



Executive Summary

The aim of this paper is to provide an update to the IAIN on the maritime related work at the International Telecommunication Union (ITU) and the outcomes of the 2019 World Radio Conference.

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Background

CIRM attends ITU-R Working Party 5B (WP 5B), which comes under Study Group 5 (SG 5) of the ITU Radiocommunication Sector, and is responsible for studies relating to the maritime mobile service including the Global Maritime Distress Safety System (GMDSS); the aeronautical mobile service and the radiodetermination service. Further information can be found here: <https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5b/Pages/default.aspx>

CIRM provided a briefing paper for IAIN in August 2019 following the most recent WP 5B meeting which was held from 29 April – 10 May 2019 in Geneva. Since then, the 2019 World Radio Conference (WRC-19) took place from 28 October to 22 November 2019 in Sharm el-Sheikh, Egypt. This was followed by the first session of the Conference Preparatory Meeting (CPM23-1) for the 2023 World Radio Conference (WRC-23) on 25 and 26 November, also in Sharm el-Sheikh. CPM23-1 organized the preparatory studies for WRC-23 and proposed a structure for its report to WRC-23.

The next meeting of WP 5B was originally planned for 27 April to 8 May 2020, but following the Covid-19 outbreak, has at the time of writing been rescheduled to 20 - 30 July 2020, to be followed by a meeting of SG 5 on 31 July.

Maritime related work at WRC-19

There were three agenda items of direct concern to maritime interests at WRC-19:

- **Agenda Item 1.8:** to consider possible regulatory actions to support **GMDSS modernization** (issue A) and to support the introduction of **additional satellite systems into the GMDSS** (issue B), in accordance with Resolution 359 (Rev. WRC 15),
- **Agenda Item 1.9.1:** to consider regulatory actions within the frequency band 156-162.05 MHz for **autonomous maritime radio devices** (AMRD) to protect the GMDSS and automatic identifications system (AIS), in accordance with Resolution 362 (WRC 15), and
- **Agenda Item 1.9.2:** to consider modifications of the Radio Regulations, including new spectrum allocations to the maritime mobile-satellite service (Earth-to-space and space-to-Earth), 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).

WRC-19 Outcomes

Agenda item 1.8 - Issue A: Modernisation of GMDSS

The aim of this agenda item was to make provisions for the introduction of NAVDAT, which is a digital system for broadcasting maritime safety and security-related information from shore-to-ship (similar in functionality to the NAVTEX system). This was achieved by adding a footnote to the maritime mobile band 495-505 kHz to say that the band is used by the NAVDAT system, and adding a footnote in Appendix 17 to say that the 4, 6, 8, 12, 16 and 22 MHz bands may also be used by the NAVDAT system (Appendix 17 (Rev. WRC-19)).

Agenda item 1.8 - Issue B: Regulatory action due to the introduction of additional satellite systems into the GMDSS by IMO

The issue here concerned the Iridium system which operates in the band 1616.0 to 1626.5 MHz, which is an Earth to space band (ship transmit) but the Iridium system both transmits and receives in the band. The space to Earth operation was covered by a secondary allocation which meant that it could not claim protection from interference and was not permitted to cause interference to other services. There were concerns about the use of a secondary allocation for a safety service in the GMDSS but also concerns about a primary allocation imposing limitations on other users such as Inmarsat and permitting interference to radio astronomy.

Consensus was eventually reached on a primary allocation to the mobile maritime-satellite service rather than the mobile satellite service, but difficulties arose concerning the lower band edge of the frequency band. The conclusion was for a primary allocation to the mobile maritime-satellite service for both uplink and downlink direction in 5 MHz in the upper part of the band, namely 1621.35-1626.35 MHz with protection requirements for radio astronomy (Appendix 15 (Rev. WRC-19)).

Agenda item 1.9.1 - Autonomous maritime radio devices

The issue here was the introduction of autonomous maritime radio devices (AMRD) Group A, which enhance the safety of navigation, and Group B, which do not enhance the safety of navigation. A modification was developed to a footnote in Appendix 18 to allow the use of AMRD Group A on channel 70 and AIS 1 and AIS 2 using DSC and/or AIS technology (Appendix 18 (Rev. WRC-19)). A new footnote designates 160.9 MHz

(channel 2006) to AMRD Group B using AIS technology (Appendix 18 (Rev. WRC-19)). No agreement could be reached for the use of AMRD Group B using non-AIS technology.

Agenda item 1.9.2 - VHF data exchange system satellite component

The issue here was to provide an allocation from the Appendix 18 channels to enable a new VHF data exchange system (VDES) satellite component (Earth-to-space and space-to-Earth). This was resolved by assigning the VDES-SAT downlink a secondary status with use subject to agreement with regards to the terrestrial services in the Russian Federation and Azerbaijan, Belarus and Cuba. Channels 1026 (157.3 MHz) and 1086 (157.325 MHz) are for ship to satellite, and channels 2026 (161.9 MHz) and 2086 (161.925 MHz) are for satellite to ship (Appendix 18 (Rev. WRC-19)).

Maritime work at future World Radio Conferences

WRC-19 set the agenda for the next Conference (WRC-23). There was one agenda item of direct concern to maritime interests:

1.11 to consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System and the implementation of e-navigation, in accordance with Resolution 361 (Rev. WRC-19);

WRC-19 also agreed a preliminary agenda for the 2027 World Radiocommunication Conference (WRC-27), which includes the following agenda item of maritime interest:

2.10 to consider improving the utilization of the VHF maritime frequencies in Appendix 18, in accordance with Resolution 363 (WRC 19);

This item resolves to invite WRC-27:

1 to consider possible changes to Appendix 18 in order to enable use in the maritime mobile service for a future implementation of new technologies, for the improvement of the efficient use of the maritime frequency bands;

2 to consider possible changes to the Radio Regulations for an implementation of R Mode as a new maritime radionavigation service,

Maritime related work at WP 5B

Items currently under consideration by WP 5B include:

- **Revision of Recommendation ITU-R M.585-7:** Assignment and use of identities in the maritime mobile service,
- **Revision of ITU-R M.1371-5:** Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band (AIS),
- **Revision of ITU-R M.1798-1:** Characteristics of HF radio equipment for the exchange of digital data and electronic mail in the maritime mobile service,

- **Revision of ITU-R M.2058:** Characteristics of a digital system, named navigational data for broadcasting maritime safety and security related information from shore-to-ship in the maritime HF frequency band (NAVDAT-HF),
- **Revision of Recommendation ITU-R M.690-3:** (Technical characteristics of EPIRBs operating on the frequencies 121.5 MHz and 243 MHz),
- **Revision of Recommendation ITU-R M.1174-3:** (Technical characteristics of equipment used for on-board vessel communications in the bands between 450 and 470 MHz), and
- **EMI effects of LED lighting systems onboard marine vessels.**

The status of these items has not changed since the August 2019 report to IAIN; they will progress at the next WP 5B meeting.