



## IALA ENAV COMMITTEE

# REPORT OF THE 29<sup>TH</sup> SESSION OF THE IALA E-NAVIGATION INFORMATION SERVICES AND COMMUNICATIONS (ENAV) COMMITTEE

14<sup>th</sup> March to 1<sup>st</sup> April 2022

**Jaime Alvarez**  
Committee Secretary

**1 April 2022**

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

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# **Report of the 29<sup>th</sup> Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee Executive Summary**

The 29<sup>th</sup> meeting of the ENAV Committee was held virtually from 14 March to 1 April 2022; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez.

There were 97 registered participants, 3 for the first time, from 29 countries and 4 organisations.

This was the 7<sup>th</sup> meeting for the 2018-2022 Work Programme and the Committee considered 46 input papers and produced 7 output papers.

Key highlights:

- Three papers to IMO NCSR9 for the Council to approve on the following matters were produced:
  - ENAV29-12.0.1 Report of the trial on digital voice communication in maritime VHF band
  - ENAV29-12.0.2 VDES Ranging mode
  - ENAV29-12.0.3 Proposal on WRC-23 agenda item 10
- New task proposals were identified for the next work programme 2023-2027
- The following workshop proposals for 2023 were progressed:
  - ENAV29-12.2.1 Workshop proposal on Digital Maritime Communication infrastructure
  - ENAV29-12.2.2 Workshop proposal on Sustainability
- The following liaison notes were produced:
  - ENAV29-12.2.3 Liaison note all committees on developments in IMT related to termination of 2G and 3G service
  - ENAV29-12.2.4 Liaison note ENG on 5G Precise Positioning

Planned intersessional work:

- Meetings ENAV/ARM to progress on the development of draft Technical service specification for the provisioning of AtoN information to end users by means of the S-125 data model and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)).
- Meetings ENAV/ARM/VTs on Technical Service Specification for VTs noting that Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)) will lead this task.
- Intersessional session to review and revise the draft Guideline on Maritime Internet of Things (ENAV27-12.2.7) and contact Jillian Carson-Jackson ([jillian@jcconsulting.net](mailto:jillian@jcconsulting.net)) by 29 April 2022 if they wish to participate.
- Intersessional session to finalise the review of the MarCom Manual and 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 April 2022.
- Intersessional meetings on JWG IEC TC80 WG15 and IALA ENAV to progress on the G1117 VDES Overview. Stefan Bober ([Stefan.Bober@wsv.bund.de](mailto:Stefan.Bober@wsv.bund.de)) is leading this activity.

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# Report of the 29<sup>th</sup> Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee

## GENERAL

The 29<sup>th</sup> meeting of the ENAV Committee was held virtually from 14 March to 1 April 2022; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez. There were 97 registered participants, 3 for the first time, from 29 countries and 4 organisations.

An analysis of the attendance at ENAV29 is shown in Figure 1.

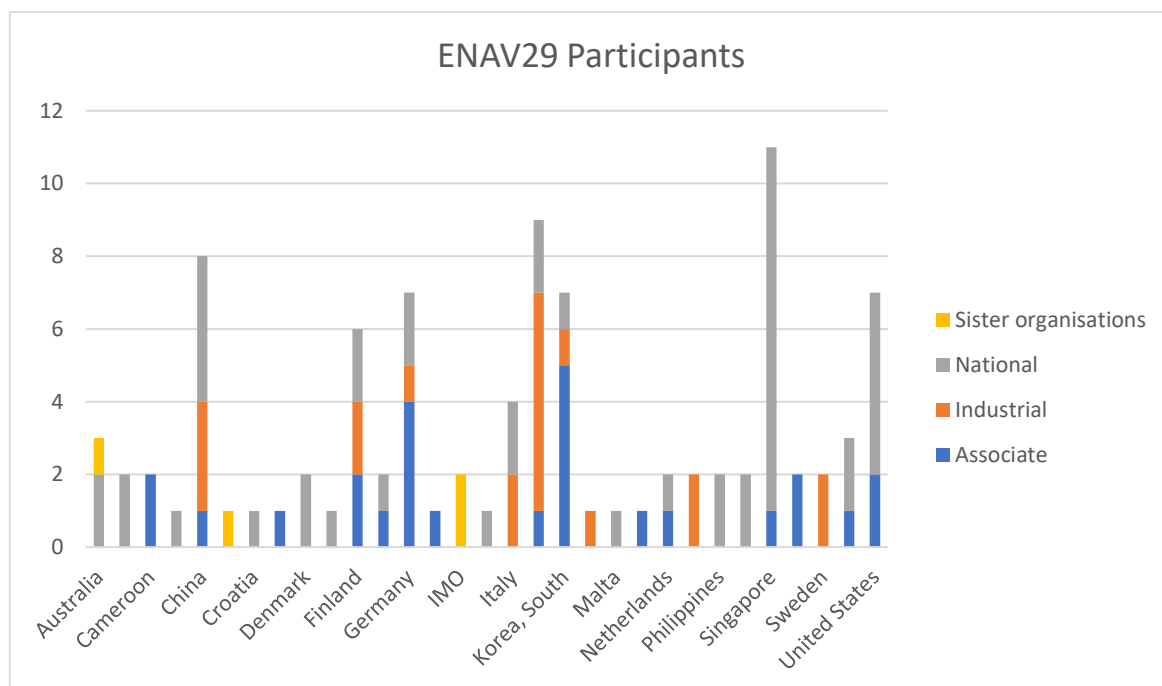


Figure 1 - Number of Participants per Country



## 1. INTRODUCTION

### 1.1 Welcome from the Deputy Secretary-General

The Deputy Secretary-General, Omar Frits Eriksson, welcomed all participants and was glad to see them all, hopefully for the last time in virtual mode since more and more countries have lifted or are in the process of lifting the restrictions and it seems the virus is getting weaker and will allow us to return to a normal life. The Secretariat have started normal work routine in the HQ and travel is starting to fill up the agendas again. The Deputy Secretary-General believes that the next round of committee meetings will be face to face, with a possibility to participate online if travel is not an option. Face to face meetings are recommended as soon as possible.

The Deputy Secretary-General recalled the successful signing ceremony of the new IALA IGO convention with a huge number of delegations. A fantastic day and with a great result, that 51 States signed the Convention. When 30 States have ratified, accepted, or acceded to the Convention, IALA will be an IGO. That could happen within the next few years. The Secretariat is working on all the new structures and administrative issues that need to be in place for the new Organization.

The Deputy Secretary-General reminded everyone of the difficult times for the IALA friends and their families and in particular, the people of Ukraine. He 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 (ENAV29-1.2.1) was reviewed and adopted.

### 1.3 Introductions and apologies

The Chair welcomed all participants, 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. The purpose of this guide is to provide a common language, structure, and appearance.



This document is divided into three main parts:

- Style - Content (section 2) - this includes the preferred standards for grammar, language, punctuation, and spelling.
- Structure – Structure and formatting (section 3) - this includes how documents should be structured and ordered and includes the use of customised styles and fields in Microsoft Word.
- Appendices – including a supplementary table of spelling, a summary of the styles applied within the document templates and an extract from the IALA Branding Guidelines to illustrate the corporate colours.

## **2. REVIEW OF ACTION ITEMS FROM ENAV28 (ENAV29-2.1.1)**

### **2.1 Action Items – IALA Secretariat**

The Secretary informed that action items allocated to the Secretariat had been completed and further progress should be pursued in the collection of Application Specific Messages (ASM) – VHF Data Exchange (VDE).

### **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 74 (ENAV29-3.1.1), which was held in December 2021. The following points are relevant to note for the ENAV Committee:

- On 13 December 2021, the Strategy Drafting Group met to work on the Drivers and trends document, which is one of the strategic documents of IALA, and this will be finished at Council 75 session.
- The MOU signing ceremony between KRISO and IALA on Technical cooperation was held on 16 December 2021, which will enhance the cooperation on the MRN registry and other related areas.
- A mini MASS workshop was also arranged during the Council74.

#### **New and revised guidelines:**

- Revised G1078 The Use of AtoN in the Design of Fairways & Channels Ed2.0.
- Revised G1054 Preparing for an IMO Audit on Aids to Navigation Service Delivery Ed2.0.
- New G1162 The Marking of Offshore Man-made structures Ed1.0.
- New G1163 The Marking of Breakwaters and barriers Ed1.0.
- New G1164 Management of Maritime Resource Name Organization Identifiers Ed1.0.
- Revised G1065 AtoN Signal Light Beam Vertical Divergence Ed4.1.
- New G1165 Sustainable Structural Design of Marine Aids to Navigation Ed1.0.
- Revised G1014 Accreditation of VTS Training Organizations and Approval to Deliver IALA VTS Model Courses Ed4.0.
- Revised G1110 Use of Decision Support Tools for VTS personnel Ed2.0.
- New G1166 VTS in Inland Waters Ed1.0.

- New G1167 VTS Management Ed1.0.
- Revised G1128 The specification of e-navigation technical service Ed1.3.

#### **New and revised recommendations:**

- Revised R0139 The Marking of Man-made Offshore Structures Ed3.0.
- Revised R0126 The Use of AIS in Marine Aids to Navigation Ed2.0.

#### **Revised model courses**

- Model Course C2001-8 L2 Module 1.13 Maintenance of Steel Buoys Ed3.0.
- Model Course C2001-9 L2 Module 1.14 Power Sources on Buoys Ed3.0.
- Model Course C2007-1 L2 Module 7.1&2 Racons Ed3.0.

#### **Withdrawn IALA Recommendation R0200 overview of E-200 series (E-200-0).**

#### **Update to VTS documentation on the adoption of revised IMO resolution A.1158(32)**

- 11 recommendations
- 26 guidelines
- 7 model courses

#### **Update of the current drivers and trends**

#### **Approved the revised committee workshop programme for 2018-2023**

In ARM, a survey was conducted AIS ASM, an input paper could be found providing more information: ARM15-3.2.3 ASM survey result and ARM15-3.2.6 Update on submission to NCSR9 on AIS connection to ECDIS.

