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International Maritime Organization

DRAFT IMO POSITION FOR THE INTERNATIONAL TELECOMMUNICATION UNION (ITU) WORLD RADIOCOMMUNICATION CONFERENCE 2019 (WRC-19)

Draft IMO position on WRC-19 agenda items concerning matters relating to maritime services

Note: This document contains the draft IMO Position, as further developed by the Joint IMO/ITU Experts Group on maritime radiocommunication matters, at its meeting held from 10 to 14 July 2017. It should be noted that this document needs to be further considered by IMO's NCSR Sub-Committee at its meeting from 19 to 23 February 2018.

General

Over 80% of world trade is transported by sea. This totals some 10 billion tonnes (53,600 billion tonne miles), of which about 29% is oil and gaz, 30% is bulk (ore, coal, grain and phosphates), the remaining 41% being general cargo. Operating these merchant ships generates an estimated annual income of [\$380] billion in freight rates within the global economy, amounting to [5]% of total world trade.

The industry employs over 1.5 million seafarers.

Agenda item 1.3

1.3 to consider possible upgrading of the secondary allocation to the meteorological-satellite service (space-to-Earth) to primary status and a possible primary allocation to the Earth exploration-satellite service (space-to-Earth) in the frequency band 460-470 MHz, in accordance with Resolution **766 (WRC-15)**;

1) Background

Part of the frequency band 460-470 MHz is used by maritime mobile service for on-board communication stations in accordance with RR 5.287. The functions of these type of on-board communication include anchoring, berthing, damage control parties, security patrols, terrorism threats, fire-fighter communication etc. The use of this frequency band is considered very important for maritime community.

- 2) Action to be taken
TBD
- 3) Draft IMO position
Protection of the existing maritime mobile service used for on-board communication stations to which the frequency band is already allocated on a primary basis should be ensured, and no additional constraints should be imposed.

Agenda item 1.5

1.5 to consider the use of the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) by earth stations in motion communicating with geostationary space stations in the fixed-satellite service and take appropriate action, in accordance with Resolution **158 (WRC15)**;

- 1) Background
Currently, there is a growing need for global broadband satellite communications by the maritime community for commercial, public and operational purposes. Some of this need can be met by allowing earth stations in motion to communicate with space stations of the FSS operating in the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space).
- 2) Action to be taken
Ensure ITU is aware that IMO supports the use of ESIMs for the provision of maritime broad band services and invite ITU to take appropriate action to ensure availability of the frequency bands 17.7 to 19.7 GHz in the downlink and 27.5 to 29.5 GHz in the uplink to be used for the provisioning of maritime satellite broadband services.
- 3) Draft IMO position
Support the study of this agenda item, recognizing the growing need for global broadband satellite communications in motion by the maritime community.

Agenda item 1.7

1.7 to study the spectrum needs for telemetry, tracking and command in the space operation service for non-GSO satellites with short duration missions, to assess the suitability of existing allocations to the space operation service and, if necessary, to consider new allocations, in accordance with Resolution **659 (WRC 15)**;

- 1) Background
Resolution **659 (WRC-15)** invites ITU-R to consider possible new allocations or an upgrade of the existing allocations to the space operation service within the frequency ranges 150.05-174 MHz and 400.15-420 MHz. In the parts of the frequency band 150.05-174 MHz priority is given to the maritime mobile service in accordance with RR 5.226 (see also RR Articles 31 and 52, and RR Appendix 18). The provision of RR 5.266 specifies the use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radio beacons (see also Article 31).

