INTERNATIONAL MARITIME ORGANIZATION

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RESPONSE TO MATTERS RELATED TO THE ITU-R STUDY GROUPS AND ITU WORLD RADIOCOMMUNICATION CONFERENCE

Proposal on WRC-23 agenda item 10

Submitted by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)

SUMMARY

Executive summary:	This document proposes the inclusion of digitalization of voice communication in the VHF maritime mobile band and Ranging Mode (R-Mode) of VDES into the IMO position to the WRC-23 agenda item 10.
Strategic direction, if applicable:	2
Output:	2.1
Action to be taken:	13
Related documents:	MSC.1/Circ.1595, MSC 102/22/5, NCSR 6/12/4, NCSR 6/WP.5, NCSR 9/12 MSC.1/Circ.1595, MSC 102/22/5, NCSR 6/12/4, NCSR 6/WP.5, NCSR 9/12

Introduction

1 At its seventeenth meeting, the Joint IMO/ITU Expert Group on Maritime Radiocommunication Matters (IMO/ITU EG) invited interested Member States and organizations to submit proposals to NCSR 9 for inclusion in the draft IMO position for WRC-23 agenda item 10. (NCSR 9/12, annex, paragraph 4.25)

Background

2 IALA is responsible for marine aids to navigation services, including radio navigation systems and initiated a study on ranging mode (R-Mode) of MF beacon. In parallel with the study, IALA has also developed the VHF data exchange system (VDES) and found that VDES was suitable for providing R-Mode signals in the VHF band, i.e. VDES R-Mode.

3 In addition to VDES R-Mode, during the development of VDES, IALA also initiated a study on digitalization of VHF voice communication for safer and more efficient maritime radiocommunication such as VTS communication.

4 Based on these studies, IALA submitted the liaison note to the IMO Secretariat to propose the digitalization of voice communication in the VHF maritime mobile band and the VDES R-Mode for the possible agenda items for WRC-23 and the IMO Secretariat submitted the liaison note to NCSR 6 (NCSR 6/12/4) for the consideration of the Sub-Committee. After the consideration, the Sub-Committee decided that it was not mature enough to include agenda items for WRC-23 and requested IALA to keep IMO informed of the progress made. (NCSR 6/WP.5, paragraph 31-33)

Discussion

5 WRC-19 developed the Resolution 363 (WRC-19) “Consideration to improve utilization of the VHF maritime frequencies in Appendix 18” that invited WRC-27 to consider “digitalization of voice communication in the VHF maritime mobile band” and “VDES R-Mode”. If IMO does not show its positive position for WRC-23 agenda item 10, maritime radiocommunication industries lose their momentum for the investment in the development of these useful technologies for the safety of navigation.

Digitalization of voice communication in the VHF maritime mobile band

6 Voice communication in the VHF maritime mobile band is one of the key elements of the safety of navigation and VHF voice communication should be clear and unambiguous as much as possible in order to prevent maritime accident such as collision and grounding. The results of a trial of digital VHF voice communications were reported to IALA Technical Committees (ENAV25 in 2019[1]) and showed the benefits of digital VHF voice communication as providing improved clarity when compared with analogue communications.

7 In addition to the contribution to the safety of navigation, digital VHF voice communication improves the efficiency of usage of VHF frequency allocation. The current analogue VHF voice communication occupies 25 kHz band width in one channel, but digital VHF voice communication needs only 6.25 kHz band width in one channel so 4 times higher efficiency than analogue.

8 At the IMO/ITU EG17, some delegations expressed views on digital VHF voice communication at agenda item 8 “Any other business” and the Group noted the ECC Report 329 on “Implementation of digital voice radio telephony in the VHF maritime mobile band” by CEPT which could provide further information and facilitate the preparation of discussions of agenda item 10 of WRC-23 at NCSR 9. (NCSR 9/12, annex, paragraph 9.3)

VDES R-Mode

9 Resilient PNT is important for the safety of navigation recognising almost all ships navigating in the world are heavily reliant on satellite PNT systems. However, satellite PNT systems are vulnerable to jamming/spoofing attack and such attacks are repeatedly reported. For example, the United States submitted a paper reporting several incidents of deliberate interference with GNSS affecting ships to MSC 102 (MSC 102/22/5).

10 In this regard, “e-navigation strategic implementation plan update 1” (MSC.1/Circ.1595) identified one of e-navigation solutions as “Improved reliability and

[1] A copy of this report has been submitted as INF paper xxx

resilience of onboard PNT information and other critical navigation data by integration with, and backup of, external and internal systems" (S3.4) and one of its task actions as "Administrations need to indicate their support for terrestrial systems."

11 As indicated at paragraph 2, IALA has developed the VDES R-Mode system as one terrestrial PNT option and possible backup of satellite PNT systems. IALA issued Guideline, G1158 "VDES R-Mode"[2] in 2020. Some IMO Member States submitted MSC 105/INF.10 on R-Mode (Ranging Mode), terrestrial positioning for resilient navigation, which considered R-Mode at MF and VDES frequencies.

Proposal

12 From the above discussions, IALA believes that both "digitalization of voice communication in the VHF maritime mobile band" and "VDES R-Mode" are mature enough to be included in the agenda items of WRC-27 and proposes the annex "possible text on the draft IMO position for WRC-23 agenda item 10".

Action requested to the Sub-Committee

13 The Sub-Committee is invited to consider the proposal in paragraph 12, and take action, as appropriate.

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[2] A copy of this IALA Guideline has been submitted as INF paper xxx

Annex

Possible text on the draft IMO position for WRC-23 agenda item 10

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences, in accordance with article 7 of the Convention and Resolution **804 (Rev.WRC-19)**;

Background
Resolution **812 (WRC-19)** containing the preliminary agenda for WRC-27, lists as item 2.10 for inclusion in the agenda for WRC-27, to consider improving the utilization of the VHF maritime frequencies in Appendix **18**, in accordance with Resolution **363 (WRC-19)**.

IMO position
Retain agenda item 2.10 of Resolution **812 (WRC-19)** containing the preliminary agenda for WRC-27, to consider improving the utilization of the VHF maritime frequencies in Appendix **18**, in accordance with Resolution **363 (WRC-19),** which may need to be amended.