

**REPORT OF THE EXTRAORDINARY MEETING  
1 OF THE IALA E-NAVIGATION  
INFORMATION SERVICES AND  
COMMUNICATIONS  
(ENAV) COMMITTEE**

30<sup>th</sup> January to 9<sup>th</sup> February 2023

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# **Report of the Extraordinary meeting 1 (31) Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee**

## **Executive Summary**

During the 30<sup>th</sup> meeting of the ENAV Committee it was decided to hold an extraordinary meeting of ENAV in the IALA HQ starting on the 30 January to keep the momentum on a number of very relevant matters in the scope of ENAV.

The extraordinary meeting was held from 30 January to 9 February 2023; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez.

There were 84 registered participants, 13 for the first time, from 22 countries and 4 sister organisations.

This was the 9<sup>th</sup> meeting for the 2018-2023 Work Programme and the Committee considered 22 input papers and produced xx output papers.

Key highlights:

- the ENAV Committee concluded a liaison note to the Conference Preparatory Meeting and to the on the draft IALA Position on WRC-23 Agenda item 10 supporting the retention of 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 considering to:
  - providing a means to accommodate digital voice communications in the VHF maritime mobile band;
  - providing a radionavigation allocation in Article 5 of the Radio Regulations for VDES frequencies under Appendix 18 footnotes w) and z) for R-Mode to support resilient position, navigation and timing.
- the ENAV Committee concluded a liaison note to WRC-23 on the IALA Position on WRC-23 Agenda item 10 supporting the retention of 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.
- the ENAV Committee concluded a liaison note to ENG committee on the New Technology Review Summary table. Based on the comments from the ENG Committee, the summary table has been reviewed and revised. Specifically:
  - Inclusion of month and year for the commencement / completion of the review in addition to the ENAV meeting reference
  - Addition of a comments column which includes text around the outcomes of the review
  - Creation of a cover page for the summary table
  - Liaison for LAP regarding a caveat to include with the summary table
- the ENAV Committee concluded a liaison note to LAP to consider the Emerging Technologies - Candidate Technology Tracker and provide a suitable approach for a caveat to be included in the table. A possible position for such a caveat was proposed in the annex of the liaison note.

Planned intersessional work:

- ENAV intersessional on VDES clarifications, 8 and 15 of March 2023
- ENAV intersessional on revision of G1128, the 21 of March and 2 of May 2023

- ENAV intersessional following the MASS TF meeting, which will focus on populating the revised table of contents using the existing draft guideline, the 5 of April 2023
- ENAV intersessional on revision of magnetic wave wireless transmission technology

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# Report of the Extraordinary meeting 1 (31) Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee

## GENERAL

During the 30<sup>th</sup> meeting of the ENAV Committee it was decided to hold an extraordinary meeting of ENAV in the IALA HQ starting on the 30 January to keep the momentum on a number of very relevant matters in the scope of ENAV.

The extraordinary meeting was held from 30 January to 9 February 2023; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez. There were 84 registered participants, 13 for the first time, from 22 countries and 4 sister organisations.

This was the 9<sup>th</sup> meeting for the 2018-2023 Work Programme and the Committee considered 22 input papers and produced xx output papers.



## 1. INTRODUCTION

### 1.1 Welcome from the Deputy Secretary-General

The Deputy Secretary-General, Omar Frits Eriksson, welcomed all participants on site and on line and was glad to see them all the last committee meeting before the conference in Rio de Janeiro in about three months.

The Deputy Secretary-General, recalled that for those participating online, the register to the meeting on the IALA Website is needed, otherwise, those participants not registered are not considered as committee participant. There is again a busy schedule ahead, with a lot of interesting input documents submitted..

The Deputy Secretary-General, noticed with special interest the input paper on the concept of wireless free communication systems using metal surface waves. This is a novel technology which may have its use in the maritime domain. New work items for the next work period are expected to be addressed and it was requested to urge participants to think hard about the future work programme and prepare further proposals on ambitious work items which keeps the ENAV committee on the cutting edge of developments. IALA is a technical organization producing Standards which can be cited in national law, Recommendations which say what IALA members should be doing and Guidelines which say how they should go about doing it.



In line with the common vision that IALA to be proactively leading the technical development within the IALA domain; it was encouraged to be ambitious and innovative when designing the future work programme.

The 20th IALA Conference is only three months away and the secretariat received about 200 abstract proposals and accepted 141 of these to be presented during the conference and the associated Heritage and World-Wide Academy seminars. Due to the volume of papers, it was decided to have two parallel presentation streams. There will be the formal plenary and the Speakers Corner, a little less formal venue, but with plenty of room for participants. There are some very interesting papers being presented there, not to mention the spectacular Industrial members exhibition, so there is plenty of reason to travel to Brazil in May this year.

The Inter-Governmental project continues to evolve. 15 ratifications or accessions have been received and several more which are coming soon. Once 30 of these are received, IALA will transform into an Inter-Governmental Organization, so half of the way has been achieved, only ten months after the first ratification by Singapore in March 2022. The Secretariat is progressing its work on all the new structures and administrative issues that need to be in place for the new Organization.

IALA was on the view that things should be normal after the COVID pandemic, but, the war is still on going in Europe, and at this difficult time IALA's thoughts are with the friends and families and the people of Ukraine. The Deputy Secretary-General, emphasized on the privilege to work for an organisation that seeks to bring people together in a spirit of cooperation and compromise, and where understanding and mutual respect are important. The international institutions and global corporation have again proven to be very important.

The Deputy Secretary-General wished all the participants good luck and thanked them once again for their contribution to the global safety of navigation over this busy period.

## 1.2 Approval of the agenda

The agenda (EM1-1.2.1) was reviewed and adopted.

## 1.3 Introductions and apologies

The Chair welcomed all participants both in-person and online, especially the new participants of the committee.

See ANNEX B for the list of attendees and new participants.

No apology was received.

## 1.4 Working arrangements

The following statements were read to Committee members:

*IALA is required to comply with the General Data Protection Regulations of the European Union. In the report of this meeting, IALA will include a list of participants with their contact information. Any participant who wishes to remove their personal information from the participants' list should advise the Committee Secretary as soon as possible.*

*If anyone present has knowledge of any patents, including pending Patents, held either by themselves or by other organisations or individuals, the use of which may be required to practice or implement the content of IALA Documents being developed or worked on in this Committee to inform the IALA Secretariat.*

The secretary briefly presented the Dashboard developed by IALA staff and will continue to be the One-Stop-Shop for conducting the Committees and centralised all the information, status and meeting needs for the member during the Committee working period.

## 1.5 Style Guide

The Secretary recalled the released [IALA Style Guide](#) designed to assist those members in preparing and reviewing IALA documentation.

## 2. REVIEW OF ACTION ITEMS FROM ENAV29 (ENAV30-2.1.1)

### 2.1 Action Items – IALA Secretariat

All actions items from ENAV30 were covered before the present meeting. It was highlighted that the documents approved during the Council 76 will be uploaded in the website before the end of the week.

### 2.2 Action Items – ENAV Committee Participants

The Chair reviewed the progress of the action items allocated to committee participants and noted that some input papers had been received associated with them, which will be considered in the respective Working Groups.

## 3. REPORTS FROM OTHER BODIES

### 3.1 IALA

#### 3.1.1 IALA Council

Minsu Jeon, IALA Technical Manager, provided the committee with the report of Council 76 (EM1-3.1.1 Final Report Council76), which was held in December 2022. The following points are relevant to note for the ENAV Committee:

#### Documents to the 14<sup>th</sup> General Assembly:

- Draft Strategic Vision (C76-8.1.1.2)
- Amendment to the Constitution (C76-10.1.2.1)
- Revised R1001 Ed2.0 Maritime Buoyage System (C76-10.3.2).
- Revised Standard Ed2.0 S1010 to S1070 (C76-14.2.3.1 - C76-14.2.3.7)

#### New and revised recommendations:

- R1001 Ed2.0 Maritime Buoyage Systems.
- R1024 Ed1.0 Cyber security for the IALA domain.
- R0203 Ed2.0 Definition of marine signal lights terms and measurement.
- R0125 Ed4.0 VTS portrayal.
- R0128 Ed5.0 VTS systems and equipment.

#### New and revised guidelines:

- G1157 Ed2.0 Web service based S-100 data exchange.
- G1107 Ed3.0 Planning and reporting of testbeds in the maritime domain.
- G1117 Ed3.0 VHF data exchange (VDES) overview.
- G1178 Ed1.0 An introduction to artificial intelligence from an IALA perspective.
- G1179 Ed1.0 An introduction to The Internet of Things from an IALA perspective.
- G1105 Ed2.0 Shore-side portrayal ensuring harmonization with e-Navigation related information.
- G1159 Ed2.0 Ship reporting from Shore-based perspective.
- G1138 Ed2.0 Use of simplified IALA risk assessment method (SIRA).G1172 Ed1.0 Marking of bridges and other structures over navigable waters.
- G1173 Ed1.0 Marine AtoN awareness and training for mariners.
- G1174 Ed1.0 Radar reflectors on marine aids to navigation.
- G1175 Ed1.0 AtoN equipment and structures exposed to extreme environmental conditions.

- G1130 Ed2.0 Technical aspects of information exchange between VTS and allied or other services.
- G1111 Ed2.0 Establishing functional and performance requirements for VTS systems and equipment.
- G1111-1 Ed1.0 Producing requirements for the core VTS system.
- G1111-2 Ed1.0 Producing requirements for voice communication.
- G1111-3 Ed1.0 Producing requirements for radars.
- G1111-4 Ed1.0 Producing requirements for AIS.
- G1111-5 Ed1.0 Producing requirements for environment monitoring sensors.
- G1111-6 Ed1.0 Producing requirements for electro-optical systems.
- G1111-7 Ed1.0 Producing requirements for radio detection finders.
- G1111-8 Ed1.0 Producing requirements for long range sensors.
- G1111-9 Ed1.0 Framework for acceptance of VTS systems.
- G1176 Ed1.0 How to promote safety culture in VTS.
- G1177 Ed1.0 Portrayal of VTS information.
- C0103-1 Ed3.0 VTS operator training.
- C0103-3 Ed3.0 VTS on-the-job training.