The following frequency bands within 150.05-174 MHz and 400.15-420 MHz are listed in Appendix 15 as frequencies for distress and safety communications for the Global Maritime Distress and Safety System (GMDSS), in which any emission causing harmful interference is prohibited:

- 156.2975 MHz - 156.3125 MHz (AP18 CH06): 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 ;
- 156.5125MHz - 156.5275 MHz (AP18 CH70): be exclusively used in the maritime mobile service for distress and safety calls using digital selective calling;
- 156.6475MHz - 156.6625 MHz (AP18 CH13): be used for ship-to-ship communications relating to the safety of navigation;
- 156.7875 MHz - 156.8125 MHz (AP18 CH16): be used for distress and safety communications by radiotelephony. Additionally, the frequency 156.8 MHz may be used by aircraft stations for safety purposes only;
- 161.9625 MHz - 161.9875MHz (AP18 AIS 1) and 162.0125 MHz - 162.0375 MHz (AP18 AIS 2): be used for AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations;
- 406.000 MHz - 406.100 MHz: be used exclusively by satellite emergency position indicating radio beacons in the Earth-to-space direction.

2) Action to be taken:

TBD

3) Draft IMO position

The integrity of GMDSS should be protected, and the following frequency bands should not be included in the study:

- 156.000 MHz -157.450 MHz, 160.600-160.975 MHz and 161.475-162.050 MHz; and
- 405.900 MHz -406.200MHz.

Taking account of the relevance on the frequency bands with agenda items 1.9.1 and 1.9.2 the coordination with these agenda items need to be considered.

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) Background

a) Issue A

IMO is in the process of GMDSS modernization. The modernization plan of the GMDSS has been endorsed by NCSR 4 and approved by MSC 98. Some new technologies are introduced for consideration in the modernization plan of the GMDSS, such as MF/HF NAVDAT. Meanwhile, ITU is continuing the study on NAVDAT, including revisions to ITU-R recommendations, as well as spectrum and regulatory issues, under this agenda item 1.8.

b) Issue B

IMO is working to update the current regulatory framework to enable the recognition and operation of new mobile satellite service providers in the GMDSS, such as Iridium.

At MSC 98 the Committee adopted resolution MSC.434(98) on *Performance standards for a ship earth station for use in the GMDSS* and approved amendments to SOLAS chapter IV, enabling, when adopted at MSC 99, the introduction of additional GMDSS mobile satellite service providers. This followed the IMSO report to NCSR 4 which provided a timeline for completing the technical and operational assessment of Iridium in 2018.

2) Action to be taken:

IMO has to actively participate in the technical and regulatory studies of this agenda item in accordance with Resolution **359 (Rev.WRC-15)**.

3) Draft IMO position:

IMO invites ITU to:

- a) conduct frequency studies, consider revisions to existing instruments and take regulatory actions, as appropriate, to facilitate the implementation of GMDSS modernization;
- b) take appropriate regulatory measures to ensure full protection and availability of the frequency bands to be used by new recognized GMDSS satellite service providers for the provision of GMDSS services; and
- c) resolve any issues under Resolution **359 (Rev.WRC-15)**, in relation to the future operation of newly recognized GMDSS satellite service providers.

Agenda item 1.9.1

1.9.1 regulatory actions within the frequency band 156-162.05 MHz for autonomous maritime radio devices to protect the GMDSS and automatic identifications system (AIS), in accordance with Resolution **362 (WRC-15)**;

1) Background

There are some types of autonomous maritime radio devices using automatic identification system (AIS) technology or digital selective calling (DSC) technology, or transmitting synthetic voice messages, or with a combination of those technologies, which have been developed for, and are operating in, the maritime environment, and their number is expected to increase. Some of these devices do not enhance the safety of navigation or serve the purpose of communication between coast stations and ship stations, or between ship stations, or between associated on-board communication stations, or survival craft stations and emergency position-indicating radio beacon stations, but occupying the spectrum and identities of the maritime mobile service. There is a need to categorize and regulate the usage of autonomous maritime radio devices. ITU at its 17th WP 5B session adopted the preliminary draft definition of AMRD developed at the 12th Joint Experts Group meeting and finalized the definition at its 18th WP 5B session in May 2017. The categorization of AMRD is under discussion now in ITU and relevant information are put into the working document towards preliminary draft new report ITU-R M.[AMRD]. Inputs on frequencies usage and numbering scheme of AMRD are also received though the discussions have not been opened yet.

