



# IALA DTEC COMMITTEE

## REPORT OF THE THIRD SESSION OF THE IALA DIGITAL TECHNOLOGIES (DTEC) COMMITTEE

**30 September – 10 October 2024**

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**10 October 2024**

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International Organization for Marine Aids to Navigation

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## Report of the third session of the IALA Digital Technologies (DTEC) Committee Executive Summary

The third session of the DTEC Committee was held from 30 September to 10 October 2024, including the physical week at IALA HQ between 30 September to 04 October, chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Alisa Nechyporuk.

130 participants from 30 countries, three Sister organisations and three observers participated in DTEC3. 13 participants attended for the first time.

The session began with an opening plenary and the physical week on Monday, 30 September and continued until Friday, 04 October. The Chair welcomed everybody, both old as well as new participants, to the meeting and was pleased to see so many faces at IALA HQ. An approval period was followed, and the virtual closing plenary was held on Thursday, 10 October.

The meeting was carried out in accordance with the *Committee Arrangements*.

Key outputs completed included:

DTEC3	11.2.1.4	Revised G1128 Specification of e-Navigation Technical Services Ed1.6
DTEC3	11.2.1.4.1	Revised G1128 Annex A Service Specification Template
DTEC3	11.2.1.4.2	Revised G1128 Annex B Service Design Template
DTEC3	11.2.1.4.3	Revised G1128 Annex C Service Instance Description Template
DTEC3	11.2.1.4.4	Revised G1128 Annex D Service Design Template for SECOM Service
DTEC3	11.2.1.5	Revised G1183 Provision of MCP identities Ed1.1
DTEC3	11.2.2.2	Liaison note to ITU-R WP on 5D-IMT-2030
DTEC3	11.2.2.3	Revised Marcom Manual
DTEC3	11.2.2.5	Workshop Proposal on Application IMT to Marine AtoNs
DTEC3	11.2.3.1	Revised G1158 VDES R-Mode Ed.2.0 October 2024
DTEC3	11.2.3.2	Revision of ITU-R M.2092-1

The following liaison notes were approved:

DTEC3	11.2.1.1	Liaison note to VTS on Near Miss Incidents
DTEC3	11.2.1.2	Liaison note ARM on MRN v1.2
DTEC3	11.2.1.3	Liaison Note to ARM and PAP on S-230 Application Specific Messages v1.1
DTEC3	11.2.2.1	Liaison note to ENG on IMT-2030
DTEC3	11.2.2.4	Liaison note to ARM on Guideline Rec on Drones in AtoN
DTEC3	11.2.2.6	Liaison note to ARM, ENG, VTS, MASS TF on MASS Rec and Guideline
DTEC3	11.2.2.7	Liaison note to VTS on Emerging Tech-reviewed
DTEC3	11.2.2.8	Liaison note to LAP on Revised new tech summary
DTEC3	11.2.2.9	Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline
DTEC3	11.2.3.3	Liaison note to ENG on Guideline G1158 VDES R Mode
DTEC3	11.2.3.4	Liaison note to ARM, VTS, ENG, PAP on IALA documentation relating to AIS

# Overall status of the DTEC Committee 2023 - 2027 Work Programme after DTEC3:

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
					2023	2024	2024	2025	2025	2026	2026	
<b>S1010 Marine Aids to Navigation Planning and Service Requirements</b>	S1010.1 Obligations and Regulatory Compliance	1.1.1*	Consider developing guidance on the certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA	<u>New Guideline</u> Develop a guideline on the certification of technical MASS equipment, information systems, and technical infrastructure within the domain of IALA.					X	X	X	WG1
	S1010.2 Marine Aids to Navigation planning	1.2.1*	Providing guidance on the process to implement developments of innovation	<u>New Guideline</u> Develop a guideline on how to move from development test bed/trial reporting to implementation of innovative solutions.				X	X	X	X	WG1
		1.2.2*	Development of aspects of digital communications, including promoting broadband connectivity for operational technology	Based on IHO/IALA portrayal and IALA comms workshop output.		X	X	X	X	X	X	WG1
		1.2.3	Review relevant sections of the NAVGUIDE						X	X	X	WG1 WG2 WG3
		1.2.4*	Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)	<u>New Guideline</u> The Guideline will be continued led by DTEC				X	X	X	X	WG2
	S1010.4 Risk management	1.4.1*	Develop Guidance on Risk Assessment and Certification Methods in the context of e-Navigation	<u>Recommendation or guideline</u> Development of guidance documents on Risk Assessment and Certification Methods in the context of e-Navigation.					X	X	X	WG1

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
		1.4.2	Develop guidance on cyber security for Marine AtoN	<u>Guideline</u>	X	X						WG1
		1.4.3	Develop a Guideline for Risk Assessment and Cyber Security	<u>New or revised guideline</u>					X	X	X	WG1
S1020 Marine AtoN design and delivery	S1020.2 Design, Implementation & Maintenance	2.2.1	Full review of A-126, G1084 and other AIS associated documentation	<u>Revised recommendations and guidelines</u>					X	X	X	WG3
S1040 Vessel Traffic Services	S1040.3 VTS Communications	6.3.2	Develop guidance on VTS digital communications	<u>New Guideline</u> Develop a guideline for migrating current analogue VHF voice communications to digital VHF voice communications.					X	X	X	WG2
S1050 Training and Certification	S1050.1 Training and assessment	5.1.1	WWA lesson plans to review	<u>Review and update of the WWA Lesson plans</u>					X	X	X	WG1
		5.1.2	Training in implementation of digital solutions (data analytics & maritime informatics)	<u>New Guideline and training programme</u> Develop a guideline on skills related to the digital environment, such as data analytics and maritime informatics and associated training programs with WWA.		X	X	X	X	X	X	WG2
S1060 Digital Communication Technologies	S1060.1 Wide and medium bandwidth systems	6.1.1*	Review and update R0144 and G1095 - Update to the latest development of ASM	<u>Recommendation and Guideline</u>		X	X	X	X	X	X	WG3

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
	S1060.2 Narrow bandwidth systems	6.2.1*	Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN	<u>Guideline, Reportage, input to 3GPP</u> Contribute towards the development of 3GPP mobile communication standards, with a specific focus on the maritime industry vertical.		X	X	X	X	X	X	WG2
	S1060.3 Harmonised maritime connectivity	6.3.10*	New IALA Guideline on VDES system integration into ship and shore side	<u>New Guideline</u> Develop documentation on the integration and operations of VDES for different user groups - leveraging the capabilities VDES provide and maintain them by managing the resource by optimized operations.	X	X	X	X	X	X	X	WG3
		6.3.11*	Recommendation for the AIS Service	<u>New Recommendation</u> Develop Recommendation for the AIS Service Planned in draft Standard S1060 (supersedes A-124). Move recommendation A-124 content to Recommendation R0123 or remainder to Guideline(s)		X	X	X	X	X	X	WG3
		6.3.12*	Review of the contents of A-124 series recommendations	<u>New Guideline</u> A-124 APPENDIX 0 to APPENDIX 19 become Guidelines for Recommendation R1008: Move recommendation A-124 content to Recommendation R0123 remainder to Guideline(s)					X	X	X	WG3

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
		6.3.13*	Develop guidance on NAVDAT development considering shore based infrastructure	<u>New Recommendation and Guideline</u>  Draft Recommendation and Guideline for Digital navigational data system (NAVDAT) considering shore based infrastructure.				X	X	X	X	WG3
		6.3.2*	Develop guidance on Digital VHF communication	<u>New Guideline</u>  Develop a guideline for migrating current analogue VHF voice communications to digital VHF voice communications.		X	X	X	X	X	X	WG2 WG3
		6.3.3*	Develop a Guideline for VDES VDL integrity monitoring	<u>New Guideline</u>  Provide references and advice for authorities to monitor the integrity of VDL. Internally, make VDES VDL operating normally. Externally, specify the common services and functions of the AIS/VDES VDL monitoring system or platform.	X	X						Finished
		6.3.4*	Develop Guidelines on VDES Authentication Techniques	<u>New Guideline</u>  Describe potential methods for authenticating VDES transmissions, including VDES R-Mode signals. Provide basis for the development of an international standard for VDES authentication, so that all mariners can have trust in e-navigation communications and future resilient positioning, navigation and timing solutions based on VDES.	X	X	X	X	X	X	X	WG3

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
		6.3.5*	Develop Guidelines on VDES resource sharing and coordination/cooperation	<u>New Guideline</u>  Develop a guideline that provides framework of VDES resource sharing and coordination / cooperation for VDES satellites providers, VDES land-stations and VDES users to realize smooth and effective VDES communications on both official and private communications.	X	X	X	X	X			WG3
		6.3.6*	Review and update R1007 The VHF Data Exchange System (VDES) for shore infrastructure	<u>Revised R1007</u>  Update to the latest development of AIS	X	X	C80					WG3
		6.3.7*	Liaise with ITU on Recommendation ITU-R.M 2092-1	<u>Liaison note</u>  LN to ITU WP5B in regards with the Recommendation ITU-R.M 2092-1: Consider future development of VDES		X	X	X	X	X	X	WG3
		6.3.8*	Liaise with IEC on the Test standard for VDES	<u>Liaison note and input document</u>  Test standard for VDES: Contribute to the development of VDES test standard		X	X	X	X	X	X	WG3
		6.3.9	Develop guidance on documentation on communications channels for public service digital information services in coastal areas	<u>New Recommendation or Guideline</u>  Develop documentation on (free-to-air, non-commercial) communications channels to be used by coastal authorities for digital information transfer between ship and shore in coastal areas may absorb A-123 and A-124					X	X	X	WG3



Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
S1070 Information Services	S1070.1 Data models and data encoding	7.1.1*	Develop a discussion paper on digitalisation in the scope of IALA	<u>Discussion paper</u>  Development of a vision for digitalization of shipping and maritime transportation - Document sketching the IALA vision on digitalization of waterways and shipping			X	X	X	X	X	WG2
		7.1.2*	Develop guidance on Digital Fairway	<u>New Guideline</u>  Develop a guideline on the developments and implementation of the digital fairway. Reference G1058 and G1097.		X	X	X	X	X	X	WG2
		7.1.3*	Review G1114 A Technical Specification for the Common Shore-based System Architecture (CSSA)	<u>Revised Guideline</u> Consider developing a System Architecture Concept for Digitalized Waterways and Maritime Transformation: Architecture Pattern, Architecture Overview, Architecture Details / Platforms / Services					X	X	X	WG1
		7.1.4*	Consider developing a Recommendation for digital platforms	<u>New Recommendation</u>  Recommendation on platforms to be used for implementation of the proposed Architecture (G1114 Update): Definition of the architecture based on Updated G1114, Description of platform elements	X	X	C80					WG1
		7.2.1	Contribute to the standardization efforts with respect of the requirements of the S-100 domain experts			X	X	X	X	X	X	WG1

Standard	Scope	No.	Task	Comment	1	2	3	4	5	6	7	Coop. entity
		7.2.2	Coordinate Committee support and submissions for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG)			X	X	X	X	X	X	WG3
	S1070.2 Data exchange systems	7.1.5*	Review G1128 Specification of e- Navigation technical services	Review G1128  Revise the Guideline from basic concepts and guideline for developers on technical services adjusted to the digital platform concepts. Reference G1155.	X	X	C8 0 X					WG1

**Legend:**

Blank: Ongoing or scheduled task  
 Light orange: To Council to note or approve  
 Light grey: Task completed or deleted  
 X: Prolonged task

**Legend for task numbering:**

Digit 1: WG 1, 2 or 3  
 Digit 2: S1040 VTS Scope No.; Other standards = 8; Standard not available = 9  
 Digit 3: In sequence (1, 2, 3 etc.)  
 Digit 4: Sub task a, b, c...(if needed)

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## Report of the third session of the IALA Digital Technologies (DTEC) Committee

### 1. INTRODUCTION

The third session of the DTEC Committee was held from 30 September to 10 October 2024, including the physical week at IALA HQ between 30 September to 04 October, chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The Secretary for the meeting was Alisa Nechyporuk.

The session began with an opening plenary and the physical week on Monday, 30 September, and continued until Friday, 04 October. The Chair welcomed everybody, both old as well as new participants, to the meeting and was pleased to see so many faces at IALA HQ. An approval period was followed, and the virtual closing plenary was held on Thursday, 10 October.

130 participants from 30 countries, three Sister organisations and three observers participated in DTEC3. 13 participants attended for the first time.



#### 1.1 Welcome from the Secretary-General

Secretary-General Francis Zachariae warmly welcomed participants to Headquarters, and of course, to Paris and SGeL, and expressing delight at the in-person attendance as well as acknowledging online participants. He noted the busy agenda highlighting interesting input documents such as the discussion paper on digitalisation in the scope of IALA and the development of guidance for the digitalisation of waterways, and substantial work from the workplan.

The Secretary-General expressed interest in the diverse range of papers presented, particularly focusing on MASS, S100, MCP, Cyber Security, and many others. He underscored the importance of the VDES, that has also gained significant momentum globally, and its importance is clearly reflected in many of the papers submitted. The Secretary-General also informed about seminar with MPA and JCG on 17 February, just before the General Assembly.

Mentioning D@S Conference in January, held in Copenhagen, he urged participants to progress the challenges in establishing a comprehensive vision for digitalization. He emphasises that work is also ongoing at IMO, BIMCO also has some insightful perspectives on the matter.

Finally the Secretary-General provided updates on the transformation of IALA into an Intergovernmental Organization (IGO), noting that the first General Assembly is scheduled for 18 to 21 February next year, and it will be open to all members. He extended his best wishes for the meeting, thanking participants for their contributions in the spirit of the IALA family and expressing anticipation for further discussions throughout the week.

## 1.2 Approval of the agenda

The agenda was reviewed and approved (DTEC3-1.2.1).

## 1.3 Apologies

No apologies were received. A list of participants who attended DTEC3 can be found on the IALA Dashboard for DTEC and in Annex B.

## 1.4 Working Arrangements

The following statement on the IALA General Data Protection Policy was made by the Committee Secretary:

*IALA complies with the General Data Protection Regulations of the European Union. IALA will include a list of participants with their contact information in the report of this meeting. Any participant who wishes to remove their contact details from the participants list should advise the Committee Secretary as soon as possible.*

The following question was asked by the Committee Secretary:

*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.*

No patents were noted.

The Committee Secretary provided all participants with a briefing on the *Committee Working Arrangements* document and tools available to them. This brief included an overview of the DTEC3 Action Plan that had been agreed by the DTEC Committee Management Team (CMT) to be progressed during DTEC3 through Task Groups (TG). Each task had a deadline for expressions of interest to participate to the specified Task Group Leader (TGL) by a certain date.

Task items that were worked on at DTEC3 were displayed in the Action Plan, which can be found on IALA Dashboard for DTEC.

The deadline for submitting documents to the silent approval procedure was set to 04 October 2024, 20:00 UTC for documents forwarded to the DTEC committee and 08 October 2024, 20:00 UTC for other documents due to this [deadlines](#).

## 2. REVIEW OF ACTION ITEMS FROM DTEC3

The Committee Secretary confirmed that all Secretariat actions from DTEC3 were completed (input paper DTEC3-2.1.1).

## 3. REPORTS FROM OTHER BODIES

### 3.1 IALA

#### 3.1.1 IALA Council

Minsu Jeon, the Technical Operations Manager of IALA, reported that at Council 80, several key revisions and updates to the work program for 2023-2027 were approved. These approvals included workshops, guidelines, and technical specifications.