#### **3.1.2 IALA Policy Advisory Panel**

Minsu Jeon provided the committee with the outcomes of PAP 44, which was held virtually from 8 to 10 February 2022. The following points were highlighted to the participants:

- One IALA guideline on MASS lead by ENAV and with the following potential structure:

Committee	Section to develop in the Guideline
ENAV	Overall document owner
	Communication media
	Data transfer standards
	Cyber Security
	VTS interaction with MASS
VTS	Safe and efficient operations
	Communications - operational requirements
	VTS - Portrayal Management
ARM	Portrayal
	Spatial Awareness
	Interaction with manned vessels
	Risk Management & Assessment
ENG	PNT
	Position augmentation
	Power availability
LAP	Conventional AtoN visibility to MASS
	Liability

- Sustainability (PAP44-6.1.6.1) is a matter of discussion and two input papers for ENAV were received during the working session ENG15-12.0.1 Liaison note to all committees on sustainability workshop and ENG15-12.0.2 Sustainability Workshop proposal for information and further considerations.
- The new IMO resolution on VTS guidelines A.1158(32) was adopted by the IMO Assembly 32
- Maritime services in the context of e-navigation: PAP discussed the work plan of each Committee. Dave Lewald, Vice-Chair of ARM (USCG) is leading the group, and the output to be submitted to

NCSR9 on consideration of descriptions of maritime services in the context of e-navigation is part of the IALA's contribution to the development of the description of the maritime services

- A new workshop is envisaged on digital maritime radiocommunication infrastructure, and an input paper was submitted to ENAV29: ENAV29-5.2.5 refers to the workshop proposal.

### 3.1.3 MASS group update

Jillian Carson-Jackson introduced the developments made related to the topic of MASS. PAP agreed that ENAV will lead the task of developing a guideline, and she highlighted that the MASS related technologies are continuously developing. Therefore, it is expected that the guideline should be a living document considering new updates.

## 3.2 Digital@Sea

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

- Digital@Sea North-America in Tampa, Florida, US, 11-12 May 2022
- Digital@Sea Asia-Pacific in Q3 2022
- Digital@Sea International in 2023

## 3.3 IMO

The Chair provided a summary of milestones reached during the recent IMO meetings. Three meetings were held after ENAV28 in IMO and relevant for ENAV Committee:

- IMO Assembly 32: IMO adopted the VTS Guideline A.1158(32) after several years of work in the IALA VTS Committee
- MSC104: agreement on the development of goal-based MASS instruments targeted to be completed in 2025. MSC105, in April 2022, will start this activity. ENAV is envisaged to contribute to these instruments regarding digital communications and digital information.
- 17th meeting IMO/ITU joint experts' group on Maritime Radiocommunication Matters: was held in November 2021 with high participation of ENAV members. The ENAV29-5.2.11 refers to the Liaison statement to international maritime organization on the revision of recommendation ITU-R M.1371-5 and seeks the view of IMO on the way to indicate that the equipment (AIS SARTs, Class M MOB devices and 406 MHz radio beacons) has been manually switched off and facilitate the SAR authorities to effectively take appropriate actions. It was decided to answer IALA during the NCSR9.

## 3.4 IHO

Minsu Jeon informed that the IALA IHO joint workshop on S-100/200 development and portrayal has been confirmed to be held from 5 to 9 September 2022, in Aalesund, Norway. He reported that the 6<sup>th</sup> IALA-IHO technical coordination meeting was held on 26 November 2021. The session covered updates on S-100 and S-200 in general:

Domain	PS	Title	Developer	Version
<b>AtoN</b>	S-201	AtoN information	ARM	1.0.0
	S-240	DGNSS almanac	ENG	1.0.0
<b>Positioning</b>	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
<b>Comms.</b>	S-230	Application Specific Message (ASM)	ENAV	Planned
<b>VTS</b>	S-210	Inter VTS exchange	VTS	Started
	S-211	Port Call Message	IPCDMC	1.0.0
	S-212	VTS digital information service	VTS	0.6.4

The IHO GI Registry concept register Domain Control Body (DCB) workshop was held on February 2022 aiming at supporting IHO since IALA is acting as a DCB.

### 3.5 ITU

#### 3.5.1 ITU-R WP5B

Stefan Bober provided participants with an update on ITU-R WP5B matters; ENAV29-3.5.1 Report on ITU-R WP5B meeting 29 November to 12 December 2021; aeronautical mobile service and radiodetermination service. IALA has a specific interest in Maritime mobile service, including Global Maritime Distress and Safety System (GMDSS) and radiodetermination service, with particular emphasis on the development of VHF Data Exchange System (VDES), Automatic Identification System (AIS), Autonomous Maritime Radio Devices (AMRD) and e-Navigation.

The following documents and topics of interest for IALA were reviewed, among other areas of interest for the group:

- Revision of Recommendation ITU-R M.2092-0 (VHF Data Exchange System - VDES) with possible action in ENAV WG3 on the revision of G1139 according to the development at ITU WP5B as appropriate.
- Revision of Recommendation ITU-R M.1371-5 (Automatic Identification System - AIS). IALA is invited to monitor the expected reply liaison note from IMO on the revision of Recommendation ITU-R M.1371-5 and provide additional input to ITU WP5B as appropriate.
- WRC-23 agenda item 1.11 (Modernisation of the GMDSS and implementation of e-navigation) VDES and NAVDAT are in place thus, there are no new expected allocations of frequencies for e-navigation systems.

### 3.6 IEC

Stefan Bobber informed about the progress on IEC TC80 WP15 on technical standardisation of AIS/VDE, is at the stage to prepare a new work item proposal for VDES station addressing VDES functionality, mobile side / shipborne side, and shore side. Within two years, the group should be ready to prepare a new standard.

The Vice-Chair, briefed about the progress on IEC reporting on the work on the third edition of the Navigation presentation standard (IEC 62288). The display of AIS AtoN Mobile AtoN, AIS was addressed in this edition, published in December 2021 and available for download.

### 3.7 RTCM

Jorge Arroyo continued with the update on RTCM, two activities impact in ENAV committee through the circulation of two guidelines for approval:

- 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.
- SC137 on Electromagnetic Interference between LED lights with VHF and AIS to work with IEC

Both guidelines will be closed for comments in March 2022 and published for the summer 2022.

RTCM will be hosted by Digital@Sea in Tampa in May.

### 3.8 ETSI

Derek Love provided an overview of the progress of ETSI TG Marine concerning the update of standards and activities: cyber task group and how cyber threats impacts marine radio in particular. The use of MMSI, AIS matters are also addressed. DSC regarding bridge management and remote control is proceeding fine. The man overboard standard is also under approval. Digital voice for marine technical report was also published by the group but has been stopped for some considerations. Inland waterways and non SOLAS radars standardisation is underway.

### 3.9 3GPP

Minsu Jeon informed that the 3GPP representative Hyounhee Koo would deliver an update on the developments during the opening plenary.

## 4. PRESENTATIONS

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

### 4.1 Update on Sternula's AIS 2.0 (VDES) satellite network - Lars Moltsen / Sternula

Lars Moltsen (Sternula ApS, Denmark) presented the opportunities with AIS 2.0, recalling the reason to speak about AIS 2.0, which has only a commercial purpose to make more comprehensive for the user. Lars stressed the following matters:

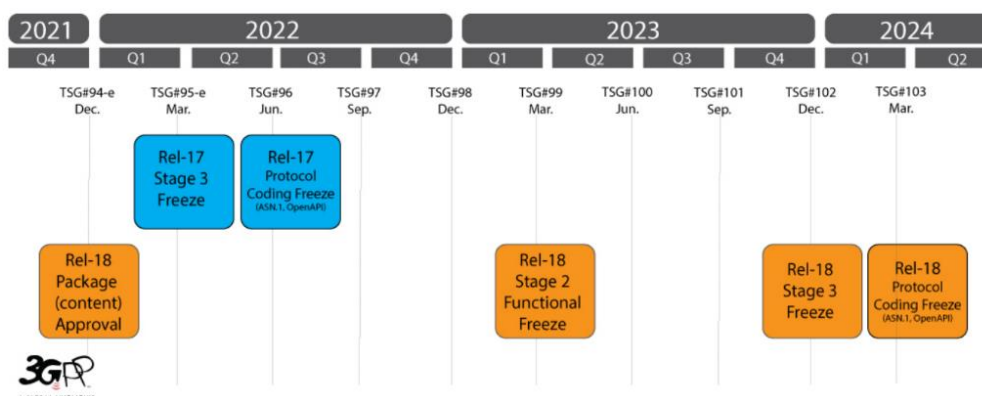
- The add-on of VDES services that could be provided based on the need for digitalisation of the maritime services; being public as those included in the IMO eNavigation strategic implementation plan – distribution of MSI, VTS among others or more commercial services: booking different resources.
- The Sternula solution overview as a new maritime IoT network including ship-to-ship / ship-to-shore (coastal and satellite), the downlink is an essential part for the digital services.
- Roadmap of the operations with the launch of the first satellite in October 2022 for VDE-SAT and at test status for VDE-TER. The number of satellites is expected to be 20 in orbit in 2026 providing availability of satellite on view relatively high.
- The example to monitor the 'green profile' through VDES was provided presenting the architecture of the system.
- The worldwide AIS 2.0 demo project was presented, sign up available: [Worldwide AIS 2.0 Demo \(sternula.com\)](https://www.sternula.com). It permits to implements an own test service or subscribe to receive virtual Aids-to-Navigation / receive MSI messages / receive AIS 2.0 weather bulletins.

### 4.2 Startup of a project of digitization of the North Sea (Dutch part) - Cas Willems / RWS

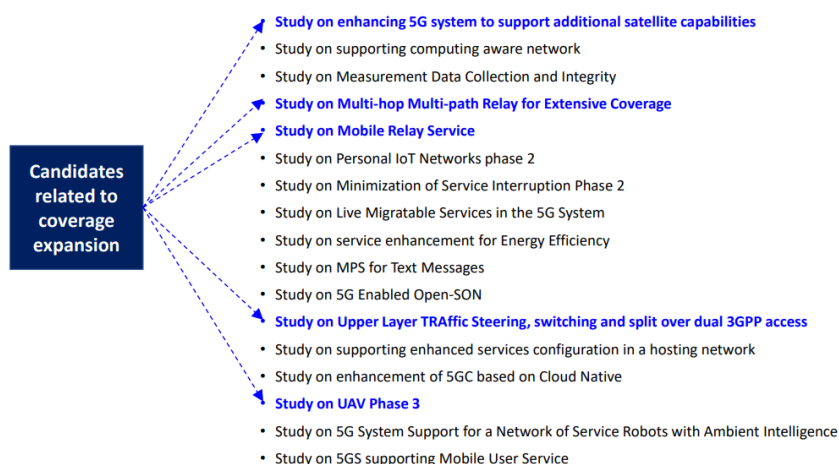
Cas Willems presented the initiative in the North Sea and the Netherlands related to more digital and connected waters. A number of activities are running in the North Sea to enhance the sustainability of a blue economy, autonomous shipping and smart mobility, environment protection among others. All these initiatives (providing services, innovation, research and etc.) have in common the need for data and information, intelligence and connectivity in common. The number of projects and supporting policies from the EU (EU Green deal, EU marine strategy framework directive, Maritime spatial planning directive, Blue economy...) brings the North Sea to a more digital and competitive area. Cooperation between Governmental administrations, international bodies, industrials and innovation and research centres remains vital to leverage such initiatives. Realisation of the basic infrastructure and fostering digital facilities will be a clue for the digitalisation of the North Sea. The implementation of the program for digitalisation is an interdepartmental/interministerial activity but also coming from non-governmental stakeholders. Cas requested cooperation from the participants if their organisations are interested in such initiative.

