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**UNITED STATES OF AMERICA**

**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda Item 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)****;*

**BACKGROUND**

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 radiocommunications”,* invites ITU-R to conduct, as a matter of urgency, and in time for WRC-19, sharing and compatibility studies between VDES satellite components and incumbent services in the same and adjacent frequency bands specified in *recognizing d) and e)* to determine potential regulatory actions, including spectrum allocations to the MMSS (Earth-to-space and space-to-Earth) for VDES applications. To this end, the ITU-R has initiated sharing studies between the proposed VDES satellite (VDE-SAT) frequencies and the incumbent services in the same and adjacent bands so that this component does 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). The satellite component of the VDES could be beneficial towards enhancing maritime navigation and safety related applications on a global basis.

Under **5.225A, the adjacent frequency band 154-156 MHz includes a primary allocation to the radiolocation service in some countries.**

Studies within ITU-R Working party 5B (WP 5B) concluded that compatibility between the radiolocation service and the maritime mobile satellite service (Earth-to-space) is feasible without imposing any additional constraints on the radiolocation service. Application of the radiolocation service in the frequency band 154-156 MHz is limited to the space surveillance radars.

Furthermore, WP5B completed a report, now published, Report ITU-R M.2435-2018 “Technical studies on the satellite component of the VHF data exchange system”, on the technical characteristics and feasibility assessment of the VDES satellite component.

**MOD**

**ARTICLE 5**

**Frequency Allocations**

**Section IV – Frequency Allocation Table**(See number 2.1)

**148-161.9375 MHz**

|  |  |  |
| --- | --- | --- |
| **Allocation to Services** | | |
| **Region 1** | **Region 2** | **Region 3** |
| **156.8375-157.1875**  FIXED  MOBILE except aeronautical mobile  5.226 | **156.8375-157.1875**  FIXED  MOBILE  5.226 | |
| **157.1875-157.3375**  FIXED  MOBILE except aeronautical mobile  Maritime mobile-satellite (Earth-space) ADD 5.A192  5.226 | **157.1875-157.3375**  FIXED  MOBILE  Maritime mobile-satellite (Earth-space) ADD 5.A192  5.226 | |
| **157.3375-160.9625**  FIXED  MOBILE except aeronautical mobile  5.226 | **157.3375-160.9625**  FIXED  MOBILE  5.226 | |
| **160.9625-161.4875**  FIXED  MOBILE except aeronautical mobile  Maritime mobile-satellite (space-Earth) MOD 5.208A MOD 5.208B ADD 5.B192  5.226 | **160.9625-161.4875**  FIXED  MOBILE  Maritime mobile-satellite (space-Earth) MOD 5.208A MOD 5.208B ADD 5.B192  5.226 | |
| **161.4875-161.7875**  FIXED  MOBILE except aeronautical mobile  5.226 | **161.4875-161.7875**  FIXED  MOBILE  5.226 | |
| **161.7875-161.9375**  FIXED  MOBILE except aeronautical mobile  Maritime mobile-satellite (Earth-space) ADD 5.A192  5.226 | **161.7875-161.9375**  FIXED  MOBILE  Maritime mobile-satellite (Earth-space) ADD 5.A192  5.226 | |

**Reason:** The allocation in segments 157.1875-157.3375 MHz, 160.9625-161.4875 MHz and 161.7875-161.9375 MHz will provide the possibility to offer greater communication capacity and coverage of the VDES-SAT

**ADD**

**5.A192** The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz for the maritime mobile-satellite service (Earth-space) is limited to non-geostationary systems operating in accordance with Appendix 18. (CMR-19)

**Reason:** The addition of the previous note of RR Article 5specify that the MMSS allocation (space-to-Earth) for the VDES satellite component as described in Report ITU-R M.2435-2018 “Technical studies on the satellite component of the VHF data exchange system”should be limited to non-GSO systems.

**ADD**

**5.B192** The use of the frequency band 160.9625-161.4875 MHz for the maritime mobile-satellite service (space-Earth) is limited to non-geostationary systems. (CMR 19)

**Reason:** The addition of the previous note of RR Article 5 specify that the MMSS allocation (space-to-Earth) for the VDES satellite component as described in Report ITU-R M.2435-2018 “Technical studies on the satellite component of the VHF data exchange system”should be limited to non-GSO systems

**MOD**

**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 to the mobile-satellite service (space-Earth) in the band 160.9625-161.4875 MHz, administrations shall take all possible measures 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. The threshold levels of interference detrimental to the radio astronomy service are indicated in the relevant ITU-R Recommendation. (WRC-19)

**Reason:** The 160.9625-161.4875 MHz segment is included to try to achieve protection of the radio astronomy service (RAS).

**MOD**

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

137-138 MHz,

160.9625-161.4875 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-15)** applices**.**    (CMR-19)

**Reason:** The above modification is proposed to update note 5.208B according the new allocation of the band 160.9625-161.4875 MHz to the MMSS (space- Earth).