The following workshops were approved or discussed; the 2nd IALA IHO Joint Workshop on S-100/200 in September 2024 (already concluded), an Aids to Navigation Engineering Workshop in October 2024 in Sydney, Australia, a VTS Competent Authority Workshop scheduled for January 2025 in Rome, Italy, a Sustainability and ENG 21 Workshop in October 2025 in Dublin, Ireland, and a Future of Radionavigation and Radiocommunication Workshop in 2026 in Edinburgh, UK. Additionally, the International Conference on Lighthouse Tourism and Maritime Heritage is also planned for October 2025 in Dublin, Ireland in conjunction with the workshop.

Several key documents and guidelines were also approved. These included the revised R1019 on Maritime Services in the context of e-Navigation (Ed2.0), a new draft Guideline on Cyber Security from an IALA perspective (Ed1.0), and a revision of G1141 Operational Procedures for Delivering VTS (Ed3.0). The Council also approved the revised G1177 Portrayal of VTS Information (Ed2.0) and a revised version of Model Course C0103-4 for VTS On-the-Job Training Instructors (Ed3.0). Additional revisions included the new draft Guideline on the Provision of MCP identities (Ed1.0), the revised R1007 on the VHF Data Exchange System (VDSE) for Shore Infrastructure (Ed2.0), and the updated G1128 Specification of e-Navigation Technical Services (Ed1.5).

A procedure for the versioning and approval of product specifications and technical services was agreed. This protocol outlined three phases: the Development Phase for documents prior to version 1.0.0, the Testing and Validation Phase for documents between versions 1.0.0 and 1.9.9, and the Implementation Phase, where documents ready for publication and use are numbered from version 2.0.0 onward.

The Council further approved several liaison notes related to technical interactions with other organizations, including the IHO, RTCM, IEC, IMO, and ITU, focusing on operational interaction, standard updates and tasks.

A decision was made to select the Faro di Genova 'Lanterna' in Italy as the Heritage Lighthouse for the year 2024.

The Secretariat presented a paper to the Council on the necessity for more frequent updates to manuals, highlighting the rapid pace of technological evolution and the need for timely updates to ensure relevance and effectiveness. The request for authorization to implement a new process allowing committees to expedite the publication of updates to manuals was approved.

### 3.1.2 IALA Policy Advisory Panel (PAP)

Minsu Jeon reported that several important topics were discussed and reviewed at the PAP54, held on September 16 - 17 2024, at the IALA Headquarters.

IALA's ongoing work on Maritime Autonomous Surface Ships (MASS) was a key focus, with a MASS Task Force meeting held on September 17, 2024, also at IALA HQ. IALA contributed to the revision of the Standards of Training, Certification, and Watchkeeping (STCW) and continued its efforts in the development, training, and testing of S-200 standards. This included the establishment of a roadmap for S-200 development and a report on the progress of S-200 Product Specification development, as documented in C80-10.8.1.

Additionally, the meeting reviewed the questionnaire, ensuring continued refinement and updates to IALA's terms.

## 3.2 Digital@Sea

The Committee noted the innovative approach taken at the recent Digital@Sea North-America held on 8-9 May 2024 in Atlantic Beach, FL, US and Digital@Sea Asia Pacific and Capacity Building workshop in 2024.

Minsu Jeon reported on the tentative schedule of the upcoming Digital@Sea Conferences that is still not confirmed yet.

## 3.3 IHO

Minsu Jeon reported on recent activities with the IHO. The focus included various collaborations, technical updates, and workshops related to the S-100 and S-200 standards.



Key liaisons involved the Hydrographic Services and Standards Committee (HSSC), the Nautical Information Provision Working Group (NIPWG) and ongoing liaison notes to NIPWG regarding AtoN Product Specifications (PS). Additionally, ITU's collaboration with S-100 Working Group and Regional Hydrographic Commissions played a central role. These collaborations helped define the technical aspects and portrayals of AtoN features, with particular emphasis on the IHO GI Registry and the S-124/125 technical services.

A key co-event between IALA and IHO was the 2nd Joint IHO/IALA Workshop on S-100/200 Development and Portrayal, which was held from September 9 - 13, 2024, at the U.S. Naval Academy in Annapolis, USA. This workshop attracted 84 participants from 19 countries, providing valuable insights into the integration and evolution of various S-100 series standards, including S-101, S-124, S-125, and S-201. Key conclusions from the workshop highlighted:

#### Operational Recommendations:

- Evaluation of the S-101 data model to ensure all information from S-12 (List of Lights) is included.
- Clarification that S-124 is designed for time-sensitive, navigationally critical information, while S-125 addresses changes in AtoNs.
- The need for S-124 and S-125 to provide a comprehensive operational picture, while S-125 does not duplicate AtoNs information in S-101.

#### Technical Recommendations:

- A review of data and service provisions required by IALA for international compliance, including for non-SOLAS vessels.
- Collection of test scenarios and datasets by the IHO-SGP lab to identify technical gaps in product specifications.
- Exploration of official testing MCP's identity management with IHO and addressing security concerns.
- Establishment of a formal system to notify stakeholders of changes to the S-100 standard.
- Recommendations to retain and enhance the S-124 symbol and align S-125 with IMO Circular Letter 243, while keeping S-101 symbols unchanged during the dual-fuel period.

#### Training Recommendations:

- Identification of knowledge gaps within the maritime community before training on S-100 standards.
- A focus on coordinated communication and marketing from IALA and IHO regarding S-100's benefits.
- Recommendations to refine STCW training requirements and include transition training to ECDIS.
- Emphasis on addressing significant training gaps for different user groups across the maritime community.
- Tailoring training courses to specific user groups, from high-level executives to software developers, ensuring materials remain current as standards evolve.

The workshop concluded with a joint recommendation to continue future discussions on the interaction of standards like S-101, S-124, S-125, and S-201, as well as broader efforts to implement and support remaining IHO and IALA product specifications across the maritime community.

### 3.4 IMO

Hideki Noguchi, Chair of DTEC committee, noted about the role of IALA in the future development of documents of the future MSC IMO session and working group on MASS Code. He reported that after the DTEC2, IMO had a 108th session of the Maritime Safety Committee meeting in May, and at that time, it was important to realize that MSC approved a revised resolution for ECDIS Performance Standards to include the route exchange capability

from shore and ships. He mentioned some comment papers submitted to MSC 108 regarding this S-100 issues, because IHO is now working to S-100 and the new performance standard will be into effect from 1st January 2026 in the voluntary part, and in 2029, it's all new version come to the capability for S-57 and S-100 capability. He mentioned that one comment paper come from New Zealand regarding how to, especially real-time exchange of the S-100 information like S-124, as already mentioned S-124 is a navigational warning and a very important issue, and MSC just had a discussion and assigned NCSR to bring back to this issue to future MSC.

He also mentioned questions regarding MASS multimodal surface ships, that MSC 108 continue to develop the voluntary MASS Code for cargo ships, but there is some kind of change of the roadmap. Originally, MSC planned to complete this development of MASS Code by MSC 109, which is held in December 2024, this coming December, but it's postponed to the target completion year to MSC 110 in the next year. And then, of course, establish the correspondence group of MASS and also establish interstitial working of MASS. Reporter attended the third intersessional working group on MASS in the September IMO meeting and this group finalized especially a very important third part of the multimodal surface ships, chapter 17, regarding autonomous navigation systems and also fire protection part, but unfortunately, due to the time constraints, they couldn't develop the other part to finalize this mass code.

The Technical Operations Manager, Minsu Jeon, provided an update on key activities from the IMO relevant to IALA, summarizing the outcomes of two significant meetings, the 108th session of the IMO Maritime Safety Committee (MSC 108), held from May 15 to 24, 2024 and the 11th session of the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 11), held from June 4 to 13 2024. Both meetings took place at the IMO Headquarters.

At MSC 108, chaired by Mrs. Mayte Medina of the United States and supported by Vice-Chair Capt. Theofilos Mozas of Greece. IALA submitted one document MSC 108-INF.8 - IALA Workshop on establishing scenarios for the development of MASS to the meeting.

The main outcomes of MSC 108 included:

- A revised roadmap for developing a regulatory code for MASS, marking progress in the regulation of autonomous ships.
- The adoption of revised guidelines on maritime cyber risk management, ensuring enhanced protection against cyber threats.
- New training requirements related to the prevention and response to violence and harassment in the maritime sector, particularly addressing sexual harassment, bullying, and sexual assault. These were incorporated into amendments to the STCW Code.
- Amendments to the 1974 SOLAS Convention and related instruments were also adopted, reflecting updates to key maritime safety regulations.
- Additionally, reports from various sub-committees were presented, leading to the approval of several important provisions.

At NCSR 11, chaired by Mr. J. Brouwers of the Netherlands and supported by Vice-Chair Mr. C. Cerda Espejo of Chile. IALA submitted 3 papers, including:

- NCSR 11-14 - IALA Guideline G1181 on VDES VDL Integrity Monitoring.
- NCSR 11-18-1 - Draft revision of SN.1/Circ.297 on IALA Maritime Buoyage System (MBS).
- NCSR 11-18-2 - IALA Risk Management Toolbox.

Key outcomes from NCSR 11 included:

- The introduction of the VHF Data Exchange System (VDES) into the SOLAS framework, facilitating better communication and data transmission in maritime safety.
- Updates to the IALA Maritime Buoyage System (SN.1/Circ.297) and the Degree of Risk Evaluation (SN.1/Circ.296).
- Establishment of voluntary Vessel Traffic Services (VTS).
- Improvements to Marine Safety Information (MSI) and Global Maritime Distress and Safety System (GMDSS) services.
- Addressing AIS signal blockages caused by VHF radiotelephony, and revisions to Recommendation ITU-R M.1371-5 aimed at enhancing the security and integrity of AIS signals.
- Guidance on the validity of on-board radiocommunications equipment was updated (MSC.1/Circ.1460/Rev.4).
- Considerations regarding agenda item 1.12 of WRC-27, focusing on the use of the 1645.5-1646.5 MHz band, were discussed.
- Additionally, issues concerning S-100 implementation and the associated training needs for seafarers were highlighted, along with discussions on the future of the Maritime Messaging Service.

### 3.5 ITU

Stefan Bober, provided an update on ITU meeting from 14 to 24 May 2024, the issues discussed were the revision of BS 1771, that is ending now. He mentioned an input to DTEC3 from ITU with regards to the revision of 1771, especially highlighting the new message 28, which is a single-slot AtoN message, and ITU is looking for comments from IALA.

Stefan Bober reported on the ongoing work on ITU-R M585, which is an assignment of user identities. He mentioned the problem in pre-numbering manufacturer code, and ITU's looking for an alternative or an addition, and CIM is involved in this and will propose a solution.

ITU has two new study questions on its agenda, which is the co-existence of VHF data exchange system with ranging mode, the R-mode question, and the other question is the introduction of digital voice communication in VHF multi-frequency channels. The draft work on the new report on VDS R-mode is being developed and continuing.

### 3.6 IEC

Stefan Bobber reported to the committee about the progress on IEC TC80 WG15 responsible for AIS and VDES. He mentioned that IEC is now in the process to develop a first standard for VDES standards for mobile units and shore infrastructure / base stations. The standard should be finalized at the end of 2025. Stefan Bober noted that working group opens for volunteers to join this work.

Jorge Arroyo, the Vice-Chair of DTEC3, reported on maintenance team 5, which is working on IEC 62288, they did an amendment and corrected some issues regarding mobile AtoN display. It just corrects a few bits that were left out of the annex and shows how to display mobile AtoNs. It is in the process of getting published this month.

### 3.7 ISO

Minsu Jeon reported that IALA submitted a proposal to become a liaison body of the ISO TC8 SC11, which is on Intermodal and Short Sea Shipping. IALA now became the official liaison with this special committee in November 2024. IALA will keep joining this group and continue on this matter.

### 3.8 RTCM

Jorge Arroyo continued with the update on RTCM and work of Special Committee 112 an amendment to RTCM radar standard for non-SOLAS ships, which is used in the United States for its domestic fleet requirements.

Special Committee 121 on AIS has a mobile AtoN standard that they've completed that's gone through voting and now is in comment resolution stage. It should be completed at next session next month and be able to move forward with publication of that standard at the end of the year. Special Committee 112 working on VHF interference and addressing AIS blocking, that's been reported to IMO and ITU regarding issues on encountered regarding blocking of AIS when vessels are in close proximity of each other to working on that.

Ross Norsworthy, participant from US Coast Guard, reported on Special Committee 139, which is chaired by Stephan Pielmar and deal with maritime messaging system. VDES is a portal, but it doesn't specify how messages are constructed and so forth.

Jorge Arroyo mentioned also Special Committee 109 on electronic chart systems, which is working on a revision to the RTCM chart standard for non-ECDIS charting, they should completing their work in the next month or two to make that available as a Committee for Draft Voting. This updating of that standard to address changes in standards from the previous edition and to address also S-100 support.

### 3.9 3GPP

Hyunhee Koo (3GPP representative at SyncTechno Inc.) provided the 3GPP update based on the outcomes of the 3GPP TSG plenaries held in September 2024. She detailed the timelines for 3GPP Releases 19 to 21, noting that earlier generations, such as 5G-Advanced, would continue to be enhanced, even as work on 6G standardization starting from Release 20 moves forward. She also highlighted that Release 21 is expected to be the first version submitted to IMT-2030.

She further informed IALA DTEC3 attendees that the 3GPP Stage 1 6G study had officially begun, aiming to identify high-level principles and use cases, as well as define potential requirements to support new and enhanced services and scenarios, based on but not limited to IMT-2030 usage scenarios.

In addition, Hyunhee Koo noted that 3GPP approved an additional objective to support broadcasting public warning messages via NB-IoT (Narrow Band Internet of Things), reusing LTE mechanisms over 3GPP standards-based satellites. This addition has been incorporated into the Release 19 IoT\_NTN\_Ph3 work. She emphasized the importance of establishing regulatory policies prior to 6G standardization for the maritime domain to ensure that an efficient tool for navigational warning, such as NB-IoT public warning message broadcasts over 3GPP-based satellites can be applied to maritime contexts. This work is expected to be discussed further within Task DTEC-6.2.1 for Marine AtoN under IMT-2030 in the future.

Finally, she raised concerns about the timeline coordination between IALA and ITU-R, emphasizing the need to comply with IALA's schedule for sending liaison notes to external bodies. She stated that discussions on the 3GPP update, and the draft liaison note to ITU-R WP5D would continue during the IALA DTEC3 WG2 meeting. She urged participants attending the IALA DTEC3 committee to pay particular attention to the Task Group on Marine AtoN under IMT-2030 within IALA DTEC WG2.

### 3.10 VDES Alliance

Stefan Pielmeier, Chair of WG3, provided an update on VDES Alliance, the global association of organizations and industry to cooperate on the testing and promoting in the use of VDES. The aim of VDES Alliance is to fill a gap that has not been filled before. He mentioned that VDES is a complicated technology, a bit more complicated than AIS. In AIS, much equipment in the beginning was not compatible with each other, and the aim is to avoid that in VDES. The industry could work together on not only making tests, like IEC tests, which is only one piece of equipment at the time, but also to test the equipment against each other. There is shore-based stations, ship

equipment, and also satellite equipment now, and everything should work together, and not just equipment producer A with A, or B with B, but it should also work A with B, of course, and with C, and with D, and so on.