**Revoked document:**

- G1139 Ed3.0 Technical specification of VHF data exchange system (VDES).
- R0120 Ed2.1 Vessel Traffic Services in inland waters.
- R1014 Ed1.1 Portrayal of VTS Information and Data.

**The council approved a proposal for the 2nd IHO IALA workshop on S-100/200 to be held in 2024 in Annapolis, USA**

**The Council approved Cap Spartel lighthouse, Morocco, as the Heritage Lighthouse of the Year 2023.**

**20<sup>th</sup> IALA Conference 2023 will be held from the 27 May to 3 June 2023 in Brazil.**

### 3.1.2 IALA Policy Advisory Panel

Minsu Jeon provided the committee with the outcomes of PAP 48, The 48th session of the Policy Advisory Panel (PAP) was held on 14 November 2022 virtually. Key outcomes included:

- The latest versions of the standards were agreed - Edition 2.0.
- IALA input to NCSR 9 on the Maritime Services in the context of e-Navigation.
- Amendments to the Basic Documents regarding the conduct of meetings was finalized.
- Disclaimer statements for the IALA website and documents were also agreed.

Next PAP 49 will be held the 7 - 9 March 2023 in the IALA HQ where the Committee Work programme 2023-2027 will be reviewed and agreed.

### 3.1.3 Technical Documents Catalogue

The edition 5 of the [technical document catalogue](#) is available in the website with the latest updates.

## 3.2 Digital@Sea

Minsu Jeon recalled the structure and dates for the next face to face meetings of Digital@Sea:



Digital@Sea Conference series

Digital@Sea Capacity Building

Digital@Sea Clusters

- Digital@Sea North-America on 18 - 19 April 2023 in Montreal, Canada
- Digital@Sea Asia Pacific and Capacity Building workshop in Sep 2023 in Korea
- Digital@Sea International in 2024 in Copenhagen, Denmark

### 3.3 IMO

Hideki Noguchi provided a summary of milestones reached during the recent IMO meetings. . The following meetings were held during this period:

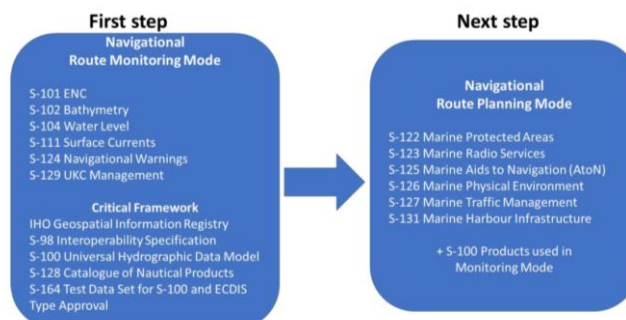
- MSC106: Recognition of the BeiDou Message Service System for use in the GMDSS. The frequency is not yet allocated but, in the future, BeiDou will be a SAR GMDSS maritime mobile service. Approved the draft IMO position on relevant agenda items of ITU WRC-23 concerning matters relating to maritime services for submission to the ITU's Conference Preparatory Meeting for WRC-23. The next World Radiocommunication Conference (WRC-23) will be held in the United Arab Emirates from 20 November to 15 December 2023.
- IMO ITU Joint expert group meeting 18 where it was discussed the agenda item 10 for WRC23. IMO decided to include the items proposed by IALA: Digitalisation of VHF voice communication and VDES R-Mode.
- **Revision of ECDIS Guidance and performance standards:**

Adopted an MSC resolution on Performance standards for electronic chart display and information systems (ECDIS), which revises resolution MSC.232(82) and introduces a phased implementation of new IHO product specifications (i.e. S-98, S-100 and S-101) for ECDIS as from 1 January 2026. The updates to the performance standards introduce, in particular, the application of new IHO Data Standards and product specifications (S-98, S-100 and S-101) with regard to ECDIS equipment installed on or after 1 January 2029 and, optionally, for equipment installed after 1 January 2026 and before 1 January 2029.

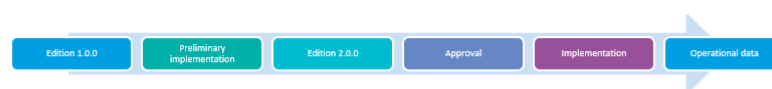
### 3.4 IHO

Minsu Jeon informed about the developments on the S100 series and product specifications. The following highlights were addressed:

- S-100 ECDIS will be legal to use after 1 January 2026 and from 1 January 2029 new systems must comply with the new IMO Resolution on ECDIS Performance Standards (MSC.530(106)).
- Except for the withdrawal of functionalities for route exchange all other proposed changes were endorsed by NCSR9. Approved by IMO MSC106 on 11 November 2022.

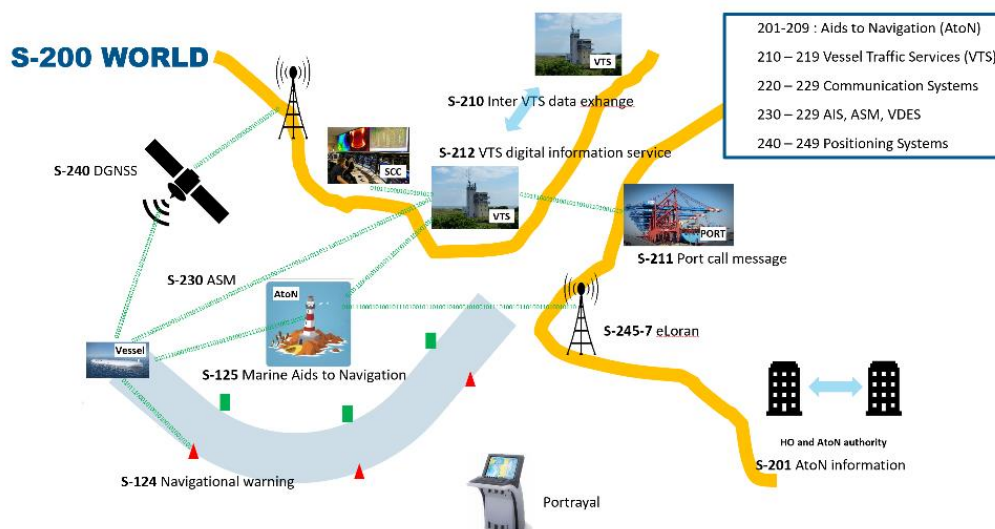


S-200 development summary table as of Jan 2023:



Domain	PS	Title	Developing Committee	Version
AtoN	S-201	AtoN information	ARM	1.1.0
	S-125	Maritime Navigational Service	NIPWG (ARM)	
Positioning	S-240	DGNSS almanac	ENG	1.0.0
	S-245	eLoran ASF	ENG	1.0.0
	S-246	eLoran almanac	ENG	1.0.0
	S-247	eLoran reference stations	ENG	1.0.0
Comms.	S-230	Application Specific Message (ASM)	ENAV	Planned
VTS	S-210	Inter VTS exchange	VTS	Started
	S-211	Port Call Message	IPCDMC	1.0.0
	S-212	VTS digital information service	VTS	0.6.5

The following figure provides an overview of the product specification in the S200 series:



There is an S200 test bed platform that could be used. It was encouraged that competent authorities could share their information and try the platform. At the moment, S200 can try S201 data and all the S240 product specifications.

Some questions were raised related to the deadlines from IMO - 2026 and 2029 for implementing the S100 series in ECDIS which are approaching fast. Also, Hydrographic Offices will be required to provide S57 and S100 series products which may involve an extra workload to comply with the deadlines. Potential changes on these dates will require a discussion in MSC and a new MSC resolution with new deadlines.

### 3.5 ITU

#### 3.5.1 Joint IMO/ITU EG 18 and ITU-R WP5B

Stefan Bober, IALA representative in ITU informed about the Joint IMO/ITU EG 18 held its meetings from 5 to 9 December 2022 in London and ITU-R Working Party 5B (WP 5B) - Maritime mobile service including Global Maritime Distress and Safety System (GMDSS); aeronautical mobile service and radiodetermination service - in Geneva (14 to 25 November 2022) regarding the agenda items with interest from IALA. The main outcome was that the Joint IMO/ITU EG 18 supports both new agenda item for WRC-27, i.e. digital voice and VDES R-Mode proposed by IALA during the previous committee.

- Draft IMO position on digital voice: "IMO supports the introduction of digital technology for voice communication in the maritime mobile service and related changes in Appendix 18 and other relevant parts in the Radio Regulations in the agenda of WRC-27."
- Draft IMO position on VDES R-Mode : "IMO supports the ranging mode using the VHF Data Exchange System (VDES R-Mode) as an independent resilient terrestrial PNT system for the back up of GNSS."

IMO invites ITU to consider possible changes to the Radio Regulations for implementation of VDES R-Mode as a new maritime radionavigation service in the agenda of WRC-27."

Related to the WP 5B, the group finalized the draft Conference Preparatory Meeting text. A number of actions were proposed to resolve the agenda items of the WRC-23 (Rev.WRC-19) → GMDSS modernization, e-navigation, among other matters.

The full report is available under the reference EM1-3.5.1 Report on IMO/ITU EG 18 5 to December 2022 and ITU-R WP5B meeting November 2022.

### 3.6 IEC

Stefan Bobber informed about the progress on IEC TC80 WP15 on technical standardisation of VDES. It was decided to start with the VDES mobile part: specification and test standard for VDES mobile station including all functions AIS, ASM, VDE Terrestrial and VDE Satellite. This will be a New Item Proposal to be submitted after next meeting in march 2023. Within two years after submitting the NIP, the group should be ready to finalise the new standard.

