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Sharm el-Sheikh, Egypt, 28 October – 22 November 2019

PLENARY MEETING

Addendum 2 to
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Member States of the Inter-American Telecommunication Commission (CITEL)

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**);

INTRODUCTION

WRC-15 adopted agenda item 1.8 for WRC-19, which considers possible regulatory actions to support Global Maritime Distress and Safety Systems (GMDSS) modernization and to support the introduction of additional satellite systems into the GMDSS in accordance with Resolution **359 (Rev.WRC-15)**. This document addresses the *Resolves 2* of Resolution **359** (**Rev.WRC-15**) on the introduction of additional satellite systems into the GMDSS, proposing modifications to the *Radio Regulations* to support the introduction of additional satellite systems into the GMDSS.

BACKGROUND

Until May 2018, only one mobile satellite system had been recognized by the International Maritime Organization (IMO) for use in the GMDSS "system of systems". Advances in communications technology, the maturity of commercial satellite operations have introduced competition into the satellite sector, and the deployment of non-geostationary satellite constellations led the IMO to begin work to recognize an additional satellite system to the GMDSS as an urgent work item. In considering incorporation of additional satellite systems into the GMDSS, the IMO recognizes the need for additional satellite resources capable of providing increased coverage and competition for provision of maritime services.

At its 99th Meeting of the Maritime Safety Committee (MSC 99) held in May 2018, IMO adopted Resolution MSC.451(99), "*Statement Of Recognition Of Maritime Mobile Satellite Services Provided By Iridium Satellite LLC*". The newly-recognized satellite system, capable of operating in the frequency band 1616-1626.5 MHz, is now being integrated with national and regional centers supporting maritime rescue and safety information for full global operation in early 2020.

The IMO has also concluded an equipment performance standard applicable to new mobile satellite GMDSS services (resolution MSC 434(98) on *Performance standards for a ship earth station for*

use in the GMDSS) and has agreed an amendment to its Safety of Life at Sea (SOLAS) Convention enabling new providers of mobile satellite GMDSS services.[1]

The IMO actions described above provide for the timely introduction of an additional MSS system into the GMDSS. This proposal will modify the Radio Regulations to incorporate the relevant frequency band for providing GMDSS by mobile satellite systems.

It is important to note that identification of an additional GMDSS service provider would bring forward the following benefits to the maritime community:

- Covering the entire globe – including the critical Arctic and Antarctic (Polar) regions, which makes up Sea Area A4, where there is currently no GMDSS mobile satellite services available;
- Is an "always on" system as individual satellites pass overhead approximately every five to eight minutes depending on location. The movement of the satellites across the horizon provide the user with better look angles (i.e. ability to see the satellite) in rough seas, especially in northernmost and southernmost latitudes;
- Will enable both voice and data GMDSS communications in a single, small form factor maritime mobile terminal, at a low cost (currently two mobile satellite system terminals may be required to meet operational and regulatory needs of the vessel (voice and data) at much greater cost;
- Provide an opportunity for a redundant communications platform for the maritime community in the event there is a catastrophic outage which disables part, or all, of other satellite-based GMDSS services;
- Will provide for more efficient and comprehensive distress and safety communications by providing the Rescue Coordination Center with immediate voice communications capability, vessel identification, and a means to contact the vessel in distress;
- Will provide, for the first time, vessel owners with a choice of satellite-based GMDSS services, including choice of equipment with the state-of-the-art technology, new service offerings, and competitive pricing; and
- May be integrated with vessel "digital bridge" systems consolidating equipment and displays for the crew to monitor, while eliminating clutter on the bridge.

[1] MSC 98-23, "Report of the Maritime Safety Committee on its Ninety-Eighth Session", 28 June 2017.