2) Action to be taken

To monitor the progress of the ongoing studies dealing with the development of the preliminary draft new report ITU-R M.[AMRD].

- 3) Draft IMO position
- a) the integrity of AIS and the Global Maritime Distress and Safety System (GMDSS) should be protected;
 - b) autonomous maritime radio devices which enhance the safety of navigation should be regulated for the use of frequencies and identities of the maritime mobile service; and
 - c) for autonomous maritime radio devices which do not enhance the safety of navigation, regulation of the use of frequencies, and technical and operational characteristics, should benefit both the user of devices as well as maritime safety. An additional spectrum allocation within the frequency band 156-162.05 MHz and a new numbering scheme which is different from those in the existing maritime mobile service should be considered.

Agenda item 1.9.2

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)**;

1) Background

The concept of VDES includes the function of AIS, ASM, VDE terrestrial and VDE satellite. The VDES is one of the potential elements of e-navigation.

According to [IALA Guideline 1117](#) “VDES Overview”, the following potential VDES use cases are identified:

- Search and rescue communications;
- Maritime Safety Information;
- Ship Reporting;
- Vessel Traffic Services;
- Charts and Publications;
- Route Exchange; and
- Logistics.

VDES satellite component would offer additional communications in Polar Regions and other remote areas for the above use cases.

These use cases are all cross referenced to Maritime Service Portfolios identified in IMO e-navigation Strategic Implementation Plan and possibly also to modernization of GMDSS in future.

Insufficient study on sharing and compatibility between the VDES satellite component and incumbent services in the same and adjacent frequency bands was the cause that the spectrum issue could not be resolved at WRC-15. As a consequence, VDES is still not a complete functional system as a whole.

The study of the candidate frequency bands 156.0125-157.4375 MHz and 160.6125-162.0375 MHz would mainly concern the relationship with the existing services primarily allocated for the land mobile service and maritime mobile service,

and with the services within lower adjacent frequency band from 154 MHz to 156 MHz and for the higher adjacent frequency band from 162 MHz to 164 MHz.

- 2) Action to be taken:
TBD
- 3) Draft IMO position
 - a) Recognizing that the VDES satellite component should not bring any harmful interference:
 - i) modifications should not be required to existing AIS equipment on board existing vessels; and
 - ii) an identification of the frequencies for the VDES satellite component should protect the integrity of the original operational purpose of AIS on the existing AIS frequencies.
 - b) IMO supports the availability of VDES including both terrestrial and satellite components..

Agenda item 1.10

1.10 to consider spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System (GADSS), in accordance with Resolution **426 (WRC-15)**;

- 1) Background
The Global Aeronautical Distress and Safety System (GADSS) is intended to address the timely identification and location of an aircraft during all phases of flight as well as distress and emergency situations; and also intended to use existing and new applications to support search and rescue (SAR) and flight data retrieval. The full concept of GADSS is still to be defined by the International Civil Aviation Organization (ICAO), and some of the applications may be developed after 2019. The spectrum needs is not yet identified.
- 2) Action to be taken:
Monitor the progress of the studies on this agenda item.
- 3) Draft IMO position
The integrity of the GMDSS should be protected. IMO supports the concept of a Chapter separate from Chapter VII of the Radio Regulations to accommodate the regulatory framework for GADSS.

Agenda item 2

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-15)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Resolution **27 (Rev.WRC-12)**;

- 1) Background
There are a number of Recommendations incorporated by reference in the Radio Regulations. IMO has reviewed all these Recommendations.

2) Draft IMO position

IMO has studied the Recommendations of relevance and commented on each as given in Annex 1. Incorporation by reference is of importance to IMO because of the close relationship between many of the ITU-R Recommendations related to GMDSS equipment and its operation, and to IMO performance standards. IMO requests early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated Recommendations.