Stefan Pielmeier, called on join the VDES Alliance for equipment producer or a shore authority who wants to help define test cases and be part of the process. VDES Alliance have right now 15 members, three more are to come, general assembly at SMM, including an interesting fire alarm and two committees. One committee for the interoperability testing, hardware and protocol oriented, and the other committee on satellite. From IALA input to the guideline developed in WG3, VDES Alliance plan on the coordination or on how different satellites can play together with the ground segment.

### 3.11 Patents

Deputy Secretary-General Omar Frits Eriksson mentioned the question of patents relating to VDES. IALA had discovered a few patents of Chinese origin. The technology described by these patents is not in conflict IALA documents at the moment. He highlighted that the technology is complex and it's difficult to navigate for those that are not completely in the know. Omar encourage everyone any patents that are relevant to raise this issue to look into it and get some more success stories.

## 4. PRESENTATIONS

All recordings of the presentations given at DTEC3 can be found on the [fileshare](#). The following presentations were given at DTEC3:

- Results of the finalized ESA / Kongsberg /Space Norway and Comrod, developing a new RHCP VHF antenna for VDES (Hans Christian Haugli, Space Norway)
- Demonstration of the provision of NW (S-124) as SECOM service (DMA)
- Demonstration of the consumption of NW SECOM services from various providers (AMSA)
- Demonstrate the latest developments of MMS, NW from SECOM via SECOM/MMS (AIVeNautics)
- Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification (Institute of High Performance Computing Agency for Science, Technology and Research and Maritime and Port Authority, Singapore)
- Sharing of Singapore Maritime 5G Development (Maritime and Port Authority, Singapore)

## 5. REVIEW OF INPUT PAPERS

The input papers for DTEC3 consisted of new input papers as well as working papers from the previous session. The input paper list (DTEC3-5.0.1) includes the working papers from DTEC2.

Input papers were numbered in line with the agenda and allocated to the relevant Working Group. The late input papers were referred to the participant's attention and are highlighted in green in the list of input papers.

## 6. ESTABLISH WORKING GROUPS

The Chair outlined the procedure to be followed by working groups, after which three working groups were established and their tasks outlined. The Working Group chairs and vice-chairs were introduced. Full lists of working group participants can be found in Annex F.

Working Group (WG)	Working Group Chair / Vice-Chair
WG1 – Digital Information Systems	Axel Hahn / Julius Moeller (acting)
WG2 – Emerging Digital Technologies	Jillian Carson-Jackson / Dennis Khoo
WG3 – Digital Communication Systems	Stefan Pielmeier / Stefan Bober

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

During the 3<sup>rd</sup> session of the DTEC committee, the WG1 – Digital Information Systems worked on several tasks regarding Product Specifications and Services Specifications as well as on MRN.

Close to 21 individual participants attended one or more task group meetings formed under Working Group 1 - Digital Information Systems (WG1) during DTEC3. The working group progressed three tasks assigned under the 2023 - 2027 Work Programme and produced five output documents and one working paper for the Committee Secretary to progress. Intersessional work is planned to further progress:

- Task 6.1.1 Review and update R0144 and G1095 – Update to the latest development of ASM (Task on Product Specification for Disaster Management).
- Task 7.2.1 Contribute to the standardization efforts with respect to the requirements of the S-100 domain experts:
  - ✓ Task 7.2.1 a) Task on Maritime Resource Names (MRN);
  - ✓ Task 7.2.1 b) Service Design for VTS Traffic Clearance;
- Task 7.1.5 Review G1128 Specification of e-Navigation technical services (Task on G1128 Specification of e-Navigation Technical Services).

### 7.1 Task 6.1.1 Review and update R0144 and G1095 – Update to the latest development of ASM (Task on Product Specification for Disaster Management)

#### Input paper(s):

5.2.1.2	Product Specification on Disaster Management
5.2.1.2.1	Product Specification on Disaster Management Annex1
5.2.1.5	Liaison note to DTEC on PS for ASM from ARM

#### Comments:

The WG discussed the input paper on disaster management and identified overlaps with S-124 Navigational Warnings.

WG1 proposed to WG3 to consider S-124 as a starting point for the discussion how to encode S-xxx Product Specifications in VDES.

WG1 and WG3 had a shared session on this topic:

WG1 and WG3 do not see that S-230 Application Specific Messages shall be used for data modelling of information which could be stored and transferred by usage of other Product Specifications like S-124. Therefore, it was proposed to remove S-230 from the list of Product Specifications in the IALA domain. Messages, which are specific for a communication system, should not be defined by S-xxx Product Specifications.

For a communication system it could be specified which data is to be transferred. This information belongs to the standardisation documents of the communication system (e.g. by referencing PS).

#### Key outcomes include:

The following activities are proposed:

1. Development of an IALA Guideline for a suitable space efficient encoding of data structured and addressed by the S-xxx Product Specifications and describe how this data is exchanged by low bandwidth communication channels like VDES.
2. Propose the content of this Guideline as a new chapter of IHO S-100 part 10 to IHO.
3. Identify the relevant Product Specifications suitable to cover data exchanged by ASM. Define which data and how the data will be transferred (wide or narrow bandwidth) e. g. as Application Specific Messages (describe this in appropriate IALA Guidelines).
4. Identify necessary new Product Specifications of uses cases of existing ASM which are not currently covered.
5. Propose to IHO that Product Specifications shall be amended with a chapter describing which data can be exchanged as ASM.
6. And IALA shall remove S-230 from the list of Product Specifications.

#### Outputs:

DTEC3-11.2.1.3 Liaison Note to ARM and PAP on S-230 Application Specific Messages

#### Action item(s):

The **Secretariat** is requested to forward the DTEC3-11.2.1.3 Liaison Note on S-230 Application-Specific Messages to ARM, remove the S-230 ASM from the IALA website, and notify IHO of the update.

## 7.2 Task 7.2.1 Contribute to the standardization efforts with respect of the requirements of the S-100 domain experts

### 7.2.1 Task 7.2.1 a) Task on Maritime Resource Names (MRN)

#### Input paper(s):

5.2.1.6	Liaison note to VTS and DTEC on MSC Circular on MRN
5.2.1.6.1	Draft Circular to MSC on Harmonisation of identifiers using MRN (DTEC2-12.2.1.3)
5.2.1.6.2	Draft Input to NCSR on Use of MRN Circular (DTEC2-12.2.1.4)

#### Comments:

The committee discussed further activities regarding these documents. Because there is no work topic on MRN at IMO MSC, the WG discussed three options:

1. Drafting a Liaison to the relevant domain control bodies (DCB) explaining MRN
2. Amend existing IMO documents
3. Propose new work Item to IMO



### Key outcomes include:

The WG1 proposes to revise the IALA Guidelines G1143 and G1164 before they will be sent to other bodies and offer our support, for example in an intersessional WG.

The WG reviewed the changes in the Draft Input to NCSR and Circular of MSC to be sent to ARM.

Remark from the participants: It's important to remember that G1164 defines that OIDs must be

- Minimum 3 letters
- Never a 3-letter ISO-country code

### Outputs:

DTEC3-11.2.1.2 Liaison note ARM on MRN

DTEC3-11.2.1.2.1 Draft Input to NCSR on Use of MRN Circular (DTEC2-12.2.1.4)

DTEC3-11.2.1.2.2 Draft Circular to MSC on Harmonisation of identifiers using MRN (DTEC2-12.2.1.3)

### Action item(s):

*The **Secretariat** is requested to forward DTEC3-11.2.1.2 (including DTEC3-11.2.1.2.1 and DTEC3-11.2.1.2.2) Liaison note on MRN to ARM.*

### 7.2.2 Task 7.2.1 b) Service Design for VTS Traffic Clearance

### Presentation on Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification

### Referencing Document(s):

5.2.1.3	Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification
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A\*STAR IHPC presented the item "Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification". The paper was discussed, and the importance of this work was underlined. It was compared to G1050 "The Management and Monitoring of AIS Information" and discussed sending a Liaison note to the VTS committee to note the document and consider updating G1050 or developing a new guideline for this Near-Miss Incident Identification.

### Output:

DTEC3-11.2.1.1 Liaison note to VTS on Near Miss Incidents

DTEC3-11.2.1.1.1 Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification

### Action item(s):

*The **Secretariat** is requested to forward the DTEC3-11.2.1.1 "Liaison note to VTS on Near Miss Incidents" including DTEC3-11.2.1.1.1 to VTS.*

### 7.3 Task 7.1.5 Review G1128 Specification of e-Navigation technical services (Task on G1128 Specification of e-Navigation Technical Services)

### Input paper(s):

5.2.1.1	Use cases for MCP Service Registry
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5.2.1.4	SECOM service design template recommendations
5.2.1.7	WP Service Design Template for SECOM Service
5.2.1.8	Permission to publish extracts from an IEC International Standard

#### Key outcomes include:

The following was produced by the task group based on the input papers provided to the group:

- An update to G1128
  - Correcting inconsistency in the use of terminology
  - Making Service Designs mandatory
  - Adding reference to new annex D “Service Design Template for SECOM Service”
- New G1128 SECOM service design template
  - To be a new annex D to G1128
  - Taking input from China MSA into account
- An update to G1183
  - Small correction in MCP MRN syntax
  - Clarification of certificate renewal
- Use-cases for MCP service registry
  - This is an update of the input paper on this topic - based on discussions in the group

#### Outputs:

DTEC3-11.2.1.4 G1128 Specification of e-Navigation Technical Services

DTEC3-11.2.1.4.1 G1128 Annex A

DTEC3-11.2.1.4.2 G1128 Annex B

DTEC3-11.2.1.4.3 G1128 Annex C

DTEC3-11.2.1.4.4 G1128 Annex D

DTEC3-11.2.1.5 G1183 Provision of MCP Identities

DTEC3-11.2.1.6 Use cases for MCP Service Registry

#### Action item(s):

*The **Secretariat** is requested to forward the updated DTEC3-11.2.1.5 G1183 to Council for approval.*

*The **Secretariat** is requested to forward the updated DTEC3-11.2.1.4 G1128 including the 4 annexes to the Council for approval, once approved, to publish the annexes as docx (MS-Word) files and the .xsd file which comes with Annex B.*

*The **Secretariat** is requested to forward the updated DTEC3-11.2.1.6 Use cases for MCP Service Registry to DTEC4.*

***Committee participants** are encouraged to note DTEC3-11.2.1.6 Use cases for MCP Service Registry.*

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

During the 3<sup>d</sup> session of the DTEC committee, the WG2 – Emerging Digital Technology worked on several tasks regarding emerging digital technologies.

Referencing Document(s): DTEC WG2 Work Program

The proposed working schedule (DTEC 5.2.2 Proposed working schedule for WG2 at DTEC3) was introduced, reviewed and adopted by the WG.

Throughout the physical session of the week, a number of focused WG sessions were held. During DTEC3 WG2 worked on the following Tasks:

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

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

- Task 1.2.1 – Develop guidance for IALA members on going from development test bed/ trial reporting to implementation
- Task 1.2.4 – Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)
- Task 6.2.1 – Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN
- Task 6.3.14 – Develop a manual on maritime communications (MARCOM Manual) (carried over from 2018-2023 work programme)
- Task 7.1.1 – Develop a discussion paper on digitalisation in the scope of IALA
- Task 7.1.2 – Develop a guideline on the developments and implementation of the digitalisation of waterways
- Task 7.2.1 – S-100 World from a Marine AtoN Authority perspective
- Task 8.3.1 – Review of new / candidate technologies for use in the IALA domain (ongoing task, includes review of IALA G1153)

#### **8.1 Task 1.2.1 Develop guidance for IALA members on going from development test bed/ trial reporting to implementation**

**Task group leader:** E Batty

**Input paper(s):** NIL

**Comments:**

This task commenced at DTEC2 with a review of different approaches to taking innovation solutions from test bed to implementation. Based on the results of the discussion, the task group leader will develop an initial draft guideline for review at DTEC3.

**Key outcomes include:**

The discussion resulted in the development of the contents for a working document, to be developed into a draft guideline for review at DTEC3.

**Output:**

No output on this item at DTEC3

The Task group will continue to work intersessionally. The intersessional meeting will be published on the IALA DTEC Committee Dashboard and on the IALA Fileshare. The proposed date for the intersessional meeting is:

- 14 January 2025 at 09:00 – 10:30 UTC

### Action item(s):

**Committee participants** are invited to join the intersessional task group meeting on the development of guidance on moving from innovation to implementation Guidelines on 14 January 2025, and contact E Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) on or before 10 January 2025 if they plan to attend.

## 8.2 Task 1.2.4 Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)

**Task group leader:** J Carson-Jackson

### Input papers:

5.2.2.7	Draft Guideline on Developments and implications of MASS for coastal authorities
5.2.2.7.1	Liaison note to ENG VTS DTEC on MASS Guideline Review post plenary
5.2.2.7.1.1	Proposed ARM MASS Guideline
5.2.2.11	Del3 Report on possible MASS related work items for the IALA committees (MTF09-4.1)
5.2.2.12	Del2 MASS Publications Scoping Report V2.2 (MTF09-4.1)
5.2.2.14	Liaison from VTS – Draft Recommendation on MASS
5.2.2.14.1	Draft Recommendation on MASS

### Comments:

A structured review of the input papers was carried out, noting in particular the development of the Recommendation on MASS. The development of the guideline was highlighted, including the outcomes from the intersessional meetings.

The input from the MASS TF was noted, in particular the results of the scoping report V2.2, as it relates to DTEC. The review noted existing documents that are proposed to require review. The WG requests clarification on the implications in the scoping documents for tasks that are in progress – for example, work currently in progress in DTEC WG2 related to digitalisation of waterways (DTEC-7.1.2) and User Requirements for IMT-2030 [DTEC-6.2.1].

### Key outcomes include:

1. Review of draft recommendation on MASS identified proposed editorial amendments,
2. The draft Guideline on Developments and Implications of MASS for Coast Authorities (DTEC3-5.2.2.7) was reviewed taking into account the related documents and input received from IMPA
3. An intersessional drafting meeting will be held to review comments from the IALA Committees on the document on 13 January 2025 from 0900-1030 UTC using the IALA DTEC WG2 plenary MTeams meeting room.

### Output:

Output documents were developed and reviewed:

1. DTEC3-11.2.2.6 - Liaison note to ARM, ENG, VTS and the MASS TF on the development of the MASS Rec and Guideline
2. DTEC3-11.2.2.6.1 - Revised draft Guideline - MASS for AtoN Authorities to be forwarded to ARM, ENG, VTS, MASS TF

### Action item(s):

The **Secretariat** is requested to forward the liaison note on the development of the MASS Recommendation and Guidelines, together with the current version of the revised draft guideline on MASS for AtoN Authorities to the ARM, ENG, and VTS Committees and the MASS TF.

**Committee participants** are invited to join the intersessional drafting activity on the MASS Guidelines, noting the upcoming intersessional meeting on 13 January 2025, and contact J Carson-Jackson ([jillian@jciconsulting.net](mailto:jillian@jciconsulting.net)) on or before 7 January if they plan to attend.

