz shall not exceed a pfd of –194 dBW/m²/20 kHz in the band 1 610.6‑1 613.8 MHz, at any radio astronomy station performing observations in this band. The verification of the compliance with the epfd threshold for non-geostationary systems shall be done using Recommendation ITU-R M.1583-1 and the antenna pattern and the maximum antenna gain given in Recommendation ITU-R RA.1631-0.      (WRC-19)

**Reasons:** The values contained in Resolution **739** **(Rev.WRC-15)** for the frequency bands 1 613.8-1 626.5 MHz are now included directly in this footnote. The upgrade of the allocation for Iridium shall not be interpreted as a relaxation of its obligation to protect the radio astronomy. In this respect, it is noted that the secondary status of Iridium did not prevent interference to radio astronomy due to the fact that there are no regulatory limits protecting effectively the radio astronomy services. Therefore, it is proposed to define in the Radio Regulations the unwanted emissions limits ensuring the protection of radio astronomy. A regulatory limit is considered as much more protective than the existing secondary status of MSS downlink in this frequency band.

**ADD** EUR/XXA8A2/6

5.B18 Except as provided for in Appendix 3, maritime mobile earth stations receiving in the band 1 621.35‑1 626.5 MHz shall not claim protection from emissions of maritime mobile earth stations transmitting in the band 1626.5-1660.5 MHz.

**Reasons:** To ensure that new constraints will not be created for MMSS operations in the frequency band 1626.5-1660.5 MHz.

ARTICLE 33

Operational procedures for urgency and safety communications in  
the global maritime distress and safety system (GMDSS)

Section V − Transmission of maritime safety information2

33.49 E − Maritime safety information via satellite

MOD EUR/XXA8A2/7

33.50 § 26 Maritime safety information may be transmitted via satellite in the maritime mobile-satellite service using the band 1 530-1 545 MHz and 1 621.35-1 626.5 MHz (see Appendix 15).      (WRC-19)

**Reasons:** Consequential change due to the inclusion of the new GMDSS frequency bands in the Appendix 15.

Section VII − Use of other frequencies for safety     (WRC‑19)

MOD EUR/XXA8A2/8

33.53 § 28 Radiocommunications for safety purposes concerning ship reporting communications, communications relating to the navigation, movements and needs of ships and weather observation messages may be conducted on any appropriate communications frequency, including those used for public correspondence. In terrestrial systems, the bands 415-535 kHz (see Article 52), 1 606.5-4 000 kHz (see Article 52), 4 000-27 500 kHz (see Appendix 17), and 156‑174 MHz (see Appendix 18) are used for this function. In the maritime mobile-satellite service, frequencies in the bands 1 530-1 544 MHz, 1 621.35‑1 626.5 MHz and 1 626.5-1 645.5 MHz are used for this function as well as for distress alerting purposes (see No. 32.2).     (WRC-19)

**Reasons:** Consequential change due to the inclusion of the new GMDSS frequency bands in the Appendix **15**.

APPENDIX 15 (REV.WRC‑19)

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

MOD EUR/XXA8A2/9

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TABLE 15-2 (*end*)     (WRC‑19)

|  |  |  |
| --- | --- | --- |
| Frequency (MHz) | Description of usage | Notes |
| … | … | … |
| \*1 544-1 545 | D&S-OPS | Use of the band 1 544-1 545 MHz (space-to-Earth) is limited to distress and safety operations (see No. **5.356**), including feeder links of satellites needed to relay the emissions of satellite emergency position-indicating radio beacons to earth stations and narrow-band (space-to-Earth) links from space stations to mobile stations. | |
| 1 621.35-1 626.5 | SAT-COM | In addition to its availability for routine non-safety purposes, the band 1 621.35-1 626.5 MHz is used for distress and safety purposes in the Earth-to-space and space-to-Earth directions in the maritime mobile-satellite service. GMDSS distress, urgency and safety communications have priority in this band. (WRC‑19) |
| … | … | … |

…

**Reasons:** Inclusion of the frequency bands used by the GMDSS in RR Appendix **15**.

MOD EUR/XXA8A2/10

RESOLUTION 739 (Rev.WRC-19)

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

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

…

ANNEX 1 TO RESOLUTION 739 (Rev.WRC-19)

Unwanted emission threshold levels

TABLE 1-1

pfd thresholds for unwanted emissions from any geostationary space station  
at a radio astronomy station