### 3.7 ISO

Jin H Park provided a summary of action in ISO that are related with ENAV scope of work, 259 technical committees are progressing the activities, including PC8 on ships and marine technologies and a joint collaborative working group ISO/IEC JTC 1 Information technology to maintain and develop international information technology standards and promote the use of information technologies worldwide. ISO/IEC JTC 1 has 23 subcommittees, including ST6 Telecommunications and information exchange between systems, ST41 IoT and Digital print. ST42 AI. Jin H Park will inform ENAV about the movements in these groups. it was also added the work of an informal group – industrial and governmental on operational standards of operation data based on the IMO compendium – information provided by S211 in the scope of IALA. A new operation standard will be proposed for shipping in ISO.

### 3.8 RTCM

Jorge Arroyo continued with the update on RTCM, a number of special committees impacts in ENAV committee:

- SC121 Guideline for ASM (Application specific messages) is expected to be published by the end of the year. Work on developing standard AMRD Group B, to be submitted to IEC. Mobile AtoNs are as well of interest for ENAV.
- SC 131 on Multi-System Shipborne Navigation Receivers: standardised SBAS messages to provide integrity and DGNSS corrections into the receiver.
- SC 134 on Integrity for High Accuracy GNSS-Based Applications
- SC 135 Radio Layer for Real-Time DGNSS Applications
- SC137 on Electromagnetic Interference between LED lights with VHF and AIS to work with IEC
- SC138 on R-Mode will be soon working again
- SC101 working on class revision on class B VHF radio standard

The RTCM annual Assembly will be held in Jacksonville - 12 to 16 of June 2023. SC-109 on Electronic Charting Technology is updating the current standard to include and be align with IEC chart standard design for non-SOLAS chart compliance.

SC-121 AIS is currently working as well on Mobile AtoN Standard expected to be completed by Q3 2023.

SC-129 Portrayal will be activating this year to address the display of Mobile AtoN and other matters already covered in IEC standard.



It is also expected that RTCM will progress on transport and security mechanism in line with the Maritime Connectivity Platform Consortium, this work will be handled by Stefan Pielmeier with a target to standardise in RTCM.

### 3.9 3GPP

Hyunhee Koo provided two updates on 3GPP standardization which were decided by 3GPP TSG SA plenary meeting in December 2022 after last IALA ENAV 30 meeting.

**(Release 18 (5G-Advanced) standardization)** The timeline for Release 18 standardization was extended by three months for SA and CT works. Accordingly, it was revised to complete the standardization of Release 18 specifications by March 2024. So, Hyunhee KOO thought it would be possible to share the detailed update of 5G-Advanced standardization with IALA after mid-2024.

**(Release 19 standardization)** The timeline for Release 19 standardization was not yet decided but it is expected to be announced by June 2023. For Stage 1 timeline, it was endorsed tentatively to have the stage 1 freeze date for Release 19 in December 2023. In addition, RAN workshop is planned to be held to discuss candidates of RAN studies for Release 19 in June 2023. Release 19 SA workshop will be also held but the schedule is not yet confirmed.

Hyunhee Koo also commented that there would be the presentation to provide the IMT technologies and its market evolution in the first session of WG2 on 31<sup>st</sup> January.

### 3.10 Maritime Connectivity Platform Consortium, Development of PS and Open Digital Incubator

Thomas Christensen provided a briefing on these matters in ARM and ENAV with the production of technical product specification intersessionally, developing the use cases for the technical services. The operational content of the services are currently very mature and these are progressed on the definition of technical specification using the S211.

Another task group on VTS with the support of ENAV try to identify the services on the VTS: traffic clearance service. S124 is also very mature PS developed.

Open Digital Incubator is testing the AtoN platform and other testbeds, additional information could be found here: <https://digitalincubator.maritimeconnectivity.net/>. Members are welcomed to the group by emailing Thomas Christensen [thomas@dmc.international](mailto:thomas@dmc.international).

### 3.11 VDES Alliance

Interoperability of VDES is the main area of interest for the VDES Alliance. Industrials and manufacturers are putting together their equipment to work together and reach the interoperability of those.

## 4. PRESENTATIONS

Below presentations were provided during the Opening Plenary and the links are available in the [dashboard](#):

### 4.1 Information of WS on Digital Maritime Communication – Hiroshi Ogasawara / JCG

Hiroshi Ogasawara provided practical information for the week in Japan during the workshop. Upon arrival to the Tokyo airport the following [link](#) permits a smooth fulfilling of documentation related to quarantine, immigration, and customs declarations. This service is available to those returning to Japan and those entering the country from abroad. By completing this at least six hours before the scheduled arrival of your flight, you can pass through quarantine, immigration and customs declaration by simply presenting the QR code when you arrive at the airport. All the arrangements to enter to Japan, practical information as weather, venue and public transport application: [Japan Travel by NAVITIME](#) were presented in the slides available in [Nextcloud](#). The workshop will be followed by the VDES Alliance exhibition.

### 4.2 VDES update – Stefan Pielmeier / Sternula

Stefan provided a summary of relevant insights during the process to launch VDES satellite (“STERNULA-1” launched on 03 January 2023) and the path of Sternula being a VDES satellite service provider. The VDES sat will provide connectivity to ships in remote locations and including commercial services on a Global, and standardized data transfer. A number of application were presented aligned with the activity of the potential customer (maritime authorities, commercial service providers, ship owners among others.) It is expected a huge market evolution (from now to 2030) on the number of VDES receiver leveraged by the IMO amendments. The launch of satellite from now to 2028 is also planned to increase and the roadmap was presented.

### 4.3 Presentations during the working period

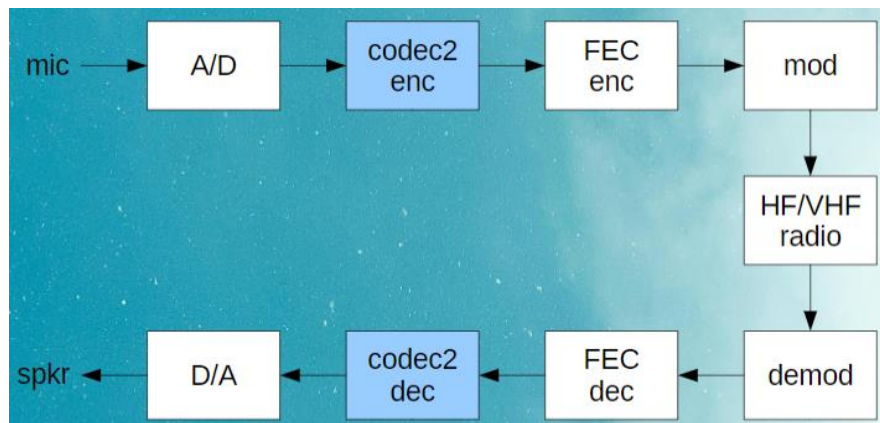
The following presentations will be held during the WG2 sessions and are available in the [IALA youtube channel](#):

#### 4.3.1 VHF Voice Codec focus - David Rowe

David Rowe presented the open source speech Codec 2 (patent and license free) operating on low bit rate (3200 to 700 bits/s). The users are amateur radio community for digital voice HF and VHF over 10 years. David provided the hardware and other operational information where Codec is supported.

The flow chart to understand codec operation in the digital voice radio system was presented:

- Microphone signal transmitted to the analogue – digital converter.
- the job of the codec is to compress the high bit rate signal into a low bit rate (700 to 3200 bit/s)
- the FEC module (providing redundant data to the codec message) will permit to protect the message through the radio channel propagation.
- the signal will then pass to a modulator providing an analogue wave form to HF/VHF radio channel
- the receiver is fitted with a demodulator converting the analogue wave form and the redundant information of the FEC dec will improve the message
- the codec2 decompressing will then transform the message into a high rate byte sample and transfer then to the speaker



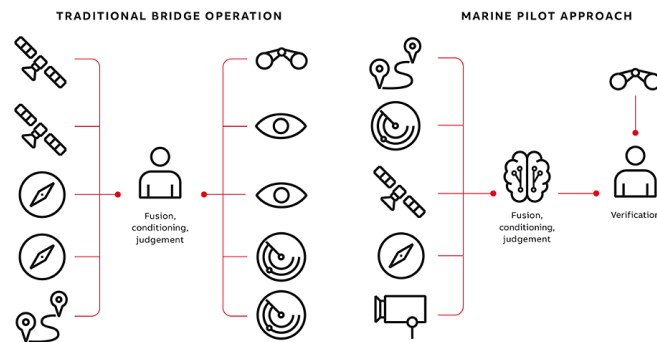
The speaker informed about the speech coding, what is needed to provide an intelligible and natural (human) speech at the receiver and what could be withdrawn. It was also explained that when designing a codec software, the voice and the data are different. Then, the matter of royalties and patents were addressed: 5% of the codec algorithm are patent. The Codec 2 organisation was presented whose mission is to deliver a quality open source speech codecs. David finally presented the roadmap for codec aiming at addressing technical development and organisational challenges improving the speech quality, building a maintenance and cross platform support, Integration into products used by commercial companies among other goals. In the scope of IALA, the speaker highlighted the opportunity to customise for IALA use case, for example a fallback low bit rate “safety” mode that doubles the range compared to FM, and extends battery life.