### 4.3 3GPP update - Hyunhee Koo / 3GPP

Hyunhee Koo, 3GPP representative, briefed about the work done in 3GPP Release 18: Prioritization for 5G-Advanced recalling the timeline for the release 17 and 18:



The maritime requirements were presented in a 3GPP workshop in September 2021 with the collaboration of IALA, 3GPP members and industrials. The following stages for the standardisation of these technologies are depicted in the roadmap above. The roadmap for the Release 19 was also presented, and the content definition timeline. Hyunhee also presented the overview of the Rel-18 prioritisation with a focus on all the studies carried out or in progress by the number of working groups (System architecture services, Security and privacy, and Radio layers). The requirements for the maritime environment were presented at the 3GPP TSG SA workshop held on 9-10 September 2021. The following technologies or concepts are prioritised: Coverage/positioning – Broadcasting IoT – Globally harmonised interoperability. Related studies to each of the prioritisation are depicted in the presentation. Another activity launched is the standardisation for Rel-19 with also a number of studies. The objective of these studies is to analyse use cases and potential requirements for 5G systems providing integrated communications and sensing services. An ambient IoT study was also agreed to further develop aiming at supporting ambient power-enabled Internet of Things. The following scheme presents the number of studies related to Rel-19:



#### 4.4 [Presentations during the working period: 5G precise positioning for Ports - Jean-Michel Rousseau and Shyamal Ramachandran / Qualcomm](#)

The Committee noted that a presentation on 5G precise positioning for Ports was scheduled on 16 March 2022. The record and discussions over the Q&A are available in the presentation section of the dashboard.

## 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: the liaison notes regarding Sustainability; R-Mode standardisation and the work on the Information paper to NCSR9 related to Digital VHF communications and VDES R-Mode, which was inputted to ENG15, and some progress was achieved in the ENG Committee. The workshop proposal from Japan Coast Guard on Digital maritime radiocommunication infrastructure was also highlighted during the meeting. The late inputs are requested to be addressed during the committee season.



## 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 29<sup>th</sup> session of the ENAV committee, the WG1 – Digital Information System worked on several tasks regarding cyber security, AtoN technical service specification, Maritime Resource Names, and e-Navigation guidance documents. The WG1 reviewed six input papers, three task groups (including two inter-sessional TG on technical service specifications for AtoN and VTS) were established, and a draft recommendation and a draft guideline on cyber security in the domain of IALA were produced in collaboration with ARM. The following sections provide detailed descriptions of the work.

### 7.1 Review of Work Plan

**Referencing Document(s):** ENAV29 WG1 Work Program

The workplan was introduced, reviewed and adopted by the WG.

### 7.2 Task 2.2.1 on Developing Technical Service Specifications for the Provision of AtoN Information

**Task leader:** Thomas Christensen

**Referencing Document(s):** ENAV29-5.1.1.1 Work on a technical service for provisioning of AtoN information.

A technical service specification for an AtoN information service, including the definition of its organizational context is required for the provision of AtoN information on an operational level. The WG1 has already started to work on this matter in ENAV28 in cooperation with the ARM committee. The current working document of the TG was submitted as an input paper to ENAV29. In the joint TG with ARM, new updates to the data model of S-125, the technical part of the service specification and further high-level aspects were discussed and will be adapted in the document in future work sessions.

**Output Document(s):** ENAV29-12.1.1 Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 data model.

#### Action item

*The **Secretariat** is requested to submit the working paper ENAV29-12.1.1 Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 data model as an input paper to ENAV30.*

*The **Secretariat** is requested to inform ARM members of two inter-sessional meetings ENAV/ARM to progress on the data model of S-125.*

*The **Committee participants** are encouraged to contribute to working paper ENAV29-12.1.1 Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 data model and to provide input to ENAV30.*

*The **Committee participants** are encouraged to participate in the intersessional group working on the development of a Draft Technical service specification for the provisioning of AtoN information to end users*

and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the intersessional meetings will be published on the IALA calendar.

### 7.3 Task 2.4.2 on Cyber Security

**Referencing Document(s):** ENAV29-5.1.2.1 Considerations for developing network security equipment in maritime domains to support MASS operation. ENAV29-5.2.2 Final report on the IALA Workshop on Cyber security. ENAV29-5.1.3.2 Input on development of Guidelines on AIS VDES VDL integrity monitoring

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 two draft documents focus on the IALA-specific aspects of cybersecurity, namely Maritime Services in the context of e-Navigation and AtoN, including VTS. A Liaison Note, requesting the review, comments and amendments on the recommendation and guideline was approved in the ARM committee and was sent to all technical committees. The task group hopes to proceed on the documents during the fall committee meetings, depending on the received input and the possibilities to cooperate inter-committee when meetings will be physical again in the fall. Various other topics following the report of the cyber security workshop have been discussed and may lead to further action during the next working period.

The task group is requesting interested members to provide input, especially on the cyber security of non-IP and low-bandwidth communication channels. In particular, the TG is looking for input related to IEC 63173-2: SECOM (S-100) (supporting IP-based communication) to support other non-IP data exchange technology, e.g. AIS, VDES, etc. to provide input to IEC TC80 WG17 in the next sessions.

**Output Document(s):** ARM15 Liaison note from ARM to all committees on cyber security

#### *Action item*

*The **Committee participants** are encouraged to provide input regarding cyber security of non-IP and low-bandwidth communication channels (related to IEC 63173-2: SECOM) to ENAV30.*

### 7.4 Task on MASS Requirements for Maritime Services

**Task leader:** Jin H. Park

**Referencing Document(s):** None

In the ENAV 28, a liaison note to PAP (MASS task force) was produced, including a request for further analysis of establishing a MASS remote control service as a new Maritime Service (MS). Jin H. Park reported that the request to start work on this item was rejected by PAP, as the status in this area is not yet sufficient to work on it further, and it is still not clear if IALA would be a domain coordinating body for such an MS. Also, no further input papers were received that are related to the work of the TG. For this reason, the TG was inactive during this session.

#### *Action item*

*The **Committee participants** are encouraged to provide input papers regarding MASS Requirements in Maritime Services to ENAV30.*

### 7.5 Technical Service Specification for VTS

**Task Leader:** Thomas Christensen

**Referencing Document(s):** None

The need for a Technical Service Specification for VTS was already proposed in earlier committee meetings. In a joint meeting between committee members of ENAV, ARM and VTS it was decided to start a new task for the development of such a service specification, based on the template of IALA G1128.

#### *Action item*



The **Secretariat** is requested to approve the task group plans for an initial joint ENAV, ARM and VTS inter-sessional meeting to start work on a Technical Service Specification for VTS; and.

Encourage **ARM, ENAV and VTS Committee participants** to participate in this work and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the meetings will be published in the IALA calendar.

## 7.6 Task 2.4.1 / 2.4.3 on Maritime Resource Names

**Referencing Document(s):** ENAV29-5.2.13 Maritime Resource Registry

An information paper on the Maritime Resource Registry (MRR) was received by WG1. Thomas Christensen (and Jin H. Park) presented the work on the MRR, which is currently being conducted in a collaboration between the IALA secretariat and KRISO:

- The MRR serves the purposes of being a repository for IALA documents using MRNs are the unique identifier for the documents, being a repository of MRN's and being a management system for OID's (organisations that have a sub-domain of MRN).
- In general, the MRR mainly contributes to a more comprehensible mapping of (real-world) entities and MRNs.
- Given an MRN, the MRR could provide additional metadata (like the type of the resource) and link to external information (e.g. a S-201 dataset for a MRN identifying a buoy).
- In a first application, the MRR could be used to manage IALA documents and establish a strong relation between MRN identifiers and documents. It is envisioned that a first instance of the MRR will be available via the IALA website to search IALA documents.
- In future applications, the MRR will be implemented with a similar hierarchical approach as the MRN itself: Multiple MRN OID-owners could provide their own (local) MRRs, being referenced via the IALA MRR.
- An early prototype is currently being developed by KRISO and IALA Secretariat.

The aspects of the population of local MRR instances, potential use-cases, the re-use of identity types in multiple MRN namespaces, problems in consistency when information in MRRs is being changed, and the future vision of the MRRs in relation to the MRN definition were discussed in the WG as an input for the further development of the MRR concept.

### Action item

The **TG2.4.1/.3 on Maritime Resource Names (MRR)** shall inform ARM TG-5.1.8 of the ongoing work on the MRR.

## 7.7 Task 2.2.3 on the Position Paper on Maritime Services

This topic originated from Task 2.2.3 in the WG1 task list: Develop a Position Paper on the concept of Maritime Services as basic concept of e-Navigation (Quality of Services, Service Level Agreements). As there were no resources in the WG to process this task, no task group was established, and the task was postponed to the next sessions.

## 7.8 Global Maritime Digital Route Transition / Testbed

**Referencing Document(s):** ENAV29-5.2.12 Report of a workshop on Global Maritime Digital Route Testbed

An input paper on the workshop on Global Maritime Digital Route Transition/ Testbed (GMDRT) was received by the WG1 and presented by Jin H. Park in the third WG1 coordination meeting. The GMDRT is focusing on providing a unified a global scale digital maritime testbed to enhance connectivity and accessibility to digital maritime services all over the world. Future collaboration with members from IALA regarding the GMDRT is also envisioned to become a new initiative in IALA. Details of the workshop can be found in the workshop report (ENAV29-5.2.12).

### Action item

*Jin H. Park is requested to monitor and report on the further activities of the Global Maritime Digital Route Transition (GMDRT).*

## 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.

A number of WG sessions, were held over the course of the session. The WG focused on the following tasks:

- 1.1.5 - Review of Emerging Technologies
- 2.2.10 – Develop Guideline on IoT to support IALA members
- 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).
- 3.4, 3.4.2 - Monitor developments in International Mobile Technologies (IMT) (formerly referred to as 3GPP), liaise with IMO NCSR regarding 3GPP activities
- 3.4 (related) – Artificial Intelligence / Machine Learning Guideline
- 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)

All input papers for WG2 were addressed. The working group continued its work to identify future work items for work term 2023-2027 and potential work items were agreed to be forwarded for further consideration.

### 8.1 Task 1.1.5 on review of Candidate Technologies

**Referencing Document(s):** ENAV28-12-2-2 and related Orolia presentation were reviewed.

Related working papers from ENAV28 were reviewed. In addition, ENAV 29 received a presentation from Qualcomm on [5G Precise Positioning for Ports](#).