**MOD**

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), x), xx)* | 157.200 | 161.800 |  | x | x | x |
| 1024 | *w), x), xx), AAA)* | 157.200 |  |  |  |  |  |
| 2024 | *w), x), xx), AAA)* | 161.800 | 161.800 | x  (digital only) |  |  |  |
| 84 | *w), x), xx)* | 157.225 | 161.825 |  | x | x | x |
| 1084 | *w), x), xx), AAA)* | 157.225 |  |  |  |  |  |
| 2084 | *w), x), xx), AAA)* | 161.825 | 161.825 | x  (digital only) |  |  |  |
| 25 | *w), x), xx)* | 157.250 | 161.850 |  | x | x | x |
| 1025 | *w), x), xx), AAA)* | 157.250 |  |  |  |  |  |
| 2025 | *w), x), xx), AAA)* | 161.850 | 161.850 | x  (digital only) |  |  |  |
| 85 | *w), x), xx)* | 157.275 | 161.875 |  | x | x | x |
| 1085 | *w), x), xx), AAA)* | 157.275 |  |  |  |  |  |
| 2085 | *w), x), xx), AAA)* | 161.875 | 161.875 | x  (digital only) |  |  |  |
| 26 | *w), x)* | 157.300 | 161.900 |  | x | x | x |
| 1026 | *w), x), AAA)* | 157.300 |  |  |  |  |  |
| 2026 | *w), x), AAA)* |  | 161.900 |  |  |  |  |
| 86 | *w), x)* | 157.325 | 161.925 |  | x | x | x |
| 1086 | *w), x), AAA)* | 157.325 |  |  |  |  |  |
| 2086 | *w), x), AAA)* |  | 161.925 |  |  |  |  |
| 27 | *z)* | 157.350 | 161.950 |  |  | x | x |
| 1027 | *z), zz)* | 157.350 | 157.350 |  | x |  |  |
| 2027  ASM1 | *z)* | 161.950 | 161.950 |  |  |  |  |
| 87 | *z), zz)* | 157.375 | 157.375 |  | x |  |  |
| 28 | *z)* | 157.400 | 162.000 |  |  | x | x |
| 1028 | *z), zz)* | 157.400 | 157.400 |  | x |  |  |
| 2028  ASM2 | *z)* | 162.000 | 162.000 |  |  |  |  |
| 88 | *z), zz)* | 157.425 | 157.425 |  | x |  |  |
| AIS 1 | *f), l), p)* | 161.975 | 161.975 |  |  |  |  |
| AIS 2 | *f), l), p)* | 162.025 | 162.025 |  |  |  |  |
|  | | | | | | | |

**Notes referring to the Table**

*...*

*Specific notes*

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*m)* These channels may be operated as single frequency channels, subject to coordination with affected administrations. The following conditions apply for single frequency usage:

– The lower frequency portion of these channels may be operated as single frequency channels by ship and coast stations.

– Transmission using the upper frequency portion of these channels is limited to coast stations.

If permitted by administrations and specified by national regulations, the upper frequency portion of these channels may be used by ship stations for transmission. All precautions should be taken to avoid harmful interference to channels AIS 1, AIS 2ASM1 and ASM2.     (WRC‑19)

*mm)* Transmission on these channels is limited to coast stations. If permitted by administrations and specified by national regulations, these channels may be used by ship stations for transmission. All precautions should be taken to avoid harmful interference to channels AIS 1, AIS 2, ASM1 and ASM2.     (WRC‑19)

...

*w)*

The frequency bands 157.200‑157.325 MHz and 161.800-161.925 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)*

The frequency bands 157.025‑157.100 MHz and 161.625‑161.700 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 157.150‑157.175 MHz and 161.750-161.775 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. From 1 January 2017, 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 157.025‑157.175 MHz and 161.625-161.775 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)

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*xx)* The channels 24, 84, 25 and 85 may be merged in order to form unique channels 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.     (WRC‑19)

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*z)* These channels are each split into two simplex channels. The channels 2027 and 2028 designated as 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)

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

*AAA)* These channels may be used in the maritime mobile-satellite service (Earth-to-space) by the VDES satellite component in the following way:

– The channels 1024, 1084, 1025 and 1085 are reserved for ship-to-shore services, but ship-to-satellite (VDE-SAT uplink) services are possible without imposing constraints on ship-to-shore services.

– The channels 2024, 2084, 2025 and 2085 are reserved for shore-to-ship and ship-to-ship services, but ship-to-satellite (VDE-SAT uplink) services are possible without imposing constraints on shore-to-ship and ship-to-ship services.

– The channels 1026, 1086, 2026 and 2086 are exclusively reserved for ship-to-satellite (VDE-SAT uplink) services.     (WRC-19)

**Reason:** The above modification is proposed to add notes in Appendix 18 of the Radio Regulations to make the necessary provisions for VDES, noting that VDES is a global service that subsumes other services on the designated frequencies.

**MOD**

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 1-2

**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 band** | **Radio astronomy 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) | 160.9625-161.4875 | 150.05-153 | −238 | 2.95 | NA | NA | NA | NA | 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 |

**Reason:** The above modification is proposed to add segment 160.9625-161.4872 MHz for the new allocation the service MMSS (space-Earth) in Annex 1 of Resolution 739

**SUP**

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**

**Reason**: Resolution 360 (Rev. WRC-15) is no longer needed once the studies have been completed.

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1. \* Esta disposición fue previamente enumerada con el No. 5.347A. Fue renumerado para preservar el orden secuencial. [↑](#footnote-ref-1)