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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 2 to Document 24(Add.9)-E** |
|  | **20 September 2019** |
|  | **Original: English** |
|  | |
| Asia-Pacific Telecommunity Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 1.9.2 | |

1.9 to consider, based on the results of ITU-R studies:

1.9.2 modifications of the Radio Regulations, including new spectrum allocations to the maritime mobile-satellite service (Earth-to-space and space-to-Earth), preferably within the frequency bands 156.0125-157.4375 MHz and 160.6125-162.0375 MHz of Appendix **18**, to enable a new VHF data exchange system (VDES) satellite component, while ensuring that this component will not degrade the current terrestrial VDES components, applications specific messages (ASM) and AIS operations and not impose any additional constraints on existing services in these and adjacent frequency bands as stated in *recognizing d)* and *e)* of Resolution **360** (**Rev.WRC-15**);

Introduction

APT Members support the ITU-R studies undertaken in accordance with Resolution **360 (Rev.WRC-15)** to identify possible new allocations to the maritime mobile-satellite service for VDES satellite component (VDE-SAT).

In regards to the possible modification of the Radio Regulations (RR) under WRC-19 agenda item 1.9.2, APT Members are of the view that:

– existing allocations and systems in the same and adjacent bands, especially the current terrestrial VDES components, ASM and AIS operations, should be protected, not be degraded or subject to additional constraints, which include but are not limited to, any modification requested to existing AIS equipment;

– search and rescue aircraft systems operating in maritime frequencies must be protected;

– VDES satellite components should not claim protection from harmful interference caused by stations of a land mobile service to which frequencies are already assigned;

– a new spectrum allocation should be allocated to the maritime mobile-satellite service (MMSS) (Earth-to-space and space-to-Earth) in RR Appendix **18**, with the provision they do not cause harmful interference, and have no claim of protection from incumbent services on a primary basis in the same and adjacent frequency bands; and

– in order to protect the RAS, Annex 1 to Resolution **739 (Rev.WRC-15)** should be revised.

APT Members propose to add allocation to the maritime mobile-satellite service on a secondary basis for VDE-SAT without pfd mask, using frequency plan alternative 3 contained in the CPM Report with modification of regulatory provisions.

Proposals

ARTICLE 5

Frequency allocations

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

MOD ACP/24A9A2/1#50298

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387‑390 MHz, 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the band 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions as shown in the relevant ITU‑R Recommendation.     (WRC‑19)

**Reasons:** The frequency range 161.7875-161.9375 MHz is a new allocation to the maritime mobile-satellite service (space-to-Earth). To ensure protection of the RAS this frequency range has to be added to RR No. **5.208A**.

MOD ACP/24A9A2/2#50327

5.208B[[1]](#footnote-1)\* In the frequency bands:

137-138 MHz,  
 161.7875-161.9375 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-19)** applies.     (WRC‑19)

**Reasons:** The frequency range 161.7875-161.9375 MHz is a new allocation to the maritime mobile-satellite service (space-to-Earth). To ensure protection of the RAS this frequency range has to be added to RR No. **5.208B.**

MOD ACP/24A9A2/3#50325

148-161.9375 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 156.8375-157.1875  FIXED  MOBILE except aeronautical mobile | 156.8375-157.1875  FIXED  MOBILE | |
| 5.226 | 5.226 | |
| 157.1875-157.3375  FIXED  MOBILE except aeronautical mobile  Maritime mobile-satellite (Earth-to-space) ADD 5.A192 | 157.1875-157.3375  FIXED  MOBILE  Maritime mobile-satellite (Earth-to-space) ADD 5.A192 | |
| 5.226 | 5.226 | |
| 157.3375-161.7875  FIXED  MOBILE except aeronautical mobile | 157.3375-161.7875  FIXED  MOBILE | |
| 5.226 | 5.226 | |
| 161.7875-161.9375  FIXED  MOBILE except aeronautical mobile  Maritime mobile-satellite (space-to-Earth) MOD 5.208A MOD 5.208B ADD 5.B192 | 161.7875-161.9375  FIXED  MOBILE  Maritime mobile-satellite (space-to-Earth) MOD 5.208A MOD 5.208B ADD 5.B192 | |
| 5.226 | 5.226 | |

**Reasons:** The above modifications of RR Article **5** identify a MMSS allocation uplink and downlink for the VHF Data Exchange System which is described in Recommendation ITU-R M.2092-0.