#### 4.3.2 Update on the closure of 3G - implications of developments in 5G/6G - Hyounhee Koo / Synch Techno

#### 4.3.3 Developments in remote pilotage - technology requirements - Sanna Sonninen and Tero Vainio / Finish

Sanna Sonninen started the presentation explaining the background of the discussion on remote pilotage in Finland. It was observed that the definition and idea of remote pilotage was not the same across the different stakeholders involved in the maritime ecosystem. Some assumptions were presented as well: cooperation of organisations and countries is required to achieve safe and viable remote pilotage, aiming at the same goal as traditional pilotage on a different way, new pilotage services could be developed, digitalisation will be a tool to rethink the way of work. Finnpiilot is part of the One Sea ecosystem dealing with autonomous system matters. Finland has already a legal framework for remote pilotage through the remote pilotage act. The permit could be expedited if a number of requirements are fulfilled, including technology, operating methods, risk management, environmental safety methods among others. In the scope of safety and security, the elements that have been taken into consideration include (among others) the IMO FSA risk assessment, human errors, information exchange, equipment, governance and maritime security. The traditional and new approach to pilotage was presented where a progression to a sensor fusion from very different sources of data and where the pilot verifies the information with their observation:



The concept of safe tube with safe information tube was explained permitting the remote pilotage. The current equipment on board is required with no additional ones, only further information layers will be put at disposal of the master and the pilot (PPU for the pilot, weather, PNT, AtoN connected data etc). The master will still be required to manoeuvre effectively the ship conserving the high competency even the technology part increase and is developed further. Many elements would need to be developed internationally in the definition of the ecosystem for remote pilotage including the backbone of the cybersecurity. Identification of the technology, connectivity and the safety case is first required, then moving to the risk assessment, testing and validation of the process to conclude with the formal standards, regulation and rules making the remote pilotage possible. It was highlighted that the international definition of remote pilotage is expected to be the most difficult task.

Tero Vainio took the floor presenting the idea of a cloud based service for remote pilotage, vendor independent and with data coming and going to different manufacturers. The demonstration of remote pilotage which took place on May 2022 was performed in Kokkola – Finland with the operation of three pilots situated in different locations. Data transfer and means of collection capabilities were tested. AI was also used and tested. Some delays in data transfer from the ship (due to the misconfiguration on board) were observed avoiding the use of some interfaces. The shore infrastructure was detailed, and the identification of tasks and next steps were presented; including cybersecurity management, improving data collection, radar imagery transfer and communication improvement among other objectives.

Finally, information of the NELSON project - EU funded was provided which aims at ensuring the common understanding of standards, requirements etc to permit an effective remote pilotage on future developments. Non-EU countries will also support this project.

A number of questions on accuracy of the data, future requirements of AtoN, shore infrastructure required for putting in place the remote pilotage were raised. Also the link with MASS was addressed.

## 5. REVIEW OF INPUT PAPERS

Input papers were numbered in line with the agenda and allocated to the relevant Working Group. The late input papers were referred for the participant's attention, and the following inputs were addressed as very late input papers:

- EM1(31)-5.1.3.0 ENAV WG3 intersessional report
- EM1(31)-5.1.3.10 MSC108 VDES R-Mode
- EM1(31)-5.1.3.11 Draft Input to NCSR10 on VDES

## 6. ESTABLISH WORKING GROUPS AND TASK GROUPS

The Chair invited all Working Group Chairs to introduce the work planned for ENAV29.

Working Group (WG)	Working Group Chair / Vice Chair
WG1 – Digital Information System	Axel Hahn – Julius Möller / Jin Park
WG2 – Emerging Digital Technology	Jillian Carson-Jackson / Ernie Batty
WG3 – Digital Communication System	Stefan Pielmeier / Stefan Bober

## 7. WORKING GROUP 1 – DIGITAL INFORMATION SYSTEM (WG1)

In the 31<sup>st</sup> session (extraordinary meeting I) of the ENAV committee, the WG1 – Digital Information System worked on several tasks regarding cyber security, maritime services, e-Navigation service architectures and testbed initiatives. One task group was established, and a working document on the revision of the IALA Guideline 1128 was forwarded to the next ENAV committee meeting. The following sections provide detailed descriptions of the work.

### 7.1 Review of Work Plan

**Referencing Document(s):** ENAV31 WG1 Work Program

The work plan was introduced, reviewed and adopted by the WG.

### 7.2 Update on the Development of Technical Specifications of Maritime Services

**Referencing Document(s):** ENAV-ARM Working Document on Marine Navigational Services: Technical Specification for the Provision of AtoN Information Service to End-users

ENAV WG1 is currently collaborating with other committees to develop technical service specifications for the Maritime Services defined by IMO. These include:

- Service for the provisioning of AtoN information (ENAV-ARM)
- Technical Services for VTS (ENAV-VTS)

Furthermore, an independent group with members from IALA and IHO is working on a technical service specification for the provision of navigational warnings to end users. It was reported to the WG1 that the AtoN Service Specification TG met at the beginning of the year to revise the existing use cases for the service and to discuss the more technical parts of the service specification, such as the service interface specifications and the dynamic behaviour of the service. Furthermore, there are already some prototypical

implementations and tests being conducted. These will be discussed further in the Open Digital Incubator Initiative.

The VTS TG also started the work on a minimal service specification based on the use-case of VTS Traffic Clearance Service. The work is still being discussed in the TG internally and was not presented in detail.

Also, the activities of the Working Group for the development of a service specification for the distribution of Navigational Warnings have recently been merged into the Open Digital Incubator Initiative.

Finally, it was emphasized during the WG plenary sessions that the WG1 will continue to support other committees in the development of Maritime Service specifications. This includes but is not limited to providing support for defining the technical aspects of service specifications and the maintenance and further development of the associated IALA guidelines. This activity is included in the committee work item ENAV-5.1 in the new work programme for 2023-2027.

### **7.3 Cyber Security (Task 2.4.2)**

**Task Group Leader:** Martijn Ebben

**Referencing Document(s):** ENAV30-12.1.4 Liaison note from ENAV to ARM on cyber security

ENAV30-12.1.4.1 DRAFT Recommendation - Cyber Security within the IALA domains - post ENAV30

During ARM15 and ENAV29, a joint task group on cyber security (ENAV WG1 / ARM WG2 TG1.2.6) was formed, led by Martijn Ebben. Fifteen participants from all technical committees, including ENG and VTS, joined. The task group used the report from the cyber security workshop in November 2021 as a starting point for drafting a guideline and a recommendation on cybersecurity in the IALA domains. Various other input documents received in various committees over the recent years have also been taken into account. The work was continued in ENAV30, and a revised version of the draft recommendation and liaison note were forwarded to ARM16 for consideration. The TG leader Martijn Ebben updated the WG1 that the Recommendation was forwarded to Council and will be published shortly.

Furthermore, it was proposed to handle the further development of the cyber security guideline in such a way that ENAV WG1 will especially provide technical input to ARM to continue with the development of the guideline.

### **7.4 The Open Digital Incubator Initiative**

**Referencing Document(s):** ENAV30-5.2.13 The Open Digital Incubator Initiative

As described in ENAV30-5.2.13, the Open Digital Incubator Initiative “facilitates development, prototyping and testing of promising solutions for the maritime domain by providing an operational environment including a globally harmonized connectivity framework which enables full-scale end to end testing of digital technical services”. The initiative is supported by the IALA secretariat in an advisory role. An update of the activities of the initiative was provided to the WG1, and future work was discussed: For the work in the area of the AtoN Service Specifications, a prototype was implemented, and an Open-Source Library for implementing the SECOM standard was published on GitHub. Further topics included the distribution of Navigational Warnings and the specification of VTS service specifications.

### **7.5 Preparation of Update of IALA G1128**

**Task Group Leader:** Julius Möller

**Referencing Document(s):** IALA Guideline 1128: The Specification of e-Navigation Technical Services

IALA G1128 is a guideline that provides information on how to develop specifications of e-Navigation Technical Services. In the past years, efforts have been made to use the guideline and its templates to successfully develop service specifications for maritime services, especially in the context of the Maritime Connectivity Platform. However, while applying the principles and templates as well as the supplied xsd-Schemas, some problems or open points in the guideline could be identified by some members of WG1.

During the TG meetings, the basic idea of adding a “Technical Design Template (TDT)” as another type of service specification in G1128 was discussed. A Technical Design Template is a collection of payload-independent interfaces that can be referenced in a Technical Design Description to increase interoperability and to make the specification of Technical Designs easier for the service architects. Further considerations of the TG were summarized in a conceptual working document that will be utilized in future work to revise the guideline. Furthermore, other aspects, such as service discovery and details of instance description use cases, were also discussed in the context of G1128.

The group proposed to have two intersessional task group meetings on **21 March, 1200-1400 UTC** and **02 May, 1200-1400 UTC** to further progress the work on the revision of G1128. Starting with these meetings, the task group leadership will be transferred to Thomas Christensen.

#### **Output Document(s):**

EM1-12.2.1.1 Working Document on Revision of IALA G1128: The Specification of e-Navigation Technical Services

#### *Action item*

*The **Secretariat** is requested to forward EM1-12.2.1.1 Working Document on Revision of IALA G1128: The Specification of e-Navigation Technical Services as an input document to ENAV32.*

*That Committee participants are encouraged to participate in the intersessional group working on the revision of G1128 and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the intersessional meetings are published on the Dashboard.*

## **8. WORKING GROUP 2 – EMERGING DIGITAL TECHNOLOGY (WG2)**

The Chair and Vice-Chair of the Working Group thanked all participants for their hard work during the session. They noted the success of the hybrid working environment.

Throughout the week, a number of focused WG sessions, were held. The WG focused on the following tasks:

- 1.1.5 - Review of Emerging Technologies, include presentation session
- 3.1.2, 3.1.4 – Develop a Recommendation on the Maritime Radio Communication Plan (MRCP) (deprecate the MRCP) (*note – task revised over the course of the IALA work programme 2018-2023 to develop a Maritime Radiocommunications Manual – MarCom Manual*).
- 4.1.1/4.1.2/4.2.1 - Related to MASS (liaise with IMO; Monitor and report on emerging technologies to support and develop IALA position paper on MASS)

In addition, the WG received a presentation from K Heikonen and M Hoppe on the work of the ENG committee on the development of a resilient PNT (rPNT) Guideline.

