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| **World Radiocommunication Conference (WRC-15)Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 16 toDocument 7-E** |
|  | **21 August 2015** |
|  | **Original: English** |
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| Member States of the Inter-American Telecommunication Commission (CITEL) |
| Proposals for the work of the conference |
|  |
| Agenda item 1.16 |

1.16 to consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Resolution **360** **(WRC‑12)**;

**Background**

This agenda item addresses regulatory provisions and spectrum allocations for use by maritime safety systems for ships and ports.

Automatic Identification System (AIS) is a maritime communication and safety of navigation system operating in the VHF band and is used for vessel collision avoidance as well as the delivery of information about specific details of the vessel. Further, consequential to the introduction of the AIS-SART for search and rescue operations, the AIS channels were added to Appendix 15 of the International Radio Regulations.

With increasing demand for maritime VHF data communications, AIS has become heavily used for maritime safety, maritime situational awareness and port security. As a result, overloading of AIS1 and AIS2 has created a need for additional AIS channels. International Maritime Organization (IMO) Resolution MSC 74(69) required that AIS, “…improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS), by satisfying the following functional requirements: 1) in a ship-to-ship mode for collision avoidance; 2) as a means for littoral States to obtain information about a ship and its cargo; and 3) as a VTS tool, i.e. ship-to-shore (traffic management)”. The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) has advised in its Maritime Radio Communication Plan (MRCP) that additional AIS channels are required for ship-to-ship and ship-to-shore maritime safety information (MSI) and general data communications (i.e. Area Warnings, Meteorological and Hydrological Data, Channel Management of AIS, future VHF Digital Data Channels, and Ship-shore Data Exchange).

Although satellite detection of AIS on AIS 1 and AIS 2 was proven to be possible, its effectiveness was determined to be unacceptably limited where VHF Data Link (VDL) loading is high. The need for a separate dedicated service on separate dedicated channels was confirmed by WRC-12 and two additional channels were designated. While this new designation solves the problem for satellite detection, AIS VDL loading remains a serious issue to an increasing degree in many parts of the world due to the proliferation of AIS applications, message types, services and equipment types plus the unanticipated increase in user volume. To solve this problem and protect the integrity of the AIS VDL, AIS subject matter experts recommend a revision to the AIS system which would move Application Specific Messages (ASM) to two additional channels. WRC-12 facilitated this concept in a revision of Appendix 18 and provided four candidate channels (27, 87, 28, and 88) on an experimental basis for this evaluation. Application Specific Messages are defined in Recommendation ITU-R M.1371-5, taking into account the international application identifier branch, as specified in IMO SN Circular 289, maintained and published by IMO.

Since AIS 1 and AIS 2 are very close in frequency to channels 2078, 2019, 2079 and 2020, the use of these channels for radio communications by ships will block the ship’s AIS receiver, consequentially causing the ship’s AIS to be unable to update the location of other ships nearby, resulting in a navigation safety hazard and possible collision. This problem should be solved, not only to protect the AIS channels, but also to protect the additional channels that may be allocated to support AIS technology applications.

Furthermore, CITEL supports the continued development of an international standard for the prospective new VHF Data Exchange System (VDES) and notes the progress of various international forums, which have comprehensively addressed terrestrial and satellite component configurations required for new AIS technology applications.

VHF public correspondence permits maritime vessels to interconnect with the public switched telephone network using the 156-162 frequency band to provide short-range communications not more than 30 nautical miles from shore. It should be noted that in some countries in the Americas and in some parts of the world, maritime VHF public correspondence between coast stations and vessels is still used. Therefore, a country footnote is proposed for Appendix 18 to reflect the continued use of public correspondence.

Therefore, to achieve the objectives relating to AIS, this proposal includes modifications to Appendix 18 of the Radio Regulations that would allow ASM supporting AIS applications while preserving the provisions for public correspondence in Appendix 18 for administrations, as well as including a new secondary allocation for maritime mobile satellite service in Article 5.

**Proposals**

ARTICLE 5

Frequency allocations

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

MOD IAP/7A16/1

148-223 MHz

|  |
| --- |
| **Allocation to services** |
| **Region 1** | **Region 2** | **Region 3** |
| **156.8375-161.9375**FIXEDMOBILE except aeronauticalmobile | **156.8375-161.9375**FIXEDMOBILE |
| 5.226  | 5.226  |
| **161.9375-161.9625** FIXEDMOBILE except aeronauticalmobileMaritime mobile-satellite (Earth-to-space) ADD 5.226A | **156.8375161.9375-161.9625**FIXEDMOBILEMaritime mobile-satellite (Earth-to-space) ADD 5.226A |
| 5.226 | 5.226 |
| **161.9625-161.9875**FIXEDMOBILE except aeronauticalmobileMobile-satellite (Earth-to-space) 5.228F | **161.9625-161.9875**AERONAUTICAL MOBILE (OR)MARITIME MOBILEMOBILE-SATELITE (Earth-to-space) | **161.9625-161.9875**MARITIME MOBILEAeronautical mobile (OR) 5.228EMobile-satellite (Earth-to-space) 5.228F |
| 5.226 5.228A 5.228B | 5.228C 5.228D | 5.226 |
| **161.9875-162.0125** FIXEDMOBILE except aeronauticalmobileMaritime mobile-satellite (Earth-to-space) ADD 5.226A  | **161.9875-162.0125**FIXEDMOBILEMaritime mobile-satellite (Earth-to-space) ADD 5.226A  |
| 5.226 5.229 | 5.226 |

