



IALA ENAV COMMITTEE

REPORT OF THE 30TH SESSION OF THE IALA E-NAVIGATION INFORMATION SERVICES AND COMMUNICATIONS (ENAV) COMMITTEE

26th September to 7th October 2022

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Committee Secretary

7 October 2022

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International Association of Marine Aids to Navigation and Lighthouse Authorities
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Report of the 30th Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee Executive Summary

The 30th meeting of the ENAV Committee was held from 26 September to 7 October 2022; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez.

There were 102 registered participants, 3 for the first time, from 24 countries and 4 organisations.

This was the 8th meeting for the 2018-2023 Work Programme and the Committee considered 50 input papers and produced 19 output papers.

Key highlights:

- the ENAV Committee concluded a liaison note to IMO NCSR10 informing about the practical use of the Maritime Resource Names and encouraging to apply MRN in areas of maritime stakeholders including the IMO's domain
- progressed on the cybersecurity guideline
- concluded the revision of the G1157 on web services based S100 data providing further guidance on data set management
- the G1107 on Planning and reporting testbeds on the maritime domain was reviewed and finalized to cover more broadly the testbed reporting
- relevant technologies on Artificial Intelligence (AI), machine learning and new communication systems were presented and reported.
- the guidelines on Internet of Things (IoT) and AI were concluded
- regarding G1139 on Technical specification on VDES, it was suggested to be revoked from the IALA documentation since the ITU-R Rec. 2092-1 published in February 2022 gathers the current specifications
- the revision on G1117 on VDES overview contains new use cases that users, competent authorities and industrials could envisage when the deployment would be completely operational, also introducing methods how to use the MCP mechanisms over VDES. This revised Guideline will also circulate in other sister organisations as ITU, IEC and IMO
- there was a discussion on the possibility to hold the ENAV31 in the IALA HQ in February back-to-back with Digital@Sea International
- the WS on digital infrastructure will be held in Japan starting on 20 February and the arrangements are still on going to welcome all physical and virtual participants. It is envisaged a busy month of February 2023.

Planned intersessional work:

- Maritime Radio Communication Plan: The initial intersessional is planned for Wednesday, October 12 from 0800-0930 UTC.
- MASS Guideline: The initial intersessional is planned for Thursday, October 13 from 0800-0930 UTC.
- Task 3.2 on VDES: continue the intersessional work virtually on the 1st of November, 2022 11-14 UTC.

Meetings will be published in the calendar.

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Report of the 30th Session of the IALA e-Navigation Information Services and Communications (ENAV) Committee

GENERAL

The 30th meeting of the ENAV Committee was held from 26 September to 7 October 2022; chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Jaime Alvarez.

There were 102 registered participants, 3 for the first time, from 24 countries and 4 organisations.

This was the 8th meeting for the 2018-2023 Work Programme and the Committee considered 50 input papers and produced 19 output papers.

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 finally in face to face. More and more countries have lifted or are in the process of lifting all restrictions allowing to carry out meetings physically. The Secretariat have started normal work routine in the HQ and travels to meetings and events have already filled up our agendas for the rest of the year.

The Deputy Secretary-General, recalled that for those participating online, the register to ENAV30 on the IALA Website is needed, otherwise, those participants not registered are not considered as committee participant. The ENAV30 schedule is again very busy, with a lot of interesting input documents submitted, and a lot of work to do in order to finish their work programme.

The Deputy Secretary-General, noticed with special interest the input paper on the Global Maritime Digital Route Transition initiative - GMDRT – which is a project about global coordination and harmonization of digital maritime information, digital connectivity, and digital information services. This project will require coordination and collaboration between multiple coastal states world-wide in order to achieve seamless delivery of digital services along long distance routes across the globe. The Open Digital Incubator initiative which could form a part of the GMDRT and other similar initiatives such as the IHO-Singapore Lab, etc. It was considered of great interest the input paper proposing a number of new work items for the 2023 to 2027 work period. The Deputy Secretary-General, requested to urge participants to think hard about the future work programme and prepare further proposals on ambitious work items which keeps this committee on the

cutting edge of developments. IALA is a technical organization producing Standards which can be cited in national law, Recommendations stating IALA members expectations should be doing and Guidelines which say how the Recommendations could be implemented. IALA will through such work programme to be proactively leading the technical development within our domain. The Deputy Secretary-General, therefore encouraged ENAV participants to be ambitious and innovative when designing the future work programme.

The Deputy Secretary-General, addressed the Inter-Governmental project developments. Ten ratifications or accessions were formally received and several more are coming in the near future. After the reception of 30 ratifications or accession, IALA will transform into an Inter-Governmental Organization. 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, recalled the war in Europe and this difficult time. IALA thoughts are with the whole 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 (ENAV30-1.2.1) 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 at this first session of hybrid meeting after COVID-19.

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 ENAV29 (ENAV30-2.1.1)

2.1 Action Items – IALA Secretariat

All actions items from ENAV29 were covered before ENAV30.

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 (ENAV30-3.1.1), which was held in June 2022. The following points are relevant to note for the ENAV Committee:

- Revision of the Current drivers and trends
- The Council approved the revised Committee work programme for 2018-2023
- Council approved the workshop proposal on Digital Maritime Communication infrastructure to be held in 20-24 Feb 2023 in Tokyo, Japan. Registration is required.
- The Council approved the change of the heritage lighthouse of the year selection process and agreed to apply it for the heritage lighthouse of the year 2023.
- The Council approved Homigot Lighthouse, the Republic of Korea, as the Heritage Lighthouse of the Year 2022.
- The progress of the review of R1001 IALA Maritime Buoyage System.

New and revised recommendations:

- **R1023 Maritime Resource Names (MRN), Ed1.0, June 2022**
- R0204 Marine signal lights – determination and calculation of effective intensity, Ed3.0, June 2022
- R0141 Training and certification of Marine Aids to Navigation personnel, Ed5.0, June 2022
- R0119 Establishment of a VTS Ed4.2, June 2022

New and revised guidelines:

- Revised Guideline G1018 on Risk management, Ed4.0, June 2022
- Revised Guideline G1123 on the use of the IALA Waterway risk assessment programme or IWRAP, Ed2.0, June 2022
- Revised Guideline G1124 on Ports and waterways safety assessment (PAWSA MK II), Ed2.0, June 2022
- Revised Guideline G1058 on The use of simulation as a tool for waterway design and AtoN planning, Ed3.0, June 2022
- Revised Guideline G1135 on Determination and calculation of effective intensity, Ed 3.0, June 2022

- Revised Guideline G1127 on Systems and services for high accuracy positioning and ranging, Ed2.0, June 2022
- Revised Guideline G1129 on the retransmission of SBAS corrections using MF-radio beacon and AIS, Ed 2.0, June 2022
- New Guideline G1147 on The use of enhanced radar positioning systems, Ed1.0, June 2022
- New Guideline G1168 on Quality control of third-party AtoN service providers, Ed1.0, June 2022
- New Guideline G1169 on Training and certification of marine Aids to Navigation personnel, Ed1.0, June 2022
- New Guideline G1170 on Solar modules for a marine environment, Ed1.0, June 2022
- Revised Guideline G1150 on Establishing planning and implementing a VTS, Ed3.0, June 2022
- New Guideline G1171 on Human factors and ergonomics in VTS, Ed1.0, June 2022

Revoked document

- Revoked G1097 on Technical Features and Technology Relevant for Simulation of AtoN, Ed1.0

Liaison notes to IMO NCSR (more information is provided in the point of the agenda)

Council 76 will be held 12 – 16 December 2022 in Brazil

3.1.2 IALA Policy Advisory Panel

Minsu Jeon provided the committee with the outcomes of PAP 47, which was held virtually from 8 to 10 February 2022. The following points were highlighted to the participants:

- Progress on the Ed.2 of the Standards, to be presented in the General Assembly – May 2023.
- The Maritime Services in the context of e-Navigation that will be sent to NCSR10
- The review of entries in the IALA Dictionary.
- Committee Work programme 2023-2027

The new work items proposals coming from the working groups need to be fulfilled in the template. They will then be submitted to PAP48 and to the Council in December 2022.

3.1.3 Technical Documents Catalogue

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

3.1.4 MASS group update

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

The MASS TF has looked at the specific role of IALA in respect to the MASS framework, with a focus on the provision of maritime services, the technologies for the maritime data exchange and the interaction between MASS and VTS. The guideline considers autonomous systems and the interaction of systems, noting the different levels of within the MASS environment. This includes not only uncrewed vessels but also autonomous technologies that are on board. Jillian requested ENAV members to continue to provide input to the work of the MASS TF, and referred to the draft guideline provided to the members during the session (MTF04-8.1).

It was noted that in ITU Rec.2116 is being modified to support a mesh network for the maritime mobile service and sea band within the frequency range 4 400-4 990 MHz. This has strong support from many

countries. Because it has a wide bandwidth, it will support imaging and other features that are needed to augment VDES for the MASS.

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 – report is part of the input papers (ENAV30-3.2 Final Report Digital@Sea NA)
- Digital@Sea Asia-Pacific in 15-16 September 2022 in Seoul, Republic of Korea
- Digital@Sea International will be in 6-10 February 2023 in Copenhagen, Denmark
- Digital@Sea North-America May 2023 in Canada

3.3 IMO

The Chair provided a summary of milestones reached during the recent IMO meetings. The input paper referred was ENAV30-3.3 Report on IMO NCSR9 The following meetings were held during this period:

- The following input papers were sent to NCSR9:
 - NCSR 9-7-2 - Development of Maritime Services descriptions. There are currently 16 Maritime Services. MS 1, 2 and 3 are provided by VTS, the new IMO Res 1158 on VTS only considers one service merging the three old services. IALA also proposed to add one new service for AtoN. This agenda item will be postponed to NCSR10.
 - NCSR 9-12-9 - Proposal on WRC-23 agenda item 10 – IALA proposes the digitalisation of VHF voice communications and VDES R-Mode. This issue is considered at Joint IMO/ITU Expert Group meeting 18 in December 2022.
 - NCSR 9-INF.12 - Report of the trial on digital voice communication in the maritime VHF band.
 - NCSR 9-INF.13 - VDES ranging mode (R-Mode) (IALA)
- **Revision of ECDIS Guidance and performance standards:**
 - Contributions (via Canadian Coast Guard) in the IMO performance standard on ECDIS to add AIS connection in the ECDIS.
 - 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.
 - Draft resolution on ECDIS performance standards will be considered by IMO MSC106 in November for adoption. Some documents were received to comment the resolution. The matter on interconnectivity ECDIS/AIS could be added to the agenda for NCSR10.
- MSC105: agreement on the development of goal-based MASS instruments targeted to be completed in 2025. MSC105, in April 2022, will start this activity. This will be a non-mandatory MASS code but will be considered to be mandatory in future.