Agenda item 4

4 in accordance with Resolution **95 (Rev.WRC-07)**, to review the Resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

1) Background

There are a number of Resolutions and Recommendations in the Radio Regulations. IMO has reviewed all these Resolutions and Recommendations.

2) Draft IMO position

IMO has studied the Resolutions and Recommendations of relevance and commented on each as given in Annex 2.

Agenda item 9

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention;

9.1 on the activities of the Radiocommunication Sector since WRC 15;

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and

9.3 on action in response to Resolution **80 (Rev.WRC-07)**;

Issue 9.1.3

Study of technical and operational issues and regulatory provisions for new non-geostationary-satellite orbit systems in the 3700-4200 MHz, 4500-4800 MHz, 5925-6425 MHz and 6725-7025 MHz frequency bands allocated to the fixed-satellite service.

1) Background

It is noted that the frequency band 6 424- 6 454 MHz is in use for the feeder links of Inmarsat.

2) Action to be taken:

TBD

3) Draft IMO position

Non-GSO systems shall not cause harmful interference to or claim protection from GSO FSS networks.

Agenda item 10

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

1) Background

Resolution **810 (WRC-15)** containing the preliminary agenda for WRC-23, lists as item 2.1 for inclusion in the agenda for WRC-23, to consider possible spectrum needs and regulatory actions to support Global Maritime Distress and Safety System (GMDSS) modernization and the implementation of e-navigation, in accordance with Resolution **361 (WRC-15)**.

IMO is in the process of implementing the first phase of e-navigation, which is expected to take place in the period 2016 to 2019. As a consequence of GMDSS modernization the SOLAS convention will be revised, which is preliminarily planned to be finalized by June 2022.

2) Action to be taken:

TBD

3) Draft IMO position

TBD

ANNEX 1

RECOMMENDATION ITU-R M.476-5

Direct-printing telegraph equipment in the maritime mobile service

(Question ITU-R 5/8)

(1970-1974-1978-1982-1986-1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.489-2

Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz

(1974-1978-1995)

Needed by IMO to support the carriage requirements of SOLAS IV and needed by the maritime community in general. Will likely be needed into the foreseeable future.

RECOMMENDATION ITU-R M.492-6

Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service

(Question ITU-R 5/8)

(1974-1978-1982-1986-1990-1992-1995)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS Chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.541-10

Operational procedures for the use of digital selective-calling equipment in the maritime mobile service

(Question ITU-R 9/8)

(1978-1982-1986-1990-1992-1994-1995-1996-1997-2004-2015)

Needed by IMO. Likely to be needed into the foreseeable future.

RECOMMENDATION ITU-R M.585-7

Assignment and use of identities in the maritime mobile service

(1982-1986-1990-2003-2007-2009-2012-2015)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.625-4

**Direct-printing telegraph equipment employing automatic identification
in the maritime mobile service**

(1986-1990-1992-1995-2012)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS Chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.633-4

**Transmission characteristics of a satellite emergency position-indicating
radio beacon (satellite EPIRB) system operating through
a satellite system in the 406 MHz band**

(1986-1990-2000-2004-2010)

Used by IMO to support the Performance standards for EPIRBs.

RECOMMENDATION ITU-R M.690-3

**Technical characteristics of emergency position-indicating radio beacons
(EPIRBs) operating on the carrier frequencies of 121.5 MHz and 243 MHz**

(1990-1995-2012-2015)

Required by IMO to define the homing signal characteristics for the satellite EPIRB required by SOLAS Chapter IV. Likely to be used by the maritime community for some time to come for EPIRBs and man overboard devices.

RECOMMENDATION ITU-R M.1084-5

**Interim solutions for improved efficiency in the use of the band
156-174 MHz by stations in the maritime mobile service**

(1994-1995-1997-1998-2001-2012)

Used by IMO for the description of VHF channels.