### **8.1 Task 1.1.5 on review of Candidate Technologies**

Input papers EM1-5.1.2.1, and EM1-5.1.2.1 were reviewed. In addition, input to previous meetings regarding new technology reviews were considered as provided in ANNEX E.

Three presentations were provided related to technology and operational developments:

- David Rowe (Rowetec) on the open-source CODEC 2 (to support digital VHF voice);
- Hyounhee Koo on IMT Technologies based market evolution;
- Sanna Sonninen and Tero Vainio on developments in remote pilotage / technology requirements to support remote pilotage.

It was noted that the Committee understands that pilotage issues are outside of the IALA remit and the presentation is considered as reference for emerging technologies. IALA does not develop any official document or policy on pilotage issues.

#### 8.1.1 Review of magnetic wave wireless transmission technology

Based on the detailed input received using the Guideline G1153 template (EM1-5.1.2.1) the review of MS@MS magnetic wave wireless transmission technology progressed. This review will be completed intersessionally through correspondence, noting a final review will be carried out at ENAV32, led by Ernie Batty and Woo Seong Shim.

##### *Action item*

*That **Committee participants** who are interested in participating in the final review of the magnetic wave wireless transmission technology review were asked to contact Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 6 February 2023.*

#### 8.1.2 Review of Ships' air draft remote measurement technology (SADRMT)

At ENAV 30, based on the input received and an introduction to the technology by China MSA, it was agreed that this technology would be suitable for further review. The technology provides a solution to address concerns over air draft clearance (ADC) that may be experienced with larger ships within the port environment.

To facilitate the review at ENAV 32, the experts in the technology development, as presented by China MSA, are requested to populate the response section of G1153, as provided in ENAV30-5.1.2.4.1.

##### *Action item*

*That **Committee participants** with expertise on Ships' Air Draft Remote Measurement Technology (SADRMT) from China MSA populate the response section of G1153 (ENAV30-5.1.2.4.1) for review at ENAV32.*

#### 8.1.3 Review of dPMR

The review of dPMR, which was commenced at ENAV 24 (October 2019) was completed. The review noted developments related to digital VHF voice, including the CODEC, as presented by D Rowe. The resources for digital VHF voice were placed on the IALA ENAV WG2 Reference area on the IALA File Share.

The results of the review have been included in the Candidate Technology Summary table. This will be provided to the IALA Digital Maritime Communications Workshop in Japan, Feb 20-24, 2023.

##### *Action item*

*The **Secretariat** is requested to forward the completed review of dPMR to the IALA Digital Maritime Communications workshop in Japan, Feb. 20-24, 2023.*

#### 8.1.4 Review of LEO Sat developments

The review of LEO Satellite developments, which was commenced at ENAV 25 (March 2020) was completed. The review noted that developments in solid state antenna are suitable for the maritime environment and, with increasing number of satellites in the constellations, there could opportunity to use these in future. The results of the review have been included in the Candidate Technology Summary table.

#### 8.1.5 Summary of Candidate Technologies

At ENAV30 a summary table of the outcomes of the technologies reviewed was developed. This was forwarded to all IALA Committees for comment. A liaison from the ENG Committee (EM1 5.1.2.2) was reviewed, and the candidate technology summary table revised.

In addition, as noted in the liaison from ENG, it was agreed to request the Legal Advisory Panel (LAP) to provide suitable wording for a caveat to be included in the table. The wording of the caveat could note, for example, that the results of these reviews are for guidance only and should not be taken as an official IALA endorsement of any specific product or service.

The summary table was revised and placed on the Fileshare under ENAV. This folder will be updated each session, as technology reviews are completed.

It was noted that technology reviews would continue into the 2023-2027 work term, and lessons learned in the use of IALA G1153 would be requested to consider in a future update of the Guideline.

#### Action item

That **Committee participants** provide information on candidate technologies for review using the template provided in IALA Guideline 1153.

The **Secretariat** is requested to forward the liaison note EM1(31)12.3.2.1 on the revision of the candidate technology review summary table, to the ENG Committee.

The **Secretariat** is requested to forward the liaison note EM1(31)12.3.2.2 requesting comments and possible caveat wording to include in the candidate technology review summary table, to LAP.

### 8.2 Task 2.2.10 on Maritime Internet of Things

**Task Group Leader:** E Batty

This task was completed at ENAV30, with the publication of IALA G1179 – An introduction to the Internet of Things from an IALA perspective.

### 8.3 Task 3.1.2, 3.1.4 on Maritime Radio Communication Plan (MarCom Manual)

**Task Group Leader:** E Batty

Input papers EM1-5.1.2.5 and EM1-5.1.2.5.1 were reviewed. The text of the MarCom manual was revised, comments addressed and track changes removed.

It was agreed that a table that compares the on-air data rate with available data rate of different technologies would be a valuable addition to the manual. The table was revised during ENAV31 and forwarded to the IALA Digital Communications Workshop for completion by the experts at that workshop.

It was agreed that a clean up of the document will be carried out prior to ENAV32, including the review of the tables in the annexes. E Batty and J Carson-Jackson will work to finalise the text and provide a revised version to ENAV32.

It was noted that the MarCom Manual will be reviewed on a regular basis and updated as required, in a manner similar to the VTS Manual.

Committee participants are requested to provide photos for inclusion in the manual, such as images of communication technology in use or antennae / towers.

#### Action item

That **Committee participants** identify photos suitable for inclusion in the IALA MarCom Manual and provide these to IALA via [contact@iala-aism.org](mailto:contact@iala-aism.org) prior to ENAV32.

### 8.4 Task 3.4, 3.4.2 on Developments in IMT (3GPP)

**Task Group Leader:** J Carson-Jackson

An update from IMT technologies (H Koo) was provided. The ongoing development of IMT technologies will continue to be monitored by the ENAV Committee.

It was noted that, in the report of ENAV30, Committee Participants were asked to review the draft Recommendation and Guideline on IMT (ENAV27-12.2.3 rev2 and ENAV27-12.2.4 rev 2 refer) and provide input to ENAV31 (ENAV 30 report, Action Item 27). As no input was received, and noting the ongoing development, the WG agreed to revisit the draft documents, as may require, at a future session of the ENAV Committee.

#### Action Item

The **Secretariat** is requested to forward the draft Recommendation and Guideline on IMT to ENAV32 (ENAV27-12.2.3 rev2 and ENAV27-12.2.4 rev2).

That **Committee participants** are requested to review the draft Recommendation and Guideline on IMT and provide comments to ENAV32.



## 8.5 Task 4.1.1, 4.1.2, 4.2.1 on MASS from marine AtoN point of view

**Task Group Leader:** J Carson-Jackson

Input papers EM1-5.1.2.4, 5.1.2.4.1 and 5.1.2.4.2 were reviewed. In addition, the work of the IMO on the draft MASS Code was noted.

### 8.5.1 IALA draft Guideline on MASS

In the review of the output of the intersessional work on MASS, EM 5.1.2.4.2, it was highlighted that the draft IALA MASS Guideline was evolving into a very detailed document, that goes beyond the contents identified in the Road Map as provided in EM 5.1.4.1. While the content is quite valuable, it may be that some elements are more suited to an annex, or a related document.

In discussion it was noted that the evolution of the IMO draft MASS Code, as well as other MASS documents, may provide an opportunity to review the structure of the IALA document. The overall goal is to provide a usable, intuitive document to meet the needs of the IALA members.

It was agreed that the table of contents for the draft IALA MASS Guideline would be reviewed in line with developments in IMO and other organisations, and refined to more closely reflect the contents identified in the Road Map. A stepped approach to further work on the guideline was agreed:

1. Minsu Jeon and Michael Trent agreed to review the work of the IMO and other organisations and, reflecting the Road Map, develop an updated outline (table of contents) for the draft IALA MASS Guideline.
2. The revised table of contents will be provided to the MASS TF meeting on 6 March 2023 for review
3. An intersessional meeting will be held Wednesday, April 5 from 1000-1130 UTC, following the MASS TF meeting, which will focus on populating the revised table of contents using the existing draft guideline. Any content material that is deemed to be outside of the scope of the revised table of contents will be retained in a separate document.

#### Action item

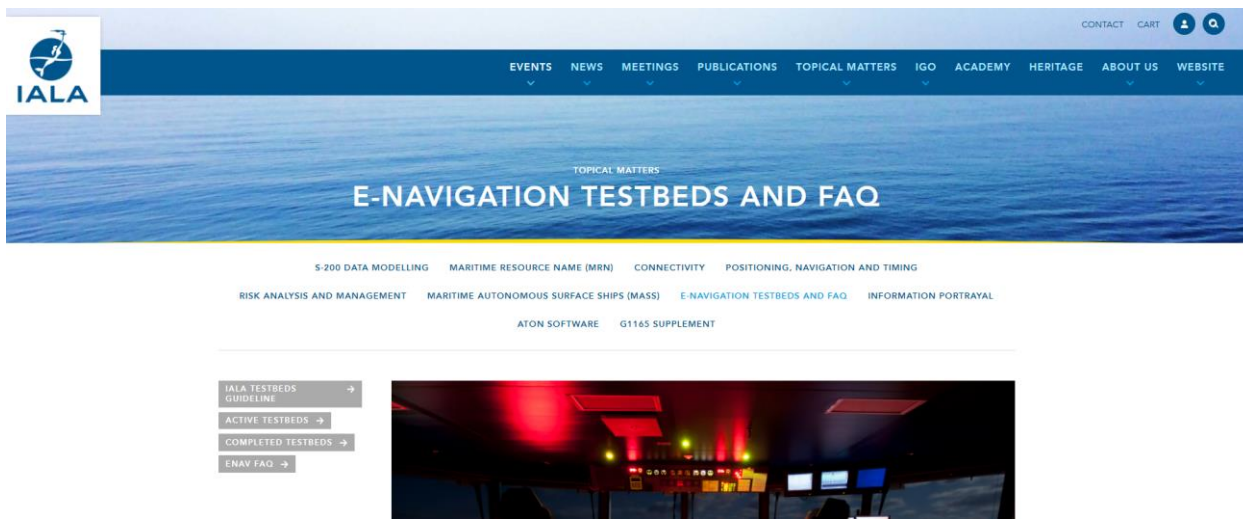
**Minsu Jeon and Michael Trent** were requested to review the work of IMO and other organisations, refer to the Road Map, and prepare a revised table of contents for the draft MASS Guideline to be reviewed at the MASS TF meeting on 6 March 2023.