3.4 IHO

Minsu Jeon informed about the developments S200 product specifications. These developments follow IHO guidelines.

S-200 development summary table as of Sep 2022:

Edition 1.0.0

Preliminary
implementation

Edition 2.0.0

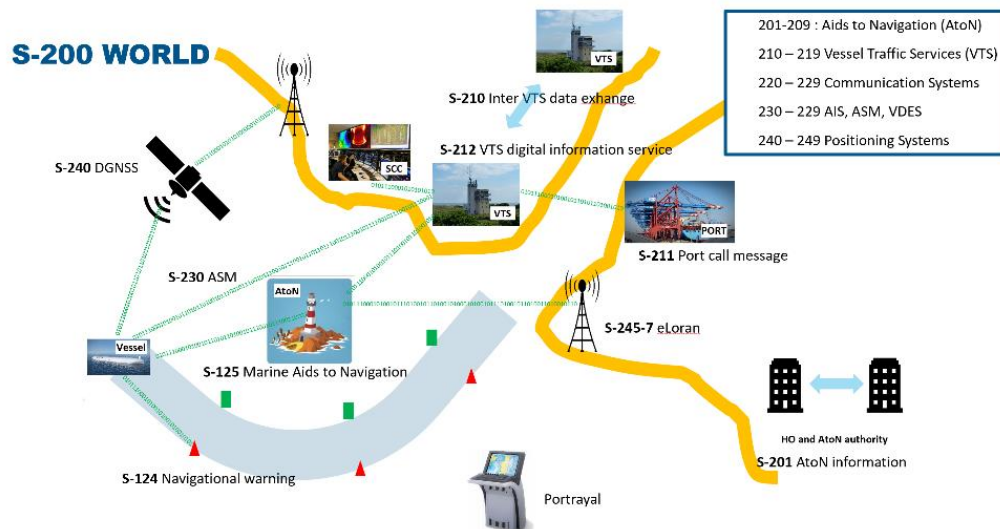
Approval

Implementation

Operational data

Domain	PS	Title	Developing Committee	Edition
AtoN	S-201	AtoN information	ARM	1.1.0
	S-125	Marine Aids to Navigation Maritime Navigational Service	NIPWG (ARM)	
Positioning	S-240	DGNSS almanac	ENG	1.0.0
	S-245	eLoran ASF	ENG	0.7.0
	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	0.6.4

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

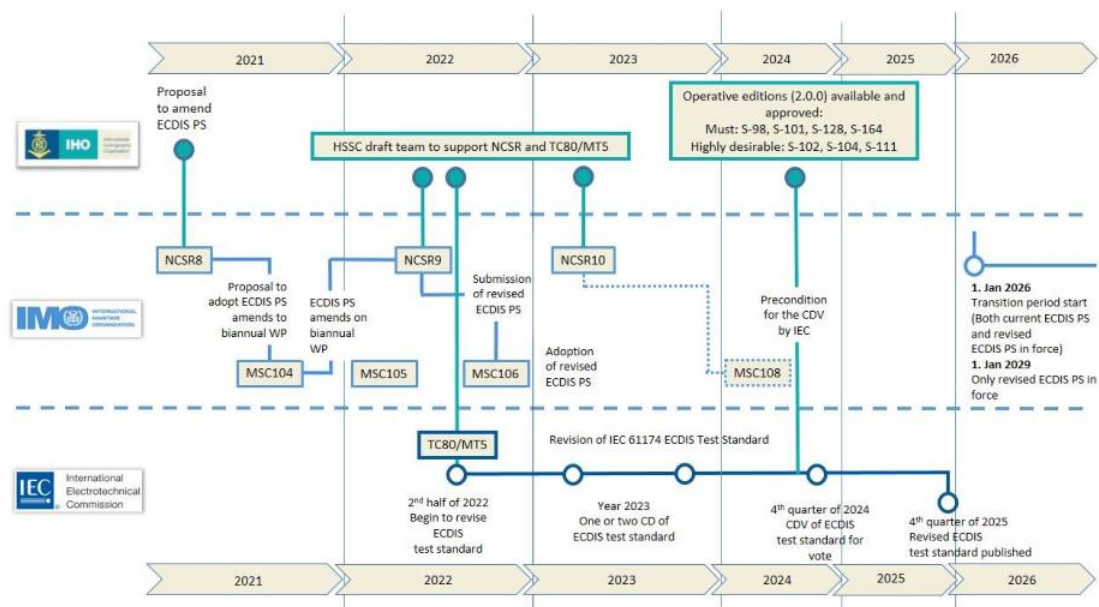


There is an S200 test bed platform that could be used. It was encouraged that competent authorities could share their information and try the platform. At the moment S200 can try S201 data and all the S240 product specifications.

Minsu referred to the joint IALA/IHO workshop on S100/200. The workshop report is available as input paper: ENAV30-5.2.14 Report on the Joint IHO IALA Workshop S-100 S-200 Product Specification Development & Portrayal.

NCSR9 endorsed an implementation phase for the new resolution, including S-100 : a transition period was agreed upon :

- 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 PS.



3.5 ITU

3.5.1 ITU-R WP5B

Stefan Bober, IALA representative in ITU informed about the ITU-R Working Party 5B (WP 5B) - Maritime mobile service including Global Maritime Distress and Safety System (GMDSS); aeronautical mobile service and radiodetermination service - held its meetings from 29th March – 8th April 2022 as virtual meeting and from 11th to 22nd July 2022 as physical meeting in Geneva. This was the fifth meeting in the study cycle 2019 to 2023. Mr. Stefan Bober represented IALA. Full report available under the reference ENAV30-3.5.1 IALA Report of ITU-R WP5B meeting July 2022

The main focus of the WP5B meetings were to finalize the input documents for the Conference preparatory meeting (CPM) of the World Radio Communication Conference 2023 (WRC-23). CPM will be held Geneva, Switzerland from 27th March to 6th April 2023; WRC-23 will be held in Dubai, United Arab Emirates, from 20th November to 15th December 2023.

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:

- WRC-23 agenda item 1.11 (Modernisation of the GMDSS and implementation of e-navigation)
- 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.
- Revision of Recommendation ITU-R M.2135-0 (Autonomous Maritime Radio Device - AMRD).
- Revision of Recommendation ITU-R M.2010-1 (NAVDAT system in 500 kHz) and ITU-R M.2058-0 (NAVDAT HF). Antenna considerations on this topic is very relevant for the AtoN providers / Competent authorities
- Revision of Recommendation ITU-R M.493-15 and ITU-R M.541-10 (Digital selective-calling DSC)
- New report on digital voice communication in the VHF maritime band

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.

3.7 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

3.8 ETSI

Derek Love provided an overview of the progress of ETSI TG Marine. MOB (man overboard) standard is going to national vote (including the DSC receive capability). Digital voice (dPMR) for marine technical report was also published by the group. Inland waterways and non SOLAS radars standardisation and its testing methods is underway.

3.9 3GPP

- (Ongoing 5G-Advanced standardization) The Release 18 standardization for 5G-Advanced is ongoing in 3GPP based on the decision on Release 18 prioritization in December last year. Technical reports on currently ongoing studies are scheduled to be standardized by June 2023 and it is also planned to complete the standardization of Release 18 specifications by the end of the year 2023. So, Hyounhee KOO (3GPP Liaison Person for IALA) thinks it will be possible to share the detailed update of 5G-Advanced standardization with IALA#32 next year.
- (Ongoing Release 19 Stage 1 standardization) 3GPP SA WG1 also started the studies for Release 19 Stage 1 standardization. Three studies are introduced as an example of ongoing studies as follows. 1) Study on integrated sensing and communication, 2) Study on Ambient power-enabled Internet of Thing, 3) Study on satellite access - Phase 3.
- 3GPP does not yet use the term '6G' officially but some of ongoing studies for Release 19 Stage 1 standardization may be considered to be linked with next generation beyond 5G-Advanced.
- (ITU-R WP5D M.[IMT.Industry] report including the maritime usage) ITU-R WP5D is currently developing the report ITU-R WP5D M.[IMT.Industry] to introduce IMT-2020 usages from diverse industries. 3GPP also developed the contribution to introduce industrial usages including maritime domain and sent it to ITU-R WP5D as the 3GPP input via a liaison after 3GPP PCG's approval in April 2022. The maritime use cases were included based on 3GPP TS 22.819 (FS_MARCOM technical report) and 3GPP TS 22.119 (Release 16 MARCOM specification). The content of 3GPP input is already included in ITU-R WP5D M.[IMT.Industry] report.

4. PRESENTATIONS

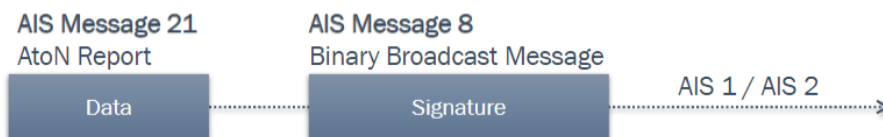
Below presentations were provided during the Opening Plenary and the links are available in the [dashboard](#):

4.1 Authenticating AIS AtoN making use of MCP – Jan Safar et al. / GRAD

Jan Safar talked about the use by the GLA R&D team of the Maritime Connectivity Platform (MCP) for authenticating AIS AtoN. Jan described some of the vulnerabilities of virtual AIS AtoN (unprotected radio messages displayed on the ECDIS) and presented a solution that would enable mariners to have trust in the information received through the AIS and, potentially, other e-Navigation channels.

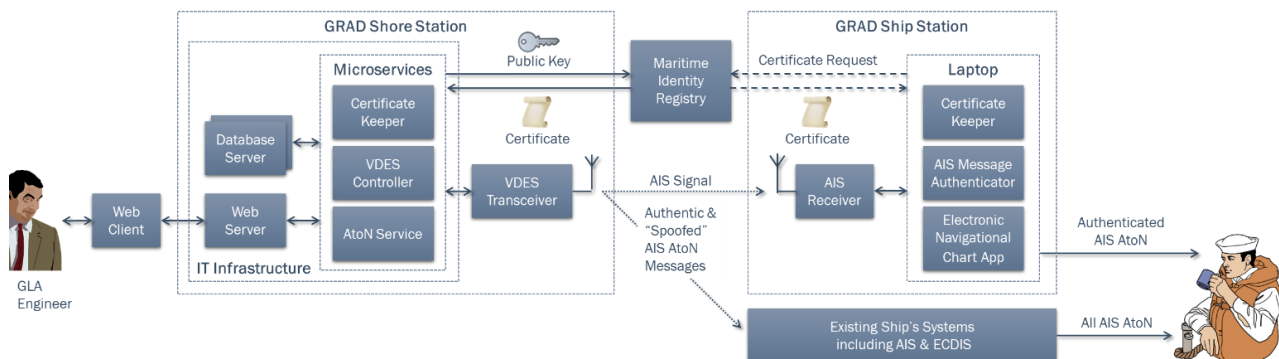
The usual approach to authenticating data sent over non-secure channels is by using digital Signatures, where each entity is issued a Private / Public Key pair and a Public Key Certificate. The Private Keys are used to generate cryptographic Signatures, while the Public Keys and Certificates (along with the Signatures) allow the recipients to verify the integrity and authenticity of the received data.