RECOMMENDATION ITU-R M.1171-0

Radiotelephony procedures in the maritime mobile service

(1995)

Required by IMO and the maritime community as long as coast stations offer a public correspondence service. The number of such coast stations is however declining.

RECOMMENDATION ITU-R M.1172-0

**Miscellaneous abbreviations and signals to be used for radiocommunications
in the maritime mobile service**

(1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.1173-1

**Technical characteristics of single-sideband transmitters used in the maritime
mobile service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz
Region 2) and 4 000 kHz and between 4 000 kHz and 27 500 kHz**

(1995 -2012)

Required by IMO and the maritime community and likely to be required into the foreseeable future.

RECOMMENDATION ITU-R M.1174-3

**Technical characteristics of equipment used for onboard vessel communications
in the bands between 450 and 470 MHz**

(1995-1998- 2004-2015)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.1638-0

**Characteristics of and protection criteria for sharing studies for radiolocation,
aeronautical radionavigation and meteorological radars operating
in the frequency bands between 5 250 and 5 850 MHz**

(2003)

Not required by IMO but may be required by the maritime community where radars in this band are used.

ANNEX 2

RESOLUTION 13 (REV.WRC-97)

Formation of call signs and allocation of new international series

Retain.

RESOLUTION 18 (REV.WRC-15)

Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict

Retain.

RESOLUTION 205 (REV.WRC-15)

Protection of the systems operating in the mobile-satellite service in the frequency band 406-406.1 MHz

Retain.

RESOLUTION 207 (REV.WRC-15)

Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service

Retain.

RESOLUTION 222 (REV.WRC-12)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service

Retain.

RESOLUTION 331 (REV.WRC-12)

Operation of the Global Maritime Distress and Safety System

Retain.

RESOLUTION 339 (REV.WRC-07)

Coordination of NAVTEX services

Retain.

RESOLUTION 343 (REV. WRC-12)

**Maritime certification for personnel of ship stations and ship earth stations
for which a radio installation is not compulsory**

Retain to ensure common operations between Convention and non-Convention ships.

RESOLUTION 344 (REV.WRC-12)

**Management of the maritime mobile service identity
numbering resource**

Retain.

RESOLUTION 349 (REV. WRC-12)

**Operational procedures for cancelling false distress alerts in the
Global Maritime Distress and Safety System**

Retain.

RESOLUTION 352 (WRC-03)

**Use of the carrier frequencies 12 290 kHz and 16 420 kHz for
safety-related calling to and from rescue coordination centres**

Retain.

RESOLUTION 354 (WRC-07)

Distress and safety radiotelephony procedures for 2 182 kHz

Retain.

RESOLUTION 356 (WRC-07)

ITU maritime service information registration

Retain.

RESOLUTION 359 (REV. WRC-15)

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

Subject of agenda item 1.8.

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**

Subject of agenda item 1.9.2.

RESOLUTION 361 (WRC-15)

**Consideration of regulatory provisions for modernization of the
Global Maritime Distress and Safety System and
related to the implementation of e-navigation**

In the preliminary agenda for WRC-23.

RESOLUTION 362 (WRC-15)

**Autonomous maritime radio devices operating in
the frequency band 156-162.05 MHz**

Subject of agenda item 1.9.1.

RESOLUTION 612 (REV. WRC-12)

**Use of the radiolocation service between 3 and 50 MHz to
support high-frequency oceanographic radar operations**

Retain.

RECOMMENDATION 7 (REV. WRC-97)

**Adoption of standard forms for ship station and ship earth station licences
and aircraft station and aircraft earth station licences**

Retain.

RECOMMENDATION 37 (WRC-03)

**Operational procedures for earth stations
on board vessels (ESVs) use**

Retain.

RECOMMENDATION 316 (REV.MOB-87)

**Use of ship earth stations within harbours and other waters
under national jurisdiction**

Retain.