#### 8.1.1 Review of Orolia

The IALA Guideline 1153 Technology Review Template for Orolia was reviewed, updated and identified as completed. Key changes included:

1. All track changes were reviewed and accepted
2. All comments and questions have been responded to, and comments to be deleted
3. The presentation reviewed by John Fisher to ENAV28 was attached to the review
4. The list of applicable patents was attached to the final Technology Review template

The completed review ENAV29-12.2.5 G1153 Template for the review of emerging technologies for possible use by IALA members: Review table; joins the other complete technology reviews that reside on the IALA File Share and can be accessed by IALA members as required. The technology review documents should be brought to the attention of the appropriate IALA Committees. An updated summary document of technologies reviewed to date is also included in the same folder on the [File Share](#).

### Action item

*That the **ENAV Chair** provides a verbal update on the developments regarding Orolia to the ENG Chair at PAP.*

#### 8.1.2 [Qualcomm – 5G Precise Positioning](#)

WG2 arranged for a presentation on 3GPP positioning technologies that may be of interest to IALA. Besides the positioning features of 3GPP Qualcomm also described in some detail the use of Private Networks and

how these could be used in the maritime domain. It was determined that this activity would be of interest to the ENG Committee. A liaison note was reviewed and approved to be forwarded to the ENG Committee: ENAV29-12.2.4 Liaison note ENG on 5G Precise Positioning.

Members are reminded of the opportunity to identify candidate technologies for review, using the template provided in IALA Guideline 1153.

#### *Action item*

*The **Committee participants** are requested to provide information on candidate technologies for review using the template provided in G1153 on the template for the review of emerging technologies for possible use by IALA members.*

*The **Secretariat** is requested to forward the liaison note on the presentation related to 5G precise positioning (Qualcomm) (ENAV29-12.2.4) to ENG16.*

### **8.2 Task 2.2.10 on Maritime Internet of Things**

**Task Group Leader:** E Batty

**Referencing Document(s):** ENAV 27-12.2.7 Draft guideline on the internet of things

This task is related to tasks 1.1.5 and 3.4.2.

Following ENAV27, input from Committee Participants was requested on ENAV27-12.2.7 (Action Item 17 from ENAV27). No input was received. Noting this item is identified for consideration from both WG2 and WG3, it is proposed that an intersessional review of the draft document be carried out, with a date to be confirmed. Based on the intersessional review, a revised draft Guideline on Maritime Internet of Things will be provided to ENAV30, with the expectation that the document will then be finalised.

#### *Action Item*

*The **Committee participants** are requested to note the proposed online intersessional session to review and revise the draft Guideline on Maritime Internet of Things (ENAV27-12.2.7) and contact Jillian Carson-Jackson ([jillian@icjconsulting.net](mailto:jillian@icjconsulting.net)) by 29 April 2022 if they wish to participate.*

### **8.3 Task 3.1.2, 3.1.4 on Maritime Radio Communication Plan**

**Task Group Leader:** E Batty

As agreed at past ENAV Committees. The draft Maritime Radio Communications Manual, as developed at ENAV28 with further inputs provided intersessionally, was reviewed.

Key points were identified for the document:

- Ensure the Mar Com manual reflects the needs of the IALA members
- All aspects require updating to reflect outcomes of WRC19 / items for WRC23
- Confirm the status of the Annexes – leave with the document or provide in a separate, digital, format
- Take into consideration (as appropriate) the outcomes of the technology reviews during the 2018-2023 IALA workplan
- Opportunity to provide hyper links within the new document presentation (online mar com manual) in a manual similar to that of the IALA VTS Manual
- Opportunity to identify a process for ongoing updates to the IALA MarCom Manual in a manner similar to that used for the IALA VTS Manual.

The working document resides on the file share and will be further developed intersessionally and forwarded to ENAV30 for final review. During the intersessional work, the options for publishing the e-version of the MarCom Manual will be discussed with IALA Secretariat.

#### *Action item*

The **Committee participants** are requested to consider participating in the small online intersessional group to finalise the review of the MarCom Manual and contact Jillian Carson-Jackson ([jillian@jcjconsulting.net](mailto:jillian@jcjconsulting.net)), cc Ernie Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) by 29 April 2022, noting the dates and times of the intersessional meetings will be published on the IALA ENAV Committee Dashboard.

The **Committee participants** are requested to identify photos suitable for inclusion in the IALA MarCom Manual and provide these to Jillian Carson-Jackson ([jillian@jcjconsulting.net](mailto:jillian@jcjconsulting.net)), cc Ernie Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) prior to ENAV30.

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

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

**Referencing Document(s):** The presentation provided by 3GPP (H Koo) and input papers ENAV27-12.2.3 and 12.2.2.4 were reviewed.

The status of development of 5G was noted, including the key deadlines for release 17 and release 18. In response to the developments in IMT related to the termination of 2G and 3G services in selected countries a liaison note to all IALA Committees (ENAV29-12.2.3) was prepared. Noting that no comments had been received on the draft IALA Recommendation and Guideline on IMT (ENAV27 report refers) it was agreed that a final review of ENAV27-12.2.3 and ENAV27-12.2.4 would be completed intersessionally by the Chair and Vice-Chair of WG2, and that the documents would be considered for final review at ENAV30.

##### *Action Item*

The **Secretariat** is requested to forward the liaison note on the termination of 2G and 3G services in some countries (ENAV29-12.2.3) to VTS, ARM and ENG Committees.

The **Committee participants** are requested to note the final stage of development of the draft Recommendation and Guideline on IMT and provide comments Jackson ( [jillian@jcjconsulting.net](mailto:jillian@jcjconsulting.net) ), cc Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 29 April 2022.

#### 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

**Referencing Document(s):** ENAV29-5.1.2.1, ENAV29-5.1.2.5, ENAV28-5.2.10 and ARM15-7.3.11 were reviewed. In addition, IALA G1107 (MS Word Version) and input from the IALA VTS Committee on MASS and from PAP44 were reviewed

The report of PAP44, section 6.1.5 was reviewed, noting that the documents should be jointly developed cross-committee with each committee authoring different topics. ENAV was identified as the committee ultimately responsible for development of the Guideline.

Presentations from the VTS Committee (N Trainor) and the ARM Committee (G Tomren) provided additional input to the overall discussion on the development of a holistic guideline on MASS from the perspective of the IALA membership. A mind map was developed which captured the discussion points, and is available for review on the IALA FileShare, ENAV29 WG2 folder.

An action plan to develop the IALA Guideline on MASS was proposed as follows:

1. Develop the Table of Contents, based on the report from PAP44 and discussions at ENAV29 by 15 May 2022 (J Carson-Jackson, E Batty, J Alvarez)
2. Carryout a literature review of existing documentation against the ToC (15 May – 15 June 2022) (chapters to be shared, reviewed by J Alvarez, E Batty, J Moller, N Riendeau, D Rostopshin (or designate))
3. Where required, source additional input (July-August 2022) (E Batty, J Carson-Jackson)
4. Provide a draft document to IALA Committees (September 2022).

The publication of IALA G1161 - Evaluation of platforms for the provision of maritime services in the context of E-Navigation was noted.

The committee agreed that a revision of G1107 (as proposed in ENAV28-5.2.10) would be valuable to support the consistent reporting of test beds, going beyond the initial purpose of the guideline for reporting on test beds related to e-navigation. The draft work done by the IALA VTS Committee (as provided at ENAV29-5.1.2.1) was identified as a document that could provide value in the review and the overall structure of monitoring of test beds and trials of MASS. The revision of G1107 was agreed to be proposed as a new work item for the 2023-2027 work programme. A new work item has been proposed that considers the certification of MASS technology so far as this applies to IALA. See comments in section [8.8] Proposed work items for 2023-2027 work programme.

#### Action item

That the **Committee participants** who have agreed to participate in the review of the MASS Guideline contact Jackson ([jillian@jcjconsulting.net](mailto:jillian@jcjconsulting.net)), cc Ernie Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) by 10 May 2022 to commence the literature review against the draft Table of Contents.

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

This item was noted as completed at ENAV28.

### 8.7 Artificial Intelligence and Machine Learning

**Task Group Leader:** E Batty

**Referencing Document(s):** ENAV28-5.1.2.1.1: Draft Guideline on Artificial Intelligence and Machine Learning

Noting the developments in Artificial Intelligence (AI) and Machine Learning (ML), the draft guideline was reviewed and revised. The document will be further reviewed and revised for input to ENAV30.

#### Action item

The **Secretariat** is requested to forward the working document draft Guideline on Artificial Intelligence and Machine Learning (ENAV29-12.2.6) to ENAV30.

### 8.8 Proposed work items for IALA Work Term 2022-2026

Building on the work commenced at ENAV27 and developed further at ENAV28, a number of proposed task items were identified. These were scoped into new task proposals for further consideration by the IALA ENAV Management Team.

The items that have been drafted into work item proposals include:

- Development of future skill sets – digitalisation
- The Digital Fairway
- Digitization of VHF voice radio
- Template road map for the transition of technologies (test bed to implementation)
- Draft Guideline on the process for certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA
- Review and update of IALA Guideline 1107

It was noted that the proposed new work items would be required for final review at ENAV30.

#### Action item

The **Secretariat** is requested to forward proposed new tasks, as provided in the task proposal templates, to PAP for consideration in the development of the future work programme for IALA Committees in 2023-2027.

### 8.9 Additional items

Input papers for proposed workshops ENAV29-5.2.5.1, ENAV29-5.2.14 and ENAV29-5.2.15 as well as input papers ENAV29-5.2.4, ENAV29-5.2.8 were reviewed.

The working provided a number of suggested amendments and additions to the workshop proposals, as provided to the ENAV Chair and ViceChair for action as appropriate:

- ENAV29-12.2.1 Workshop proposal on Digital Maritime Communication infrastructure ENAV29 review
- ENAV29-12.2.2 Workshop proposal on Sustainability ENAV29 review

ENAV29-5.2.8 on the revision of Recommendation R1001 – The IALA Maritime Buoyage System (MBS) Edition 2 was noted.

*The **Secretariat** is requested to forward the workshop proposal on Digital Maritime Communication infrastructure (ENAV29-12.2.1) to the Council<sup>75</sup> for approval.*

*The **ENAV Chair** is requested to forward the proposed workshop review on Sustainability (ENAV29-12.2.2) to the ENG Chair at PAP.*

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

### 9.1 Synopsis of the session

The working group planned the coming activities and strategy for making VDES a complete e-Navigation transport mechanism, among other activities. Intersessional meetings were planned to continue related to the IEC/IALA joint working group to further support the implementation of VDES.

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

### 9.2 General

#### 9.2.1 Agenda

The agenda for the working period was reviewed and followed with precise dates for each of the activities planned.