The focus of the GRAD study was on authenticating AIS AtoN, transported using AIS message 21 (however, other AIS message types could be used). The Signature was encapsulated in AIS message 8. This approach ensures backward compatibility with existing navigation equipment.



The Maritime Identity Registry (MIR) component of the MCP was used to generate the Public Key Certificates and to distribute the Certificates to the users.

The approach was implemented in a demonstrator system comprising a Shore Station and a Ship Station; a simplified system architecture is depicted in the figure below:



At the heart of the Shore Station is a set of microservices (e-Navigation technical services) providing the desired AIS data management and security functions:

- The AtoN Service can be used to create new AIS AtoN and update or remove existing ones;
- The VDES Controller Service acts as a gateway between the microservice domain and physical VDES or AIS transceivers, translating data from the S-125 format into AIS sentences and passing these to a transceiver for transmission via VHF;
- The Certificate Keeper Service is responsible for interacting with the MIR and generating the Signatures for the AIS AtoN messages.

The AIS signal transmitted from the Shore Station is received on board a vessel using an ordinary AIS receiver connected to a laptop running several software applications: the AIS Message Authenticator application works in conjunction with a local instance of the Certificate Keeper Service. The Authenticator attempts to verify the incoming AIS messages using the Signatures received via VHF and the Public Key Certificates retrieved from the MIR using the Certificate Keeper. The Certificate Keeper also acts as a cache for the Certificates, allowing the system to carry on authenticating AIS messages from known entities even when the

connection to the MIR is temporarily unavailable. The messages that have been successfully verified are then displayed in the ENC application. At the same time, the AIS signal is received by the existing AIS equipment on board, which feeds the ship's ECDIS, demonstrating backward compatibility.

Future work is envisaged in several areas outlined below:

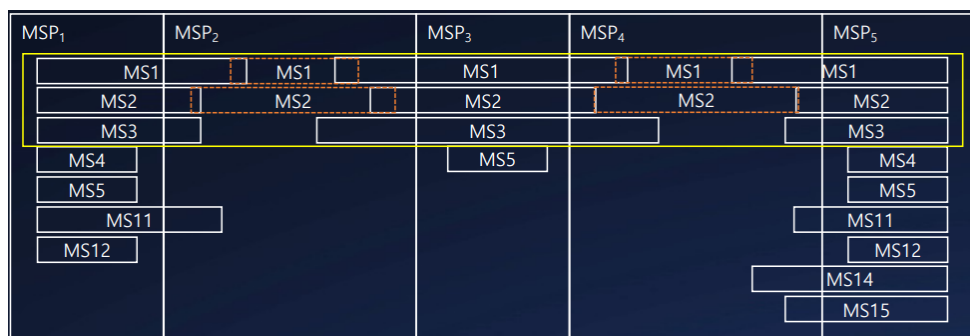
- Presentation of the authentication status on navigational displays, while minimising clutter
- Reducing the data overheads associated with authentication
 - Transmit Signatures on the new ASM or VDE channels
 - Spread the overheads over multiple messages, e.g. using the TESLA (Timed Efficient Stream Loss-tolerant Authentication) protocol
- Ensuring the system remains future-proof
 - Quantum computing presents a threat to most Public Key Cryptography techniques used today
 - Authentication approach should allow new cryptographic algorithms to be introduced if/when existing ones are broken
- Standardisation

The presentation was well received and generated many questions. Some suggestions were provided, such as using AIS message 26 (Multiple slot binary message with Communications State) instead of the message 8 to increase reliability. A question was raised on the possibility of authenticating all the AIS messages; it was explained that the proposed approach was suitable only for authenticating relatively infrequent, critical messages, such as virtual AtoN. However, the potential use of the new VDE channels and/or the TESLA protocol could allow the majority of messages to be authenticated. In general, this work was viewed as a milestone for new technologies, integrating elements of the MCP with AIS and providing (likely) the first on-air demonstration of authenticated AIS AtoN.

Note: The revised G1117 provides VDE message formats to authenticate all AIS transmissions, building on the exact method demonstrated here.

4.2 Global Maritime Digital Route Transition: A New Initiative for Maritime Digitalization Jin Hyoung Park / KRISO

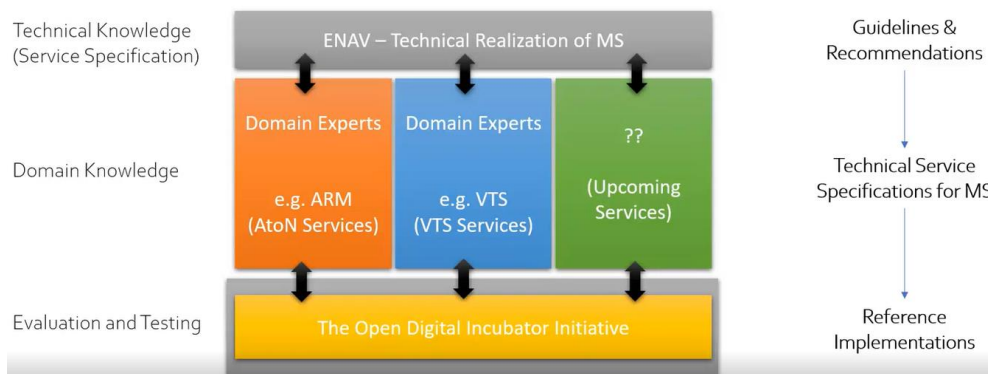
Jin Hyoung Park explained the status of digitalisation of AtoN, explaining the different steps to reach the digital transformation. The current resources as S100 series needed to be used worldwide and also the mechanisms to deliver the data to the users and this is ensured by the technical services in the context of eNavigation. The different components of the MCP are the base to transfer this data to the end user. The SMART project in Korean in conjunction with the STM in Europe are very good examples of digitalisation. De-carbonisation and autonomous technologies are the main challenges to solve nowadays. The concept of GMDRT is to provide numbers and technical evidences to maritime stakeholders that the eNavigation environment could be worldwide implemented. So far, the number of regional or local testbeds have proved local solutions and evidences, however maritime navigation is global by nature. The current approach of digitalization is node-centric but between this nodes, the need for data/testbeds is missed. Jin Hyoung highlighted the need to provide route-centric digitalisation with a service consumer's perspective:



GMDRT is on the view of the speaker, the way to align the perspectives of the different stakeholders on the world-wide digitalisation.

4.3 Open Digital Incubator Initiative - Axel Hahn / DLR

Axel Hahn briefed about the new initiative supported by IALA on the open digital incubator aiming at fostering the use and digitalisation of maritime services. Good examples are the development of AtoN, VTS and Navwarning (IHO) technical service specifications through the join collaboration and support from ENAV / ARM / VTS. The digital incubator will facilitate the developments by prototyping and testing of promising solutions. IALA will be take the advisory role.



These initiative is first launched by GRAD, DLR, KRISO and Fintraffic.

4.4 IALA Conference - Alberto Piovesana / Brazil Navy

Alberto Piovesana provided the overview of the 20 th IALA Conference in Rio de Janeiro, Brazil hosted by Marinha do Brazil and organised IALA with the theme of Marine Aids to Navigation - Innovation For a Sustainable Future starting the May 27 to the June 03 , 2023. The location will be in the Windsor Convention & Expo Center, Rio de Janeiro, Brazil. The preliminary programme was presented:

Activies & Dates	Saturday May 27 th	Sunday May 28 th	Monday May 29 th	Tuesday May 30 th	Wednesday May 31 st	Thursday Jun 1 st	Friday Jun 2 nd	Saturday Jun 3 rd
4 th Heritage Seminar								
Registration								
WWA Pre-Conference Seminar								
77 th Council Meeting								
Welcome Reception								
Opening Ceremony								
IALA Activities Presentations								
Official Photo								
VIP Lunch								
Industrial Exhibition								
Ilha Rasa Lighthouse Virtual Tour								
Conference Official Dinner								
Technical Sessions								
Speakers Corner								
Partners Program								
IM Evening								
IM General Assembly								
IALA General Assembly								
Closing Ceremony								
78 th Council Meeting								
Conference Gala Dinner								

An industrial exhibition area and conference rooms will be available hosting the expositions and interesting presentations received. The official website is running providing the most accurate information: <https://iala-brazil2023.rio.br/> . Alberto Piovesana invites to all participants to the IALA Conference in Rio.

4.5 Presentations during the working period

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

- 4.5.1 Artificial Intelligence - Owain Brennan / SeerBI
- 4.5.2 IMT2020 on buoys - James Thomas / Jet Engineering
- 4.5.3 MS@MS communications - Heejin Kang

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:

- ENAV30-5.2.1 Revision of SOLAS chapters III and IV for modernization of the GMDSS Smart GMDSS – this paper submitted by Iran. ENAV Chair encouraged Iranian representatives to present the paper during the next session or to transfer the paper to IMO since the paper seemed to be outside of the IALA remit.
- Some inputs were received very late and the Chair encouraged participants to have a look on those.

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 30th session of the ENAV committee, the WG1 – Digital Information System worked on several tasks regarding cyber security, maritime services, S-100 data set handling, MASS, Maritime Resource Names (MRN) and testbed initiatives. The WG1 reviewed eight input papers, two task groups were established and a draft recommendation on cyber security in the domain of IALA had been updated for further consideration by ARM. Furthermore, the IALA Guideline G1157: Web-Service-based S-100 Data Exchange was updated and a new work programme for the work period from 2023-2027 was proposed. Additionally, a liaison note to PAP regarding the usage of on the usage of Maritime Resource Names for identifying Technical Services and a general input paper to IMO NCSR on MRN were produced. The following sections provide detailed descriptions of the work.

WG1 started the work on a table for communication requirements of different data services.

7.1 Review of Work Plan

Referencing Document(s): ENAV30 WG1 Work Program

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

7.2 Update on the Development of Technical Specifications of Maritime Services

Referencing Document(s):

ENAV30-5.1.1.1 Work on a technical service for provisioning of AtoN information

ENAV30-5.1.1.2 Development of technical service specifications for digital data exchange between VTS and other entities - primarily ships

With ENAV30-5.1.1.1 and ENAV30-5.1.1.2 two information papers were provided that present a summary of the status of the TGs on technical service specifications for digital data exchange between VTS and other entities and the provision of AtoN information. The initially proposed services for development are “VTS area information”, “VTS Traffic Clearance Service” and a service for the provision of AtoN information to end-users. The information papers were presented to and noted by the participants of WG1. The work on these service specifications will be continued in the two inter-committee TGs.

