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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 8 to Document 28-E** |
|  | **27 September 2019** |
|  | **Original: Chinese** |
|  | |
| China (People's Republic of) | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 1.8 | |

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**);

# 1 Introduction

The Global Maritime Distress and Safety System (GMDSS) was adopted as part of the 1988 Amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS) and was fully implemented in 1999. It has served the mariner and the maritime industry well since its inception, but some of the GMDSS technologies used have not reached their full potential, and some GMDSS functions could be performed by more advanced technologies. The plan for modernization of the GMDSS was adopted by the Maritime Safety Committee of the IMO in June 2017. The GMDSS modernization plan consists of various components which could be part of the GMDSS, among them some items are identified as related to the studies on Agenda item 1.8 for WRC-19, such as additional satellite services introduced in GMDSS, VDES, NAVDAT and HF communications.

Resolution **359** (**Rev.WRC-15**) invites the WRC-19 to take necessary actions to support GMDSS modernization (*resolves* 1) and to consider regulatory provisions related to the introduction of additional satellite system into the GMDSS while ensuring the protection of all incumbent services from harmful interferences (*resolves* 2).

In relation to *resolves* 1, the NAVDAT on 500 kHz has been addressed by WRC-12, however, the NAVDAT using HF which is described in the Recommendation ITU-R M.2058-0 has not yet been addressed.

The *resolves* 1 of agenda item 1.8 is under review in Working Party 5B, and three methods are described in section 5/1.8/4.1 of the CPM Report to satisfy this agenda item.

# 2 Views and Proposals

For *resolves* 1,

The Administration of China supports the introduction of MF and HF NAVDAT, while ensuring protection on existing NAVTEX.

China also supports the Method A2 for Agenda item 1.8 in the CPM Report.

For *resolves* 2,

China is of the view that,

– supporting the introduction of additional satellite systems into the GMDSS, taking into consideration the activities of IMO, while ensuring no additional impact on the services to which the frequency band is allocated, particularly RAS, within the frequency band and the adjacent bands under study;

– the secondary allocation with the status of “no interference, no protection” are not in line with the safety-of-life aspect as required by the GMDSS;

– supporting a new primary MMSS allocation in the band 1 621.35-1 626.5 MHz to which Nos. **4.10** and **9.11A** of the Radio Regulations (RR) shall apply;

– to maintain the regulatory status without adding constraints with respect to the incumbent services and operating systems in the band and adjacent bands, the mobile earth stations of MMSS receiving in the band 1 621.35-1 626.5 MHz shall not impose additional constraints on the emissions of earth stations in the bands 1 610-1 626.5 MHz and 1 626.5-1 660.5 MHz.

ARTICLE 5

Frequency allocations

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

MOD CHN/28A8/1#50247

5.79 In the maritime mobile service, the frequency bands 415-495 kHz and 505-526.5 kHz are limited to be used for radiotelegraphy and the NAVDAT system. Such use of the NAVDAT system should be in accordance with the most recent version of Recommendation ITU‑R M.2010, subject to special arrangements between interested and affected administrations.     (WRC‑19)

**Reasons:** It is necessary to identify the spectrum need for NAVDAT system in MF in accordance with relevant ITU-R recommendation.

MOD CHN/28A8/2#50248

495-1 800 kHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 495-505 MARITIME MOBILE ADD 5.A18 | | |

**Reasons:** It is necessary to identify the spectrum need for NAVDAT system in MF in accordance with relevant ITU-R recommendation.

ADD CHN/28A8/3#50249

5.A18 The band 495-505 kHz used for the international NAVDAT system as described in the most recent version of Recommendation ITU‑R M.2010.     (WRC‑19)

**Reasons:** It is necessary to identify the spectrum need for NAVDAT system in MF in accordance with relevant ITU-R recommendation.

MOD CHN/28A8/4#50274

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-19)** 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 Radio Regulations (RR), therefore this frequency bands should be deleted from this footnote.

MOD CHN/28A8/5#50273

1 610-1 660 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| 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 5.364 5.365 5.366 5.367 MOD 5.368 5.369 5.371 MOD 5.372 | 5.341 5.364 5.365 5.366  5.367 MOD 5.368 5.370 MOD 5.372 | 5.341 5.355 5.359 5.364 5.365 5.366 5.367 MOD 5.368 5.369 MOD 5.372 |
| 1 621.35-1 626.5  MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.GMDSS-B4-2ADD 5.GMDSS-B2c  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth) | 1 621.35-1 626.5  MARITIME MOBILE-SATELLITE (space-to-Earth) ADD5.GMDSS-B4-2ADD 5.GMDSS-B2c  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) | 1 621.35-1 626.5  MARITIME MOBILE-SATELLITE (space-to-Earth) ADD5.GMDSS-B4-2ADD 5.GMDSS-B2c  MOBILE-SATELLITE (Earth-to-space) 5.351A  AERONAUTICAL RADIONAVIGATION  Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth) Radiodetermination-satellite (Earth-to-space) |
| 5.341 5.355 5.359 5.364 5.365 5.366 5.367 MOD 5.368 5.369 5.371 MOD 5.372 | 5.341 5.364 5.365 5.366  5.367 MOD 5.368 5.370 MOD 5.372 | 5.341 5.355 5.359 5.364 5.365 5.366 5.367 MOD 5.368 5.369 MOD 5.372 |
| 1 626.5-1 660 MOBILE-SATELLITE (Earth-to-space) 5.351A  5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374  5.375 5.376 | | |

ADD CHN/28A8/6#50275

5.GMDSS-B4-2 The use of the band 1 621.35-1 626.5 MHz by the maritime mobile-satellite to support GMDSS is subject to the application of RR No. **9.11A** and its associated Rules of Procedure.     (WRC‑19)

**Reasons:** The downlink of the non-GSO MSS system using the band 1 613.8-1 626.5 MHz or part thereof is currently on secondary basis. Consequently, according to the footnote to Annex 1 of Appendix **5** of the RR, coordination was not required with any space or terrestrial service of primary status. However, should a primary status (on a provisional or permanent basis) be granted to this allocation, it is fundamental that the notifying administration of the non-GSO MSS system, if used as Maritime Mobile Satellite Service to support GDMSS, would have to effect the required coordination with all space and terrestrial services submitted to the Bureau at the date of coming into force the new primary allocation to Maritime Mobile Satellite Service.