#### 9.2.2 Status

ENAV Task list (ENAV28-12.0.3) walked through and updated the status.

The group took note of the status from:

- IMO: In NCSR9, the VDES discussions are not on the agenda anymore; however, the revision of ITU-R M.1371-5 (AIS) is still planned. For NCSR 10, the VDES performance standard will be discussed together with the amendments of SOLAS in January 2026.
- IEC: The joint IALA ENAV WG3 and IEC work group meetings did not happen as planned, due to COVID 19, it was held as a virtual meeting 2 weeks before ENAV29, with outputs relevant for the update of G1117. At this workshop, the commitment to R-mode as one important use case of VDES was confirmed. IEC TC80 WG15 proposes a new work item proposal for a VDES Test Standard; this group invites technical experts to participate and contribute to the work, Stefan Bober [Stefan.Bober@wsv.bund.de](mailto:Stefan.Bober@wsv.bund.de) will lead this activity.
- ITU: ITU-R M.2092-1 is published. Revision of ITU-R M.1371-5 is waiting on a response from IMO on the liaison that is circulated through IALA, CIRM, IMO to clarify the use cases of the proposed changes to ITU-R M.1371-5. The revision of ITU-R M.2135 creates heavy debate on the AMRD group B. WRC-23 AI 1.11 (Implementation of e-Navigation) handling the spectrum need for e-Navigation, did not result in any new spectrum need above what we have for NAVDAT and VDES; R-Mode and digital voice on VHF are planned for the WRC-27 agenda, but the approval is needed in WRC-23. The revision of ITU-R M.585 is approved with a new AMRD numbering scheme and base station, publication by ITU is expected for May 2022.



- RTCM: SC121 will help to standardize how e-Navigation over VDES can happen, ASM's offloading from AIS1 and AIS2 to the new channels, SC138 starts working on R-mode in 2-3Q2022, the group invites experts to participate by contacting Johnny Schultz [Johnny.Schultz@sev1tech.com](mailto:Johnny.Schultz@sev1tech.com) by e-mail (RTCM membership not required, please provide if you are RTCM member).
- MCC: Draft Maritime Messaging System Description started, expecting input to RTCM in August 2022, this group invites technical experts to participate and contribute to the work, Stefan Pielmeier [stefan@sternula.com](mailto:stefan@sternula.com) will lead this activity.

### 9.2.3 Inputs

**Referencing Document(s):** The following documents were reviewed and allocated to the tasks:

- IMO Liaisons and others:

ENG15- 12.3.5 Liaison note to ENAV IMO position on VDES and digital VHF Support at WRC-27

ENAV29-5.2.5/.1 Workshop on Digital maritime radiocommunication infrastructure

- Task 3.3 (AIS):

ENAV29-5.2.7 Input on the RTCM Standard 12100.0 on Creation and Qualification of ASM

ENAV29-5.2.7.1 RTCM Standard 12100.0 on Creation and Qualification of ASM

- Task 3.2 (VDES):

ENG15- 12.3.4 Liaison note to ENAV R-Mode Standardization

- New Task (new work programme):

ENAV29-5.1.3.2 Input on development of Guidelines on AIS/VDES VDL integrity monitoring

ENAV29-5.1.3.2.1 Draft Guideline AIS/VDES VDL integrity monitoring

- Task 3.2 (G1117):

ENAV-29 5.1.3.4 Revision of G1117 as of the beginning of March 2022

ENAV-29 5.1.3.4.1 Spreadsheet with use cases included in G1117 revision

G1117 homework inputs: edit the shared document until 2022-03-16, 11UTC.

### 9.2.4 Urgent liaison notes

Hideki Noguchi presents the draft input to NSCR 9 on WRC23 AI 10 (ENG15-12.3.6) for R-mode and digital voice with dPMR. The group did not find any amendments and agreed to output the documents for silent committee approval.

#### Action item

*The **Secretariat** is requested to forward the Information papers: ENAV29-12.0.1 Report of the trial on digital voice communication in maritime VHF band; ENAV29-12.0.2 VDES Ranging mode NCSR9; and ENAV29-12.0.3 Proposal on WRC-23 agenda item 10 to IMO to council members for correspondence approval. The Secretariat is requested to submit the approved papers to IMO latest by the deadline of 18 April 2022.*

### 9.2.5 Proposal on IALA Workshop on digital maritime radiocommunication infrastructure

Hideki Noguchi proposed to consider the members of WG3 to participate in a workshop in the spring of 2023 in Tokyo on the topics presented in ENAV29-5.2.5 and ENAV29-5.2.5.1. The group discusses further on the topic of NAVDAT: Ross Norsworthy notes that the complexity to change from NAVTEX to NAVDAT could be a potential workshop topic, with potential solutions being in keeping NAVTEX and introducing NAVDAT in the 4 MHz band (HF).

## 9.2.6 MRCP

The group agreed that Yoshio Miyadera represents WG3 in the WG2 sessions starting 17 March. The group members were asked to review ENAV29-5.1.2.2 and either to provide input to Yoshio before 17 March or to participate themselves.

## 9.2.7 AIS document structure update

Hideki reports from PAP: Standards, Recommendations, Guidelines are difficult to change the hierarchy. National members initiative would be needed to drive such a complex task, noting the official feedback from [/Committees/ENAV/WG3/20220314 ENAV29/INPUT/ENAV24-12.3.8](#) on the original PAP action item. The recommendation from Hideki Noguchi is to consider creating an e-Navigation manual. However, it is understood by PAP that the current AIS documentation needs to be updated with VDES. The group seeks volunteers to draft the changes of the existing AIS documents together with the originator of the proposal, Jean-Francois Coutu.

### Action item

*The **ENAV Chair** is requested to provide feedback from the next PAP meeting on PAP39-5.1.1 related to Proposed e-navigation documentation architecture & update in order to allow ENAV to establish correctly the ENAV 2023-2026 work programme.*

## 9.3 Task 3.3 Revision of ITU-R M.1371-5 (AIS)

ITU asked IMO on the topics to revise ITU-R M.1371-5.

Stefan Bober presented the ENAV27 prepared liaison from IALA to ITU and IMO to remind the group about the different improvement topics. Jeffrey van Gils presented the working paper that could be found in [INPUTS/1371-5/20220317 views on 1371 Jeffrey.docx](#) and, with the group developed it to represent all known views on the topics. This overview is intended to support the preparation of NCSR9 and is available to ENAV29 committee members [on the file share](#).

### 9.3.1 New Work Programme 2023-2027

The group agreed to add new work items to:

- maintain and update all AIS and VDES related IALA documents
- creation of new guideline(s) and liaisons with IMO/ITU on the important topic of transition static and non-dynamic data reporting away from AIS channels on the ASM and VDE channels.
- below screenshot depicts the tasks willing to be progressed within the next work programme:

#.#	Topic	#.#	Task   Session legend: - Scheduled, = Scheduled for breakout; + Unscheduled, new on agenda; + Progressed; x Not progressed; > Outputted; < On hold; ^ Withdrawn; # Completed	Output Type	WG
3.1.	Maritime Radio Communication Plan	3.1.	Develop a Guideline on the implementation of Maritime Radiocommunication Plan	Guideline	3
3.4.	Other digital communication technology	3.4.	Develop a Recommendation on narrow bandwidth marine safety information systems (i.e. NAVDAT, NAVTEX, MF beacons) (confirm wording with regards to revised ToR)	Guideline	3
3.3.	Automatic Identification Systems	3.3.	Liaison Statement to ITU on working document towards a preliminary draft revision of Recommendation ITU-R M.1371.docx	Liaison	3
3.2.	VHF Data Exchange System (VDES) applications	3.2.	Liaison with ITU-R WP58 in development of ITU-R M.2092-1	Liaison	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA 1008 on the AIS Service into a VDES Recommendation	Rec	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA 1050 on Management and Monitoring of AIS Information (Dec 2005)	Guideline	3
3.2.	VHF Data Exchange System (VDES) applications	3.2.	Revise IALA 1139 on the VHF Data Exchange System (VDES) for shore infrastructure, as needed	Guideline	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA A-123 on the Provision of Shore Based Automatic Identification System (AIS) into a VDES Recommendation	Rec	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA A-124 into a Guideline	Guideline	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA ENAV 144 on Harmonized Implementation of Application Specific Messages (ASMs) (May 2013) e-Nav 144	Rec	3
3.3.	Automatic Identification Systems	3.3.	Revise IALA ENAV 144 on Harmonized Implementation of Application Specific Messages (ASMs) (May 2013) e-Nav 144; coordinate w/ARM, VTS	Rec	3
3.2.	VHF Data Exchange System (VDES) applications	3.2.	Revise IALA G1117 on VHF Data Exchange System (VDES) Overview	Guideline	3
3.2.	VHF Data Exchange System (VDES) applications	3.2.	Revise IALA R1007 on VDES service shore infrastructure	Rec	3
3.6.	Autonomous Maritime Radio Device (AMRD)	3.6.	Support ARM in the development of a Guideline on AMRD	Liaison	3
3.2.	VHF Data Exchange System (VDES) applications	3.2.	Support eNAV by reporting on eNAV test beds per IALA G1107	Guideline	3
2.2.	Maritime Services	2.2.	Support WG2 in the development of a Recommendation on Maritime Internet of Things (Intelligent sensors, AtoN monitoring)	Liaison	3
3.4.	Other digital communication technology	3.4.3	Working document towards a preliminary draft revision of Annex 2 of Recommendation ITU-R M.585-7.docx	Liaison	3



### Action item

The **Secretariat** is requested to forward the ENAV WG3 tasks related to the new work programme 2023-2027 to the Council for approval

The **Committee participants** are requested to propose a new work item (according to the [template](#)) for the topic to move today's static AIS traffic to the new ASM and VDE channels.

#### 9.4 Task 2.2 on Support WG2 in the development of a Rec. on Maritime IoT

The WG3 Vice-Chair presented the documents ENAV27-12.2.3, ENAV27-12.2.4, ENAV27-12.2.7. The group was asked to provide comments to WG2 directly individually.

#### 9.5 Task 3.2 on VDES

##### 9.5.1 G1117 VDES Overview

The group reviewed the changes performed by the JWG IEC TC80 WG15 and IALA ENAV WG3, which was held virtually between 28 February and 3 March 2022. Improvement areas were identified, and homework assigned to improve the document further before submission to council for approval. The working group agreed to hold another virtual intersessional meeting hosted by IALA virtual ENAV meetings platform on:

1 June 1100-1500 UTC / 2 June 1100-1500 UTC / 3 June 1100-1500 UTC

The following agenda was proposed for the meetings:

- G1117 finalization as input to ENAV30, homework and inputs: please coordinate with the WG3 Chair directly (shared document, requires direct access rights)
- VDES clarifications (requested by members or IEC), the inputs should be placed in this [folder](#)

### Action items

The **Secretariat** is requested to approve the intersessional meetings on JWG IEC TC80 WG15 and IALA ENAV and if approved, to arrange the meeting through the dashboard.