7.3 Cyber Security (Task 2.4.2)

Task Group Leader: Martijn Ebben

Referencing Document(s):

ENAV30-5.1.1.5 Introduce of cyber security application case of ship's e-Nav service display device based on international standards

ENAV30-5.2.4 Liaison note from ARM to all committees on cyber security

WG1 formed a Task Group (TG) on cyber security led by Martijn Ebben. The TG received two input documents.

ENAV30-5.1.1.5 is an informational input paper that discusses the application of security standards on shipboard systems. It informs on the actual implementation of a suggested application of cyber security standards that was sent to ENAV28 by the same authors. The TG has reviewed the document and took note of the contents, that are well applicable on the work on cyber security. The TG wishes to thank the authors for their report and encourages all IALA members to take note of this paper for inspiration on securing shipboard systems.

ENAV30-5.2.4 is a Liaison note from the ARM committee requesting input from all committees on a draft guideline and a draft recommendation, both on cyber security within the IALA domain. Several members of the task group were involved in drafting the guideline and recommendation as these were produced by a joint TG during ARM15 and ENAV29.

As no input has received from other committees so far, the TG proceeded on the work done in the previous committee meetings. The recommendation was made ready to be finalised by ARM16 and the guideline was not edited, pending input from the VTS and ENG committees. A Liaison note to ARM was drafted informing the committee about the progress made, and suggesting to send an updated version of the documents to VTS and ENG requesting for input.

Output 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

Action item

*The **Secretariat** is requested to forward “ENAV30-12.1.4 Liaison note from ENAV to ARM on cyber security” and “ENAV30-12.1.4.1 DRAFT Recommendation - Cyber Security within the IALA domains - post ENAV30” to ARM.*

7.4 MASS (joint with WG2)

Referencing Document(s): (ENAV30-5.1.2.6 Input paper on Proposed new work items 2023-2027)

In the previous sessions, WG1 had been discussing some issues regarding requirements of Maritime Services for MASS. Furthermore, a task proposal to develop guidance for IALA members and

certification/standardisation bodies (e.g. IEC) on certification of technical MASS equipment, information systems and technical infrastructure in the domain of IALA was presented to WG2 by members of WG1.

In the joint WG2-WG1 session, the discussion focussed on the utilization of testbeds by IALA members to evaluate and demonstrate new technologies in the maritime domain.

7.5 Maritime Resource Names

Task Group Leader: Rasmus Madsen Jensen

Referencing Document(s): ENAV30-5.1.1.3 Progress Report on Maritime Resource Registry (MRR) Development

In the last session, an input paper on the Maritime Resource Registry (MRR) was received by WG1 and was presented to the WG1. The MRR is envisioned to be part of a new document repository for IALA documents. Also, it serves the purpose of being a registry of resources that are identified by an MRN and a management tool for MRN namespaces. Jin H. Park presented the progress on the development of the MRR. Additionally, the current prototype implementation was presented and is available for testing via Github (open source).

As an additional topic, the acceptance of MRN as a concept was discussed in the WG1. It was noted that MRN is already well-established in IALA (and partially IHO), but other organizations might lack knowledge on how to utilize MRN for their purposes. For this reason, it was decided to send an input paper to the next IMO NCSR meeting and ask for a presentation slot. Rasmus Madsen Jensen, Danish Maritime Authority and Minsu Jeon, IALA were requested to hold the presentation. Furthermore, an input paper from the VTS committee to IMO was discussed considering an update of the IMO definition of Maritime Services in the context of e-Navigation regarding VTS. From this, it became clear that there was no MRN schema in place, that regulates the assignment of MRNs to technical service specifications. A liaison note to PAP was drafted with a proposal on how to assign MRNs to technical services and input paper from VTS was adapted accordingly.

Output Document(s):

ENAV30-12.1.1 Input paper to IMO NCSR: Harmonisation of identifiers using Maritime Resource Names

ENAV30-12.1.2 Liaison Note to PAP: Usage of Maritime Resource Names for identifying Technical Services

Action items

*The **Secretariat** is requested to forward ENAV30-12.1.2: Liaison Note to PAP: Usage of Maritime Resource Names for identifying Technical Services to PAP.*

*The **Secretariat** is requested to forward ENAV30-12.1.1 Input paper to IMO NCSR: Harmonisation of identifiers using Maritime Resource Names to Council for approval and then to IMO NCSR10.*

*The **Secretariat** is requested to secure a presentation slot at NCSR10 for Harmonisation of identifiers using Maritime Resource Names.*

*A **member of WG1** is requested to present Harmonisation of identifiers using Maritime Resource Names to NCSR10 in cooperation with IALA.*

7.6 Global Maritime Digital Route Transition / Testbed

Referencing Document(s): ENAV30-5.1.2.1 Global Maritime Digital Route Transition (GMDRT): Paving maritime digital routes

An input paper from KRISO was received, that discusses the status of the development of e-Navigation solutions in the context of the IMO e-Navigation strategy and the introduction of a new initiative to make further progress in the implementation of the e-Navigation strategy. The Global Maritime Digital Route Transition (GMDRT) is presented as an initiative to support the achievement of global maritime digitalization by a route-centric digitalization approach. The initiative focusses on enabling a digital “berth to berth navigation” with the help of a “maritime digital route” concept. GMDRT aims at finalizing the development of standards, sharing outcomes of tests and provide an opportunity for a variety of maritime services to be utilized simultaneously.

7.7 S-100 Data Set Handling in Maritime Services

Task Group Leader: Julius Möller

Referencing Document(s): ENAV30-5.1.1.4 Harmonization of S-100 Data Set Handling in Maritime Services

With ENAV30-5.1.1.4 an input paper was provided to WG1, that discusses the handling of S-100 data sets by maritime services based on the experience of previously drafted service specifications. As different task groups inside IALA are currently working on these service specifications it was proposed to provide guidance on the harmonization of these matters. The WG1 discussed the proposals of the input paper and decided to update G1157 on Web Service-based S-100 Data Exchange. The updates included minor changes to the existing section on IP-based communication in maritime environments and a new section on data set management. In this new section functional roles of stakeholders in the process of data creation and provision were defined and guidance on the harmonization S-100 data set packaging, query processing and service subscription was provided.

Output Document(s):

ENAV30-12.1.5 Revision of G1157: web service based S-100 data exchange

Action item

*The **Secretariat** is requested to forward ENAV30-12.1.5 Revision of G1157: web service based S-100 data exchange to the Council for approval.*

7.8 Task proposals for the New Work Programme

Referencing Document(s): ENAV30-3.1.2.1 Draft committee work programme 2023-2027 post PAP47

As the current work programme is ending, the WG1 was requested to propose new tasks for the new work programme from 2023-2027. In a plenary session, the WG1 discussed new topics and visions to be incorporated into the new work programme. It was agreed to focus the new programme on the aspects of digitalization, digital platforms, the incubation of digitalization and the further support of the development of a Common Maritime Data Structure (CMDs). A full, detailed version of the new work programme is provided as an output document of WG1.

Output Document(s):

ENAV30-12.1.3 Proposal for the Work Programme 2023-2027 for IALA ENAV WG1 – Digital Information Systems

Action item

*The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027.*

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
- 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 (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)

Noting the presentation from 3GPP (Hyounhee KOO) during the opening plenary, Task 3.4, 3.4.2 on monitoring developments in International Mobile Technologies (IMT) was referred to a future meeting.

All input papers for WG2 were addressed. The working group finalised its work to identify future work items for work term 2023-2027 and potential work items.

8.1 Task 1.1.5 on review of Candidate Technologies

Input papers ENAV30-5.1.2.2, ENAV30-5.1.2.3, ENAV30-5.1.2.4, ENAV30-5.1.2.4.1 and ENAV30-5.1.2.1 were reviewed. In addition, there were four presentations to WG2 at ENAV30 – Owain Brennan (SeerBI) on Artificial Intelligence / Machine Learning the port environment; James Thomas (Jet Engineering) on IMT2020 on buoys; Hak Sun Kim (UNIST)/Jin Woo Kong (Sunny Wave Tech) on metal surface at magnetic substance (MS@MS) wave (wireless free communication); and on the National Finish Digital Fairway by FinTraffic. It was noted that the presentation on the Digital fairway is related to a proposed work item for the 2023-2027 (Section 8.8).

8.1.1 Review of Radio-free wireless transmission technology

Based on the input received ENAV30-5.1.2.3 Radio-free wireless communication based on Metal Surface Wave in the maritime sector and the presentation, it was agreed that this technology would be suitable for further review. The technology provides a wireless approach for data transfer where transmission can be difficult due to metal surfaces, enabling communications and sensor data to be shared into an IoT environment without the use of radio waves.

Opportunities for use within the IALA domain could include monitoring of lighthouses and sensor integration within structures. For more general purpose, it could form a backbone wireless network inside a structure a ship to implement the IoT network, with access to a broadband network in general.

It was agreed that the response section of G1153, as provided in ENAV30-5.1.2.3 would be populated by KRISO and the MS@MS experts, for consideration at ENAV31.

Action item

*That **KRISO and Sunnywave** populate the response section of G1153 (ENAV30-5.1.2.3) on the Radio-free wireless transmission technology (MS@MS) for review at ENAV31.*

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

Based on the input received ENAV30-5.1.2.4 Ships' Air Draft Remote Measurement Technology Review Using Guideline G1153 Template 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.

The technology was developed to assist VTS Providers in monitoring and managing ship traffic in the region of the Zhoudai bridge. Based on trials conducted in Nov. 2021 it was found that the technology was effective, and could provide additional decision support for VTS personnel.

It was agreed that the response section of G1153, as provided in ENAV30-5.1.2.4.1 would be populated by China MSA for consideration at ENAV31.

Action item

*That **the experts 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 ENAV31.*

8.1.3 Summary of Technologies Reviewed

During the meeting a summary table of new technologies reviewed, or considered for review, during the 2018-2023 work term was created. A folder was created on the [IALA fileshare](#) under ENAV and populated with completed technologies reviewed (using G1153) and the summary table. The Committee approved a

liaison note to be forwarded to all IALA Committees to advise of the review of new technologies (ENAV30-13.2.3)

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** note the summary table of technologies and provide comment or feedback to WG2 at ENAV31.*

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

*The **Secretariat** forward the liaison note on the review of emerging new technologies, using IALA G1153, to the other IALA Committees and PAP.*

8.2 Task 2.2.10 on Maritime Internet of Things

Task Group Leader: E Batty

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), however no input was received. Following ENAV29 an intersessional meeting was held, with limited participation, which resulted in a revision to the draft guideline.