ADD CHN/28A8/7

5.GMDSS-B2c 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 1 626.5-1 660.5 MHz. Maritime mobile earth stations receiving in the band 1 621.35-1 626.5 MHz shall not impose constraints on the emissions of earth stations of the mobile satellite service (Earth-to-space) and the radiodetermination satellite service (Earth-to-space) operating in the band 1 610-1 626.5MHz, in networks for which complete coordination information has been received by the Radiocommunication Bureau before [DD.MM.YYYY].     (WRC‑19)

**Reasons:** To ensure that the elevation of the status of the frequency band 1 621.35‑1 626.5 MHz will not create new constraints to the GMDSS operations in the adjacent frequency band 1 626.5-1 660.5 MHz. To maintain the current regulatory status and the coordination procedures between the incumbent MSS (Earth-to-space) and RDSS (earth-to-space) and secondary MSS (space-to-Earth), without additional constraints on the emission of MSS/RDSS earth stations operating in the band 1 610-1 626.5 MHz.

NOC CHN/28A8/8#50277

5.364

**Reasons:** The conditions in RR No. **5.364** related to MSS should remain unchanged.

MOD CHN/28A8/9#50278

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 provision RR No. **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. RR No. **4.10** does not confer a higher status to safety services.

MOD CHN/28A8/10#50279

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 (including land, aeronautical and maritime mobile-satellite services) (No. **29.13** applies). For the mentioned services non-GSO satellite systems operating in the band 1 613.8-1 626.5 MHz shall not exceed an epfd of −258 dB(W/(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 GSO satellite networks operating in the band 1 613.8-1 626.5 MHz shall not exceed a pfd of −194 dB(W/(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-GSO 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 unwanted emission limits contained in Resolution **739** **(Rev.WRC-15)** for the frequency bands 1 613.8‑1 626.5 MHz are now included directly in the Radio Regulations 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.

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 CHN/28A8/11#50264

33.50 § 26 Maritime safety information may be transmitted via satellite in the maritime mobile-satellite service using the bands 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 RR Appendix **15**.

MOD CHN/28A8/12#50281

Section VII − Use of other frequencies for safety     (Rev.WRC-19)

MOD CHN/28A8/13#50265

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 RR Appendix **15**.

MOD CHN/28A8/14#50283

APPENDIX 15 (Rev.WRC‑19)

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

(See Article 31)

The frequencies for distress and safety communications for the GMDSS are given in Tables 15‑1 and 15‑2 for frequencies below and above 30 MHz, respectively.

MOD CHN/28A8/15#50284

TABLE 15-2 (*end*)     (WRC‑19)

|  |  |  |
| --- | --- | --- |
| Frequency (MHz) | Description of usage | Notes |
| ... | ... | ... |
| 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. The provision **31.2** does not apply for the MMSS (space-to-Earth) in the band 1 621.35-1 626.5 MHz.     (WRC‑19) |
| ... | ... | ... |

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

MOD CHN/28A8/16#50250

APPENDIX 17 (REV.WRC‑19)

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

(See Article **52**)

...

Annex 2     (WRC‑19)

Frequency and channelling arrangements in the high-frequency   
bands for the maritime mobile service, which   
enter into force on 1 January 2017     (WRC‑19)

**Reasons:** The version numbers should be revised accordingly.

Annex 2     (WRC‑19)

Frequency and channelling arrangements in the high-frequency   
bands for the maritime mobile service, which   
enter into force on 1 January 2017     (WRC‑19)

MOD CHN/28A8/17#50251

PART A  –  Table of subdivided bands     (WRC‑19)

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz  
allocated exclusively to the maritime mobile service (*end*)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Band (MHz) | 4 | 6 | 8 | 12 | 16 | 18/19 | 22 | 25/26 |
| Limits (kHz) | 4 221 | 6 332.5 | 8 438 | 12 658.5 | 16 904.5 | 19 705 | 22 445.5 | 26 122.5 |
| Frequencies assignable for wide‑band systems, facsimile, special and data transmission systems and direct-printing telegraphy systems  *m) p) s) pp)* |  |  |  |  |  |  |  |  |
| Limits (kHz) | 4 351 | 6 501 | 8 707 | 13 077 | 17 242 | 19 755 | 22 696 | 26 145 |
| … |  |  |  |  |  |  |  |  |

...

*pp)* These sub-bands are also designated for the NAVDAT system as described in the most recent version of Recommendation ITU‑R M.2058.

**Reasons:** It is necessary to identify the spectrum need for NAVDAT system in HF in accordance with relevant ITU-R recommendation. The relevant version number should be revised accordingly.

SUP CHN/28A8/18#50252

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.

MOD CHN/28A8/19#50285

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)

…

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 No. **5.372.** Therefore the reference of this frequency bands in table 1-1 and 1-2 could be deleted.

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