### 8.3 Task 6.2.1 Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN.

**Task group leader:** H Koo

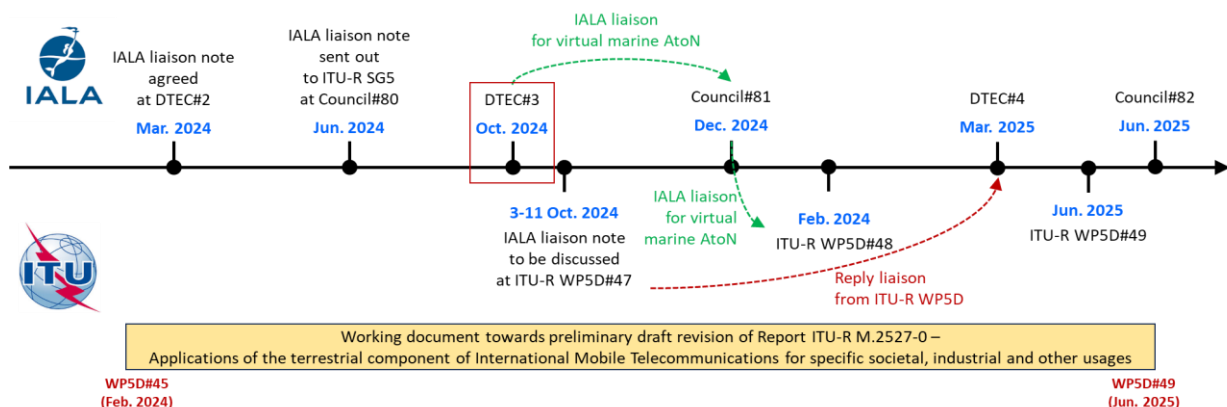
#### Input papers:

DTEC3	3.9 Report of 3GPP update
DTEC3	Task DTEC-6.2.1-TG IMT-2030 agenda and schedule with detailed contents_uploaded
DTEC3	Task DTEC-6.2.1-Report of ITG on IMT-2030
DTEC3	Task DTEC-6.2.1-Draft IALA Liaison note to ITU-R WP5D
DTEC3	Task DTEC-6.2.1-Draft IALA Liaison note to ENG Committee

#### Comments:

The task group reviewed and noted the report on the work of the intersessional task group between DTEC2 and DTEC3. The 3GPP update presented during the DTEC3 opening plenary was also acknowledged without further discussion.

As highlighted during the 3GPP update presentation at the DTEC3 opening plenary, the task group deliberated on ways to contribute to the ITU-R WP5D work related to the working document for the preliminary draft revision of Report ITU-R M.2527, which needs to be completed by June 2025, as shown in the figure below. The aim is to include additional IMT applications in the maritime domain while adhering to IALA's approval procedures for liaising with external bodies. Accordingly, the draft liaison note to ITU-R WP5D was reviewed, and further discussions were held to incorporate additional use cases based on Singapore MPA's presentation at the DTEC3 opening plenary, along with editorial updates.



The liaison note for ITU-R WP5D was finalized and agreed (DTEC3-11.2.2.2).

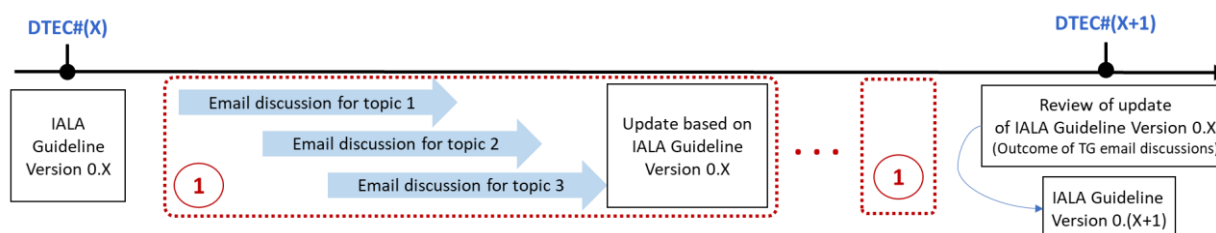
For the development of use cases and requirements for Marine AtoN over IMT-2030, the task group had the discussion with the topic ‘positioning’ by looking into the positioning requirement (i.e., 1~10 cm) as new capability specified from IMT-2030 Framework in Recommendation ITU-R M.2160. For the identification of the existing IALA requirement on PNT, a draft liaison note for ENG was finalized and agreed (DTEC3-11.2.2.1).

The task group also discussed how to address the following issues observed during intersessional activities in order to proceed more efficiently:

- Maritime stakeholders find it challenging to quickly digest the content of topics discussed during the one-and-a-half-hour meetings before providing comments.
- It is difficult to find a suitable online meeting time that accommodates all regions globally, which may result in low participation.

After the discussion, a combination of asynchronous synchronous activities were agreed for intersessional activities related to IMT-2030, as illustrated in the figure below:

- Using email communication for each agenda item instead of holding two or three online meetings between DTEC meetings, dates to be confirmed during the email correspondence group activity.
- Developing IALA Guidelines/Recommendations based on the consensus and outcomes of email discussions.
- Reviewing the developed or updated IALA Guidelines/Recommendations for Marine AtoN over IMT-2030 at the IALA DTEC Committee.
- Liaising as appropriate with the Chair / Vice-Chair of DTEC WG2 for synchronous session prior to DTEC4.



#### Output:

Output documents were developed and reviewed:

1. DTEC3-11.2.2.1 - Draft IALA Liaison note to ENG Committee
2. DTEC3-11.2.2.2 - Draft IALA Liaison note to ITU-R WP5D

#### Action item(s):

**Committee participants** interested in joining the intersessional task group DTEC-6.2.1, focused on developing use cases for maritime in IMT-2030, are invited to send an email to the task group leader, H. Koo (koo@synctechno.com), by 31 October 2024, to confirm their participation in the meeting.

The **Secretariat** is requested to forward the liaison note on Marine AtoN over IMT-2030 (DTEC3-11.2.2.2) to the Council for approval and subsequently forward it to ITU-R WP5D before February 2025, noting there will be a need to provide editorial amendments to the document following the publication of the report of ITU-R WP5D meeting 47, expected in October 2024. This editorial amendment will relate to the document number on the ITU Liaison Note.

**IALA Member States** are encouraged to communicate with their delegates participating ITU-R Working Party 5D (WP5D) for the support of additional use cases introduced by IALA liaison note (DTEC3-11.2.2.2).

The **Secretariat** is requested to forward the liaison notes on Marine AtoN over IMT-2030 to the ENG Committee.

#### 8.4 Task 6.3.14 Develop a manual on maritime communications (MARCOM Manual) (carried over from 2018-2023 work programme)

**Task group leader:** E Batty / J Carson-Jackson

**Input papers:**

5.2.2.6	Revision proposal for draft MARCOM manual
5.2.2.10	Input task 6.3.14 on the MarCom Manual
5.2.2.10.1	WP Draft MRCP MarCom Manual

**Comments:**

An overview of the development of the document was provided, noting the document initially developed as the Maritime Radio Communication Plan (MRCP). The work carried out during the 2018-2023 work programme was reviewed. In addition, the input from the intersessional work was reviewed.

A review of the comments added through the intersessional work and as based on input received from China MSA was carried out.

**Key outcomes include:**

In the review of the paper, it was confirmed that:

- Once approved, the document would be published in an electronic format similar to the IALA VTS Manual.
- Links will be included within the document to facilitate its use.
- The publication of the document would be brought to the attention of ITU, noting ITU had previously received copies of the MRCP.

The document (DTEC3-11.2.2.3) was finalised to be forwarded to IALA Council for approval and then to IALA Secretariat for publication.

**Output:**

Output document was developed and reviewed:

1. DTEC3-11.2.2.3 - IALA Maritime Communications (MarCom) Manual

**Action item(s):**

*The **Secretariat** is requested to forward the IALA Maritime Communications (MarCom) Manual to the IALA Council for approval and, if approved, to identify a suitable format for its digital publication, similar to the IALA VTS Manual.*

#### 8.5 Task 7.1.1 Develop a discussion paper on digitalisation in the scope of IALA

**Task group leader:** N Chiew

**Input papers:**

DTEC3	5.2.2.1	Discussion Paper on IALA's Vision for Digitalisation
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**Comments:**

The Task Group Leader presented the input paper DTEC3-5.2.2.1. During the meeting, the general approach to the task was shared and a number of elements were deliberated and agreed. These include, but are not limited to:

- Discuss IALA's role in digitalisation in maritime transportation
- Identify & discuss drivers and trends for maritime digitalisation
- Identify and record past, existing and future IALA digital developments, initiatives, workstreams and systems from all IALA committees i.e. DTEC, ENG, VTS and ARM
- Propose an IALA digitalisation vision statement and strategy
- Propose an IALA digitalisation roadmap that spans five years (2027-2031) which can be refreshed from time to time

**Key outcomes include:**

The Task group will continue to work intersessionally by e-mail and online meeting. The intersessional meeting will be published on the IALA DTEC Committee Dashboard and on the IALA Fileshare. The proposed date for the first intersessional meeting is:

- Friday 13 Dec 2024 at 09:00 – 10:00 UTC

**Action item(s):**

**Committee participants** are invited to join the intersessional task group to progress the work on the "Development of Discussion Paper on Digitalisation in the Scope of IALA" ( DTEC-7.1.1), noting the meeting on 13 December 2024, and contact N Chiew ([Nicholas\\_chiew@mpa.gov.sg](mailto:Nicholas_chiew@mpa.gov.sg)) on or before 1 Dec 2024 if they plan to attend.

**8.6 Task 7.1.2 Develop a guideline on the developments and implementation of the digitalisation of waterways**

**Task group leader:** K Heikonen

**Input papers:**

5.2.2.2	Status of task DTEC-7.1.2 - Guideline on Digitalization of waterways
5.2.2.2.1	Draft IALA Guideline on Digitalization of waterways
5.2.2.2.2	Draft Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline
5.2.2.3	Proposals on further developing the contents of digital waterway guideline

**Comments:**

The three input papers, reporting the intersessional work and its results, were noted. China MSA presented the input paper DTEC3-5.2.2.3. It was agreed to include the proposed material into the draft Guideline during the intersessional work between DTEC3 and DTEC4 meetings.

During the meeting, task group developed an early version of the Guideline to be sent to other committees for information, review and comments.

**Key outcomes include:**

The Task group will continue to work intersessionally by e-mail and online meetings. The intersessional meetings will be published on the IALA DTEC Committee Dashboard and on the IALA Fileshare. The proposed dates for the intersessional meetings are:

- Thursday 21st November 2024 at 0900-1000 UTC
- Thursday 13th February 2025 at 0900-1000 UTC



The Committee participants are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways by sending e-mail to Kaisu Heikonen ([kaisu.heikonen@ftia.fi](mailto:kaisu.heikonen@ftia.fi)).

**Output:**

Output documents were developed and reviewed:

1. DTEC3-11.2.2.9 - Liaison note on the draft digitalisation of waterways guideline
2. DTEC3-11.2.2.9.1 - Draft IALA Guideline on Digitalisation of Waterways

**Action item(s):**

**Committee participants** are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways by sending an e-mail to Kaisu Heikonen ([kaisu.heikonen@ftia.fi](mailto:kaisu.heikonen@ftia.fi)).

The **Secretariat** is requested to forward output papers DTEC3-11.2.2.9 and DTEC3-11.2.2.9.1 to ARM, ENG, VTS and PAP.

The **Secretariat** is asked to forward the working paper on developing guidance for the digitalization of waterways DTEC311.2.2.13 Draft IALA Guideline on Digitalization of waterways to DTEC4 for further review.

## 8.7 Task 7.2.1 S-100 World from a Marine AtoN Authority perspective

**Task group leader:** JH Oltmann

**Input papers:**

5.2.2.4	Workshop proposal on the Application of International Mobile Telecommunication (IMT) to Marine AtoNs
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In addition, the work included a review of the results of the discussion from DTEC2 and relevant activity from related organizations, including the outcomes of the IALA-IHO workshop on S-100, developments of ITU regarding IMT-2030 and beyond, and experiences of AtoN Authorities.

**Comments:**

The input paper was noted.

During the meeting, task group developed an revised version of the workshop proposal.

**Key outcomes include:**

The Task group will continue to work intersessionally on the topic by e-mail and online meetings. The intersessional meetings will be published on the IALA DTEC Committee Dashboard and on the IALA Fileshare. The proposed dates for the intersessional meetings are:

- Wednesday 27<sup>th</sup> November 2024 at 0900-1000 UTC
- Wednesday 26<sup>th</sup> February 2025 at 0900-1000 UTC

The Committee participants are invited to join the intersessional task group DTEC-7.2.1 on S-100 World from a Marine AtoN Authority perspective by sending e-mail to Jan-Hendrik Oltmann ([Jan-hendrik.oltmann@wsv.bund.de](mailto:Jan-hendrik.oltmann@wsv.bund.de)).

**Action item(s):**

**Committee participants** are invited to join the intersessional task group DTEC-7.2.1 on S-100 World from a Marine AtoN Authority perspective by sending an e-mail to Jan-Hendrik Oltmann ([Jan-hendrik.oltmann@wsv.bund.de](mailto:Jan-hendrik.oltmann@wsv.bund.de)).



## 8.8 Task 8.3.1 Review of new / candidate technologies for use in the IALA domain (ongoing task, includes a review of IALA G1153)

**Task group leader:** J Carson-Jackson

### Input papers:

5.2.2.5	Result of trial for the Metal Surface Wave Technology (MS@MS)
5.2.2.9	WP Ship Air Draft Remote Measurement Technology review
5.2.2.13	Liaison Note to DTEC on Update on Emerging Technology Review

### Comments:

Input papers DTEC3-5.2.2.5 and DTEC3-5.2.2.9 were reviewed. In addition, input to previous meetings regarding new technology reviews were considered.

DTEC3 focused on completing reviews of technologies previously presented.

#### 8.8.1 Result of trial for the Metal Surface Wave Technology (MS@MS)

Input Paper: DTEC3-5.2.2.5

It was noted that The Metal Surface Wave Technology (MS@MS) was initially presented at ENAV 30. The document ENAV30-5.1.2.3 is presented that MS@MS is more efficient and capable of overcoming the limitation of metal surrounding structure for wireless communication and primarily applying to the wireless IoT network in the maritime sector. MS@MS was reviewed using the G1153 template at ENAV-EM1 and the review was completed at DTEC1. And DTEC1 WG2, through DTEC1-12.3.3.2, requests IALA members to conduct tests for implementation of MS@MS technology and to present results of trial.

The input paper presents the result of trial for Radio-free wireless communication based on the Metal Surface Wave(MS@MS) on a coastal passenger ship('Jagalchi Cruise') to confirm as communication performance('Latency, Network Band Width, Packet Loss Rate') applying to the wireless communication. The results were demonstrated at DTEC3 and are summarized in input paper DTEC3-5.2.2.5. Further testing will be conducted to confirm operation of various sensors to implement an IoT communication system based on MS@MS.

WG2 reviewed the 'AMBER' elements of the Review Table was conducted. This item will be revisited at DTEC4.

### Action item(s):

The **Secretariat** is asked to forward review document on MS@MS Technology D(TEC3-11.2.2.12 Completed Review of Radio-free wireless communication) to DTEC4 for further review.

#### 8.8.2 WP Ship Air Draft Remote Measurement Technology review

Input paper: DTEC3-5.2.2.9

It was noted that the SADRMT was initially presented at ENAV 30. The document ENAV30-5.1.2.4 presented prototype testing information to measure and support ensuring ships' air draft using remote measurement technology. The input to DTEC02 provided supplementary and updated information for the to support the review of the details provided in the IALA G1154 table.