That **Committee participants** who are interested in participating in the initial intersessional meeting on the review of the MASS Guidelines and roadmap were asked to contact Jillian Carson-Jackson ( [jillian@jcconsulting.net](mailto:jillian@jcconsulting.net) ), cc Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 29 March 2023.

### 8.5.2 Review of G1107

As noted in the report of ENAV 30, following the publication of the Guideline G1107 Edition 3.0 (December 2022) there are a number of revisions required for the IALA website <https://www.iala-aism.org/technical/e-nav-testbeds/>. While the link to the ENAV FAQ has been removed, now that the G1107 Edition 3.0 has been published, as noted in the report of ENAV 30, it is proposed that:

1. the current e-navigation testbeds area of the IALA website wording be updated to reflect the revised guideline, and
2. the link to the IALA Testbeds Guideline be amended to reflect the new guideline.



- IALA TESTBEDS GUIDELINE →
- ACTIVE TESTBEDS →
- COMPLETED TESTBEDS →

## IALA TESTBEDS GUIDELINE

Download

IALA Guideline No. 1107 on Planning Testbeds and Reporting of Results, Edition 2, June 2016

### TEMPLATE FOR POSTING INFORMATION

Make sure the following minimum information is present:

1. Submitting Organization
2. Point-of-Contact

#### Action items:

The **Secretariat** is requested to revise the IALA website area currently titled 'e-navigation testbeds and FAQ' as follows: the current e-navigation testbeds area of the IALA website wording be updated to reflect the revised guideline, and the link to the IALA Testbeds Guideline be amended to reflect the new guideline.

#### 8.6 Task 4.3.1, 4.3.5, 4.3.10 on Technologies to facilitate the implementation of Maritime Single Window (MSW)

While work on this item is continuing in the ARM Committee, it was noted that the task, from the perspective of ENAV WG2, is complete.

#### 8.7 Artificial Intelligence / Machine Learning Guideline

This task was completed at ENAV30, with the publication of IALA G1178 – An introduction to Artificial Intelligence from an IALA perspective.

#### 8.8 Proposed work items for IALA Work Term 2023-2027

Input papers EM1-5.4 was reviewed and comments provided to the Chair. In addition, one additional work items were noted for consideration:

- S-100 series version control, backward compatibility and testing

#### Action item

The **Chair and Vice-Chair** are requested to include the new proposal on S-100 series version control, backward compatibility and testing in the Work Programme of the Committee and send to PAP for the final coordination.



*The **Secretariat** is requested to include the new proposal on S-100 series version control, backward compatibility and testing new proposal in the Work Programme of the Committee and send to PAP for the final coordination.*

## 9. WORKING GROUP 3 – DIGITAL COMMUNICATION SYSTEM (WG3)

### 9.1 Synopsis of the session

The group was able to reconvene its normal work after finalizing Guideline G1117 at ENAV30, working on the topics of VDES, AIS, R-Mode.

The group also reviewed new work items to be proposed for the next 2023-2027 work plan.

### 9.2 Agenda

The agenda for the workgroup for the week was reviewed with the group and agreed after screening the inputs.

### 9.3 Status on other bodies

- IMO (Stefan Bober briefed with regards to ITU Recommendation M.1371 and Hideki Noguchi with regards to VDES)
  - The Correspondence Group on the revision of ITU-R M.1371-5 is concluded for now, output to be discussed at NCSR10; many questions posed by ITU-R WP5B are answered, but there are some answers that need more investigation by IMO, expected between NCSR10 and 11;
  - VDES Guideline and Performance Standard drafting work planned for NCSR10 and 11;
- IEC (Stefan Bober)
  - The test standard of VDES is under drafting in TC80 WG15
    - Working proposal planned for 2023, CDV expected in 2024 or early 2025
    - Final approved standard 1 year later
  - VDES Test standard assumes mobile stations that include AIS, ASM, VDE-TER and VDE-SAT at the same time, not just parts of it;
  - Ross Norsworthy noted, that the mobile station is the most important system part to standardize in the first place;
  - The AIS test standard amendment was not yet started;
- Maritime Connectivity Consortium & RTCM (Stefan Pielmeier, Ross Norsworthy)
  - Draft Maritime Messaging Service Standard is sent to RTCM for realization as an international standard
  - RTCM has accepted their member Stefan Pielmeier to chair the standardization of a Maritime Messaging Standard in RTCM SC123; the work on the input to RTCM has progressed and needs to progress further, before the work at RTCM can start for real;
- ITU (Stefan Bober)
  - Priority is WRC2023, therefore WP5B had to finalize all work towards the CPM report, i.e. AI 1.11
  - NBDP is replaced by Automatic Connection System over MFHF
  - NAVDAT frequencies to be elevated to be safety related at WRC23
  - No new ENAV frequency requirements to be discussed at WRC23 (VDES and NAVDAT being covered)
  - Items for WRC27 (WRC23 AI 10) that IALA will support through inputs:
    - R-mode navigation designation for VDES frequencies
    - Digital Voice

The group noted that in order to get ITU-R M.2092-1 revised before WRC27, our input to the revision of ITU-R M.2092-1 shall be input to ITU-R WP5B at the meeting after WRC23.

### 9.4 Action items from ENAV30

The group recognized the successful removal of Guideline G1139 from the web page, as requested by ENAV30 and approved by council.

#### 9.5 Input to ITU-R Conference Preparatory Meeting 23-2 on WRC-23 Agenda Item 10

The group prepared a draft position statement by IALA to ITU-R CPM 23-2 supporting the new agenda items for WRC27 including VHF digital voice and to allow the use of R-mode on the VDES frequencies.

Members are requested to ask their ITU representatives to support that position at the CPM meetings. The document is requested after approval to the ITU-R as CPM 23-2 input latest by the deadline February 27<sup>th</sup> 2023. Filename: EM1-12.3.3.1 Draft IALA Position to CPM on WRC-23 Agenda item 10

##### Action item

*The **Secretariat** is requested to send the Liaison note to the CPM EM1-12.3.3.1 the draft position statement to CPM 23-2 on WRC-23 AI 10 for expedited council approval.*

#### 9.6 Input to ITU-R WRC23 on AI 10

The group prepared a position statement by IALA to ITU WRC-23 supporting the new agenda items for WRC-27 including VHF digital voice and to allow the use of R-mode on the VDES frequencies.

Members are requested to ask their ITU representatives to support that position at the WRC-23 meetings. Filename: EM1(31)-12.3.3.2 IALA Position to WRC23 on WRC-23 Agenda item 10

##### Action item

*The **Secretariat** is requested to send EM1(31)-12.3.3.2 IALA Position to WRC23 on WRC-23 Agenda item 10 for council approval. The document EM1(31)-12.3.3.2 is requested after approval to be sent to ITU as WRC-23 input latest by the deadline of October 30<sup>th</sup> 2023.*

*The **WG Chair and vice-Chair** with the support of the Secretariat are requested to draft a circular letter reminding the IALA national members about the support of EM1-12.3.3.2 the IALA position statement to WRC-23 on WRC-23 AI 10.*

*The **Secretariat** is requested to send the circular letter reminding the IALA national members about the support of EM1-12.3.3.2 the IALA position statement to WRC-23 on WRC-23 AI 10.*

#### 9.7 Task 3.2 Revision of Guideline G1117

After revision and committee approval at the latest ENAV, the document is now published on the IALA Web page and can be used by members for reference on how to use VDES in their applications.

The liaison notes are sent to ITU, IEC and IMO.

#### 9.8 VDES VHF Data Link Integrity Monitoring Guideline

The group reviewed Input EM1-5.1.3.2 Working Draft of Guideline on VDES VDL integrity monitoring, presented by China Huai Shuaiheng; several amendments were performed by the group, the general impression is that the document is maturing towards achieving draft guideline level at next ENAV, ready for the first review by the ENAV committee and potential approval.

#### 9.9 New Work Programme 2023-2027

The group walked through the input EM1-5.4 IALA committee work programme 2023-2027 and agreed to its content.

#### 9.10 Task 3.2 VDES resource sharing

The group was presented EM1-5.1.3.1 by Koichi Yoshida pointing out the opportunities and the importance of coordination and sharing of VDES resources between the active VDES players. The group noted that the proposed activity is part of the proposed ENAV program for 2023-2027. Koichi Yoshida is inviting any kind of inputs for the next ENAV, or personally to [yoshida@rime.jp](mailto:yoshida@rime.jp) in order to start that activity during next ENAV.

### 9.11 Task 3.2 VDES Performance Standard

The ENAV Chair presented the draft VDES Performance Standard input EM1-5.1.3.11 Draft Input to NCSR10 on VDES. The group discussed that it could be premature to use VDES for Distress signalling today, thus the amendment of SOLAS IV may prove difficult at this moment. However, as VDES does provide the technical elements to support Distress due to its ASM and VDE-TER primary allocation, and VDE-SAT complementing it, this might become a topic in the future, when the technologies are demonstrated to be mature. Amending SOLAS V at NCSR10 and NCSR11 targets to allow all VDES components to be used for exchange of safety related information data.

The group commented the draft VDES PS creating the [draft review of the WG3 on the VDES PS](#) which may be used by members for later commenting during a potential correspondence group period expected between NCSR10 and NCSR11.