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Space service | Space service frequency band | Radio astronomy frequency band | Single dish, continuum observations | | Single dish, spectral line observations | | VLBI | | Condition of application: the API is received by the Bureau following the entry into force of the Final Acts of: |
| pfd(1) | Reference bandwidth | pfd(1) | Reference bandwidth | pfd(1) | Reference bandwidth |
| **(MHz)** | **(MHz)** | **(dB(W/m2))** | **(MHz)** | **(dB(W/m2))** | **(kHz)** | **(dB(W/m2))** | **(kHz)** |
| MSS (space-to-Earth) | 387-390 | 322-328.6 | −189 | 6.6 | −204 | 10 | −177 | 10 | WRC-07 |
| BSS MSS (space-to-Earth) | 1 452-1 492 1 525-1 559 | 1 400-1 427 | −180 | 27 | −196 | 20 | −166 | 20 | WRC-03 |
| MSS (space-to-Earth) | 1 525-1 559 | 1 610.6-1 613.8 | NA | NA | −194 | 20 | −166 | 20 | WRC-03 |
| RNSS (space-to-Earth) | 1 559-1 610 | 1 610.6-1 613.8 | NA | NA | −194 | 20 | −166 | 20 | WRC-07 |
| BSS FSS (space-to-Earth) | 2 655-2 670 | 2 690-2 700 | −177 | 10 | NA | NA | −161 | 20 | WRC-03 |
| FSS (space-to-Earth) | 2 670-2 690 | 2 690-2 700 (in Regions 1 and 3) | −177 | 10 | NA | NA | −161 | 20 | WRC-03 |
|  | **(GHz)** | **(GHz)** | − | − | − | − | − | − |  |
| BSS | 21.4-22.0 | 22.21-22.5 | −146 | 290 | −162 | 250 | −128 | 250 | WRC-03 for VLBI, and WRC-07 for other types of observation |
| NA: Not applicable, measurements of this type are not made in this frequency band.  (1) Integrated over the reference bandwidth with an integration time of 2 000 s. | | | | | | | | | |

TABLE 1-2

epfd thresholds(1) for unwanted emissions from all space stations of a non-GSO satellite system   
at a radio astronomy station

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Space service | Space service frequency band | Radio astronomy frequency band | Single dish, continuum observations | | Single dish, spectral line observations | | VLBI | | Condition of application: the API is received by the Bureau following the entry into force of the Final Acts of: |
| epfd(2) | Reference bandwidth | epfd(2) | Reference bandwidth | epfd(2) | Reference bandwidth |
| **(MHz)** | **(MHz)** | **(dB(W/m2))** | **(MHz)** | **(dB(W/m2))** | **(kHz)** | **(dB(W/m2))** | **(kHz)** |
| MSS (space-to-Earth) | 137-138 | 150.05-153 | −238 | 2.95 | NA | NA | NA | NA | WRC-07 |
| MSS (space-to-Earth) | 387-390 | 322-328.6 | −240 | 6.6 | −255 | 10 | −228 | 10 | WRC-07 |
| MSS (space-to-Earth) | 400.15-401 | 406.1-410 | −242 | 3.9 | NA | NA | NA | NA | WRC-07 |
| MSS (space-to-Earth) | 1 525-1 559 | 1 400-1 427 | −243 | 27 | −259 | 20 | −229 | 20 | WRC-07 |
| RNSS (space-to-Earth)(3) | 1 559-1 610 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC‑07 |
| MSS (space-to-Earth) | 1 525-1 559 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC-07 |
|  |  |  |  |  |  |  |  |  |  |
| NA: Not applicable, measurements of this type are not made in this frequency band.  (1) These epfd thresholds should not be exceeded for more than 2% of time.  (2) Integrated over the reference bandwidth with an integration time of 2 000 s.  (3) This Resolution does not apply to current and future assignments of the radionavigation-satellite system GLONASS/GLONASS-M in the frequency band 1 559-1 610 MHz, irrespective of the date of reception of the related coordination or notification information, as appropriate. The protection of the radio astronomy service in the frequency band 1 610.6‑1 613.8 MHz is ensured and will continue to be in accordance with the bilateral agreement between the Russian Federation, the notifying administration of the GLONASS/GLONASS-M system, and IUCAF, and subsequent bilateral agreements with other administrations. | | | | | | | | | |

**Reasons:** The values contained in Resolution **739** **(Rev.WRC-15)** for the frequency bands 1 613.8-1 626.5 MHz are now proposed to be included directly in the RR footnote 5.372. Therefore the reference of this frequency bands in table 1-1 and 1-2 could be deleted.

SUP EUR/XXA8A2/11

RESOLUTION 359 (REV.WRC‑15)

Consideration of regulatory provisions for updating and modernization of the   
Global Maritime Distress and Safety System

**Reasons:** This Resolution is proposed to be suppressed considering the finalization of the studies on WRC-19 Agenda item 1.8 covered by the resolves 2 (introduction of new satellite provider for the GMDSS).

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