Following the presentation of the input paper, the group discussed vessel height detection systems within the VTS (Vessel Traffic Services) environment. Members noted a largely manual process for measuring air draft, with some systems providing 'air gap' and other using the selection of top and bottom lines in CCTV images to calculate vessel heights. It was noted that automation in this process, with increased accuracy, would assist in efficiency and support safe transits under bridges and overhead structures. The significance of accurate measurements was

highlighted, particularly in ensuring safe air clearance, with possibility for alerts triggered by the system when vessels breach safety zones, in a manner similar to that currently done for the dynamic approach to under keel clearance.

The work of PIANC (specifically Report 121 (2014) 'Harbour Approach Channels Design Guidelines) was noted. Participants acknowledged the need for automation to enhance accuracy and discussed potential collaborations with relevant committees.

Similar technologies were used by OMC International (Australia) and Singapore MPA, namely BridgeClear and Shipmast Height Detection System (SHDS) respectively.

#### **Action item(s):**

*The **Secretariat** is asked to forward review document on Remote Air Draught Measurement (DTEC3-11.2.2.11 SADRMT review table) to DTEC4 for further review.*

#### **8.8.3 Update on Qualcomm's 5G Precise Positioning for Ports**

Noting the review of this technology had been completed some time ago, the working group requested an update from Jean-Michel Rousseau, Senior Director, Product Management of Qualcomm Technologies Inc. It was noted that the latest results for 5G NR positioning technology was able to achieve 1 metre accuracy in certain outdoor scenarios, but the performance has yet to be validated in the port/maritime environment. It was also noted that the 5G NR positioning technology would drift slowly (e.g. round trip time technique) if GNSS signals were unavailable for extended periods of time (e.g. 1 hour). In terms of system components, new hardware such as a Location Server would be required, in addition to upgrades to existing ones such as the gNodeB. In terms of system interface, devices that are NMEA-compliant do not exist in the market yet, but in theory, 3GPP interface would be available to be ingested into ships standard positioning systems (e.g. NMEA0183 or similar). As for calculations of the positions, these can be done at the UE or at the server. In terms of network congestion, 5G NR positioning technology is not affected by GSM networks. Some parts of 5G NR positioning technology could eventually be candidates to be a viable alternative to GNSS.

A copy of the presentation was provided on the IALA Fileshare.

#### **Action item(s):**

*The **Chair of DTEC WG2** is asked to contact Qualcomm (J-M Rousseau) to confirm a copy of the G1153, as presented at DTEC3, is provided for input to DTEC4. It is expected the review of Qualcomm's 5G Precise Positioning for Ports will be completed at DTEC4.*

#### **8.8.4 Overview of MaDaMe (Maritime Data Methods for Safe Shipping)**

Jokela Tero from the Turku University of Applied Sciences gave a presentation on this project, whose aim is to support national authorities responsible for maritime traffic management in developing cyber-secured standardised digital transport infrastructure services in the Baltic Sea Region, e.g. S-124, S-125 and S-212, MCP, VDES. This project is supported by agencies such as IALA, DMA, SMA, Fintraffic, Sternula and Navelink. Currently, the project is in solutions preparation phase for services development (S-124, S-125 and S-212), MCP development (e.g. MIR and MSR) and comms development (e.g. VDES and MMS), and will be moving towards piloting phase in 2025. This project will develop training material that can be used by authorities, shipping companies and companies building new services. There could be plans to incorporate other S-100 services after the pilot is successfully completed, paving the way for the MaDaMe to be used as a testbed testing of future S-100 services.

#### **Action item(s):**

*The **representatives of MaDaMe** were asked to provide an update presentation on the development of the project at DTEC4, nothing this may be suitable for a DTEC Plenary Presentation.*

### 8.8.5 Overview of Climate Resilience Desk

The presentation format adopted by Scott Humphrey was novel as it utilised a scenario-driven narrative termed “The Dam Rice Incident of 2017”, trying to explain the supply chain interdependencies of ports, dams, vessels, rice, rivers, sand, cement etc and how these can be affected by climate and extreme weather events. The concept of a Climate Resilience Desk is underpinned by the ability to aggregate/analyse data to predict system shocks and anomalies and using artificial intelligence and machine learning to predict and forecast the impact to the maritime transportation value chain comprising stakeholders pertaining to vessels, ports, terminals etc, as well as industries adjacent to maritime. Scott also talked about the idea of a Marine Exchange, which is born out of California in the United States, which attempts to string together different layers of GIS information from existing “silos of excellence” to interpret a common operating picture. There is also the need to automate what the humans need to do in real time so as to have actionable insights.

### 8.8.6 Candidate Technologies Summary Review Table

Input Document: DTEC3-6.2.2.14

As an ongoing item, the Candidate Technology Summary Review table was reviewed. The comments from the VTS Committee were addressed and a liaison note for the VTS Committee was developed and agreed (DTEC3-11.2.2.7).

Note the comments from the VTS Committee and the discussion surrounding legal elements (Question 21 in G1153) and intellectual property (Question 22 in G1153), and a liaison to LAP was developed and agreed upon (DTEC3-11.2.2.8).

An updated version of the Candidate Technologies Summary Table was prepared and placed on the IALA File Share as a working paper DTEC3 11.2.2.14 Summary Note - New Technologies Reviewed-DTEC-03

#### Action item(s):

**Committee participants** are requested to note that the updated Emerging Technologies – Candidate Technology Tracker – has been provided on the IALA Fileshare as working paper DTEC3-11.2.2.14 Summary Note on New Technologies Reviewed-DTEC-03 and are encouraged to bring suitable technologies for potential review to the Chair and/or Vice Chair of DTEC WG2.

**Committee participants** are requested report on test beds and trials in the maritime domain, as noted on the IALA website <https://www.iala-aism.org/technical/planning-reporting-testbeds-maritime-domain/iala-testbeds-guideline/> using IALA G1107 guideline.

### 8.9 Review of IALA Work Programme 2023-2027 and DTEC WG2 Task Register

The IALA work programme was reviewed in conjunction with the DTEC WG2 detailed task register.

The Task Register was updated, noting that it is a living document and will be reviewed at each meeting.

The contents of the Task Register will be updated within the developing IALA on-line task register by the Chair and Vice-Chair of DTEC WG2 between DTEC3 and DTEC4, with the expectation that the online register will be in full use by DTEC4.

#### Action item(s):

**DTEC WG2 Chair and Vice-Chair** are asked to update the online IALA Task Register before DTEC4.

### 8.10 Review of Additional Documents

As identified during the opening Plenary, WG2 reviewed two additional input documents:

5.2.2.8	Liaison note to ENG and DTEC on the Use of drones for AtoN Management
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5.2.2.8.2	Draft Guideline Use of Drones for AtoN Management
5.2.2.8.1	Draft Recommendation Use of Drones for AtoN Management
5.2.0.2	Development of procedures and requirements for the recognition of augmentation systems in the world-wide radionavigation system (WWRNS)
5.2.0.2.1	NCSR 12 recognition of augmentation systems in the World-wide radionavigation systems

#### 8.10.1 The use of drone in AtoN Management

**Discussion session leader:** J Carson-Jackson

**Comments:**

The input papers were reviewed in detail, noting the status of development of the recommendation and guidelines on the use of drones in AtoN management.

**Key outcomes include:**

The discussion noted the appreciation of the development of such guidance for IALA Members. A number of comments were highlighted, including:

- The scope appears to be ambitious in encompasses Aerial (UAV – Unmanned Aerial Vehicle), Floating (USV – Unmanned Surface Vehicle) and Underwater (UUV – Unmanned Underwater Vehicle) ‘drones’ within a single section. The use of surface drones (ROV – Remotely Operated Vehicles) is not covered within the document.
- The document appears to then focus on aerial drones and could benefit from additional input on other aspects of drone operation.
- The designation of roles uses terminology that could be confusing - for example the term ‘Responsible Authority’ may be confusing and could be revised to ‘Designated Operator’.
- The operations of drone should include more detail on the theoretical knowledge of the domain in which the drone is being operations – for example: aerodynamics and airspace; movement of ships and water space management.
- The operation of the drone could be revised to align with best practices on the implementation of a Drone Operations Manual, including risk assessment for the activity being undertaken, maintenance and training aspects.

A liaison note, include proposed amendments in a track changes version of the draft document, was approved for forwarding to the ARM Committee.

**Output:**

Output documents were developed and approved:

1. DTEC3-11.2.2.4 – Liaison note to ARM on the development of the Recommendation and Guideline on Drones in AtoN
2. DTEC3-11.2.2.4.1 – Annex to the liaison note – Track Changes version of the Guideline on Drones in AtoN.

**Action item(s):**

*The **Secretariat** is requested to forward output papers on guidance in the use of drones in AtoN management (DTEC3-11.2.2.4 and DTEC3-11.2.2.4.1) to the ARM committee.*

### 8.10.2 Recognition of augmentation systems in the World-wide radionavigation system

**Discussion session leader:** J-L Martin

**Comments:**

The input papers were reviewed in detail, noting the discussions on this issue in ENG WG2 Interessional. Relevant IMO documents were reviewed, and the discussions held during DTEC3 on positioning within IMT-2030 were noted.

**Key outcomes include:**

After a short background introduction, the input paper was presented to audience giving details on the paper body content including justifications on the need of the augmentation recognition.

Discussion focused on the Annex to the document, which includes the new procedures and requirements requested by IMO for the recognition of augmentation systems. Based on the discussion the following points were noted / agreed:

- The work on this matter at the IMO is allocated 1 session
- The paper be drafted to provide alternative approaches that can be considered by the IMO - a new ad-hoc resolution specifically issued to recognize augmentation systems separately from the resolution A.1046(27) and an amendment to the resolution A.1046(27) with the minor changes needed to cover the particularities of augmentation systems for their recognition.
- The documents will be drafted in sufficient detail to allow for completion of the matter at IMO in one session.
- The input paper present, in clear terms, the advantages and disadvantages facilitate a timely decision making process.

**Output**

Based on the results of the discussion, and in consultation with the chair of ENG, WG2, who was present for the discussion, it is was agreed that these points will be considered further during the ENG19 session.

It was further agreed that the points noted in the report of DTEC3 were sufficient for the input to ENG19.

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

During the 3<sup>d</sup> session of the DTEC committee, the WG3 worked mainly on VDES and AIS topics to further develop the tasks assigned to the working group.

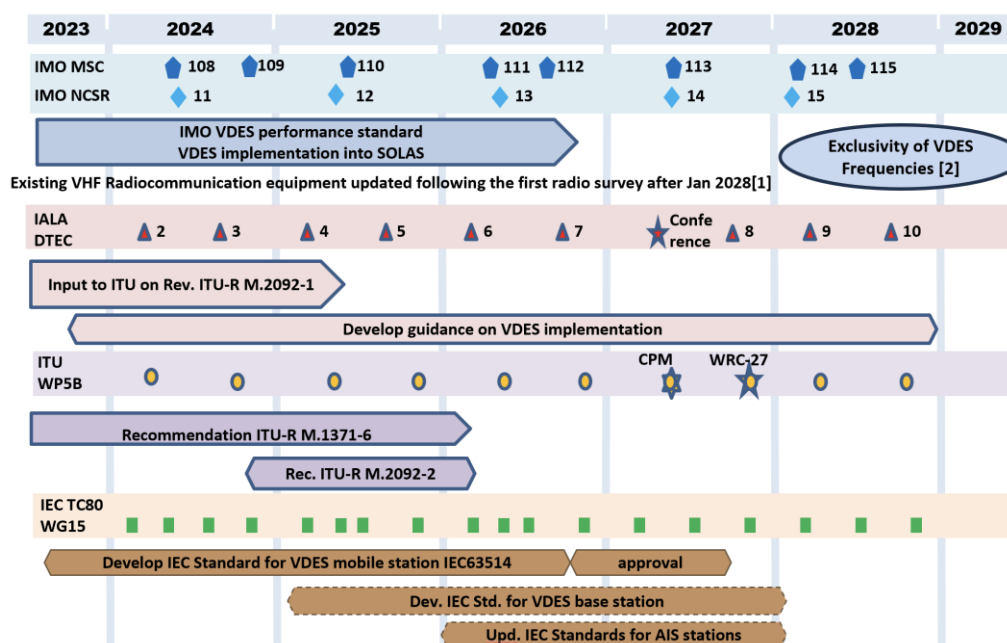
The Chair and Vice-Chair of the Working Group thank all participants, both in person and online for their hard work during the session.

During DTEC3 the Working Group met in a hybrid meeting environment and focused on the following items:

- Task 6.1.1 Review and update R0144 and G1095 - Update to the latest development of ASM (Data model using ASM for disaster management).
- Task 6.1.1 on AIS Documentation Structure.
- Task 6.1.1 on Updates to Circ. 289.
- Task 6.3.4 on VDES authentication.
- Task 6.3.4 Task on VDES R-mode.
- Task 6.3.4 Measurement template for VDES measurement campaigns.

- Task 6.3.4 on VDES test bed presentations.
- Task 6.3.5 VDES resource sharing.
- Task 6.3.7 Liaise with ITU on Recommendation ITU-R.M 2092-1.
- Task 6.3.10 on VDES shore infrastructure guideline.
- Task DTEC-6.3.11 on liaison with ITU on ITU-R M.1371.
- Task DTEC-6.1.1 Updates to Circ. 289.
- MARCOMM manual.

The group reviewed and updated the existing VDES Roadmap:



[1]: MSC.1/Circ.1460/Rev.4

[2]: according to Appendix 18 to the ITU Radio Regulations of 2024 (WRC-19), the VDES frequencies are exclusively assigned for VDES 1<sup>st</sup> of January 2030;

Figure 1 updated VDES implementation plan, see file WORKING/20241002\_VDES\_Roadmap.pptx

## 9.1 Task 6.1.1 Review and update R0144 and G1095 - Update to the latest development of ASM (Data model using ASM for disaster management)

**Task group leader:** WG1

**Input paper(s):**

5.2.1.5	Liaison note to DTEC on PS for ASM
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**Comments:**

WG3 got presented by the WG1 Chair and the DTEC co-chair what is planned to be liaised back to ARM.

WG3 assisted WG1 on further understanding the task behind the liaison and how it could be resolved technically.

For further details, see the [WG1 report](#).

## 9.2 Task 6.1.1 on AIS Documentation Structure

**Task group leader:** Jean François Coutu

**Input papers:**

5.2.3.11	DTEC3-5.2.3.11 Liaison note to PAP and committees Task 2.2.2 Overview of AIS documentation
5.2.3.11.1	DTEC3-5.2.3.11.1 Appendix to liaison note Task 2.2.2 Overview of AIS documentation

**Comments:**

The group reviewed the liaison from ARM and agrees (in line with the groups own proposals during ENAV) on the need to update the AIS documentation structure.

DTEC is currently working on a VDES Shore Infrastructure Guideline, that shall integrate the aspects of AIS together with the other VDES components into one guideline, probably replacing A0124.

Until the time when all relevant information from the existing guidelines is incorporated in updated or new guidelines and recommendations, the group strongly recommends to neither archive nor retire existing documentation.

The group agreed on reviewing the proposed retirements in detail through correspondence and create an updated liaison at DTEC4.