#### Action item

*That **Committee participants** are requested to ask their IMO NCSR 10 representatives to support the establishment of the correspondence group for the work on VDES from IMO NCSR10 to 11.*

### 9.12 Task 3.2 VDES Clarifications

The group prepared a new Proposal for New Working Revision (PNWR) of ITU-R M.2092-1 input to ITU to be sent to ITU WP5B after WRC-23. The change log and current revision of the PNWR can be followed in the folder ENAV/WP3/Revision of M2092-1.

The Working Group acknowledged the work performed by the intersessional on VDES clarifications, summarized in the intersessional report EM1-5.1.2.0. The intersessional took into account: ENAV30-5.1.3.5, ENAV30-5.1.3.8, 20220811\_CP\_CML.DOCX and ENAV30-5.1.3.8.1.

All proposed decisions by the intersessional were reviewed. In some cases the group amended the proposed changes, see WG3/20230130\_ENAV31/INPUT/VDES. The group decided to accept the changes proposed approved by the intersessional to be integrated into the PNWR, except for the following:

- a) ENAV30-5.1.3.8.1 following items were not included in the PNWR because they need more time to mature:
  - i. MSA-7: deferred for later, because the group did not agree to its value vs. cost
  - ii. MSA-13: the drawing contains problems that will be updated by Pieter Winter before inclusion
  - iii. MSA-17: is a discussion item, not a change proposal; it will now lead to a new change proposal
- b) IEC TC80 WG15\_MTG45\_O\_003\_LN\_to\_IALA\_on\_clarification\_ITU-R\_M2092-1\_2022-10-14.docx
  - i. IEC-13 item was not approved, as it led to significant raised concerns as to its impact, and requires more discussion;
  - ii. IEC-14 item was not approved, because Space Norway provided an alternative proposal 20230201\_M2092-1\_CP\_SPN-1 (1).docx to solve the problem presented which requires more time for the group to select the best proposal.

The group reviewed the official input EM1-5.1.3.3 from China which contains the kindly provided amendments to the inputs given to ENAV30. Items MSA-1 to MSA-6 were reviewed, some were amended by the group and finally all change proposals were approved to be integrated into the PNWR as amended.

The group discussed the informal input from CML INPUT/VDES/20230202\_M2092-1\_CP\_2\_CML.docx and agreed that it clarifies the use of pilot symbols for VDE-SAT, which was ambiguous before. Approved by the group for inclusion into the PNWR.

The group reviewed the input ENAV30-5.1.3.1 from COMESTA and Korean Register on VDE-TER receiver sensitivity. The group acknowledged the problems indicated, and asked for time to review the content further. The group encouraged Korea to provide a change proposal that would solve the indicated problems.

The informal input 20230131\_M2092-1\_CP\_2\_Sternula was not reviewed due to lack of time.

In order to assess this change proposal and open issues identified in some of the proposed and not agreed changes, a virtual intersessional on VDES Clarifications is planned:

#### **Intersessional ENAV WG3 Meeting on VDES Clarifications and G1117**

Date: 2023-03-08 and 2023-03-15

Time: 10-14 UTC on both days

Venue: Virtual by IALA MS Teams (for participation and agenda, see the IALA ENAV Calendar)

#### **Action item**

*That **Committee participants** who want to contribute to the further development of VDES are requested to plan their virtual participation in the intersessional on both days and provide inputs into the folder ENAV/WG3/20230308\_inter\_VDES.*

### **9.13 VDES R-Mode**

The group reviewed Input EM1-5.1.3.8 Liaison note to ENAV on VDES R-Mode Implementation. Its annex about technical implementation of ASM R-Mode was presented by China MSA. After discussion, the group considered revising Guideline G1158 to add ASM R-Mode based on the information provided in Work Programme 2023-2027.

Ronald Raulefs presented EM1-5.1.3.10 MSC108 VDES R Mode and shared the observations made by the R-Mode projects according to the newly introduced VDE Header in Guideline G1117. The group proposed that for R-mode, it might be a way to define direct binary formats that are directly linked to the specific R-Mode Link-ID's, in order to avoid spending headers on binary content that has to be optimized for a single application, that needs a specific Link-ID anyway. The discussion will be continued in the future.

Generally, R-Mode will have to be investigated in detail by an ITU-R WP5B between WRC-23 and WRC-27, this work till required detailed studies, and the group acknowledges that some of our members have successfully started this work on a very detailed and scientific level.

## **10. ANY OTHER BUSINESS**

The discussion related to the naming of the ENAV committee was raised, some proposals were addressed:

- Digital Technology Committee (DTEC)
- New Generation Navigation Committee (NGN)
- Digital futures
- Digital communications and data transfer (DCDT)
- Digital communications and technology (DCAT)

## **11. REVIEW OF OUTPUT AND WORKING PAPERS**

The Working Group Chairs reported on the work carried out by their Working Groups.

The output documents listed at Annex E were reviewed and agreed.

The Committee Chair then thanked the Working Group Chairs, Vice-Chairs, and participants of the working groups for all their efforts during the week.

### **11.1 Closing of the physical session**

On Friday 3<sup>rd</sup> February, the closing of the physical week took place. The agenda for the meeting was: the review of output papers and work achieved during the week, intersessional meetings plan before ENAV32 and the discussion related to the proposed new names for the ENAV Committee.

## 12. REVIEW OF SESSION REPORT

The report of the meeting (EM1-13.1) was reviewed and approved by the Committee.

### *Action Item*

*The **Secretariat** is requested to send the report of ENAV32 (EM1-13.1) to the Council to note.*

## 13. DATE AND VENUE OF NEXT MEETINGS

ENAV32 is scheduled from 25 to 29 September 2023 at Headquarters, Saint Germain-en-Laye.

Other IALA events will be publicised on the IALA website.

## 14. CLOSING OF THE MEETING

## 15. LIST OF ANNEXES

- A. Agenda
- B. List of Participants
- C. List of Input Papers
- D. List of Output Papers
- E. List of Action Items



## e-Navigation Information Services and Communications Committee Extraordinary Meeting 1 (31)

The opening plenary of the extraordinary meeting 1 (31) of the ENAV Committee will be held physically at IALA HQ on the 30 January 2023 at 09.00 UTC (10.00 CET) with the possibility to connect remotely and the closing plenary will be held online between 10:00 – 11:00 UTC on Thursday 9 February 2022. The physical week will take place at IALA HQ between the 30 January – 3 February 2023, commencing with the opening plenary.

### Agenda

1. Introduction
  - 1.1. Welcome from the Secretary-General/Deputy Secretary-General
  - 1.2. Approval of agenda Hideki Noguchi
  - 1.3. Apologies and introductions Hideki Noguchi
  - 1.4. Working arrangements / Programme for the week Jaime Alvarez
  - 1.5. Recalling the Style Guide Jaime Alvarez
2. Review of action items from last meeting
  - 2.1. Review of action items from ENAV30 Hideki Noguchi / Jaime Alvarez
3. Reports from other bodies and initiatives:
  - 3.1. IALA
    - 3.1.1. IALA Council Minsu Jeon
    - 3.1.2. Policy Advisory Panel (PAP) Minsu Jeon
  - 3.2. Digital@Sea Minsu Jeon
  - 3.3. IMO Hideki Noguchi
  - 3.4. IHO Minsu Jeon
  - 3.5. ITU Stefan Bober
  - 3.6. IEC Stefan Bober / Jorge Arroyo
  - 3.7. ISO Jin H Park / Minsu Jeon
  - 3.8. RTCM Jorge Arroyo
  - 3.9. 3GPP Minsu Jeon
  - 3.10. Maritime Connectivity Platform Consortium Thomas Christensen
  - 3.11. VDES Alliance Stefan Pielmeier
4. Presentations
  - 4.1. Opening plenary
    - 4.1.1. Information of WS on Digital Maritime Communication Hiroshi Ogasawara
    - 4.1.2. VDES update Stefan Pielmeier
  - 4.2. Tuesday 31<sup>st</sup> January
    - 4.2.1. VHF Voice Codec focus David Rowe
    - 4.2.2. Update on the closure of 3G - implications of developments in 5G/6G Hyounhee Koo

- 4.2.3. Developments in remote pilotage - technology requirements Sanna Sonninen and Tero Vainio / Finnpilot
  - 4.3. Wednesday 1<sup>st</sup> February
    - 4.3.1. The work of the rPNT group Kaisu Heikonen
- 5. Review of input papers
  - 5.1. Introduction of input papers to ENAV30
  - 5.2. Allocation of input papers Committee Chairs
- 6. Work Programme and task list (2018 - 2023)
  - 6.1. WG1 Working program and arrangements presentation Axel Hahn
  - 6.2. WG2 Working program and arrangements presentation Jillian Carson-Jackson
  - 6.3. WG3 Working program and arrangements presentation Stefan Pielmeier
  - 6.4. Work program 2023 to 2027 – Last chance to look at the next work programme
- 7. WG1 – Digital Information System
  - 7.1. S-100 & S-200
  - 7.2. Maritime Services
  - 7.3. Cyber security
  - 7.4. Maritime Resource Name
- 8. WG2 – Emerging Digital Technology
  - 8.1. Maritime Autonomous Surface Ship
  - 8.2. Digital Voice Communications
  - 8.3. Single Window Data Exchange
- 9. WG3 – Digital Communication System
  - 9.1. Maritime Radio Communication Plan
  - 9.2. VHF Data Exchange System (VDES) applications
  - 9.3. Autonomous Maritime Radio Device (AMRD)
  - 9.4. Maritime Services
  - 9.5. Automatic Identification Systems
  - 9.6. Other digital communication technology
- 10. Any Other Business
- 11. Establish Working Groups and task groups
- 12. Review of output and working papers
  - 12.1. Working Group reports
  - 12.2. Working papers
  - 12.3. Output papers
- 13. Review of session report
- 14. Date and venue of next meeting
- 15. Close of the meeting

## ANNEX B LIST OF PARTICIPANTS

The list of participants is available [here](#).