ARTICLE 5

Frequency allocations

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

MOD IAP/6230A8A2/1

1 610-1 660 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 610-1 610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 MOD 5.368 5.369 5.371 5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 MOD 5.368 5.370 5.372	**1 610-1 610.6** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 MOD 5.368 5.369 5.372
1 610.6-1 613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.364 5.366 5.367 MOD 5.368 5.369 5.371 5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 MOD 5.368 5.370 5.372	**1 610.6-1 613.8** MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 MOD 5.368 5.369 5.372
1 613.8-1 626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.369 5.371 5.372 ADD 5.GMDSS	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.208B 5.341 MOD 5.364 5.365 5.366 5.367 MOD 5.368 5.370 5.372 ADD 5.GMDSS	**1 613.8-1 626.5** MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B 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 5.372 ADD 5.GMDSS

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

Reasons: To reference proposed modification to footnote RR Nos. **5.364** and **5.368** to support the introduction of an additional satellite system into the GMDSS in accordance with Resolution **359 (Rev.WRC-15)**. Also to align with the Method B1 in the Draft CPM Text.

ADD IAP/6230A8A2/2

5. GMDSS The band 1616-1626.5 MHz may also be used for the provision of distress, urgency, and safety communications of the Global Maritime Distress and Safety System (GMDSS). (See Table **15-2** of Appendix **15**, No. **33.50** and No. **33.53** of Article **33**). (WRC-19)

Reasons: To identify the band 1616-1626.5 MHz as being available for the provision of GMDSS by mobile-satellite service systems.

MOD IAP/6230A8A2/3

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 1 616-1 626.5 MHz by the mobile-satellite service (Earth-to-space) ~~s~~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: To provide allocation status parity in the band 1 616-1 626.5 MHz among maritime and aeronautical communications for distress and safety purposes and recognize the safety service aspects of GMDSS operations with this frequency band.

MOD IAP/6230A8A2/4

5.368 With respect to the radiodetermination-satellite service and the mobile-satellite services the provisions of No. **4.10** do not apply in the band 1 610-~~1626.5~~1 616 MHz, with the exception of the aeronautical radionavigation-satellite service. (WRC-19)

Reasons: To recognize that in the necessary parts of the frequency band 1 610-1 626.5 MHz the mobile-satellite service is used for the provision of aeronautical and maritime safety services. Consequently, No. 4.10 would apply to these safety services within the appropriate frequency bands.

MOD IAP/6230A8A2/5

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 1 616-1 626.5 MHz. (see Appendix **15**). (WRC-19)

Reasons: To include the necessary parts of the frequency band 1 610-1 626.5 MHz as being available for transmitting maritime safety information via satellite.

Section VII − Use of other frequencies for safety (WRC-07)

MOD IAP/6230A8A2/6

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, 1 616-1 626.5 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-~~07~~19)

Reasons: To apply No. **33.53** to the necessary parts of the frequency band 1 610-1 626.5 MHz for use by mobile-satellite service systems approved by the International Maritime Organization to participate in the Global Maritime Distress and Safety System.

APPENDIX 15 (REV.WRC-19~~95~~)

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

MOD IAP/6230A8A2/7

TABLE 15-2 (WRC-19~~95~~)

Frequencies above 30 MHz (VHF/UHF)

Frequency (MHz)	Description of usage	Notes
*121.5	AERO-SAR	The aeronautical emergency frequency 121.5 MHz is used for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service using frequencies in the frequency band between 117.975 MHz and 137 MHz. This frequency may also be used for these purposes by survival craft stations. Use of the frequency 121.5 MHz by emergency position-indicating radio beacons shall be in accordance with Recommendation ITU-R M.690-3. Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. **5.111** and **5.200**). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
123.1	AERO-SAR	The aeronautical auxiliary frequency 123.1 MHz, which is auxiliary to the aeronautical emergency frequency 121.5 MHz, is for use by stations of the aeronautical mobile service and by other mobile and land stations engaged in coordinated search and rescue operations (see also No. **5.200**).