Based on the presentations received on emerging technologies, and the previous work carried out, the draft Guideline on the Internet of Things (ENAV30-13.2.5) was reviewed and approved to be forwarded to IALA Council. It was noted that IoT is a rapidly evolving concept, and that the guideline may be reviewed and updated during the 2023-2027 work term.

Action Item

*The **Secretariat** forward the draft Guideline on the Internet of Things (IoT) (ENAV30-13.2.5) to IALA Council for approval, noting this is a rapidly emerging field and further updates will be included as required during the 2023-2027 work term.*

8.3 Task 3.1.2, 3.1.4 on Maritime Radio Communication Plan

Task Group Leader: E Batty

Input papers ENAV30-5.1.2.5 and ENAV30-5.1.2.5.2 were reviewed. Work continued on the migration of the MRCP to the Maritime Communications Manual (MarCom Manual). The link of the work on the MarCom Manual and the IALA Workshop on Maritime Digital Communications was highlighted, and it is expected that the results from the workshop will be reflected in the MarCom Manual. During ENAV30 joint work with WG2 and WG3 provided additional updates to the MarCom Manual with regards to developments at ITU and VDES.

Photos for the MarCom Manual, as provided by Finland, were received with thanks. Members are encouraged to provide photos for the manual noting the manual is expected to be published in a manner similar to the VTS Manual (online, with regular updates).

As noted at ENAV30, the review continued with the following key points in mind:

- 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 MarCom 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 ENAV31 for final review, with the goal to launch at the IALA Conference in May/June 2023. During the intersessional work, the options for publishing the e-version of the MarCom Manual will be discussed with IALA Secretariat.

To progress the work, intersessional meetings will be held between ENAV30 and ENAV31. The initial intersessional is planned for **Wednesday, October 12 from 0800-0930 UTC**.

Action item

That **Committee participants** consider participating in the intersessional group on the review of the MarCom Manual and contact Jillian Carson-Jackson (jillian@jciconsulting.net), cc Ernie Batty (ernie.b@imisglobal.com) by 10 October 2022, noting the first intersessional meeting will be held online on 12 October 2023, from 0800-0930 UTC.

That **Committee Participants** identify photos suitable for inclusion in the IALA MarCom Manual and provide these to Jillian Carson-Jackson (jillian@jciconsulting.net), cc Ernie Batty (ernie.b@imisglobal.com) prior to ENAV31.

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

Task Group Leader: J Carson-Jackson

As noted by the update from 3GPP (Hyouunhee KOO) and the timeline of release for stages of development, it was agreed to defer this item until further information is available.

Noting that no comments had been received on the draft IALA Recommendation and Guideline on IMT (ENAV27 report refers) and the fact that there will be some further developments in IMT in the coming 6 months, it was decided that the draft documents would be forwarded, as working papers, to ENAV31.

The presentation on IMT 2020 on buoys by Jet Engineering (Section 8.1) covered the ability to use existing and new AtoN with IMT2020 technologies to provide a broadband mesh network. This is being followed up by WG2 using G1153.

Action Item

The **Secretariat** is requested to forward the draft IALA Recommendation and Guideline on IMT to ENAV31 (ENAV12-12.2.3 rev2 and ENAV27-12.2.4 rev2).

That **Committee participants** are asked to review the draft Recommendation and Guideline on IMT and provide comments to ENAV31.

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 ENAV30-5.2.9, ENAV30-5.2.9.1, ENAV305.2.10.2, MTF-4-8.1 and very late papers and VTS-12.2.6 and VTS53-12.2.6.1 were reviewed. In addition, IALA G1107 (MS Word Version) and the results of the initial review of G1107 from ENAV28 (mind map) were reviewed.

In a joint session of WG1 and WG2 the members discussed MASS in general, and carried out a detailed review of IALA G1107.

8.5.1 Review of G1107

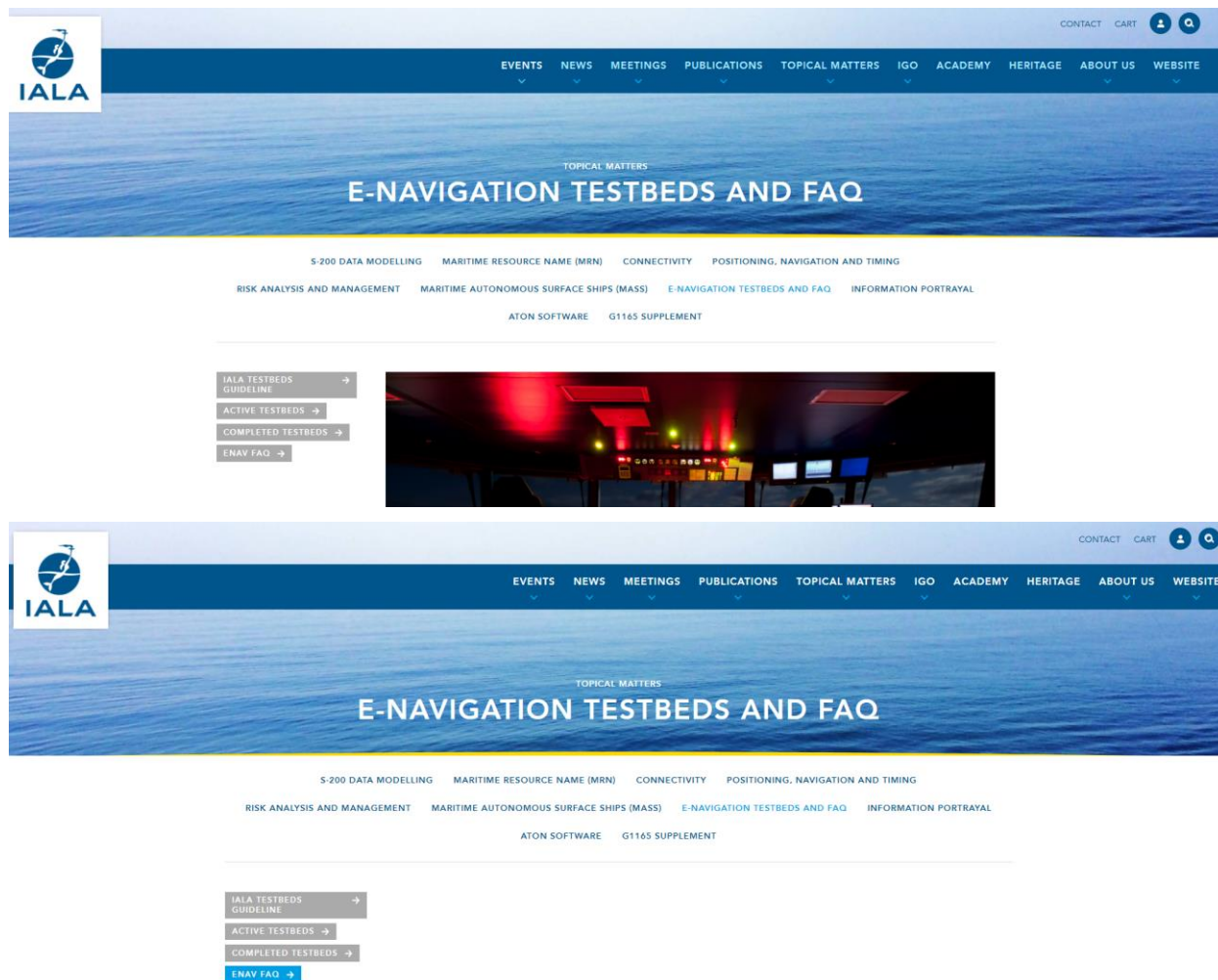
IALA G1107 Edition 2.0 on the Planning and Reporting of e-Navigation Testbeds was reviewed in light of the different test beds underway related to the digitalisation of the maritime environment and activity on autonomous systems and decision support tools through developments in MASS.

A full review of G1107 was completed, providing a broader scope to encompass test beds in the maritime domain. G1107 Ed 3.0 was approved at ENAV30 (ENAV30-13.2.1) for forwarding to IALA Council.

In carrying out the review, it was noted that the IALA website <https://www.iala-aism.org/technical/e-nav-testbeds/> needs to be updated to reflect the revised guideline. In addition, while there remains a link to the ENAV FAQ, there is no content on this page.

It is proposed that:

1. the current e-navigation testbeds area of the IALA website wording be updated to reflect the revised guideline
2. the link to the IALA Testbeds Guideline be amended to reflect the new guideline
3. the wording on the webpage and the link to the ENAV FAQ be removed



In reviewing G1107 it was noted there are connections between the initial identification of an innovation or technology that may be suitable for use in the maritime domain (reflected in G1153 – Template for the review of emerging technologies for possible use by IALA members) which can then move into a testing environment (G1107). The step after the testbed is moving to an operational environment. There is a task item identified for the IALA Work term 2023-2027 to provide guidance on the process to implement developments of innovation. In the development of the new guideline, it may be necessary to review and revise G1153.

Action items:

*The **Secretariat** forward the revised IALA G1107 Ed.3.0 Planning and Reporting of Testbeds in the Maritime Domain (ENAV30-13.2.1) to IALA Council for approval.*

If approved by Council, the **Secretariat** revise the IALA website area currently titled 'e-navigation testbeds and FAQ' as follows:

1. the current e-navigation testbeds area of the IALA website wording be updated to reflect the revised guideline
2. the link to the IALA Testbeds Guideline be amended to reflect the new guideline
3. the wording on the webpage and the link to the ENAV FAQ be removed

8.5.2 IALA draft Guideline on MASS

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.

Based on the work carried out between ENAV29 and ENAV30, the group noted the development of the IALA MASS Guideline. The review noted the late input received from the IALA VTS Committee, as presented in VTS53-12.2.6 and VTS53-12.2.6.1. Due to time constraints, these papers will be included for review during the planned intersessional meeting.

The action plan initially developed at ENAV28 was reviewed, noting the planned actions had been completed, with a revised version of the MASS Guideline provided to the IALA Mass Task Force (MTF04-8.1) and a roadmap (MTF04-8.1).

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

It was noted that a new work item has been proposed to consider 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.

To progress the work, intersessional meetings will be held between ENAV30 and ENAV31. The initial intersessional is planned for **Thursday, October 13 from 0800-0930 UTC**.

Action item

*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), cc Ernie Batty (ernie.b@imisglobal.com) by 10 October 2022.*

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

While this item was noted as completed at ENAV28 with input provided to ARM, input paper ENAV30-5.2.5 – Liaison note to ENAV regarding the Ship Reporting Guideline was noted.

It was noted that the responses to the questions raised in the liaison from ENAV (as provided to ARM in ARM15-8.5.1) addressed the main concerns raised, specifically:

That the alternative proposed to an MSW was invalidated by amendments to the annex of the FAL convention as adopted at FAL 46 (May 2022) and that these amendments are expected to enter into force on 1 January 2024 (IMO FAL46/24/Add.1 refers).

In addition, the ENAV Committee supports the proposal for a coordinated approach across all IALA Committees to address the harmonisation of ship/shore information exchange.