**Reasons:** The above modifications of RR Article **5** identify a MMSS allocation uplink to allow satellite reception of the frequencies 161.950 MHz and 162.000 MHz assigned for application specific messages (ASM). However, the proposal to move the footnote 5.226A to MMSS only is contrary to the method in the CPM text.

ADD IAP/7A16/2

**5.226A** The use of the frequency bands 161.9375-161.9625 MHz and 161.9875-162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix **18**.

Reasons: The above new footnote will limit use of the maritime mobile-satellite (Earth-to-space) service to the designated ASM channels identified in Note *za)* of Appendix **18**.

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APPENDIX 18 (REV.WRC‑12)

Table of transmitting frequencies in the
VHF maritime mobile band

(See Article 52)

…

| **Channeldesignator** | **Notes** | **Transmittingfrequencies (MHz)** | **Inter-ship** | **Port operations and ship movement** | **Public corres-pondence** |
| --- | --- | --- | --- | --- | --- |
| **From ship stations** | **From coast stations** | **Single frequency** | **Two frequency** |
| 60 | *m)* | 156.025 | 160.625 |  | x | x | x |
| 01 | *m)* | 156.050 | 160.650 |  | x | x | x |
| 61 | *m)* | 156.075 | 160.675 |  | x | x | x |
| 02 | *m)* | 156.100 | 160.700 |  | x | x | x |
| 62 | *m)* | 156.125 | 160.725 |  | x | x | x |
| 03 | *m)* | 156.150 | 160.750 |  | x | x | x |
| 63 | *m)* | 156.175 | 160.775 |  | x | x | x |
| 04 | *m)* | 156.200 | 160.800 |  | x | x | x |
| 64 | *m)* | 156.225 | 160.825 |  | x | x | x |
| 05 | *m)* | 156.250 | 160.850 |  | x | x | x |
| 65 | *m)* | 156.275 | 160.875 |  | x | x | x |
| 06 | *f)* | 156.300 |  | x |  |  |  |
| 2006 | *r)* | 160.900 | 160.900 |  |  |  |  |
| 66 | *m)* | 156.325 | 160.925 |  | x | x | x |
| 07 | *m)* | 156.350 | 160.950 |  | x | x | x |
| 67 | *h)* | 156.375 | 156.375 | x | x |  |  |
| 08 |  | 156.400 |  | x |  |  |  |
| 68 |  | 156.425 | 156.425 |  | x |  |  |
| 09 | *i)* | 156.450 | 156.450 | x | x |  |  |
| 69 |  | 156.475 | 156.475 | x | x |  |  |
| 10 | *h), q)* | 156.500 | 156.500 | x | x |  |  |
| 70 | *f), j)* | 156.525 | 156.525 | Digital selective calling for distress, safety and calling |
| 11 | *q)* | 156.550 | 156.550 |  | x |  |  |
| 71 |  | 156.575 | 156.575 |  | x |  |  |
| 12 |  | 156.600 | 156.600 |  | x |  |  |
| 72 | *i)* | 156.625 |  | x |  |  |  |
| 13 | *k)* | 156.650 | 156.650 | x | x |  |  |
| 73 | *h), i)* | 156.675 | 156.675 | x | x |  |  |
| 14 |  | 156.700 | 156.700 |  | x |  |  |
| 74 |  | 156.725 | 156.725 |  | x |  |  |
| 15 | *g)* | 156.750 | 156.750 | x | x |  |  |
| 75 | *n), s)* | 156.775 | 156.775 |  | x |  |  |
| 16 | *f)* | 156.800 | 156.800 | DISTRESS, SAFETY AND CALLING |
| 76 | *n), s)* | 156.825 | 156.825 |  | x |  |  |
| 17 | *g)* | 156.850 | 156.850 | x | x |  |  |
| 77 |  | 156.875 |  | x |  |  |  |
| 18 | *m)* | 156.900 | 161.500 |  | x | x | x |
| 78 | *t), u), v)* | 156.925 | 161.525 |  | x | x | x |
| 1078 |  | 156.925 | 156.925 |  | x |  |  |
| 2078 | *tt)* |  | 161.525 |  | x |  |  |
| 19 | *t), u), v)* | 156.950 | 161.550 |  | x | x | x |
| 1019 |  | 156.950 | 156.950 |  | x |  |  |
| 2019 | *tt)* |  | 161.550 |  | x |  |  |
| 79 | *t), u), v)* | 156.975 | 161.575 |  | x | x | x |
| 1079 |  | 156.975 | 156.975 |  | x |  |  |
| 2079 | *tt)* |  | 161.575 |  | x |  |  |
| 20 | *t), u), v)* | 157.000 | 161.600 |  | x | x | x |
| 1020 |  | 157.000 | 157.000 |  | x |  |  |
| 2020 | *tt)* |  | 161.600 |  | x |  |  |
| 80 | *w), y)* | 157.025 | 161.625 |  | x | x | x |
| 21 | *w), y)* | 157.050 | 161.650 |  | x | x | x |
| 81 | *w), y)* | 157.075 | 161.675 |  | x | x | x |
| 22 | *w), y)* | 157.100 | 161.700 |  | x | x | x |
| 82 | *w), x), y)* | 157.125 | 161.725 |  | x | x | x |
| 23 | *w), x), y)* | 157.150 | 161.750 |  | x | x | x |
| 83 | *w), x), y)* | 157.175 | 161.775 |  | x | x | x |
| 24 | *w), ww), x), y)* | 157.200 | 161.800 |  | x | x | x |
| 84 | *w), ww), x), y)* | 157.225 | 161.825 |  | x | x | x |
| 25 | *w), ww), x), y)* | 157.250 | 161.850 |  | x | x | x |
| 85 | *w), ww), x), y)* | 157.275 | 161.875 |  | x | x | x |
| 26 | *w), ww), x), y)* | 157.300 | 161.900 |  | x | x | x |
| 86 | *w), ww), x), y)* | 157.325 | 161.925 |  | x | x | x |
| 27 |  *zx)* | 157.350 | 161.950 |  |  | x | x |
| 1027 | *dd* | 157.350 | 157.350 |  | x |  |  |
| 2027 | *za)* | 161.950 | 161.950 |  | x |  |  |
| 87 |  | 157.375 | 157.375 |  | x |  |  |
| 28 |  *zx)* | 157.400 | 162.000 |  |  | x | x |
| 1028 | *dd* | 157.400 | 157.400 |  | x |  |  |
| 2028 | *za)* | 162.00 | 162.000 |  | x |  |  |
| 88 |  | 157.425 | 157.425 |  | x |  |  |
| AIS 1 | *f), l), p)* | 161.975 | 161.975 |  |  |  |  |
| AIS 2 | *f), l), p)* | 162.025 | 162.025 |  |  |  |  |