**Output:**

1. DTEC3-11.2.3.4 Liaison note to ARM, VTS, ENG, PAP on IALA documentation relating to AIS.docx

**Action item(s):**

The **Secretariat** is requested to forward the Liaison to the ARM / PAP / VTS / ENG Committees for their consideration, accompanied by a liaison note (DTEC3-11.2.3.4).

**Committee participants** interested in contributing to the work on the review of the proposed changes to the AIS documentation structure can join that work intersessionally and are kindly requested to coordinate their effort by email with [Jean-francois.Coutu@dfo-mpo.gc.ca](mailto:Jean-francois.Coutu@dfo-mpo.gc.ca).

## 9.3 Task 6.1.1 on updates to Circ. 289

**Task group leader:** None yet

**Input papers:**

5.2.3.10	Proposal for revising IMO SN.1Circ 289 to adapt to VDE-ASM
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**Comments:**

The group received a walkthrough of the document by China MSA. The group recognizes the need to update SN.1/Circ. 289 (Guidance on the use of AIS Application-Specific Messages) for the new VDES components.

The IMO NCSR correspondence group on the VDES Performance Standard is not entitled to work on this document now and proposes that e.g. China MSA could inform the correspondence group of the observation that the document would require an update consequential to the development of a VDES performance standard.

In the meanwhile, IALA could develop an update of the document as proposed by the input and China MSA to input that to IMO when the performance standard is finalized, noting that it might be necessary to extend the scope of the NCSR work to avoid losing 2 years to get the new task approved.



The group agrees that the scope of preparation should be to add the concepts of encapsulating ASM content for transport over ASM and VDE channels, as already started by the proposed input.

Further work is necessary, and the groups encouraged China MSA to continue that effort.

**Output:**

None.

**Action item(s):**

**Committee participants** interested in contributing to the drafting work on an update of SN.1/Circ.289 are invited to contact Shuaiheng Huai per email to [huaishuaiheng@dlmu.edu.cn](mailto:huaishuaiheng@dlmu.edu.cn).

#### 9.4 Task 6.3.4 on VDES authentication

**Task group leader:** Jan Safar, GLA

**Input paper(s):**

5.2.3.6	VDES Authentication Guideline Progress Update
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**Comments:**

Jan Safar presented the current change proposals to the document, managed on [https://github.com/gla-rad/iala\\_g\\_vdes\\_authentication](https://github.com/gla-rad/iala_g_vdes_authentication).

The group reviewed all current change proposals and provided additional contributions that were incorporated immediately into the document.

Jan Safar provided a new version of the draft working guideline in MS Word format which can be found here: <https://nextcloud.iala-aism.org/index.php/f/312144>.

**Key outcomes include:**

1. Updated working draft of new guideline on VDES Authentication.

**Output:**

No outputs.

**Action item(s):**

**Committee participants** interested in contributing to the work on the new guideline on VDES Authentication are invited to email the task group lead, Jan Safar, [jan.safar@gla-rad.org](mailto:jan.safar@gla-rad.org) to join the group.

#### 9.5 Task 6.3.4 Task on VDES R-mode

**Task group leader:** Ronald Raulefs, DLR

**Input papers:**

Presentation	<a href="https://nextcloud.iala-aism.org/index.php/f/312067">https://nextcloud.iala-aism.org/index.php/f/312067</a>
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**Comments:**

The presentation addressed the following issues:

- Providing an update on the latest VDES trials and demonstrations in Germany. The trials focused on assessing the performance of VDES R-Mode in a low-flying aircraft (a search and rescue plane) over the Hamburg harbour. Furthermore, a demonstration in the West Harbour of Berlin showcased a real-time



VDES R-Mode setup. This included the following capabilities: 1. determining a position, 2. generating a position report based on the position gained by VDES R-Mode combined with a message authentication code transmitted via VDE-TER and successfully authenticated at the VDES receiver.

- Discussing the current status of a proposal submitted by multiple European countries, as well as the European Commission, for an IMO R-Mode performance standard at the next IMO MSC 109 meeting. Member states are kindly requested to confirm their support for the proposal at the next MSC 109 meeting in December.
- The group agreed that G1158 as amended with VDE-ASM R-mode can start the approval flow including ENG.

#### Output:

1. DTEC3-11.2.3.1 Revised G1158 VDES R-Mode Ed.2.0 October 2024.docx

#### Action item(s):

The **Secretariat** is requested to forward the draft guideline on G1158 update as a working paper to ENG for committee approval and submission to council approval (DTEC3-11.2.3.1).

### 9.6 Task DTEC-6.3.4 Measurement template for VDES measurement campaigns

The group agreed that it would be beneficial for future test bed reports to provide a certain basic set of data to be of higher value to the group.

It was proposed that a template or guideline on how to create a test bed report and which values it should contain could be made.

The result was an internal guideline for use in test bed reports, that may become a guideline after being used at least once by a member to validate its usability.

The current version of that working draft is found here: <https://nextcloud.iala-aism.org/index.php/f/313574>.

#### Action item(s):

**Committee participants** performing VDES measurement campaigns are asked to consider the draft guideline <https://nextcloud.iala-aism.org/index.php/f/313574> and to provide review feedback on its usability and helpfulness.

### 9.7 Task DTEC-6.3.4 on VDES test bed presentations

**Task group leader:** Stefan Pielmeier, Chair of WG3

#### Input papers:

5.2.3.3	K:VDES Project Presentation (NSOnesoft): <a href="https://nextcloud.iala-aism.org/index.php/f/312147">https://nextcloud.iala-aism.org/index.php/f/312147</a>
5.2.3.4	VDE-SAT Presentation (China MSA/Head Aerospace): <a href="https://nextcloud.iala-aism.org/index.php/f/313999">https://nextcloud.iala-aism.org/index.php/f/313999</a>
5.2.3.5	Slim Quadrifilar Helix Antenna for VDE-SAT (Kongsberg): <a href="https://nextcloud.iala-aism.org/index.php/f/312822">https://nextcloud.iala-aism.org/index.php/f/312822</a>
N/A	VOOST Project Presentation (Aivenautics): <a href="https://nextcloud.iala-aism.org/index.php/f/312726">https://nextcloud.iala-aism.org/index.php/f/312726</a>

#### Comments:

NSOnesoft presented the Korean K:VDES project which is focussing on developing VDES components such as ship and shore stations and a shore base station controller that manages resource allocation for multiple base stations with overlapping radio coverage to avoid collisions. [lukas@nsonesoft.com](mailto:lukas@nsonesoft.com) invited other producers of VDES equipment for interoperability tests.

Head Aerospace presented test results for VDE-SAT with LinkIDs 21 and 33 for data exchange tests run in March and April 2024. [Charlotte.chen@head-aerospace.com](mailto:Charlotte.chen@head-aerospace.com) invited members to join them for interoperability tests. Charlotte reported significant UL interference especially in the crowded harbour areas of China, but better results when on the more open seas.

Kongsberg presented the Slim Quadrifilar Helix Antenna for VDE-SAT, produced by Comrod which is showing first promising results to give an advantage for the reception of VDE-SAT of several dB. More tests, however are needed to understand it's performance to terrestrial VDES components AIS, ASM and VDE-TER. The current results are promising, the antenna is available commercially and Kongsberg invites members to buy the antenna and use it alternatively in terrestrial and satellite tests and report back to DTEC so we can understand it's practical impact on the observed performance. Contact either [sales@comrod.fr](mailto:sales@comrod.fr) or [anders.bjornevik@km.kongsberg.com](mailto:anders.bjornevik@km.kongsberg.com) for details on how to obtain an antenna for test beds.

Aivenautics Jin Park (WG1 co-chair) presented the Korean VOOST project which is focussing on VDES device interoperability and harmonized trusted service transport of services in Korean and international waters using all MCP components: MSR, MIR and MMS. Also the VOOST project invites for interoperability test interested service, VDES satellite operators and ship/shore base station equipment producers to join the VOOST project, contact [jinyoung.park@aivenautics.com](mailto:jinyoung.park@aivenautics.com) to join.

## 9.8 Task 6.3.5 VDES resource sharing

**Task group leader:** Koichi Yoshida, OPRI

**Input papers:**

5.2.3.2	Input paper VDES Resource Sharing
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**Comments:**

Koichi did walk through the updated document highlighting:

- the purpose,
- sharing of ground stations,
- sharing of satellite coverage, and
- direct ship-ship cases.

Koichi also highlights that significant technical work has to be done to facilitate sharing.

The group discussed the possibility that

- most of the technical descriptions for interfaces and VDES infrastructure components that support sharing may be incorporated into the VDES shore infrastructure guideline, and
- most of the political and organisational alignment aspects, and the resulting parameters that needed to be aligned on to support successful resource sharing may be incorporated into the VDES resource sharing guideline.

Koichi Yoshida is inviting members to participate intersessional through correspondence to [yoshida@rime.jp](mailto:yoshida@rime.jp).

The group did not update the document during DTEC4 and the current version is exactly identical to input DTEC3-5.2.3.2.

**Output:**

No outputs.

**Action item(s):**

That **Committee participants** interested in contributing to the work on the new guideline on VDES Resource Sharing are invited to email the task group lead, Koichi Yoshida, [yoshida@rime.jp](mailto:yoshida@rime.jp) to join the group.

**9.9 Task 6.3.7 Liaise with ITU on Recommendation ITU-R.M 2092-1**

**Task group leader:** Johnny Schultz, USCG

**Input papers:**

N/A	Liaison to ITU-R WP5B on the revision of ITU-R M.2092-1 ( <a href="https://nextcloud.iala-aism.org/index.php/f/303478">https://nextcloud.iala-aism.org/index.php/f/303478</a> )
5.2.3.12	DTEC WG3 Intersessional report on VDES

**Comments:**

Johnny Schultz guided the group through a review of the input to ITU WP5B that is developed by the group intersessional and planned to be submitted to ITU WP5B by the US.

Some amendments were proposed by the group and incorporated in the updated WP5B input.

The group discussed how far the inclusion of multicarrier is indicated by measurement campaigns. Many group members propose to remember that recommendation ITU-R M.2317-0 is considering channel equalisation as an alternative method to handle reflections and/or multipath for VDE. Single frequency networks would also be possible by using channel equalisation.

The group agrees that VDES equipment should be tested to being able to handle multipath scenarios according to ITU-R M.2317-0, and other multipath scenarios subject that might result from further test bed reports.

The group agrees to recommend that IALA should co-sign the reviewed input to ITU and inform the USCG ([Johnny.Schultz@sev1tech.com](mailto:Johnny.Schultz@sev1tech.com)) about that decision not after the 25<sup>th</sup> of October, 2024.

**Output:**

1. DTEC3-11.2.3.2 Revision of ITU-R M.2092-1.docx

**Action item(s):**

The **Secretariat** is requested to forward the Output to Council and propose co-signing the reviewed and amended US input to ITU WP5B by sending a confirmation e-mail to [Johnny.Schultz@sev1tech.com](mailto:Johnny.Schultz@sev1tech.com) not later than the 25<sup>th</sup> of October, 2024.

**9.10 Task 6.3.10 on VDES shore infrastructure guideline**

**Task group leader:** Lukas Kim, NSOnesoft

**Input papers:**

5.2.3.7	Draft Guideline for VDES Shore Infrastructure
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**Comments:**

The group reviewed the proposed structure proposed by NSOnesoft and agreed to start with the proposed structure.

NSOnesoft proposed to coordinate drafting work intersessional by correspondence, several members of the group agreed to participate in the drafting efforts as preparation for DTEC4.

The input document was not updated during DTEC3 and will be used by members to develop it further towards DTEC4.

**Key outcomes include:**

- An agreed structure for the new guideline.

**Output:**

No outputs.

**Action item(s):**

The **Committee participants** interested in contributing to the work on the new guideline on VDES Shore infrastructure are invited to email the task group lead, Luka Kim, [lukas@nsonesoft.com](mailto:lukas@nsonesoft.com) to join the group.

**9.11 Task DTEC-6.3.11 on liaison with ITU on ITU-R M.1371**

**Task group leader:** Stefan Bober, WSV

**Input papers:**

5.2.3.8	Draft revision of Recommendation ITU-R M.1371-5
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**Comments:**

The group reviewed the LN from ITU WP5B on the revision of recommendation ITU-R M.1371-5.

DTEC has no further comments on the document.

The ITU has sent a similar liaison note to IMO, and the IMO/ITU EG has the issue on its agenda for next week . A respond from IMO NCSR12 is expected in May next year.

With this in mind, we expect the finalization of the revision process at ITU WP5B in May or in November 2025.

If this is the case, ITU SG 5 can approve the revision of Recommendation ITU-R M.1371-5 at the earliest in autumn 2025, so that Recommendation ITU-R M.1371-6 will be published in early 2026.

**Output:**

None.

**9.12 Task DTEC-6.3.11 update of R0124**

**Task group leader:** not specified (yet)

**Input papers:**

5.2.3.9	Proposal On the Amendments to R0124
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**Comments:**

The group reviewed the input as presented by Shuaiheng Huai, welcomed its approach to define an architecture for VDES shore infrastructure and decided to propose to get it integrated into the draft VDES shore infrastructure guideline for now (Task 6.3.10), as it seems to fit well. Shuaiheng Huai and Lukas Kim agreed to correspond on the task intersessional towards DTEC4.

**Output:**

None.

**9.13 MARCOMM manual**

**Task group leader:** WG2

**Input papers:**

5.2.2.10	WP Draft MRCP MarCom Manual
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**Comments:**

The group helped to clarify some VDES related open questions to finalize the MARCOMM manual in cooperation with WG2 and looks forward to a release of the document.

Further status on the task, see the [report of WG2](#).

**10. SUMMARY OF OUTPUT AND WORKING PAPERS**

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

Outputs from DTEC3 were approved by the Committee using the approval procedure. The output documents and working papers are listed in Annex D.

**11. REVIEW OF SESSION REPORT**

The draft report of the meeting (DTEC3-11.1) was approved by the Committee at the Closing Plenary.

**12. DATE AND VENUE OF NEXT MEETINGS**

DTEC4 is planned to be held between 24 – 28 March 2025 at IALA Headquarters, Saint Germain-en-Laye, France. Other IALA events will be publicised on the IALA website.

**13. ANY OTHER BUSINESS****14. CLOSING OF THE MEETING**

The Chair thanked all Committee participants again for all the engagement and hard work. He hoped that all the participants would return again to DTEC4.

Finally, the Chair asked if there were any final comments that participants wished to make; there were none.

**15. LIST OF ANNEXES****A. Agenda**

A copy of the agenda is at Annex A.

**B. Participants list**

A list of participants is at Annex B.

**C. Input Papers**

A list of input papers is at Annex C.

D. Output and Working papers

A list of output and working papers is at Annex D.

E. Action Items

A list of action items is at Annex E.

F. Working Group Participants Lists

Lists of working group participants is at Annex F



## Digital Technologies Committee session 3 (DTEC3)

The physical week of the 3<sup>rd</sup> session of the DTEC Committee will take place on the 30 September to the 4<sup>th</sup> October 2024 at the IALA HQ, Saint Germain-en-Laye, France. Please note that the Opening Plenary will be held hybrid on Monday 30<sup>th</sup> September starting at 08:00 UTC. The Closing Plenary will be held online on Thursday 10 October 2024 starting at 11:00 UTC.