Action item

*The **Secretariat** is requested note the summary of review of ENAV30-5.2.5 (ARM Committee response to questions from ENAV) and determine the most appropriate way forward to ensure a coordinated approach to addressing the ongoing activity for ship/shore information exchange.*

8.7 Artificial Intelligence / Machine Learning Guideline

The working paper from ENAV29 was reviewed and revised.

A full review of the draft Guideline on Artificial Intelligence and Machine Learning was completed, and approved at ENAV30 (ENAV30-13.2.4) for forwarding to IALA Council. It was highlighted that there are significant developments in AI/ML and this may result in updates to the guideline during the 2023-2027 work term.

Action item

*The **Secretariat** is requested to forward the draft IALA Guideline on Artificial Intelligence and Machine Learning ENAV30-13.2.4 to Council for approval, noting this is a rapidly emerging field and further updates will be included as required during the 2023-2027 work term.*

8.8 Proposed work items for IALA Work Term 2022-2026

Building on the work commenced at ENAV27 and developed further at ENAV28 and ENAV29, several proposed task items were identified. These were reviewed and revised and forwarded to the ENAV Committee 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

In addition, it is expected that there will be a need to review and update related IALA Documents during the work term.

In addition, the summary work program, as provided from PAP47 (ENAV30-3.1.2.1) was reviewed, updated and forwarded to the IALA Committee Management Team.

Action item

*The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027.*

8.9 Additional Items

During the course of the meeting a number of additional items were noted and reviewed, including: ENAV30-5.2.3 and ENAV30-5.2.3.1 on IALA Workshop on digital maritime infrastructure; ENAV30-5.2.6, ENAV30-5.2.6.1 and ENAV30-5.2.6.2 on the IALA Sustainability workshop.

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

9.1 Synopsis of the session

The group concentrated on finalizing the update of G1117. The group also reviewed new work items to be proposed for the next 2023-2027 work plan and created a work plan overview for consideration by the ENAV chairs.

9.2 Agenda

The agenda for the workgroup for the week was reviewed with the group, and the 2 priorities approved:

- (1) Finalization of G1117, and
- (2) Future work programme finalization.

VDES clarifications would be covered by intersessional, refer to section 9.10.

Inputs that were not possible to be handled due to time constraint shall be handled at ENAV31.

9.3 Status on other bodies

- IMO (Stefan Bober with regards to 1371, Hideki with regards to VDES)
 - Revision of ITU-R M.1371-5 shall not be expected before 2024, due to IMO not having responded to all questions by ITU WP5B;
 - VDES Guideline and PS draft in work for NCSR10
 - IMO asked to add more use cases to a VDES Guideline for use
- IEC (Stefan Bober)
 - The test standard of VDES is under drafting in TC80 WG15
 - Working proposal planned for end of 2022, CDV maybe in end of 2024 or early 2025
 - Final approved standard 1 year later
 - Maintenance of AIS test standards discussion starts in 2 weeks/Linköping
- MCC (Stefan Pielmeier)
 - DRAFT MMS Standard is sent to RTCM for realization as an international standard
- 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):
 - R-mode navigation designation for VDES frequencies
 - Digital Voice
 - VDES primary allocation
 - To be discussed in IMO/ITU Expert group in December
 - Deadline NOV 2022
 - LED interference issue
 - RTCM test standard 13700 is input in summary to ITU as report soon to be published
 - IMO does not yet require this on board of ships
 - And the other items from ENAV30-3.5.1 IALA Report of ITU-R WP5B meeting July 2022 were covered
- RTCM (Johnny and Ross)
- Status from the G1117 joint IEC/IALA work group (Stefan Pielmeier and Stefan Bober)

9.4 Liaison with ENG/IMO on R-mode

Ronald Raulefs presented the draft input Liaison note to the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters meeting in form of ENAV30-5.2.12 & .1 about ITU WRC23 and R-mode. The paper is an expanded version of ENAV30-5.2.8 (linking to ENG15-12.3.6) focusing on VDES R-Mode. The group did not find any amendments and agreed to output the document (ENAV30-5.2.12 & .1) for silent committee approval.

Action item

The **Secretariat** is requested to send the draft liaison notes on VDES R-mode and the related paper (ENAV30-5.2.8 Liaison note to ENAV IMO position on VDES and digital VHF support at WRC-27) to ENG16 for approval.

The **Secretariat** is requested to send the document ENAV30-5.2.8 Liaison note to ENAV IMO position on VDES and digital VHF support at WRC-27 after approval of ENG and council of the papers to be submitted to the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters meeting latest by the deadline November 4th 2022.

9.5 Liasion with IMO Joint Expert Group on IALA on digital maritime infrastructure Workshop

Hideki Noguchi presented the draft input to the IMO/ITU Joint Experts Group to be held in Tokyo. The group amended the INPUT to OUTPUT/20220929-1_LiasionIMOITUEG18_TokyoWS_subgroup.docx.

Action item

The **Secretariat** is requested to process through expedited council approval and submit the approved Liasion ENAV30-13.3.1 Draft info to IMO ITU EG 18 on the workshop on digital maritime infrastructure to IMO/ITU Joint Experts Group latest by the deadline of 4th of November.

9.6 Task 3.2 Revision of G1117

The group acknowledged the efforts done by the joint IEC TC80 WG15/IALA ENAV WG3 workshop earlier the same year, reflected in ENAV30-5.1.3.10.1, and kindly accepted the offer from Johnny Schultz to be acting editor on G1117 also in this session.

The group reviewed the informal inputs provided on the IALA ENAV File share folder [WG3/ENAV30/INPUT/G1117](#).

The first informal input comes from OPRI and was presented by Koichi Yoshida. The group applied some minor adaptations to the document and approved the input for integration into the working document G1117.

The second informal input from the WG3 Chair was on updates on integration of the Protocol Format Identifier to allow identification of VDES payload data between applications, and for the example of the Maritime Connectivity Consortium work on the Maritime Messaging service as a potential means of transport for harmonized S-100 series and other digital data in connection with the trust mechanisms of the Maritime Connectivity Platform. The input received many comments for rework and was sent back for rework.

The third informal input from Jeffrey van Gils to replace the 1st chapter was approved by the group.

The fourth information input was the reworked WG3 Chair input and it was accepted after some rework by the group.

The fifth informal input from Jean Francois Coutu was reviewed and the group agreed to introduce the concept of grouping the protocol formats as proposed by earlier work. During the discussion, the group agreed that offloading traffic from AIS to the new VDES channels is an important use case that shall be supported by one new group of VDE application specific messages. A splitout group reworked Jean Francois Coutu's input and provided it back as 20220927_PDR_G1117-2_sp_INPUT_v3.1_JFC.docx in the above referred input folder. The group reviewed this rework and accepted it into the working document for G1117.

The group reviewed a sixth informal input from Yi Jiang, changing the figure in Annex A, after review accepted as in 20220929_PDR_G1117-FigureUpdateInAnnexA_JY_reviewed.docx.

After the editor Johnny Schultz applied all reviewed changes, the group reviewed the updated working document including all accepted inputs and approved it for ENAV30 committee silent approval.

Action item

The **Secretariat** is requested to forward the updated G1117 on VDES overview to the Council for approval.

*The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to IMO NCSR10.*

*The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to IEC TC80, Attn. Kim Fisher.*

*The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to ITU WP5B.*

9.7 AIS VDES VDL Integrity Monitoring Guideline

The group reviewed the input ENAV30-5.1.3.4 and agreed on where the document can be further progressed. China MSA communicated the intention to take the work further and prepare an updated input at the next ENAV.

9.8 AIS document structure update

The group recognizes the decision by PAP to task ARM with the restructuring of the AIS documentation. ENAV WG3 is ready to assisting ARM on request.

9.9 New Work Programme 2023-2027

The group walked through the existing work programme, and revised it proposing new work items, resulting in OUTPUT/ENAV30-12_x_x Tasks for the New Work Programm for ENAV WG3.xlsx overview and the detailed descriptions for most of these tasks in WORKING/NEW_WORK_PROGRAMME/20220929_WG3_New_work_items_proposal_r1_group.docx, which are sent to silent committee approval as outputs.

The group expects to review the new work programme again at ENAV31.

Action item

*The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027.*

9.10 Task 3.2 VDES

The Working Group acknowledged that we had three inputs on VDES clarifications:

- ENAV30-5.1.3.5 China MSA input
- ENAV30-5.1.3.1 Review of VDE-TER Receiver Sensitivity Requirements, Korea [input to IEC work]
- ENAV30-5.1.3.8 & ENAV30-5.1.3.8.1 20220830_M2092-1_CP_TBD_JS.docx, GLA
- ENAV30-5.2.2, IEC TC80 WG15
- 20220811_M2092-1_CP_1_CML.docx (informal)

Due to the high work load, the working group had no time to handle these inputs, and the group agreed to hold a virtual intersessional meeting the 1st of November, 2022 11-14 UTC to handle these. In case more time is needed, the group will schedule another 3-hour virtual meeting. In order to join the meeting, committee members are invited to use the calendar invitation for the ENAV WG3 meeting found in the ENAV dashboard.

10. ANY OTHER BUSINESS

The Committee considered the input ENAV30-5.2.1 on holding ENAV31 in the first quarter of 2023 and agreed to convene ENAV31 tentatively on 30 January to 3 February 2023 with hybrid as same as ENAV30 and to convene the Committee meeting twice in a year irrespective of the IALA Conference.

Action item

The **ENAV Chair** is requested to convey the Committee decision to the Secretary General for approval and if the Secretary General agreed to coordinate with the Secretariat to decide the date and venue of ENAV31 as soon as possible.

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

The ENAV participants met on 30 September in the plenary room to review the work done by the WGs during the week. The following outcomes were reviewed and sent to follow the silent approval process:

Document Id	Title
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ENAV20-12.1.1	Draft input paper to IMO NCSR10 – Harmonisation of identifiers using Maritime Resource Names
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ENAV30-12.1.2	Liaison Note to PAP – Usage of Maritime Resource Names for identifying Technical Services
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ENAV30-12.1.3	Task for the new Work Programme 2023-2027 for ENAV WG1
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ENAV30-12.1.4	Liaison note to ARM on cyber security
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ENAV30-12.1.4.1	Draft Recommendation – Cyber Security within the IALA domains – post ENAV30
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ENAV30-12.1.5	G1157 Web Service based S-100 Data Exchange
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ENAV30-13.2.1	Revised G1107 on Planning and reporting testbeds on the maritime domain Ed.2
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ENAV30-13.2.2	WG2 Proposed new work items 2023-2027
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Document Id	Title
ENAV30-13.2.3	Liaison note to all Committees on New Technology Review
ENAV30-13.2.4	Draft Guideline on the Artificial Intelligence
ENAV30-13.2.5	Draft guideline on the Internet of Things
ENAV30-13.3.1	Draft info to IMO ITU EG 18 on the workshop on digital maritime infrastructure_WG2 Review
ENAV30-13.3.2	Input to Council to revoke G1139
ENAV30-13.3.3	Review G1117 on VHF Data Exchange System (VDES) Overview
ENAV30-13.3.4	Liaison NCSR10 on G1117
ENAV30-13.3.5	WG3 Proposed new work items 2023-2027
ENAV30-13.3.6	Liaison note to ENG on VDES R-mode
ENAV30-13.3.7	Liaison to IECTC80 on G1117
ENAV30-13.3.8	Liaison to ITUWP5B on G1117

The ENAV Chair emphasised the importance of the next work programme and the need to report with detail and in the template the new task proposals and the table of tasks as described in the document: ENAV30-3.1.2.1 Draft committee work programme 2023-2027 post PAP47.