		Mobile stations of the maritime mobile service may communicate with stations of the aeronautical mobile service on the aeronautical emergency frequency 121.5 MHz for the purposes of distress and urgency only, and on the aeronautical auxiliary frequency 123.1 MHz for coordinated search and rescue operations, using class A3E emissions for both frequencies (see also Nos. **5.111** and **5.200**). They shall then comply with any special arrangement between governments concerned by which the aeronautical mobile service is regulated.
156.3	VHF-CH06	The frequency 156.3 MHz may be used for communication between ship stations and aircraft stations engaged in coordinated search and rescue operations. It may also be used by aircraft stations to communicate with ship stations for other safety purposes (see also Note *f*) in Appendix **18**).
*156.525	VHF-CH70	The frequency 156.525 MHz is used in the maritime mobile service for distress and safety calls using digital selective calling (see also Nos. **4.9**, **5.227**, **30.2** and **30.3**).
156.650	VHF-CH13	The frequency 156.650 MHz is used for ship-to-ship communications relating to the safety of navigation in accordance with Note *k*) in Appendix **18**.
*156.8	VHF-CH16	The frequency 156.8 MHz is used for distress and safety communications by radiotelephony. Additionally, the frequency 156.8 MHz may be used by aircraft stations for safety purposes only.
*161.975	AIS-SART VHF CH AIS 1	AIS 1 is used for AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations.
*162.025	AIS-SART VHF CH AIS 2	AIS 2 is used for AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations.

TABLE 15-2 (*end*) (WRC-195)

Frequency (MHz)	**Description of usage**	**Notes**
*406-406.1	406-EPIRB	This frequency band is used exclusively by satellite emergency position-indicating radio beacons in the Earth-to-space direction (see No. **5.266**).
1 530-1 544	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 530-1 544 MHz is used for distress and safety purposes in the space-to-Earth direction in the maritime mobile-satellite service. GMDSS distress, urgency and safety communications have priority in this band (see No. **5.353A**).
*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.
1 616-1 626.5	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 616-1 626.5 MHz is used for distress and safety purposes in the Earth-to-space and space-to-Earth directions in the maritime mobile-satellite service solely by satellite networks using the same channel in both directions. GMDSS distress, urgency and safety communications have priority over non-safety communications within the same satellite system.
1 626.5-1 645.5	SAT-COM	In addition to its availability for routine non-safety purposes, the band 1 626.5-1 645.5 MHz is used for distress and safety purposes in the Earth-to-space direction in the maritime mobile-satellite service. GMDSS distress, urgency and safety communications have priority in this band (see No. **5.353A**).

*1 645.5-1 646.5	D&S-OPS	Use of the band 1 645.5-1 646.5 MHz (Earth-to-space) is limited to distress and safety operations (see No. **5.375**).
9 200-9 500	SARTS	This frequency band is used by radar transponders to facilitate search and rescue.

Legend:

AERO-SAR These aeronautical carrier (reference) frequencies may be used for distress and safety purposes by mobile stations engaged in coordinated search and rescue operations.

D&S-OPS The use of these bands is limited to distress and safety operations of satellite emergency position-indicating radio beacons (EPIRBs).

SAT-COM These frequency bands are available for distress and safety purposes in the maritime mobile-satellite service (see Notes).

VHF-CH# These VHF frequencies are used for distress and safety purposes. The channel number (CH#) refers to the VHF channel as listed in Appendix **18**, which should also be consulted.

AIS These frequencies are used by automatic identification systems (AIS), which should operate in accordance with the most recent version of Recommendation ITU-R M.1371. (WRC-07)

* Except as provided in these Regulations, any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in this Appendix is prohibited. (WRC-07)

Reasons: To add the necessary parts of the frequency band 1 610-1 626.5 MHz to Appendix **15** as being available for distress and safety communications for the Global Maritime Distress and Safety System (GMDSS).

SUP IAP/6230A8A2/8

RESOLUTION 359 (REV.WRC-15)

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

The World Radiocommunication Conference (Geneva, 2015),

Reasons: Identified elements of Resolution **359 (Rev.WRC-15)** are no longer necessary.