### Agenda

1. Opening Plenary
  - 1.1. Welcome from the Secretary-General Francis Zachariae
  - 1.2. Approval of agenda Hideki Noguchi
  - 1.3. Apologies and introductions Hideki Noguchi
  - 1.4. Programme for the session Alisa Nechyporuk
2. Review of action items from last session
  - 2.1. Review of action items from DTEC2 Hideki Noguchi
3. Reports from other bodies and initiatives:
  - 3.1. IALA
    - 3.1.1. IALA Council Minsu Jeon
    - 3.1.2. IALA Policy Advisory Panel (PAP) Minsu Jeon
  - 3.2. Digital@Sea Minsu Jeon
  - 3.3. IHO Minsu Jeon
  - 3.4. IMO Hideki Noguchi / Minsu Jeon
    - 3.4.1 MSC
    - 3.4.2 NCSR11
  - 3.5. ITU Stefan Bober
  - 3.6. IEC Stefan Bober / Jorge Arroyo
  - 3.7. ISO Jin H Park / Minsu Jeon
  - 3.8. RTCM Ross Northswordy / Johnny Schultz
  - 3.9. 3GPP Hyounhee Koo
  - 3.10. VDES Alliance Stefan Pielmeier
  - 3.11. Patents Omar Eriksson
4. Presentations
  - 4.1. Results of the finalized ESA / Kongsberg /Space Norway and Comrod, developing a new RHCP VHF antenna for VDES (Hans Christian Haugli, Space Norway)
  - 4.2. Demonstration of the provision of NW (S-1214) as SECOM service (DMA)
  - 4.3. Demonstration of the consumption of NW SECOM services from various providers (AMSA)

- 4.4. Demonstrate the latest developments of MMS, NW from SECOM via SECOM/MMS (AIVeNautics)
- 4.5. Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification (Institute of High Performance Computing Agency for Science, Technology and Research and Maritime and Port Authority, Singapore)
- 4.6. Sharing of Singapore Maritime 5G Development (Maritime and Port Authority, Singapore)
5. Review of input papers
  - 5.1. Introduction of input papers Submitter(s)
  - 5.2. Allocation of input papers Hideki Noguchi
6. DTEC3 Working Group programmes and arrangements
  - 6.1. WG1 – Digital Information System Axel Hahn
  - 6.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
  - 6.3. WG3 – Digital Communication System Stefan Pielmeier
7. Break-out into Working Groups
8. Reconvene Plenary Session (Friday 4<sup>th</sup> October, 07:00 – 09:00 UTC)
9. Presentation of Working Group reports, documents, and output papers (Plenary Session)
  - 9.1. WG1 – Digital Information System Axel Hahn
  - 9.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
  - 9.3. WG3 – Digital Communication System Stefan Pielmeier
10. DTEC2 Output's Review Period
11. Closing Plenary (Thursday 10<sup>th</sup> October, 10:00 – 13:00 UTC, online)
  - 11.1. Review of session report
  - 11.2. Review of outcome documents
  - 11.3. Date and venue of next meeting
12. Close of the meeting

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#### DTEC Work Programme and task list (2023 - 2027)

- WG1 – Digital Information System
  - S-100 & S-200
  - Maritime Services
  - Cyber security
- Maritime Resource Name
  - WG2 – Emerging Digital Technology
    - Maritime Autonomous Surface Ship
    - Digital Voice Communications
    - Single Window Data Exchange
    - Machine learning and IoT
- Maritime Radio Communication Manual
  - WG3 – Digital Communication System
    - VHF Data Exchange System (VDES) applications
    - Autonomous Maritime Radio Device (AMRD)
    - Maritime Services
    - Automatic Identification Systems
    - Other digital communication technology



## ANNEX B

## LIST OF PARTICIPANTS

First Name	Last Name	Member Type	Country	Organization	Email
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All papers are posted on the Committee section of the IALA website. Items in blue = late or updated paper.

Meeting	Paper Number	Input Paper Title	Source	Allocation
DTEC3	1.2.1	Preliminary Agenda DTEC3_v3.0	IALA	All
DTEC3	1.4	Programme for the week	IALA	All
DTEC3	2.1	Final report of DTEC2	IALA	All
DTEC3	2.1.1	DTEC2 Action Items	IALA	All
DTEC3	3.1.1	Final Report Council80 (C80-19.1)	IALA	All
DTEC3	3.1.2	Report of PAP53 (PAP53-7.1)	IALA	All
DTEC3	3.1.3	Work programme 2023-2027	IALA	All
DTEC3	3.4.2	IALA Report on NCSR 11	IALA	All
DTEC3	3.5	IALA Report on ITU-R WP5B meeting 14 to 24 May 2024	Stefan B	All
DTEC3	5.0	Input paper Committee meeting template	IALA	All
DTEC3	5.0.1	List of input papers	IALA	All
DTEC3	5.2.0.1	Revised Workshop proposal on future radionavigation and radiocommunication systems	ENG19	All
DTEC3	5.2.0.2	Development of procedures and requirements for the recognition of augmentation systems in the world-wide radionavigation system (WWRNS)	ENG WG2 Intersessional	All
DTEC3	5.2.0.2.1	NCSR 12 recognition of augmentation systems in the World-wide radionavigation systems	ENG WG2 Intersessional	All
DTEC3	5.2.0.3	Input paper on Sustainability Workshop (PAP54-7.3.3.1)	PAP54	All
DTEC3	5.2.0.3.1	Programme Overview_v1.0	PAP54	All
DTEC3	5.2.1.1	Use cases for MCP Service Registry	Fintraffic / GLA / SAAB (Navelink/Combitech) / DLR / AIVeNautics	WG1
DTEC3	5.2.1.2	Product Specification on Disaster Management	Japan Coast Guard	WG1
DTEC3	5.2.1.2.1	Product Specification on Disaster Management Annex1	Japan Coast Guard	WG1



Meeting	Paper Number	Input Paper Title	Source	Allocation
DTEC3	5.2.1.3	Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification	Singapore's Agency for Science, Technology and Research (A*STAR) Institute of High Performance Computing (IHPC) and Singapore MPA	WG1 / WG2
DTEC3	5.2.1.4	SECOM service design template recommendations	China MSA	WG1
DTEC3	5.2.1.5	Liaison note to DTEC on PS for ASM	ARM18	WG1
DTEC3	5.2.1.6	Liaison note to VTS and DTEC on MSC Circular on MRN	ARM18	WG1
DTEC3	5.2.1.6.1	Draft Circular to MSC on Harmonisation of identifiers using MRN (DTEC2-12.2.1.3)	ARM18	WG1
DTEC3	5.2.1.6.2	Draft Input to NCSR on Use of MRN Circular (DTEC2-12.2.1.4)	ARM18	WG1
DTEC3	5.2.1.7	WP Service Design Template for SECOM Service	DTEC2	WG1
DTEC3	5.2.1.8	Permission to publish extracts from an IEC International Standard	IEC	WG1
DTEC3	5.2.2	Proposed work schedule DTEC3 WG2	WG2 Chair	WG2
DTEC3	5.2.2.1	Discussion Paper on IALA's Vision for Digitalisation	Singapore MPA	WG1/WG2
DTEC3	5.2.2.2	Status of task DTEC-7.1.2 - Guideline on Digitalization of waterways	Finnish Transport Infrastructure Agency	WG2
DTEC3	5.2.2.2.1	Draft IALA Guideline on Digitalization of waterways	Finnish Transport Infrastructure Agency	WG2
DTEC3	5.2.2.2.2	Draft Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline	Finnish Transport Infrastructure Agency	WG2
DTEC3	5.2.2.3	Proposals on further developing the contents of digital waterway guideline	China MSA	WG2
DTEC3	5.2.2.4	Workshop Proposal Application of IMT to Marine AtoNs	WSV	WG2
DTEC3	5.2.2.5	Result of trial for the Metal Surface Wave Technology (MS@MS)	KRISO / Sunny Wave Tech / KOMSA	WG2
DTEC3	5.2.2.6	Revision proposal for draft MARCOM manual	China MSA	WG2

Meeting	Paper Number	Input Paper Title	Source	Allocation
DTEC3	5.2.2.7	Draft Guideline on Developments and implications of MASS for coastal authorities	DTEC2 / MASS TF9	WG2
DTEC3	5.2.2.7.1	Liaison note to ENG VTS DTEC on MASS Guideline Review post plenary	ARM18	WG2
DTEC3	5.2.2.7.1.1	Proposed ARM MASS Guideline	ARM18	WG2
DTEC3	5.2.2.8	Liaison note to ENG and DTEC on the Use of drones for AtoN Management	ARM18	WG2
DTEC3	5.2.2.8.1	Draft Recommendation Use of Drones for AtoN Management	ARM18	WG2
DTEC3	5.2.2.8.2	Draft Guideline Use of Drones for AtoN Management	ARM18	WG2
DTEC3	5.2.2.9	WP Ship Air Draft Remote Measurement Technology review	DTEC2	WG2
DTEC3	5.2.2.10	Input task 6.3.14 on the MarCom Manual	Intersessional	WG2
DTEC3	5.2.2.10.1	WP Draft MRCP MarCom Manual	Intersessional	WG2
DTEC3	5.2.2.11	Del3 Report on possible MASS related work items for the IALA committees (MTF09-4.1)	MASS TF09	WG2
DTEC3	5.2.2.12	Del2 MASS Publications Scoping Report V2.2 (MTF09-4.1)	MASS TF09	WG2
DTEC3	5.2.2.13	Liaison Note to DTEC on Update on Emerging Technology Review Final Version	VTS56	WG2
DTEC3	5.2.2.14	Liasion Note to ARM and DTEC - Recommendation on MASS and Marine AtoN	VTS56	WG2
DTEC3	5.2.2.14.1	Draft Recomendation on MASS and Marine AtoN	VTS56	WG2
DTEC3	5.2.3.1	VDES Seminar proposal in Singapore	Japan Coast Guard / Singapore MPA	WG3
DTEC3	5.2.3.2	Input paper VDES Resource Sharing	OPRI	WG3
DTEC3	5.2.3.3	Korea VDES Research and Development Project Demonstration on VDES-based Maritime Services and Other Applications	NSONESOFT Co	WG3
DTEC3	5.2.3.4	VDES sat-ship application tests	China MSA	WG3
DTEC3	5.2.3.5	RHCP ship antenna for improved VDES and AIS performance	Space Norway / Kongsberg Discovery / European Space Agency (ESA)	WG3

Meeting	Paper Number	Input Paper Title	Source	Allocation
DTEC3	5.2.3.6	VDES Authentication Guideline Progress Update	GRAD	WG3
DTEC3	5.2.3.6.1	Draft Guideline on VDES Authentication	GRAD	WG3
DTEC3	5.2.3.7	Draft Guideline for VDES Shore Infrastructure	NSONESOFT Co	WG3
DTEC3	5.2.3.8	Liaison note to IALA on revision ITU Rec-R M1371-5	ITU WP5B	WG3
DTEC3	5.2.3.8.1	Draft revision of Recommendation ITU-R M.1371-5	ITU WP5B	WG3
DTEC3	5.2.3.9	Proposal on the amendments to R0124 The AIS Service	China MSA	WG3
DTEC3	5.2.3.10	Proposal for revising IMO SN.1Circ 289 to adapt to VDE-ASM	China MSA	WG3
DTEC3	5.2.3.11	Liaison note to PAP and committees Task 2.2.2 Overview of AIS documentation	ARM18	WG3
DTEC3	5.2.3.11.1	Appendix to liaison note Task 2.2.2 Overview of AIS documentation	ARM18	WG3
DTEC3	5.2.3.12	DTEC WG3 Intersessional on VDES	Intersessional	WG3
DTEC3	5.2.3.13	VDES Patents	IALA and China MSA	WG3

### Working papers from DTEC2

Meeting	WP no.	Working Paper Title	Source	Action
DTEC2	12.2.1.9	Service Design Template for SECOM Service	DTEC2	DTEC3
DTEC2	12.2.1.3	Draft Circular to MSC on Harmonisation of nearers using MRN	DTEC2	DTEC3
DTEC2	12.2.1.4	Draft Input to NCSR on Use of MRN Circular	DTEC2	DTEC3
DTEC2	12.2.2.5	WP Review of Ships' air draft remote measurement technology	DTEC2	DTEC3
DTEC2	12.2.2.6	WP Manual on Maritime Communications (MARCOM Manual)	DTEC2	DTEC3
DTEC2	12.2.2.7	WP Proposal on developing a new model course on AIS data analysis skills	DTEC2	DTEC3

**Output documents** are submitted to a body other than the Committee initiating the document for further review/action or as information.

Meeting	Output paper number	Output Paper Title	Source	Action
DTEC3	11.2.1.1	Liaison note to VTS on Near Miss Incidents	WG1	VTS
DTEC3	11.2.1.1.1	Annex Essential Practices for Data and Management in Developing Automated Near-Miss Incident Identification	WG1	VTS
DTEC3	11.2.1.2	Liaison note ARM on MRN v1.2	WG1	ARM
DTEC3	11.2.1.2.1	Draft Input to NCSR on Use of MRN Circular (DTEC2-12.2.1.4)	WG1	ARM
DTEC3	11.2.1.2.2	Draft Circular to MSC on Harmonisation of identifiers using MRN (DTEC2-12.2.1.3)	WG1	ARM
DTEC3	11.2.1.3	Liaison Note to ARM and PAP on S-230 Application Specific Messages v1.1	WG1	ARM, PAP
DTEC3	11.2.1.4	Revised G1128 Specification of e-Navigation Technical Services Ed1.6	WG1	Council
DTEC3	11.2.1.4.1	Revised G1128 Annex A Service Specification Template	WG1	Council
DTEC3	11.2.1.4.2	Revised G1128 Annex B Service Design Template	WG1	Council
DTEC3	11.2.1.4.3	Revised G1128 Annex C Service Instance Description Template	WG1	Council
DTEC3	11.2.1.4.4	Revised G1128 Annex D Service Design Template for SECOM Service	WG1	Council
DTEC3	11.2.1.5	Revised G1183 Provision of MCP identities Ed1.1	WG1	Council
DTEC3	11.2.2.1	Liaison note to ENG on IMT-2030	WG2	ENG
DTEC3	11.2.2.2	Liaison note to ITU-R WP on 5D-IMT-2030	WG2	Council
DTEC3	11.2.2.3	Revised Marcom Manual v1.0	WG2	Council / publish
DTEC3	11.2.2.4	Liaison note to ARM on Guideline Rec on Drones in AtoN	WG2	ARM
DTEC3	11.2.2.4.1	Annex Draft Guideline Use of Drones for AtoN Management	WG2	ARM
DTEC3	11.2.2.5	Workshop Proposal on Application IMT to Marine AtoNs	WG2	Council
DTEC3	11.2.2.6	Liaison note to ARM, ENG, VTS, MASS TF on MASS Rec and Guideline	WG2	ARM, ENG, VTS, MASS TF
DTEC3	11.2.2.6.1	Revised draft Guideline on MASS for AtoN Authorities	WG2	ARM, ENG,