ADD ACP/24A9A2/4#50328

5.A192 The use of the frequency band 157.1875-157.3375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to the systems which operate in accordance with Appendix **18**.     (WRC‑19)

**Reasons:** Identify a MMSS allocation uplink for the VDES which is described in Recommendation ITU-R M.2092-0.

ADD ACP/24A9A2/5#50329

5.B192 The use of the frequency band 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to the systems which operate in accordance with Appendix **18**.     (WRC‑19)

**Reasons:** The use of the frequency band 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to the systems which operate in accordance with RR Appendix **18.**

MOD ACP/24A9A2/6#50333

APPENDIX 18 (REV.WRC‑19)

Table of transmitting frequencies in the  
VHF maritime mobile band

(See Article 52)

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| Channel designator | Notes | Transmitting frequencies  (MHz) | | Inter-ship | Port operations  and ship movement | | Public corres-pondence |
| --- | --- | --- | --- | --- | --- | --- | --- |
| From ship stations | From coast stations | Single frequency | Two frequency |
| ... | *...* | ... | ... | ... | ... | ... | ... |
| 24 | *w), ww), x), xx)* | 157.200 | 161.800 |  | x | x | x |
| 1024 | *w), ww), x), xx), AAA)* | 157.200 | 157.200 | x  (digital only) |  |  |  |
| 2024 | *w), ww), x), xx), BBB)* | 161.800 | 161.800 | x  (digital only) |  |  |  |
| 84 | *w), ww), x), xx)* | 157.225 | 161.825 |  | x | x | x |
| 1084 | *w), ww), x), xx), AAA)* | 157.225 | 157.225 | x  (digital only) |  |  |  |
| 2084 | *w), ww), x), xx), BBB)* | 161.825 | 161.825 | x  (digital only) |  |  |  |
| 25 | *w), ww), x), xx)* | 157.250 | 161.850 |  | x | x | x |
| 1025 | *w), ww), x), xx), AAA)* | 157.250 | 157.250 | x  (digital only) |  |  |  |
| 2025 | *w), ww), x), xx), BBB)* | 161.850 | 161.850 | x  (digital only) |  |  |  |
| 85 | *w), ww), x), xx)* | 157.275 | 161.875 |  | x | x | x |
| 1085 | *w), ww), x), xx), AAA)* | 157.275 | 157.275 | x  (digital only) |  |  |  |
| 2085 | *w), ww), x), xx), BBB)* | 161.875 | 161.875 | x  (digital only) |  |  |  |
| 26 | *w), ww), x)* | 157.300 | 161.900 |  | x | x | x |
| 1026 | *w), ww), x), AAA)* | 157.300 |  |  |  |  |  |
| 2026 | *w), ww), x), BBB)* |  | 161.900 |  |  |  |  |
| 86 | *w), ww), x)* | 157.325 | 161.925 |  | x | x | x |
| 1086 | *w), ww), x), AAA)* | 157.325 |  |  |  |  |  |
| 2086 | *w), ww), x), BBB)* |  | 161.925 |  |  |  |  |
| 27 | *z), zx)* | 157.350 | 161.950 |  |  | x | x |
| 1027 | *zz)* | 157.350 | 157.350 |  | x |  |  |
| 2027*\** | *z)* | 161.950 | 161.950 |  |  |  |  |
| 87 | *zz)* | 157.375 | 157.375 |  | x |  |  |
| 28 | *z), zx)* | 157.400 | 162.000 |  |  | x | x |
| 1028 | *zz)* | 157.400 | 157.400 |  | x |  |  |
| 2028*\** | *z)* | 162.000 | 162.000 |  |  |  |  |
| 88 | *zz)* | 157.425 | 157.425 |  | x |  |  |
| AIS 1 | *f), l), p)* | 161.975 | 161.975 |  |  |  |  |
| AIS 2 | *f), l), p)* | 162.025 | 162.025 |  |  |  |  |
| \*   From 1 January 2019, channel 2027 will be designated ASM 1 and channel 2028 will be designated ASM 2. | | | | | | | |

**Notes referring to the Table**

*...*

*Specific notes*

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*w)* In Regions 1 and 3:

The frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz (corresponding to channels: 24, 84, 25, 85, 26 and 86) are identified for the utilization of the VHF Data Exchange System (VDES) described in the most recent version of Recommendation ITU‑R M.2092. These frequency bands may also be used for analogue modulation described in the most recent version of Recommendation ITU‑R M.1084 by an administration that wishes to do so, subject to not causing harmful interference to, or claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations.     (WRC‑19)

*wa)*  In Regions 1 and 3:

The frequency bands 157.0125-157.1125 MHz and 161.6125-161.7125 MHz (corresponding to channels: 80, 21, 81 and 22) are identified for utilization of the digital systems described in the most recent version of Recommendation ITU‑R M.1842 using multiple 25 kHz contiguous channels.

The frequency bands 157.1375-157.1875 MHz and 161.7375-161.7875 MHz (corresponding to channels: 23 and 83) are identified for utilization of the digital systems described in the most recent version of Recommendation ITU‑R M.1842 using two 25 kHz contiguous channels. The frequencies 157.125 MHz and 161.725 MHz (corresponding to channel: 82) are identified for the utilization of the digital systems described in the most recent version of Recommendation ITU‑R M.1842.