Reasons: AIS VDL loading remains a serious issue to an increasing degree in many parts of the world due to the proliferation of AIS applications, message types, services and equipment types plus the unanticipated increase in user volume. To solve this problem and protect the integrity of the AIS VDL, AIS subject matter experts alternatively recommend a revision to the AIS system which would move Application Specific Messages (ASM) to channels 2027 and 2028. However, in some countries, channels 27 and 28 are used for public correspondence and those provisions should be maintained.

ADD IAP/7A16/4

*dd)* From 1 January 2019, these channels shall be used as simplex voice channels for single frequency port operations.

Reasons: Implementation of transition date from duplex channels 27 and 28 of the lower legs to simplex channels 1027 and 1028.

ADD IAP/7A16/5

*tt)* Channels 2078, 2019, 2079 and 2020 are not available for transmitting from ships.

**Reasons:** To avoid interference to the reception of AIS on board ship stations.

SUP IAP/7A16/6

*z)* These channels may be used for possible testing of future AIS applications without causing harmful interference to, or claiming protection from, existing applications and stations operating in the fixed and mobile services.     (WRC‑12)

**Reasons:** This footnote applies to the designation by WRC-12 for interim experimental use of the channels, to be finally decided by WRC-15.

ADD IAP/7A16/7

*za*) Until 1 January 2019, these channels may be used for possible testing of future AIS applications without causing harmful interference to, or claiming protection from, existing applications and stations operating in the fixed and mobile services.

From 1 January 2019, channels 27 and 28 are split into two simplex channels. The upper legs, 2027 and 2028 respectively designated as ASM 1 and ASM 2 are used for non-navigation ASM (application specific messages) as described in the most recent version of the Recommendation ITU-R M.[VDES]. The channels 2027 and 2028 are also allocated to the maritime mobile-satellite service (Earth‑to‑space) for the reception of ASM messages from ships as described in the most recent version of the Recommendation ITU-R M.[VDES].

**Reasons:** This footnote provides these channels for ASM and also provides a transition period.

ADD IAP/7A16/8

*zx*) In some countries, these channels are used for communication between ship stations and coast stations for the purpose of public correspondence.

**Reasons**: In some countries, these channels are used for VHF public correspondence and those provisions should be maintained for Channels 27 and 28.