### New Members

NAME		COUNTRY	MEMBER TYPE	ORGANISATION
Fawziya	Al Dhaheri	United Arab Emirates	Associate	Abu Dhabi Ports Company
Hamza	Bezia	Maroc	National	Ministère des Transports, de l'Aviation Civile et de la Marine Marchande
Paul	Burton	United Kingdom	Associate	UK Hydrographic Office
Charlotte	Chen	China	Industrial	China Head Aerospace Technology Co
Jingyu	Chen	China	Industrial	China Head Aerospace Technology Co
Clayton	Diamond	United States	Associate	American Pilots Association Inc
Gero	Diezis	Germany	Industrial	In-innovative navigation GmbH
Daisuke	Kimura	Japan	Industrial	Furuno Electric Co Ltd
Muhammad Fadhli	Makhtar	Malaysia	National	Light Dues Board Peninsular Malaysia Marine Department
Qiang	Song	China	Industrial	China Head Aerospace Technology Co
Masayuki	Takahashi	Japan	Industrial	Japan Radio Co, Ltd
Chaoyu	Li	China	National	China Maritime Safety Administration
Li	Jinrui	China	National	China Maritime Safety Administration
Clayton	Diamond	United States	Associate	American Pilots' Association Inc



## ANNEX C LIST OF INPUT PAPERS

All papers are posted on the Committee section of the IALA website

Meeting	Agenda Item	Title	Source	Action
EM1(31)	1.2.1	Preliminary Agenda EM1	IALA	All
EM1(31)	1.4	Programme for the week	IALA	All
EM1(31)	2.1.1	ENAV30 Action Items	IALA	All
EM1(31)	2.1.2	Report of ENAV30	IALA	All
EM1(31)	3.1.1	Report Council 76	IALA	All
EM1(31)	3.1.2.1	Draft committee work programme 2023-2027 post PAP47	PAP47	All
EM1(31)	3.5.1	Report on IMOITU EG 18 December 2022 and ITU-R WP5B meeting November 2022	Stefan B	All
EM1(31)	5.0	Input paper Committee meeting template	IALA	All
EM1(31)	5.0.1	List of input papers	IALA	All
EM1(31)	5.1.2.1	Radio-free wireless communication based on Metal Surface Wave	KRISO / UNIST / Sunny Wave Tech	WG2
EM1(31)	5.1.2.2	Liaison note to ENAV on New Technology Review	ENG16	WG2
EM1(31)	5.1.2.3	Assessment of LEO constellation	CCG	WG2
EM1(31)	5.1.2.4	Cover note on the MASS outcome of TG	WG2 Chair	WG2
EM1(31)	5.1.2.4.1	Annex on MASS roadmap	ENAV TG	WG2
EM1(31)	5.1.2.4.2	Annex 2 on Draft Guideline MASS implications for Shore Authorities	ENAV TG	WG2
EM1(31)	5.1.2.5	Cover note on the MarCom manual	ENAV Chair	WG2
EM1(31)	5.1.2.5.1	Annex on MRCP	ENAV TG	WG2
EM1(31)	5.1.3.0	ENAV WG3 intersessional report	WG3	All
EM1(31)	5.1.3.1	Development of Guidelines on VDES resource sharing and coordination cooperation	OPRI	WG3
EM1(31)	5.1.3.2	Working Draft of Guideline on VDES VDL integrity monitoring	China MSA	WG3
EM1(31)	5.1.3.3	Proposals on the review and revision of ITU-R M.2092-1	China MSA	WG3

EM1(31)	5.1.3.4	Proposals on VDES communication resource coordination	China MSA	WG3
EM1(31)	5.1.3.5	Application of Portable AIS Equipment Comprehensive Analyzer	China MSA	WG3
EM1(31)	5.1.3.6	Proposal on the revision of G1117_section b1.1	China MSA	WG3
EM1(31)	5.1.3.7	Preliminary draft performance standards for VDES	JCG	WG3
EM1(31)	5.1.3.7.1	Draft VDES PS_ver.1_27122022	JCG	WG3
EM1(31)	5.1.3.8	Liaison note to ENAV on VDES R-Mode Implementation	ENG16	WG3
EM1(31)	5.1.3.9	IEC TC80 WG 15 meeting on clarification for Recommendation ITU-R M.2092-1.	Stefan Bober	WG3
EM1(31)	5.1.3.10	MSC108 VDES R-Mode	Germany	WG3
EM1(31)	5.1.3.11	Draft Input to NCSR10 on VDES	Japan	WG3
EM1(31)	5.4	EM1-IALA committee work programme 2023-2027	IALA Secretariat	All

## ANNEX D

## LIST OF OUTPUT DOCUMENTS

**Output documents** are submitted for review/action by a body other than the Committee initiating the document.

Meeting	Agenda Item	Title	Source	Action
EM1(31)	12.3.2.1	Liaison note to ENG regarding their suggested changes to the candidate technology tracker	EM1(31)	ENG
EM1(31)	12.3.2.2	Liaison note to LAP requesting wording for a caveat for the candidate technology tracker	EM1(31)	LAP
EM1(31)	12.3.3.1	Draft IALA Position to CPM on WRC-23 Agenda item 10	EM1(31)	Council
EM1(31)	12.3.3.2	IALA Position to WRC23 on WRC-23 Agenda item 10	EM1(31)	Council

**Working papers** will remain within the Committee for further review during ENAV32.

Meeting	Agenda Item	Title	Source	Action
EM1(31)	12.2.1.1	WP on Revision of G1128 on The Specification of e-Navigation Technical Services	EM1(31)	ENAV32
EM1(31)	12.2.2.1	Review of dPMR post ENAV31	EM1(31)	IALA WS ENAV32
EM1(31)	12.2.2.2	Draft MRCP MarCom Manual	EM1(31)	IALA WS ENAV32

## ANNEX E

## ACTION ITEMS

### *Action Items for the Secretariat*

1. The **Secretariat** is requested to forward EM1-12.2.1.1 Working Document on Revision of IALA G1128: The Specification of e-Navigation Technical Services as an input document to ENAV32. 20
2. The **Secretariat** is requested to forward the completed review of dPMR to the IALA Digital Maritime Communications workshop in Japan, Feb. 20-24, 2023. 21
3. The **Secretariat** is requested to forward the liaison note EM1(31)12.3.2.1 on the revision of the candidate technology review summary table, to the ENG Committee. 22
4. The **Secretariat** is requested to forward the liaison note EM1(31)12.3.2.2 requesting comments and possible caveat wording to include in the candidate technology review summary table, to LAP. 22
5. The **Secretariat** is requested to forward the draft Recommendation and Guideline on IMT to ENAV32 (ENAV27-12.2.3 rev2 and ENAV27-12.2.4 rev2). 22
6. The **Secretariat** is requested to revise the IALA website area currently titled 'e-navigation testbeds and FAQ as follows: the current e-navigation testbeds area of the IALA website wording be updated to reflect the revised guideline, and the link to the IALA Testbeds Guideline be amended to reflect the new guideline. 24
7. The **Secretariat** is requested to include the new proposal on S-100 series version control, backward compatibility and testing new proposal in the Work Programme of the Committee and send to PAP for the final coordination. 25
8. The **Secretariat** is requested to send the Liaison note to the CPM EM1-12.3.3.1 the draft position statement to CPM 23-2 on WRC-23 AI 10 for expedited council approval. 26
9. The **Secretariat** is requested to send EM1(31)-12.3.3.2 IALA Position to WRC23 on WRC-23 Agenda item 10 for council approval. The document EM1(31)-12.3.3.2 is requested after approval to be sent to ITU as WRC-23 input latest by the deadline of October 30<sup>th</sup>2023. 26
10. The **Secretariat** is requested to send the circular letter reminding the IALA national members about the support of EM1-12.3.3.2 the IALA position statement to WRC-23 on WRC-23 AI 10. 26
11. The **Secretariat** is requested to send the report of ENAV32 (EM1-13.1) to the Council to note. 29

### *Action Items for Participants*

12. That Committee participants are encouraged to participate in the intersessional group working on the revision of G1128 and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the intersessional meetings are published on the Dashboard. 20
13. That **Committee participants** who are interested in participating in the final review of the magnetic wave wireless transmission technology review were asked to contact Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 6 February 2023. 21
14. That **Committee participants** with expertise on Ships' Air Draft Remote Measurement Technology (SADRMT) from China MSA populate the response section of G1153 (ENAV30-5.1.2.4.1) for review at ENAV32. 21
15. That **Committee participants** provide information on candidate technologies for review using the template provided in IALA Guideline 1153. 22
16. That **Committee participants** identify photos suitable for inclusion in the IALA MarCom Manual and provide these to IALA via [contact@iala-aism.org](mailto:contact@iala-aism.org) prior to ENAV32. 22
17. That **Committee participants** are requested to review the draft Recommendation and Guideline on IMT and provide comments to ENAV32. 22

18. **Minsu Jeon and Michael Trent** were requested to review the work of IMO and other organisations, refer to the Road Map, and prepare a revised table of contents for the draft MASS Guideline to be reviewed at the MASS TF meeting on 6 March 2023. 23
19. That **Committee participants** who are interested in participating in the initial intersessional meeting on the review of the MASS Guidelines and roadmap were asked to contact Jillian Carson-Jackson ( [jillian@jcconsulting.net](mailto:jillian@jcconsulting.net) ), cc Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 29 March 2023. 23
20. The **Chair and Vice-Chair** are requested to include the new proposal on S-100 series version control, backward compatibility and testing in the Work Programme of the Committee and send to PAP for the final coordination. 24



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International Association of Marine Aids to Navigation and Lighthouse Authorities  
Association Internationale de Signalisation Maritime