##### 9.5.2 VDES Change Proposals

All future change proposals are asked to be made as changes to the official ITU-R M.2092-1, at <http://itu.int>, using the [change proposal template](#). Change proposals shall be provided as official IALA input to an intersessional or ENAV session of WG3. It was noted that no new change proposals were received as input to ENAV29.

The group reviewed the status of the Changelog Spreadsheet found [here](#). The log was updated with the approval of the change 11, consequentially to the group having received critical mass feedback from 3 industry members about the problem and acceptance of the method to correct the problem in the standard.

The group decided to keep the ongoing proposals work in a "Working Document toward PDR 2092-1" from ENAV29 on, to be kept [here](#) and maintained by Johnny Schultz.

Contributors, please note: Proposed changes will be reviewed and discussed by the group before they are accepted into this folder, all new change proposals are to be added to the ENAV session input folders, not into the revision folder.

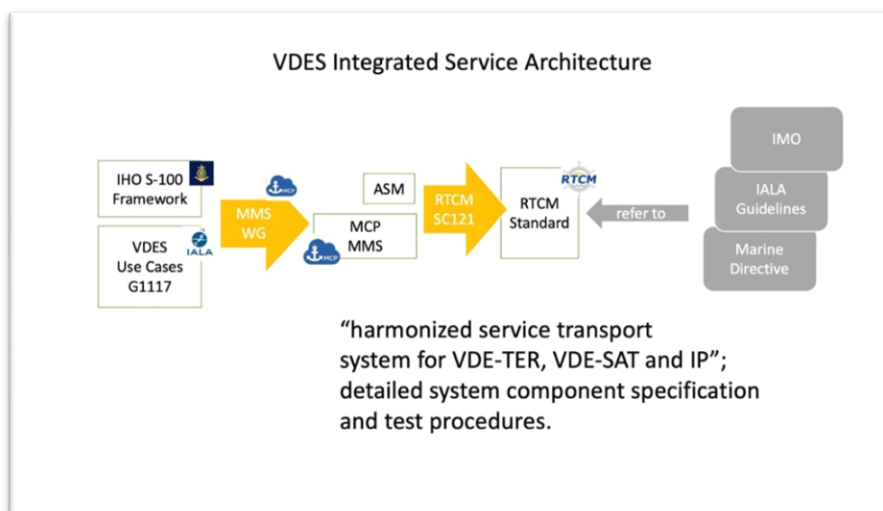
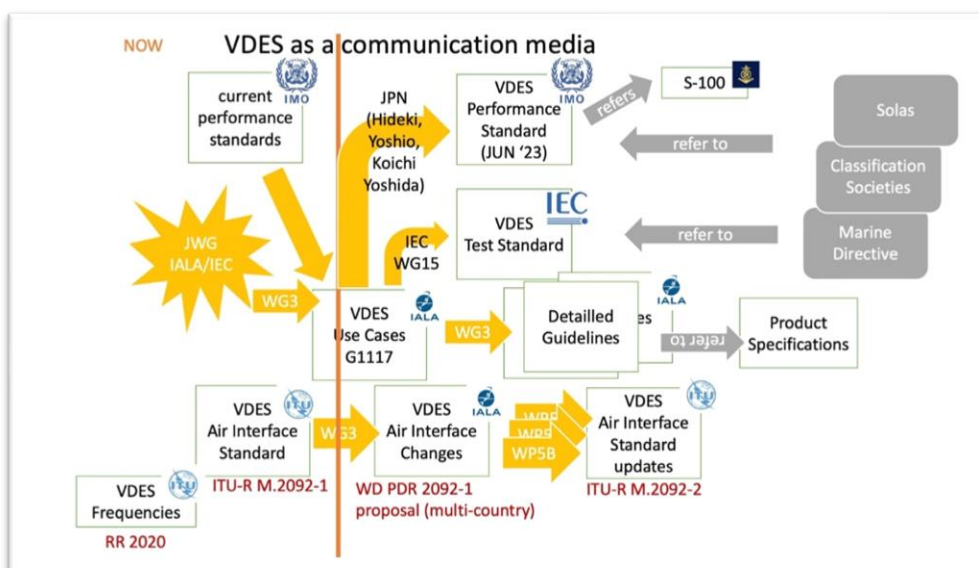
### Action items

The **Committee participants** are requested to present their findings on ITU-R M.2092-1 in the form of change proposals at the next WG3 meeting in order to get the attention of the technical competence of ENAV to their proposals. Please use the [change proposal template](#).

##### 9.5.3 VDES Roadmap

The group updated the VDES Roadmap created at ENAV28, and is keeping it as a working [document](#), to visualize the ways how to get mature and harmonized standards for all components needed to create full e-

Navigation systems with VDES. The following 4 figures show the strategies behind our work to support a bigger picture.



## Get primary allocation for VDE-SAT DL for VDE-SAT R-mode



### 9.5.4 G1139 Guideline on Technical specifications of VDES

The group confirmed the earlier decision that G1139 rev. 3 as it currently is published by IALA is overtaken by ITU-R M.2092-1, and shall be deprecated as soon as possible on the homepage to avoid confusion of its

members and the public alike. We might at a later point in time to create a new revision of G1139, but ENAV29 certainly not plans to update G1139 at this time.

#### *Action item*

*The **Secretariat** is requested to seek ways to make awareness to the members on the G1139 The technical specifications of VDES revision 3 (available in the home page) in line with the background of the publication of ITU-R M.2092-1 at ITU in February 2022. The deprecation message could be inserted into the document to show clearly to refer to ITU-R M.2092-1 instead.*

ENAV WG3 collects suggestions from VDES trials, equipment development and standardization, and helps to bring them forward to ITU WP5B in the form of a prepared working document toward preliminary draft revision of ITU-R M.2092-1. For that purpose, the WG prepares the working document toward preliminary draft revision as a working document, until the group hands it over to an administration or organization as input to ITU WP5B. The group agrees that the next WP5B meeting in May 2022 is too early for such an input and proposes to check the situation again at ENAV30.

#### 9.5.5 AIS/VDES VDL Integrity Monitoring

The group received the input ENAV29-5.1.3.2 on the development of Guidelines on AIS VDES VDL integrity monitoring and ENAV29-5.1.3.2.1 Draft Guideline AIS VDES VDL integrity monitoring, presented by Yi Jiang. Chapters 1 and 4 were discussed. The group actively provided improvement proposals that were incorporated by Yi Jiang.

Generally, the group agreed to the structure of the document, which currently is work in progress. Yi Jiang, the author of the current drafting work, found the feedback useful to continue the efforts in drafting on behalf of the group, understanding that later amendments might be necessary to ensure alignment in the group. In the second task group meeting, further details were added to chapter 3, which now is considered mature to be called a draft. The work on the draft guideline is planned to continue during ENAV30 as a task group.

#### *Action item*

*The **Committee participants** are requested to review the spreadsheet “[possible cases of AIS/VDES integrity issues](#)”, and provide additions to it directly the document, by amending it (please give it a new name with \_<initials>\_date”) or contacting committee member Yi Jiang [jjiangyi.dlmu@outlook.com](mailto:jjiangyi.dlmu@outlook.com) directly via email. Participants are invited to provide inputs or amendments to the working draft document (found in the same folder) for ENAV30.*

#### 9.5.6 VDES Resource Sharing

Committee Member Koichi Yoshida presented the input document ENAV29-5.1.3.1 on the development of Guidelines on VDES resource sharing and coordination cooperation.

The document contains an outline of a guideline on VDES resource sharing and coordination/cooperation.

International collaboration on the following points:

- 1 Coverage of land-based stations (control station of communication)
- 2 Sharing resources among land-based stations (control station of communication)
- 3 cooperation between VDE-TER and VDE-SAT
- 4 cooperation and resource sharing among VDES satellites

This issue is already approved as a new work item for the next IALA work period 2023-2027. The group plans to continue the work during ENAV30 with a dedicated task group.

#### *Action item*

*The **Committee participants** are requested to review the document ENAV29-5.1.3.1 on the development of Guidelines on VDES resource sharing and coordination cooperation and provide comments/discussion by e-mail to Koichi Yoshida [yoshida@rime.jp](mailto:yoshida@rime.jp) and/or ENAV30.*