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)

The rationale behind moving to a new name which does not include eNavigation could enlarge the discussions of eNavigation topic within the other committees. A broader name could then include further technologies, systems and services. In parallel, IMO will conclude the eNavigation road map and project in NCSR10, even if the developments are still progressing in this work frame.

12. REVIEW OF SESSION REPORT

The report of the meeting (ENAV30-13.1) was reviewed and approved by the Committee.

Action Item

*The **Secretariat** is requested to send the report of ENAV30 (ENAV30-13.1) to the Council to note.*

13. DATE AND VENUE OF NEXT MEETINGS

ENAV31 is tentatively scheduled from 30 January to 3 February 2023 at Headquarters, Saint Germain-en-Laye.

Other IALA events will be publicised on the IALA website.

14. 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 wished to see all participants at ENAV31.

The Secretary General, Francis Zachariae, thanked the Committee and WG (vice)Chairs, as well as the ENAV participants and noted with enthusiasm the relevant progress on S100 data, MRN, cyber security, VDES among so many others matter. The Secretary General highlighted the importance to meet physically again welcoming to the next ENAV31, D@S International and WS in Tokyo on Digital maritime infrastructure. The Secretary General also mentioned the possibilities that the new technologies provide to connect to all these meetings on a hybrid way and IALA has taken advantage of these improvements.

15. LIST OF ANNEXES

- Agenda
- List of Participants
- List of Input Papers
- List of Output Papers
- List of Action Items



30th Meeting of the e-Navigation Information Services and Communications Committee (ENAV30)

The opening plenary of the 30th session of the ENAV Committee will be held physically at IALA HQ on the 26 September 2022 at 08.00 UTC (10.00 CEST) with the possibility to connect remotely and the closing plenary will be held online between 10:00 – 12:00 UTC on Friday 7 October 2022. The physical week will take place at IALA HQ between the 26 – 30 September 2022, 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 ENAV29 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
 - 3.4.1. Joint IHO/IALA workshop on S100/S200
 - 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. Authenticating AIS AtoN making use of MCP Jan Safar – GRAD
 - 4.2. Global Maritime Digital Route Transition: A New Initiative for Maritime Digitalization
Jin Hyoun Park - KRISO
 - 4.3. Open Digital Incubator Initiative Axel Hahn
 - 4.4. IALA Conference Alberto Piovesana
 - 4.5. Working group 2 presentation - 27 Sept / 0900 – 1030 UTC:

- | | |
|--------------------------------|--------------------------------|
| 4.5.1. Artificial Intelligence | Owain Brennan – SeerBI |
| 4.5.2. IMT2020 on buoys | James Thomas – Jet Engineering |
| 4.5.3. MASS | Ann Till – Ocean Infinity |
5. Review of input papers
 - 5.1. Introduction of input papers to ENAV30
 - 5.2. Allocation of input papers
 6. Work Programme and task list (2018 - 2023)
 - 6.1. WG1 Working program and arrangements presentation
 - 6.2. WG2 Working program and arrangements presentation
 - 6.3. WG3 Working program and arrangements presentation
 - 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
 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

Committee Chairs

Axel Hahn

Jillian Carson-Jackson

Stefan Pielmeier

ANNEX B LIST OF PARTICIPANTS

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

New Members

NAME		MEMBER CATEGORY	ORGANIZATION	COUNTRY
Dearbhla	Campbell	Associate	UK Hydrographic Office	United Kingdom
Juneyeon	Kim	Associate	Korea Maritime Transportation Safety Authority	Republic of Korea
Alain Serge	Mbene Koah	Associate	Port Authority of Kribi	Cameroon
Jinho	Yoo	Associate	Korean Register of Shipping	Republic of Korea
Francesco	Borghese	Industrial	ELMAN S.r.l.	Italy
Ciro	Dambrosio	Industrial	ELMAN S.r.l.	Italy
Hwajin	Na	Industrial	Nsonesoft Co., Ltd	Republic of Korea
Woo Seok	Kim	Industrial	Nsonesoft Co., Ltd	Republic of Korea
Jakob	Weibrecht	Industrial	Sternula A/S	Denmark
Zhe	Zhang	Industrial	Shanghai Spaceflight Institute of TT&C and Telecommunication	China
Xiaoxi	Ai	National	China Maritime Safety Administration	China
Bjorn	Cassar-Simmonds	National	Ports & Yachting Directorate	Malta
Kang	Daewoong	National	Ministry of Oceans and Fisheries	Republic of Korea
Sean	Foster	National	US Coast Guard	United States
Younggwang	Jeong	National	Ministry of Oceans and Fisheries	Republic of Korea
Heejin	Kang	National	Ministry of Oceans and Fisheries	Republic of Korea
Sanghun	Kim	National	Ministry of Oceans and Fisheries	Republic of Korea
Haksun	Kim	National	Ministry of Oceans and Fisheries	Republic of Korea
Yanna	Li	National	China Maritime Safety Administration	China
Chaoyu	Li	National	China Maritime Safety Administration	China
Chin Leong	Lu	National	Maritime and Port Authority of Singapore	Singapore
Eralp	Ozkaya	National	Directorate General of Coastal Safety	Türkiye
Boon Chew	Toh	National	Maritime and Port Authority of Singapore	Singapore
Gareth	Wimpenny	National	General Lighthouse Authorities of the UK and Ireland	United Kingdom
Ricky	Withers	National	Australian Maritime Safety Authority	Australia
Zhongli	Yi	National	China Maritime Safety Administration	China
Oğuzhan	Dutkuner	National	Directorate General of Coastal Safety	Türkiye
Michael	Richards	Sister organisation	CIRM	
Javier	Yasnikouski	Sister organisation	IMO	
Javier	Pancorbo	Associate	ESSP-SAS	Spain
Christopher	Saarnak	National	Danish Maritime Authority	Denmark

Omar	Almufawez	National	Saudi Ports Authority	Saudi Arabia
Khalid	Mujali	National	Saudi Ports Authority	Saudi Arabia
Cesar	Zelada	National	Dirección de Hidrografía y Navegación	Peru
Mario	Vera	National	Dirección de Hidrografía y Navegación	Peru

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

Meeting	Agenda Item	Output Paper Title	Source	Action
ENAV30-	1.2.1	Preliminary Agenda ENAV30	IALA	All
ENAV30-	1.4	Programme for the week	IALA	All
ENAV30-	2.1.1	ENAV29 Action Items	IALA	All
ENAV30-	2.1.2	Report of ENAV29	IALA	All
ENAV30-	3.1.1	Report Council 75	IALA	All
ENAV30-	3.1.2.1	Draft committee work programme 2023-2027 post PAP47	PAP47	All
ENAV30-	3.1.3	Technical Documents Catalogue June 2022	IALA	All
ENAV30-	3.2	Final Report Digital@Sea NA	Digital@Sea NA	All
ENAV30-	3.3	Report on IMO NCSR 9	IALA	All
ENAV30-	3.5.1	IALA Report of ITU-R WP5B meeting July 2022	Stefan B	All
ENAV30-	5.0	Input paper Committee meeting template	IALA	All
ENAV30-	5.1.1.1	Work on a technical service for provisioning of AtoN information	DLR / CCG / KRISO / DMA / GRAD / FTIA	WG1
ENAV30-	5.1.1.2	Development of technical service specifications for digital data exchange between VTS and other entities - primarily ships	DLR / Fintraffic / Finnish Transport Infrastructure Agency / WSV / Vissim / China MSA	WG1
ENAV30-	5.1.1.3	A Status Report on Maritime Resource Registry (MRR) Development	KRISO	WG1
ENAV30-	5.1.1.4	Harmonization of S-100 Data Set Handling in Service Specifications	DLR / GRAD	WG1
ENAV30-	5.1.1.5	Introduce of cyber security application case of ship's e-Nav service display device based on international standards	KOMSA / GMT	WG1
ENAV30-	5.1.2.1	Global Maritime Digital Route Transition GMDRT_Paving maritime digital routes	KRISO	WG2
ENAV30-	5.1.2.2	Metal Surface at Magnetic Substance wave	KRISO / UNIST / Sunny Wave Tech	WG2
ENAV30-	5.1.2.3	Radio-free wireless communication based on Metal Surface Wave in the maritime sector	KRISO / UNIST / Sunny Wave Tech	WG2