The frequency bands 157.0125-157.1875 MHz and 161.6125-161.7875 MHz (corresponding to channels: 80, 21, 81, 22, 82, 23 and 83) can also be used for analogue modulation described in the most recent version of Recommendation ITU‑R M.1084 by an administration that wishes to do so, subject to not claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations.     (WRC‑19)

*ww)* In Region 2, the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz (corresponding to channels: 24, 84, 25, 85, 26 and 86) are designated for digitally modulated emissions in accordance with the most recent version of Recommendation ITU‑R M.1842.

In Canada and Barbados, the frequency bands 157.1875-157.2825 MHz and 161.7875-161.8875 MHz (corresponding to channels: 24, 84, 25 and 85) may be used for digitally modulated emissions, such as those described in the most recent version of Recommendation ITU‑R M.2092, subject to coordination with affected administrations.     (WRC‑19)

*x)* In Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Democratic Republic of the Congo, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe, the frequency bands 157.1125-157.3375 MHz and 161.7125-161.9375 MHz (corresponding to channels: 82, 23, 83, 24, 84, 25, 85, 26 and 86) are designated for digitally modulated emissions.

In China, the frequency bands 157.1375-157.3375 MHz and 161.7375-161.9375 MHz (corresponding to channels: 23, 83, 24, 84, 25, 85, 26 and 86) are designated for digitally modulated emissions.     (WRC‑19)

**Reasons:** Correction on the frequency bands.

*xx)* The channels 24, 84, 25 and 85 may be merged in order to form a unique duplex channel with a bandwidth of 100 kHz in order to operate the VDES terrestrial component described in the most recent version of Recommendation ITU‑R M.2092.

The channels 1024, 1084, 1025 and 1085 may be merged in order to form a unique channel with a bandwidth of 100 kHz in order to operate the VDES terrestrial component for ship-to-ship, ship-to-shore and shore-to-ship communications as described in the most recent version of Recommendation ITU‑R M.2092.

The channels 2024, 2084, 2025 and 2085 may be merged in order to form a unique channel with a bandwidth of 100 kHz in order to operate the VDES terrestrial component for ship-to-ship, ship-to-shore and shore-to-ship communications as described in the most recent version of Recommendation ITU‑R M.2092.     (WRC‑19)

**Reasons**: The above modifications of the RR Appendix **18** identify both the simplex and duplex operation of the terrestrial component of VDES.

*y)* These channels may be operated as single or duplex frequency channels, subject to coordination with affected administrations.     (WRC‑12)

*z)* The channels 27 and 28 are each split into two simplex channels. The channels ASM 1 and ASM 2 are used for application specific messages (ASM) as described in the most recent version of Recommendation ITU-R M.2092.     (WRC‑19)

*zx)* In the United States, these channels are used for communication between ship stations and coast stations for the purpose of public correspondence.     (WRC‑15)

*zz)* The channels 1027, 1028, 87 and 88 are used as single-frequency analogue channels for port operation and ship movement.     (WRC‑19)

*AAA)* From 1 January 2024, the combination of the channels 1024, 1084, 1025, 1085, 1026 and 1086, which are also allocated to the maritime mobile-satellite service (Earth-to-space), shall be used for the reception of VDES messages from ships as described in the most recent version of Recommendation ITU‑R M.2092.     (WRC‑19)

*BBB)* From 1 January 2024, the combination of the channels 2024, 2084, 2025, 2085, 2026 and 2086, which are also allocated to the maritime mobile-satellite service (space-to-Earth), shall be used for the reception of VDES messages from satellites as described in the most recent version of Recommendation ITU‑R M.2092.      (WRC‑19)

**Reasons:** The above modifications of RR Appendix **18** identify a MMSS allocation uplink and downlink for the VDES which is described in Recommendation ITU-R M.2092-0. The channels are identified for the satellite downlink of the VDES.

SUP ACP/24A9A2/7#50294

Resolution 360 (Rev.WRC‑15)

Consideration of regulatory provisions and spectrum allocations to the maritime mobile-satellite service to enable the satellite component of the VHF Data Exchange System and enhanced maritime radiocommunication

**Reasons:** No longer required after WRC-19.

MOD ACP/24A9A2/8#50334

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

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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 |
| MMSS (space-to-Earth) | 161.7875-161.9375 | 150.05-153 | −238 | 2.95 | NA | NA | NA | NA | WRC-19 |
| MMSS (space-to-Earth) | 161.7875-161.9375 | 322-328.6 | −240 | 6.6 | −255 | 10 | −228 | 10 | WRC-19 |
| 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 |
| MSS (space-to-Earth) | 1 613.8-1 626.5 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC-03 |
| 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 frequency range 161.7875-161.9375 MHz is a new allocation to the maritime mobile-satellite service (space-to-Earth). To ensure protection of the RAS this frequency range has to be added to Annex 1 to Resolution **739 (Rev.WRC-15)**.

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

1. \* This provision was previously numbered as No. **5.347A**. It was renumbered to preserve the sequential order. [↑](#footnote-ref-1)