#### 9.5.7 VDE R-mode

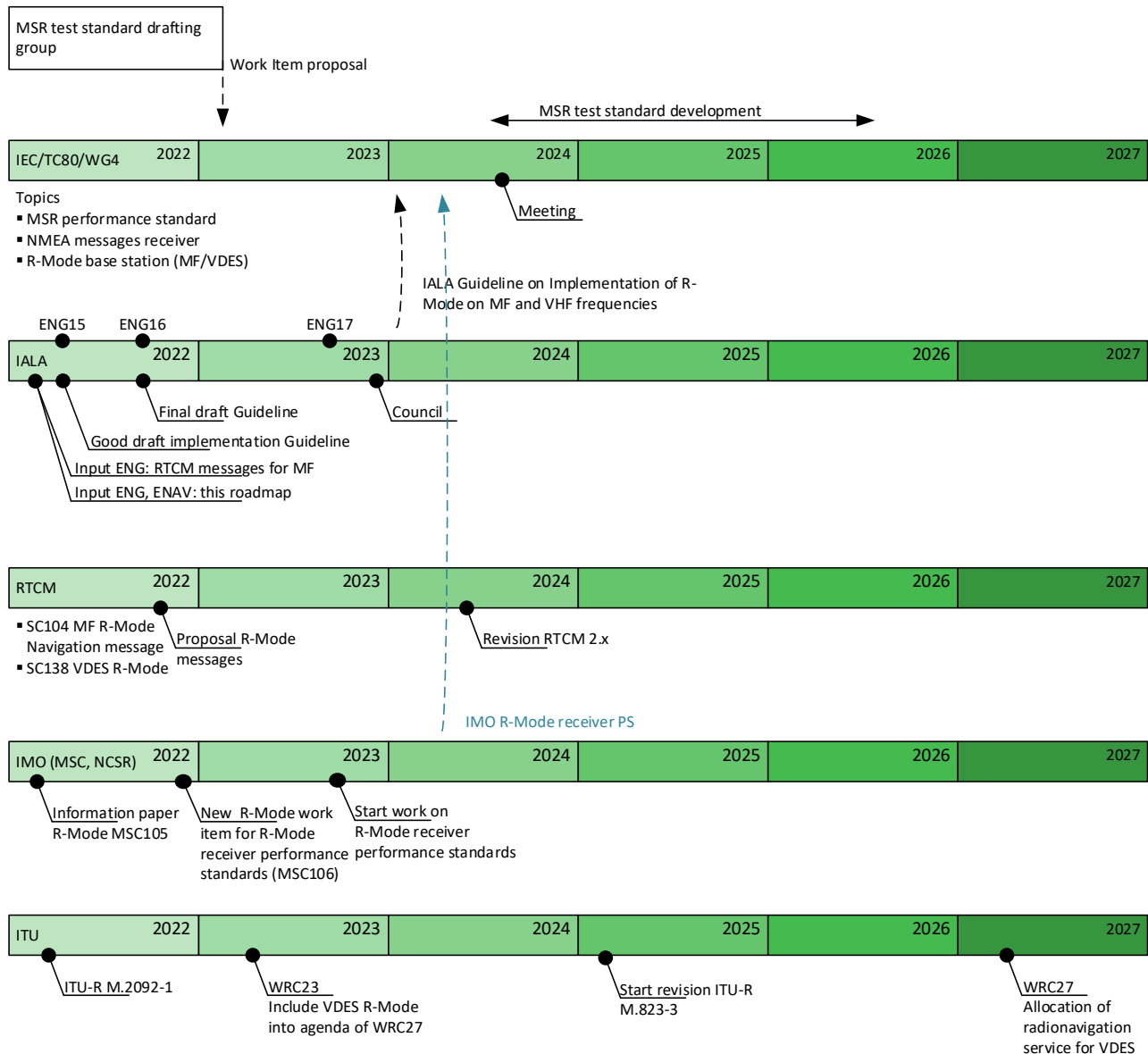
Ronald Raulefs presented results from a study [on the vulnerability of GNSS](#). The presentation provides an overview of potential sources of disturbing signals, some examples of jamming and spoofing of GNSS, a measurement campaign on RFI events on voyages between the Mediterranean Sea and Asia by DLR, Multisystem GNSS Receivers frequencies and provides conclusions with proposed counter measures. The group reviewed ENG15-12.3.4 Liaison note to ENAV on R-mode standardization. The document provides an updated Roadmap on R-Mode standardization at IMO, ITU, IALA, IEC and RTCM. ENAV is requested to review this roadmap. The group proposes to ENG and IMO to include R-Mode in the planned IMO performance standard on VDES. Note: ENG was part of this session, so no need to liaise formally.

#### *Action item*

*The **Committee participants** are requested to propose a new work item at IMO MSC level to task NCSR with the creation of an IMO performance standard on VDES R-mode. Please coordinate with Ronald Raulefs [Ronald.Raulefs@dlr.de](mailto:Ronald.Raulefs@dlr.de).*

Currently, the ITU radio regulations do not allocate the VDES frequencies to be used for Radio Navigation Services or Radio Navigation Satellite Services, so the use of R-mode on VDES frequencies under footnote w of Appendix 18 of the radio regulations is currently not sanctioned by ITU. Changing the radio regulations is only possible at WRC-27 happening in 2027. The group was reminded that RTCM will develop a standard for VDES R-Mode in SC138. Even though MF R-Mode is not part of this development, SC138 targets in their work the data interface for VDES R-Mode and MF-R-Mode to be harmonised. The new RTMC standard is later planned to become an input to a new IEC work item. The RTCM SC138 work on VDES R-Mode will start in spring/summer 2022, chaired by Johnny Schultz, interested parties may contact Johnny Schultz directly, no need to be a member of RTCM in order to participate in their work. The group noted input ENG12.3.4 about a VDES R-mode roadmap, shown here for simplicity:

# R-Mode Standardization



The group also discussed the topic of multi-system multi-band GNSS receivers and notes that:

IMO has published documents on multi system radio navigation receiver concept and PNT data processing (MSC.401(95), MSC.432(98)). RTCM started SC 131 on multi system radio navigation receiver, however, this work is currently on hold. IEC TC80 has a preliminary work item on multi PNT receiver as well as on PNT guidelines. However, no work group is established for those tasks. It is planned to establish an IEC working group to develop a multi system radio navigation receiver test standard. IMO documentation as well as documents from RTCM SC131, would be input to that work. IEC is currently searching for a convener to coordinate these efforts at IEC.

## 10. REVIEW OF OUTPUT AND WORKING PAPERS

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

In relation with the review of the ENAV29-12.2.2 Workshop proposal on Sustainability, Hideki Noguchi requested to the interested ENAV participants to join the steering committee expected to start the after the Council approval. Jin Hyoung Park from KRISO expressed his willingness to participate in the discussions based on the activities held in KRISO specific to this matter.

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. REVIEW OF SESSION REPORT

[The report of the meeting (ENAV29-12.1) was reviewed and approved by the Committee.]

### *Action Item*

*The **Secretariat** is requested to send the report of ENAV29 (ENAV29-13.1) to the Council to note.*

## 12. DATE AND VENUE OF NEXT MEETINGS

ENAV30 is planned to be held between 26 to 30 September 2022 at Headquarters, Saint Germain-en-Laye.

Other IALA events will be publicised on the IALA website.

## 13. CLOSING OF THE MEETING

The Committee Chair thanked the Committee and Working Group chairs for their active participation, accommodation, effectiveness, hard work and diligent outputs during the session.

He also hoped that everyone could take the survey that is sent out after every Committee session in order to receive feedback for continuous improvements.

The Chair hoped to see all participants at ENAV30.

The Secretary-General

## 14. LIST OF ANNEXES

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



## 29<sup>th</sup> Meeting of the e-Navigation Information Services and Communications Committee (ENAV29)

The 29<sup>th</sup> meeting of the **ENAV Committee** will be held from 14 March to 1 April 2022 virtually.

The opening plenary will commence at 1000 – 1200 UTC on Monday 14 March, and the closing plenary will begin at 1000 – 1200 UTC on Friday 1 April.

### 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 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 ENAV27 Hideki Noguchi / Jaime Alvarez
3. Reports from other bodies:
  - 3.1. IALA
    - 3.1.1. IALA Council Minsu Jeon
    - 3.1.2. Policy Advisory Panel (PAP) Minsu Jeon
    - 3.1.3. Technical Documents Catalogue Minsu Jeon
    - 3.1.4. MASS group update Jillian Carson-Jackson
  - 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. RTCM Jorge Arroyo
  - 3.8. ETSI Derek Love
  - 3.9. 3GPP Minsu Jeon
4. Online Presentations
  - 4.1. VDES update Lars Moltsen
  - 4.2. Startup of a project of digitization of the North Sea (Dutch part) RWS
  - 4.3. 3GPP Hyunhee Koo
  - 4.4. 5G precise positioning for Ports - Qualcomm (16 March – 20.00UTC)  
Jean-Michel Roussequ and Shyamal Ramachandran
5. Review of input papers
  - 5.1. Introduction of input papers to ENAV28
  - 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                         |                        |
| 7.    | WG1 – Digital Information System                  |                        |
| 7.1.  | S-100 & S-200                                     |                        |
| 7.2.  | Maritime Services                                 |                        |
| 7.3.  | Cyber security                                    |                        |
| 7.4.  | Maritime Resource Name                            |                        |
| 7.5.  | Rapporteurs                                       |                        |
| 8.    | WG2 – Emerging Digital Technology                 |                        |
| 8.1.  | Maritime Autonomous Surface Ship                  |                        |
| 8.2.  | Digital Voice Communications                      |                        |
| 8.3.  | Single Window Data Exchange                       |                        |
| 8.4.  | Rapporteurs                                       |                        |
| 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            |                        |
| 9.7.  | Rapporteurs                                       |                        |
| 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

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### New Members

NAME	ORGANIZATION	MEMBER CATEGORY	COUNTRY
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Neil SALTER	UK Hydrographic Office	Associate	UK
Basel SHUJAA	Dammam port - MAWANI	National	Saudi Arabia

## ANNEX C LIST OF INPUT PAPERS

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

Meeting	Agenda Item	Output Paper Title	Source
ENAV29-	1.2.1	Agenda ENAV29	IALA
ENAV29-	2.1.1	ENAV28 Action Items	IALA
ENAV29-	2.1.2	Report of ENAV28	IALA
ENAV29-	3.1.1	Report Council 74	IALA
ENAV29-	3.1.2	Cross-committee Work 2nd half 2021	IALA
ENAV29-	3.1.3	Technical Documents Catalogue January 2022	IALA
ENAV29-	3.5.1	IALA Report of ITU-R WP5B meeting November 2020	Stefan B
ENAV29-	3.5.2	Liaison statement to IMO on the revision of ITU-R M.1371-5	Stefan B
ENAV29-	5.0	Input paper Committee meeting template	IALA
ENAV29-	5.0.1	List of input papers	IALA
ENAV29-	5.1.1.1	Work on a technical service for provisioning of AtoN information	DLR / USCG / CCG / KRISO / DMA / GLA / FTIA
ENAV29-	5.1.1.1.1	Provision of AtoN Information Service to End users (10Feb2022)	DLR / USCG / CCG / KRISO / DMA / GLA / FTIA
ENAV29-	5.1.2.1	Considerations for developing network security equipment in maritime domains to support MASS operation	Korea Maritime Institute
ENAV29-	5.1.2.2	WP IALA MRCP Rev MarCom Manual	ENAV28
ENAV29-	5.1.2.3	WP IALA Guideline on Artificial Intelligence	ENAV28
ENAV29-	5.1.2.4	Liaison Note to ENAV - Operations and Trials of Autonomous Ships - 'Case Studies'	VTS51
ENAV29-	5.1.2.4.1	WP TG1.2.5 Possible case studies - Operations and Trials of Autonomous Ships	VTS51
ENAV29-	5.1.2.5	Liaison Note to ENAV - Implications of MASS from a VTS Perspective – a discussion paper	VTS51
ENAV29-	5.1.3.1	Development of Guidelines on VDES resource sharing and coordination/cooperation	OPRI
ENAV29-	5.1.3.2	Input on development of Guidelines on AIS/VDES VDL integrity monitoring	China MSA