ENAV30-	5.1.2.4	Ships' Air Draft Remote Measurement Technology Review Using Guideline G1153 Template	China MSA	WG2
ENAV30-	5.1.2.4.1	Annex Emerging technologies review table	China MSA	WG2
ENAV30-	5.1.2.5	Input paper on MarCom Manual	WG2 Chair	WG2
ENAV30-	5.1.2.5.1	Draft IALA MRCP Rev MarCom Manual	WG2 Chair	WG2
ENAV30-	5.1.2.6	Input paper on Proposed new work items 2023 2027	WG2 Chair	WG2
ENAV30-	5.1.3.1	Review of VDE-TER Sensitivity Requirements	COMESTA / Korean Register	WG3
ENAV30-	5.1.3.2	Design of VDES Gateway Technology to implement IP network over VDES	I-Storm / WApplE Cloud / Korean Register	WG3
ENAV30-	5.1.3.3	Development of Guidelines on VDES resource sharing and coordination/cooperation	OPRI	WG3
ENAV30-	5.1.3.4	Working Draft of Guideline on AIS VDES VDL integrity monitoring	China MSA	WG3
ENAV30-	5.1.3.5	Change Proposal for ITU-R M.2092-1	China MSA	WG3
ENAV30-	5.1.3.6	Maritime Safety Information Broadcast by VDES in Bohai Sea	China MSA	WG3
ENAV30-	5.1.3.7	Application of Portable AIS Equipment Comprehensive Analyzer	China MSA	WG1 / WG3
ENAV30-	5.1.3.8	Cover Note for Change Proposal to Rec ITU-R M2092-1	GRAD	WG3
ENAV30-	5.1.3.8.1	Change Proposal to Rec ITU-R M2092-1	GRAD	WG3
ENAV30-	5.1.3.9	VDES-R Advanced user technologies for alternative PNT_VAUTAP	Telespazio UK	WG3
ENAV30-	5.1.3.10	Input on the joint IALA_IEC WG Meeting on VDES	ENAV WG3 Chair	WG3
ENAV30-	5.1.3.10.1	WP G1117-2 VHF Data Exchange System Overview	IALA /IEC JWG	WG3
ENAV30-	5.2.1	Revision of SOLAS chapters III and IV for modernization of the GMDSS	Iran	All
ENAV30-	5.2.2	Liaison note from IEC TC 80 WG 15 on clarification to ITU-R M.2092-1 VDES	IEC TC80 WG15	All
ENAV30-	5.2.3	IALA Workshop on digital maritime infrastructure	ENAV Chair	All
ENAV30-	5.2.3.1	Draft info to IMO ITU EG 18 on the workshop on digital maritime infrastructure	ENAV Chair	All
ENAV30-	5.2.4	Liaison note from ARM to all committees on cyber security	ARM15	All
ENAV30-	5.2.5	Liaison note to ENAV regarding the Ship Reporting Guideline	ARM15	All
ENAV30-	5.2.6	Liaison note to all committees on sustainability workshop	ENG15	All
ENAV30-	5.2.6.1	Sustainability Workshop proposal	ENG15	All
ENAV30-	5.2.6.2	WP Technical Programme sustainability workshop	ENG15	All
ENAV30-	5.2.7	Liaison note to ENAV Committee R-Mode Standardisation	ENG15	All
ENAV30-	5.2.8	Liaison note to ENAV IMO position on VDES and digital VHF support at WRC-27	ENG15	All

ENAV30-	5.2.9	Liaison Note to all committees Implications of MASS from a VTS Perspective	VTS52	All
ENAV30-	5.2.9.1	WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS Perspective	VTS52	All
ENAV30-	5.2.9.2	Report from TG1.2.5 and TG1.4.3 Joint Session	VTS52	All
ENAV30-	5.2.10	Liaison Note to all committees Future VTS	VTS52	All
ENAV30-	5.2.10.1	WP Task 1.4.3 Future VTS Discussion Paper	VTS52	All
ENAV30-	5.2.10.2	Report from TG1.2.5 and TG1.4.3 Joint Session	VTS52	All
ENAV30-	5.2.11	ENAV31 in the first quarter 2023	ENAV Chair	All
ENAV30-	5.2.12	Input paper on VDES R-Mode proposal on IMO WRC 23 Joint IMO ITU EG	Michael Hoppe, Stefan Bober, Ronald Raulefs	All
ENAV30-	5.2.12.1	Input on VDES Rmode Agenda10 WRC23 Annex	Michael Hoppe, Stefan Bober, Ronald Raulefs	All
ENAV30-	5.2.13	The Open Digital Incubator Initiative	PAP47	All
ENAV30-	5.2.14	Report on the Joint IHO IALA Workshop S-100 S-200 Product Specification Development & Portrayal	IALA Secretariat	All

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
ENAV30-	12.1.1	Information Paper to IMO NCSR regarding MRN	ENAV30	Council
ENAV30-	12.1.2	Input Paper to PAP regarding MRN schema for technical services	ENAV30	PAP
ENAV30-	12.1.3	Tasks for the New Work Programme for ENAV WG1	ENAV30	PAP / Council
ENAV30-	12.1.4	Liaison Note to ARM on Cyber Security, including updated versions of Recommendation and Guideline on Cyber Security in the Domain of IALA	ENAV30	ARM
ENAV30-	12.1.4.1	Draft Recommendation - Cyber Security within the IALA domains - post ENAV30	ENAV30	ARM
ENAV30-	12.1.5	Revised G1157 on Web Service based S-100 Data Exchange	ENAV30	Council
ENAV30-	13.2.1	Revised G1107 on Planning and reporting testbeds on the maritime domain Ed.2	ENAV30	Council
ENAV30-	13.2.2	WG2 Proposed new work items 2023-2027	ENAV30	PAP
ENAV30-	13.2.3	Liaison note to all Committees on New Technology Review	ENAV30	All committees / PAP
ENAV30-	13.2.4	Draft Guideline on Artificial Intelligence revised post silent approval	ENAV30	Council
ENAV30-	13.2.5	Draft guideline on the Internet of Things	ENAV30	Council
ENAV30-	13.2.6	MarCom Manual	ENAV30	ENAV31
ENAV30-	13.3.1	Draft info to IMO ITU EG 18 on the workshop on digital maritime infrastructure_WG2 Review	ENAV30	Council
ENAV30-	13.3.2	Input to Council to revoke G1139	ENAV30	Council
ENAV30-	13.3.3	Review G1117 on VHF Data Exchange System (VDES) Overview	ENAV30	Council
ENAV30-	13.3.4	Liaison NCSR10 on G1117	ENAV30	Council
ENAV30-	13.3.5	WG3 Proposed new work items 2023-2027	ENAV30	PAP
ENAV30-	13.3.6	Liaison note to ENG on VDES R-mode	ENAV30	ENG16
ENAV30-	13.3.7	Liaison IECTC80 on G1117	ENAV30	Council
ENAV30-	13.3.8	Liaison ITUWP5B on G1117	ENAV30	Council

Working papers will remain within the Committee for further review during ENAV31.

Meeting	Agenda Item	Output Paper Title	Source	Action
ENAV30-	13.2.6	MarCom Manual	ENAV30	ENAV31
ENAV30-	13.2.7	Draft Recommendation on IMT	ENAV30	ENAV31
ENAV30-	13.2.8	Draft Guideline on IMT	ENAV30	ENAV31
ENAV30-	13.2.9	Draft Guideline on MASS	ENAV30	ENAV31

Action Items for the Secretariat

1. The **Secretariat** is requested to forward “ENAV30-12.1.4 Liaison note from ENAV to ARM on cyber security” and “ENAV30-12.1.4.1 DRAFT Recommendation - Cyber Security within the IALA domains - post ENAV30” to ARM. 19
2. The **Secretariat** is requested to forward ENAV30-12.1.2: Liaison Note to PAP: Usage of Maritime Resource Names for identifying Technical Services to PAP. 20
3. The **Secretariat** is requested to forward ENAV30-12.1.1 Input paper to IMO NCSR: Harmonisation of identifiers using Maritime Resource Names to Council for approval and then to IMO NCSR10. 20
4. The **Secretariat** is requested to secure a presentation slot at NCSR10 for Harmonisation of identifiers using Maritime Resource Names. 20
5. The **Secretariat** is requested to forward ENAV30-12.1.5 Revision of G1157: web service based S-100 data exchange to the Council for approval. 21
6. The **Secretariat** forward the liaison note on the review of emerging new technologies, using IALA G1153, to the other IALA Committees and PAP. 23
7. The **Secretariat** forward the draft Guideline on the Internet of Things (IoT) (ENAV30-13.2.5) to IALA Council for approval, noting this is a rapidly emerging field and further updates will be included as required during the 2023-2027 work term. 23
8. The **Secretariat** is requested to forward the draft IALA Recommendation and Guideline on IMT to ENAV31 (ENAV12-12.2.3 rev2 and ENAV27-12.2.4 rev2). 24
9. The **Secretariat** forward the revised IALA G1107 Ed.3.0 Planning and Reporting of Testbeds in the Maritime Domain (ENAV30-13.2.1) to IALA Council for approval. 25
10. The **Secretariat** is requested note the summary of review of ENAV30-5.2.5 (ARM Committee response to questions from ENAV) and determine the most appropriate way forward to ensure a coordinated approach to addressing the ongoing activity for ship/shore information exchange. 26
11. The **Secretariat** is requested to forward the draft IALA Guideline on Artificial Intelligence and Machine Learning ENAV30-13.2.4 to Council for approval, noting this is a rapidly emerging field and further updates will be included as required during the 2023-2027 work term. 27
12. The **Secretariat** is requested to send the draft liaison notes on VDES R-mode and the related paper (ENAV30-5.2.8 Liaison note to ENAV IMO position on VDES and digital VHF support at WRC-27) to ENG16 for approval. 29
13. The **Secretariat** is requested to send the document ENAV30-5.2.8 Liaison note to ENAV IMO position on VDES and digital VHF support at WRC-27 after approval of ENG and council of the papers to be submitted to the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters meeting latest by the deadline November 4th 2022. 29
14. The **Secretariat** is requested to process through expedited council approval and submit the approved Liaison ENAV30-13.3.1 Draft info to IMO ITU EG 18 on the workshop on digital maritime infrastructure to IMO/ITU Joint Experts Group latest by the deadline of 4th of November. 29
15. The **Secretariat** is requested to forward the updated G1117 on VDES overview to the Council for approval. 29
16. The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to IMO NCSR10. 30
17. The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to IEC TC80, Attn. Kim Fisher. 30
18. The **Secretariat** is requested to send the Liaison Note on the updated G1117 after Council approval to ITU WP5B. 30

19. The **Secretariat** is requested to send the report of ENAV30 (ENAV30-13.1) to the Council to note. 33

Action Items for Participants

20. A **member of WG1** is requested to present Harmonisation of identifiers using Maritime Resource Names to NCSR10 in cooperation with IALA. 20
21. The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027. 21
22. That **KRISO and Sunnywave** populate the response section of G1153 (ENAV30-5.1.2.3) on the Radio-free wireless transmission technology (MS@MS) for review at ENAV31. 22
23. That **the experts 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 ENAV31. 22
24. That **Committee participants** note the summary table of technologies and provide comment or feedback to WG2 at ENAV31. 23
25. That **Committee participants** provide information on candidate technologies for review using the template provided in IALA Guideline 1153. 23
26. That **Committee participants** consider participating in the intersessional group on the review of the MarCom Manual and contact Jillian Carson-Jackson (jillian@jcjconsulting.net), cc Ernie Batty (ernie.b@imisglobal.com) by 10 October 2022, noting the first intersessional meeting will be held online on 12 October 2023, from 0800-0930 UTC. 24
27. That **Committee participants** are asked to review the draft Recommendation and Guideline on IMT and provide comments to ENAV31. 24
28. 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@jcjconsulting.net), cc Ernie Batty (ernie.b@imisglobal.com) by 10 October 2022. 26
29. The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027. 27
30. The **ENAV Chair** together with the Vice-Chair and the Secretariat is requested to coordinate the provided new work programme overview and detail descriptions within the Committee and send it to PAP for the coordination with other committees for the period 2023-2027. 30
31. The **ENAV Chair** is requested to convey the Committee decision to the Secretary General for approval and if the Secretary General agreed to coordinate with the Secretariat to decide the date and venue of ENAV31 as soon as possible. 31



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Association Internationale de Signalisation Maritime