				VTS, MASS TF
DTEC3	11.2.2.7	Liaison note to VTS on Emerging Tech-reviewed	WG2	VTS
DTEC3	11.2.2.8	Liaison note to LAP on Revised new tech summary	WG2	LAP
DTEC3	11.2.2.9	Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline	WG2	All committ ees, PAP
DTEC3	11.2.2.9.1	Draft IALA Guideline on Digitalization of waterways	WG2	All committ ees, PAP
DTEC3	11.2.3.1	Revised G1158 VDES R-Mode Ed.2.0 October 2024	WG3	Council
DTEC3	11.2.3.2	Revision of ITU-R M.2092-1	WG3	Council
DTEC3	11.2.3.3	Liaison note to ENG on Guideline G1158 VDES R Mode	WG3	ENG
DTEC3	11.2.3.4	Liaison note to ARM, VTS, ENG, PAP on IALA documentation relating to AIS	WG3	ARM / PAP / VTS / ENG

**Working papers** will remain within the Committee for further review during DTEC4.

Meeting	Agenda Item	Working Paper Title	Source	Action
DTEC3	11.2.1.6	Use cases for MCP Service Registry	WG1	to DTEC4
DTEC3	11.2.2.10	Draft Guideline on Innovation to implementation	WG2	to DTEC4
DTEC3	11.2.2.11	SADRMT review table	WG2	to DTEC4
DTEC3	11.2.2.12	Completed Review of Radio-free wireless communication	WG2	to DTEC4
DTEC3	11.2.2.13	Draft IALA Guideline on Digitalization of waterways	WG2	to DTEC4
DTEC3	11.2.2.14	Summary Note on New Technologies Reviewed after DTEC3	WG2	to DTEC4

*Action Items for the IALA Secretariat*

1. The **Secretariat** is requested to forward the DTEC3-11.2.1.3 Liaison Note on S-230 Application-Specific Messages to ARM, remove the S-230 ASM from the IALA website, and notify IHO of the update.
2. The **Secretariat** is requested to forward DTEC3-11.2.1.2 (including DTEC3-11.2.1.2.1 and DTEC3-11.2.1.2.2) Liaison note on MRN to ARM
3. The **Secretariat** is requested to forward the DTEC3-11.2.1.1 “Liaison note to VTS on Near Miss Incidents” including DTEC3-11.2.1.1.1 to VTS
4. The **Secretariat** is requested to forward the updated DTEC3-11.2.1.5 G1183 to Council for approval.
5. The **Secretariat** is requested to forward the updated DTEC3-11.2.1.4 G1128 including the 4 annexes to the Council for approval, once approved, to publish the annexes as docx (MS-Word) files and the .xsd file which comes with Annex B.
6. The **Secretariat** is requested to forward the updated DTEC3-11.2.1.6 Use cases for MCP Service Registry to DTEC4.
7. The **Secretariat** is requested to forward the liaison note on the development of the MASS Recommendation and Guidelines, together with the current version of the revised draft guideline on MASS for AtoN Authorities to the ARM, ENG, and VTS Committees and the MASS TF.
8. The **Secretariat** is requested to forward the liaison note on Marine AtoN over IMT-2030 (DTEC3-11.2.2.2) to the Council for approval and subsequently forward it to ITU-R WP5D before February 2025, noting there will be a need to provide editorial amendments to the document following the publication of the report of ITU-R WP5D meeting 47, expected in October 2024. This editorial amendment will relate to the document number on the ITU Liaison Note.
9. The **Secretariat** is requested to forward the liaison notes on Marine AtoN over IMT-2030 to the ENG Committee.
10. The **Secretariat** is requested to forward the IALA Maritime Communications (MarCom) Manual to the IALA Council for approval and, if approved, to identify a suitable format for its digital publication, similar to the IALA VTS Manual.
11. The **Secretariat** is requested to forward output papers DTEC3-11.2.2.9 and DTEC3-11.2.2.9.1 to ARM, ENG, VTS and PAP.
12. The **Secretariat** is asked to forward the working paper on developing guidance for the digitalization of waterways DTEC311.2.2.13 Draft IALA Guideline on Digitalization of waterways to DTEC4 for further review.
13. The **Secretariat** is asked to forward review document on MS@MS Technology D(TEC3-11.2.2.12 Completed Review of Radio-free wireless communication) to DTEC4 for further review.
14. The **Secretariat** is asked to forward review document on Remote Air Draught Measurement (DTEC3-11.2.2.11 SADRMT review table) to DTEC4 for further review.
15. The **Secretariat** is requested to forward output papers on guidance in the use of drones in AtoN management (DTEC3-11.2.2.4 and DTEC3-11.2.2.4.1) to the ARM committee.
16. The **Secretariat** is requested to forward DTEC3-11.2.1.3 Liaison Note to ARM and PAP on S-230 Application Specific Messages to ARM.

17. The **Secretariat** is requested to forward the Liaison to the ARM / PAP / VTS / ENG Committees for their consideration, accompanied by a liaison note (DTEC3-11.2.3.4).
18. The **Secretariat** is requested to forward the draft guideline on G1158 update as a working paper to ENG for committee approval and submission to council approval (DTEC3-11.2.3.1).
19. The **Secretariat** is requested to forward the Output to Council and propose co-signing the reviewed and amended US input to ITU WP5B by sending a confirmation e-mail to Johnny.Schultz@sev1tech.com not later than the 25<sup>th</sup> of October, 2024.

#### Action Items for Participants

20. **Committee participants** are encouraged to note DTEC3-11.2.1.6 Use cases for MCP Service Registry.
21. **Committee participants** are invited to join the intersessional task group meeting on the development of guidance on moving from innovation to implementation Guidelines on 14 January 2025, and contact E Batty ([ernie.b@imisglobal.com](mailto:ernie.b@imisglobal.com)) on or before 10 January 2025 if they plan to attend.
22. **Committee participants** are invited to join the intersessional drafting activity on the MASS Guidelines, noting the upcoming intersessional meeting on 13 January 2025, and contact J Carson-Jackson ([jillian@jcjconsulting.net](mailto:jillian@jcjconsulting.net)) on or before 7 January if they plan to attend.
23. **Committee participants** interested in joining the intersessional task group DTEC-6.2.1, focused on developing use cases for maritime in IMT-2030, are invited to send an email to the task group leader, H. Koo ([koo@synctechno.com](mailto:koo@synctechno.com)), by 31 October 2024, to confirm their participation in the meeting.
24. **IALA Member States** are encouraged to communicate with their delegates participating ITU-R Working Party 5D (WP5D) for the support of additional use cases introduced by IALA liaison note (DTEC3-11.2.2.2).
25. **Committee participants** are invited to join the intersessional task group to progress the work on the “Development of Discussion Paper on Digitalisation in the Scope of IALA” ( DTEC-7.1.1), noting the meeting on 13 December 2024, and contact N Chiew ([Nicholas\\_chiew@mpa.gov.sg](mailto:Nicholas_chiew@mpa.gov.sg)) on or before 1 Dec 2024 if they plan to attend.
26. **Committee participants** are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways by sending an e-mail to Kaisu Heikonen ([kaisu.heikonen@ftia.fi](mailto:kaisu.heikonen@ftia.fi)).
27. **Committee participants** are invited to join the intersessional task group DTEC-7.2.1 on S-100 World from a Marine AtoN Authority perspective by sending an e-mail to Jan-Hendrik Oltmann ([Jan-hendrik.oltmann@wsv.bund.de](mailto:Jan-hendrik.oltmann@wsv.bund.de)).
28. The **Chair of DTEC WG2** is asked to contact Qualcomm (J-M Rousseau) to confirm a copy of the G1153, as presented at DTEC3, is provided for input to DTEC4. It is expected the review of Qualcomm’s 5G Precise Positioning for Ports will be completed at DTEC4.
29. The **representatives of MaDaMe** were asked to provide an update presentation on the development of the project at DTEC4, noting this may be suitable for a DTEC Plenary Presentation.
30. **Committee participants** are requested to note that the updated Emerging Technologies – Candidate Technology Tracker – has been provided on the IALA Fileshare as working paper DTEC3-11.2.2.14 Summary Note on New Technologies Reviewed-DTEC-03 and are encouraged to bring suitable technologies for potential review to the Chair and/or Vice Chair of DTEC WG2.

31. **Committee participants** are requested report on test beds and trials in the maritime domain, as noted on the IALA website <https://www.iala-aism.org/technical/planning-reporting-testbeds-maritime-domain/iala-testbeds-guideline/> using IALA G1107 guideline.
32. **DTEC WG2 Chair and Vice-Chair** are asked to update the online IALA Task Register before DTEC4.
33. **Committee participants** interested in contributing to the work on the review of the proposed changes to the AIS documentation structure can join that work intersessionally and are kindly requested to coordinate their effort by email with [Jean-francois.Coutu@dfo-mpo.gc.ca](mailto:Jean-francois.Coutu@dfo-mpo.gc.ca).
34. **Committee participants** interested in contributing to the drafting work on an update of SN.1/Circ.289 are invited to contact Shuaiheng Huai per email to [huaishuaiheng@dlmu.edu.cn](mailto:huaishuaiheng@dlmu.edu.cn).
35. **Committee participants** interested in contributing to the work on the new guideline on VDES Authentication are invited to email the task group lead, Jan Safar, [jan.safar@gla-rad.org](mailto:jan.safar@gla-rad.org) to join the group.
36. **Committee participants** performing VDES measurement campaigns are asked to consider the draft guideline <https://nextcloud.iala-aism.org/index.php/f/313574> and to provide review feedback on its usability and helpfulness.
37. That **Committee participants** interested in contributing to the work on the new guideline on VDES Resource Sharing are invited to email the task group lead, Koichi Yoshida, [yoshida@rime.jp](mailto:yoshida@rime.jp) to join the group.
38. The **Committee participants** interested in contributing to the work on the new guideline on VDES Shore infrastructure are invited to email the task group lead, Luka Kim, [lukas@nsonesoft.com](mailto:lukas@nsonesoft.com) to join the group.



**Working Group 1****Digital Information Systems**

Chair – Axel Hahn, German Aerospace Centre

Vice-chair – Julius Moeller, Australian Maritime Safety Authority

First name	Last name	Organization
Patrick	Armstrong	US Coast Guard
Luthfi	Bafana	Maritime And Port Authority Of Singapore
Thomas	Christensen	Aivenautics
Berkant	Bayraktar	Havelsan As
Gerrit Jan	De Bie	Port Of Rotterdam Authority
Junji	Fukuto	Japan Ship Technology Research Association
Oliver	Haagh	Aivenautics
Rasmus Madsen	Jensen	Danish Maritime Authority
Fredrik	Karlsson	Swedish Maritime Administration
Michael	Kirkedal Thomsen	German Aerospace Centre
Han Jin	Lee	KRISO
Ramin	Miraftabi	Fintraffic Vessel Traffic Services Ltd
Yu	Nemoto	Japan Coast Guard
Mikael	Olofsson	Combitech Ab/saab/navelink
Dayoung	Park	Korea Maritime Cooperation Center
Mikael	Renz	Swedish Maritime Administration-sjöfartsverket
Abas	Saidykhan	Gambia Maritime Administration
Seungweon	Yang	Gmt Co., Ltd.
Jinchao	Yu	China Maritime Safety Administration

Chair – Jillian Carson-Jackson, Nautical Institute

Vice-chair – Dennis Khoo, Maritime and Port Authority

First name	Last name	Organization
Richard	Allan	His Majesty's Coastguard - Uk Mca
Ernest	Batty	IMIS Global Ltd
Adil	Bouhifd	Ministry Of Public Works And Transport
Paul	Burton	Uk Hydrographic Office
Nicholas	Chiew	Maritime And Port Authority Of Singapore
Olimatou	Danso	Gambia Maritime Administration
Taoufik	El Bacha	Saab AB
Kaisu	Heikonen	Finnish Transport Infrastructure Agency
Hollo	Kambire	Port Autonome D'abidjan
Bu Young	Kim	KRISO
Hyouunhee	Koo	3GPP - SyncTechno Inc
Yang	Li	China Maritime Safety Administration
Jialin	Liu	China Maritime Safety Administration
Jan-hendrik	Oltmann	Federal Waterways And Shipping Administration
Michael	Pfeiffer	Danish Maritime Authority
Víctor	Pizarro	Armada de Chile
Natacha	Riendeau	Canadian Coast Guard
Dmitry	Rostopshin	Dinav Marine Oy
Christopher	Saarnak	Danish Maritime Authority
Chanock	Shin	Ministry of Oceans and Fisheries
Olli	Soininen	Fintraffic Vessel Traffic Services Ltd
Dayoung	Song	Korea Maritime Cooperation Center
Francesco	Stagira	Italian Coast Guard
James	Suffield	Maritime And Coastguard Agency

Chair – Stefan Pielmeier, Sternula AS

Vice-chair – Stefan Bober, Germany, Federal Waterways and Shipping Administration

First name	Last name	Organization
Mayumi	Arita	Japan Coast Guard
Patrick	Armstrong	US Coast Guard
Jorge	Arroyo	Us Coast Guard
Anders	Bjørnevik	Kongsberg Discovery As - Seatex
Stefan	Bober	Federal Waterways And Shipping Administration
Francesco	Borghese	Elman S.r.l.
Krzysztof	Bronk	National Institute of Telecommunications
Jean-francois	Coutu	Canadian Coast Guard
Patrick	Gallagher	Us Coast Guard
Agnes	Gaotee	Solomon Islands Maritime Authority
Axel	Hahn	German Aerospace Centre
Wing Kei	Ho	Maritime And Port Authority Of Singapore
Cafer Ozkan	Istanbullu	IMO
Daniel	Karbach	Federal Waterways And Shipping Administration
Kyungtae	Kim	Nsonesoft Co., Ltd
Lukas	Kim	Nsonesoft Co., Ltd
Younghun	Kim	Gmt Co., Ltd.
Daisuke	Kimura	Furuno Electric Co Ltd
Felix	Kong	Marine Department, Hong Kong Sar, China
Minoru	Kowaki	Furuno Electric Co Ltd
Antti	Kukkonen	Furuno Finland Oy
Attie	Labuschagne	Cml Microcircuits
Juhyoung	Lee	Gmt Co., Ltd.
Yang	Li	China Maritime Safety Administration
Johan	Lindborg	Saab AB
Marcos	Lopez Cabeceira	Gmv Aerospace And Defence
Derek	Love	Cml Microcircuits
Jose Luis	Martin Sánchez	Essp-sas
José	Mella	Armada de Chile
Yoshio	Miyadera	Japan Radio Co., Ltd

First name	Last name	Organization
Hyungjin	Moon	Nsonesoft Co., Ltd
Claire	Na	Nsonesoft Co., Ltd
Koichi	Nishimura	Tst Corporation
Hideki	Noguchi	Japan Coast Guard
Ross	Norsworthy	US Coast Guard
Magnus	Nyberg	Saab Transpondertech AB
Stefan	Pielmeier	Sternula AS
Juho	Pitkanen	Fintraffic Vessel Traffic Services Ltd
Ronald	Raulefs	German Aerospace Centre
Jochen	Ritterbusch	Federal Maritime And Hydrographic Agency
Christopher	Saarnak	Danish Maritime Authority
Jan	Safar	The General Lighthouse Authorities Of The Uk & Ireland of UK
Johnny	Schultz	Us Coast Guard
Woo-seong	Shim	KRISO
Rodolfo	Silva	Armada de Chile
Ryohei	Uemura	Arkedge Space Inc.
Jeffrey	van Gils	Ministry Of Infrastructure And Water Management
Jakob	Weibrecht	Sternula A/s
Seungweon	Yang	Gmt Co., Ltd.
Gaole	Yao	Beijing Caton Global Technology Co., Ltd.
Koichi	Yoshida	Ocean Policy Research Institute (OPRI)



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