ENAV29-	5.1.3.2.1	Draft Guideline AIS VDES VDL integrity monitoring	China MSA
ENAV29-	5.1.3.3	RTCM navigation message for medium frequency R-Mode	DLR / WSV
ENAV29-	5.1.3.4	Revision of G1117 IALA-IEC JWG March22	IALA/IEC meetings
ENAV29-	5.1.3.4.1	WP Spreadsheet of G1117	IALA/IEC meetings
ENAV29-	5.1.3.5	WP NAVGUIDE 2022 draft chapter on eNavigation	ENAV28
ENAV29-	5.1.3.6	VDES roadmap	ENAV28
ENAV29-	5.2.1	Input paper on the proposal on WRC 23 AI10	ENAV Chair
ENAV29-	5.2.1.1	Draft input to IMO NCSR9 on WRC23 AI10	ENAV Chair
ENAV29-	5.2.2	Final report on the IALA Workshop on Cyber security	IALA
ENAV29-	5.2.3	Final report on the IALA Workshop on Enhanced Radar Positioning System	IALA
ENAV29-	5.2.4	Liaison note ENG on Proposals for enhancing sustainability	ENG14
ENAV29-	5.2.5	Input on Workshop proposal - Digital maritime radiocommunication infrastructure	ENAV Chair
ENAV29-	5.2.5.1	Workshop proposal - Digital maritime radiocommunication infrastructure	ENAV Chair
ENAV29-	5.2.6	Input paper report Radio and visual hindrance caused by solar parks next to waterways	RWS
ENAV29-	5.2.6.1.0	Radio and visual hindrance caused by solar parks next to waterways-1-83	RWS
ENAV29-	5.2.6.1.1	Radio and visual hindrance caused by solar parks next to waterways-84-114	RWS
ENAV29-	5.2.7	Input on the RTCM Standard 12100.0 on Creation and Qualification of ASM	RTCM
ENAV29-	5.2.7.1	RTCM Standard 12100.0 on Creation and Qualification of ASM	RTCM
ENAV29-	5.2.8	Liaison note to all committees on Recommendation R1001 The IALA Maritime Buoyage System (MBS) Edition 2	ARM14
ENAV29-	5.2.9	Liaison note to all committees on Guideline 1052 Quality Management Systems for AtoN Service Delivery	ARM14
ENAV29-	5.2.10	Liaison Note to ENAV and VTS -Technologies to Support Maritime Single Window	ARM14
ENAV29-	5.2.11	Liaison statement to International Maritime Organization on the revision of recommendation ITU-R M.1371-5	ITU
ENAV29-	5.2.12	Report of workshop on Global Maritime Digital Route Testbed	KRISO

ENAV29-	5.2.13	Maritime Resource Registry MRR	KRISO
ENAV29-	5.2.14	Liaison note to all committees on sustainability workshop ENG15 12.0.1	ENG15
ENAV29-	5.2.15	Sustainability Workshop proposal	ENG15

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

Meeting	Agenda Item	Output Paper Title	Source	Action
ENAV29-	12.0.1	Information paper to NCSR 9 on the Report of the trial on digital voice communication in maritime VHF band	ENAV29	Council
ENAV29-	12.0.2	Information paper to NCSR 9 on VDES Ranging mode R-Mode	ENAV29	Council
ENAV29-	12.0.3	Information paper to NCSR 9 on the Proposal on WRC-23 agenda item 10	ENAV29	Council
ENAV29-	12.2.1	Workshop proposal on Digital Maritime Communication infrastructure	ENAV29	Council
ENAV29-	12.2.2	Revised workshop proposal on Sustainability	ENAV29	ENG / PAP
ENAV29-	12.2.3	Liaison note to All Committees on the developments in IMT related to termination of 2G and 3G service	ENAV29	ARM / ENG / VTS
ENAV29-	12.2.4	Liaison note to ENG Committee on 5G Precise Positioning	ENAV29	ENG

**Working papers** will remain within the Committee for further review during ENAV27.

Meeting	Agenda Item	Output Paper Title	Source	Action
ENAV29-	12.1.1	WP Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 datamodel	ENAV29	ENAV30
ENAV29-	12.2.5	WP G1153 Template for the review of emerging technologies for possible use by IALA members: Emerging technologies – review table	ENAV29	ENAV30
ENAV29-	12.2.6	WP draft Guideline on Artificial Intelligence and Machine Learning	ENAV29	ENAV30



*Action Items for the Secretariat*

1. The **Secretariat** is requested to submit the working paper ENAV29-12.1.1 Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 data model as an input paper to ENAV30. 15
2. The **Secretariat** is requested to inform ARM members of two inter-sessional meetings ENAV/ARM to progress on the data model of S-125. 15
3. The **Secretariat** is requested to approve the task group plans for an initial joint ENAV, ARM and VTS inter-sessional meeting to start work on a Technical Service Specification for VTS; and. 17
4. The **Secretariat** is requested to forward the liaison note on the presentation related to 5G precise positioning (Qualcomm) (ENAV29-12.2.4) to ENG16. 19
5. The **Secretariat** is requested to forward the liaison note on the termination of 2G and 3G services in some countries (ENAV29-12.2.3) to VTS, ARM and ENG Committees. 20
6. The **Secretariat** is requested to forward the working document draft Guideline on Artificial Intelligence and Machine Learning (ENAV29-12.2.6) to ENAV30. 21
7. The **Secretariat** is requested to forward proposed new tasks, as provided in the task proposal templates, to PAP for consideration in the development of the future work programme for IALA Committees in 2023-2027. 21
8. The **Secretariat** is requested to forward the workshop proposal on Digital Maritime Communication infrastructure (ENAV29-12.2.1) to the Council<sup>75</sup> for approval. 22
9. The **Secretariat** is requested to forward the Information papers: ENAV29-12.0.1 Report of the trial on digital voice communication in maritime VHF band; ENAV29-12.0.2 VDES Ranging mode NCSR9; and ENAV29-12.0.3 Proposal on WRC-23 agenda item 10 to IMO to council members for correspondence approval. The Secretariat is requested to submit the approved papers to IMO latest by the deadline of 18 April 2022. 23
10. The **Secretariat** is requested to forward the ENAV WG3 tasks related to the new work programme 2023-2027 to the Council for approval 25
11. The **Secretariat** is requested to approve the intersessional meetings on JWG IEC TC80 WG15 and IALA ENAV and if approved, to arrange the meeting through the dashboard. 25
12. The **Secretariat** is requested to seek ways to make awareness to the members on the G1139 The technical specifications of VDES revision 3 (available in the home page) in line with the background of the publication of ITU-R M.2092-1 at ITU in February 2022. The deprecation message could be inserted into the document to show clearly to refer to ITU-R M.2092-1 instead. 27
13. The **Secretariat** is requested to send the report of ENAV29 (ENAV29-13.1) to the Council to note. 30

*Action Items for Participants*

14. The **Committee participants** are encouraged to contribute to working paper ENAV29-12.1.1 Draft Technical service specification for the provisioning of AtoN information to end-users using the S-125 data model and to provide input to ENAV30. 15
15. The **Committee participants** are encouraged to participate in the intersessional group working on the development of a Draft Technical service specification for the provisioning of AtoN information to end users and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the intersessional meetings will be published on the IALA calendar. 15
16. The **Committee participants** are encouraged to provide input regarding cyber security of non-IP and low-bandwidth communication channels (related to IEC 63173-2: SECOM) to ENAV30. 16

17. The **Committee participants** are encouraged to provide input papers regarding MASS Requirements in Maritime Services to ENAV30. 16
18. Encourage **ARM, ENAV and VTS Committee participants** to participate in this work and contact Thomas Christensen ([thomas@dmc.international](mailto:thomas@dmc.international)), noting the dates and times of the meetings will be published in the IALA calendar. 17
19. The **TG2.4.1/.3** on Maritime Resource Names (MRR) shall inform ARM TG-5.1.8 of the ongoing work on the MRR. 17
20. **Jin H. Park** is requested to monitor and report on the further activities of the Global Maritime Digital Route Transition (GMDRT). 18
21. That the **ENAV Chair** provides a verbal update on the developments regarding Orolia to the ENG Chair at PAP. 18
22. The **Committee participants** are requested to provide information on candidate technologies for review using the template provided in G1153 on the template for the review of emerging technologies for possible use by IALA members. 19
23. The **Committee participants** are requested to note the proposed online intersessional session to review and revise the draft Guideline on Maritime Internet of Things (ENAV27-12.2.7) and contact Jillian Carson-Jackson ([jillian@jcconsulting.net](mailto:jillian@jcconsulting.net)) by 29 April 2022 if they wish to participate. 19
24. The **Committee participants** are requested to consider participating in the small online intersessional group to finalise the review of the MarCom Manual and 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 April 2022, noting the dates and times of the intersessional meetings will be published on the IALA ENAV Committee Dashboard. 20
25. The **Committee participants** are requested to identify photos suitable for inclusion in the IALA MarCom Manual and provide these to Jillian Carson-Jackson ([jillian@jcconsulting.net](mailto:jillian@jcconsulting.net)), cc Ernie Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) prior to ENAV30. 20
26. The **Committee participants** are requested to note the final stage of development of the draft Recommendation and Guideline on IMT and provide comments Jackson ( [jillian@jcconsulting.net](mailto:jillian@jcconsulting.net) ), cc Ernie Batty ( [ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com) ) by 29 April 2022. 20
27. That the **Committee participants** who have agreed to participate in the review of the MASS Guideline contact Jackson ([jillian@jcconsulting.net](mailto:jillian@jcconsulting.net)), cc Ernie Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) by 10 May 2022 to commence the literature review against the draft Table of Contents. 21
28. The **ENAV Chair** is requested to forward the proposed workshop review on Sustainability (ENAV29-12.2.2) to the ENG Chair at PAP. 22
29. The **ENAV Chair** is requested to provide feedback from the next PAP meeting on PAP39-5.1.1 related to Proposed e-navigation documentation architecture & update in order to allow ENAV to establish correctly the ENAV 2023-2026 work programme. 24
30. The **Committee participants** are requested to propose a new work item (according to the [template](#)) for the topic to move today's static AIS traffic to the new ASM and VDE channels. 25
31. The **Committee participants** are requested to present their findings on ITU-R M.2092-1 in the form of change proposals at the next WG3 meeting in order to get the attention of the technical competence of ENAV to their proposals. Please use the [change proposal template](#). 25
32. The **Committee participants** are requested to review the spreadsheet "[possible cases of AIS/VDES integrity issues](#)", and provide additions to it directly the document, by amending it (please give it a new name with \_<initials>\_date") or contacting committee member Yi Jiang [jiangyi.dlmu@outlook.com](mailto:jiangyi.dlmu@outlook.com) directly via email. Participants are invited to provide inputs or amendments to the working draft document (found in the same folder) for ENAV30. 27
33. The **Committee participants** are requested to review the document ENAV29-5.1.3.1 on the development of Guidelines on VDES resource sharing and coordination cooperation and provide comments/discussion by e-mail to Koichi Yoshida [yoshida@rime.jp](mailto:yoshida@rime.jp) and/or ENAV30. 27

34. The **Committee participants** are requested to propose a new work item at IMO MSC level to task NCSR with the creation of an IMO performance standard on VDES R-mode. Please coordinate with Ronald Raulefs [Ronald.Raulefs@dlr.de](mailto:Ronald.Raulefs@dlr.de). 28



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Association Internationale de Signalisation Maritime