



IALA DTEC COMMITTEE

REPORT OF THE FIFTH SESSION OF THE IALA DIGITAL TECHNOLOGIES (DTEC) COMMITTEE

29 September – 09 October 2025

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09 October 2025

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International Organization for Marine Aids to Navigation

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

The fifth session of the DTEC Committee was held from 29 September to 09 October 2025, including the physical week at IALA HQ between 29 September and 03 October, chaired by Hideki Noguchi and vice-chaired by Dennis Khoo. The Secretary for the meeting was Alisa Nechyporuk.

150 participants from 27 countries, two Sister organisations in DTEC5. 27 participants attended for the first time.

The session began with an opening plenary and the physical week on Monday, 29 September, and continued until Friday, 03 October. The Chair welcomed everybody, both old and 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, 09 October.

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

Key outputs completed included:

DTEC5	15.2.5	Revised Guideline G1191
DTEC5	15.4.3	Revised Recommendation R0144

The following liaison notes were approved:

DTEC5	15.2.2	Liaison note to PAP, ARM, and VTS regarding MRN
DTEC5	15.2.3	Liaison note to VTS, ARM, and ENG on operational IALA MCP instance
DTEC5	15.2.4	Liaison note to PAP on MCP
DTEC5	15.3.1	Liaison note to ARM, ENG, VTS on Tech Review Summary Table
DTEC5	15.3.4	Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization
DTEC5	15.3.5	Liaison note DTEC to all committees on AI Guideline G1178
DTEC5	15.3.6	Liaison note to ARM on draft Recommendation on Digitalization Marine AtoN
DTEC5	15.3.7	Liaison note to all committees on Digitalisation of Waterways Guideline

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Report of the fifth session of the IALA Digital Technologies (DTEC) Committee

1. INTRODUCTION

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The session began with an opening plenary and the physical week on Monday, 29 September, and continued until Friday, 03 October. The Chair welcomed everybody, both old and 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, 09 October.

150 participants from 27 countries, two Sister organisations in DTEC5. 27 participants attended for the first time.



1.1 Welcome from the Secretary-General

Secretary-General Francis Zachariae warmly welcomed participants to Headquarters, including those joining online, expressing hope that all had enjoyed a pleasant summer in the Northern Hemisphere and had rested well for the work ahead. He noted that the agenda is once again full of essential items and papers.

He highlighted the recent Workshop on International Mobile Telecommunication (IMT) for Marine AtoNs hosted by the Federal Waterways and Shipping Agency in Karlsruhe, thanking the Agency for its hospitality. The workshop confirmed the significant potential of IMT and emphasized IALA's role in representing AtoNs in the 6G development process. Strengthened cooperation with 3GPP has already been initiated, and the workshop report has been submitted as an input paper.

Secretary-General reported that IALA is in a strong position, with 41 Member States and a record total of 350 members. The transition from the Association to the Organization has been successfully completed, and the formal dissolution of the Association will take place on 20 November.

Francis also announced that an agreement has been finalized with the French Government to enable the purchase of new headquarters. Once the contract is signed, this will open opportunities to host meetings outside HQ from 2027 onwards.

Looking to future events, he confirmed that the next IALA Conference will be held in Mumbai, India, from November 1 to 5, 2027, while the next Symposium—likely a VTS Symposium—is tentatively scheduled for January 2029. He also reminded participants of the upcoming Sustainability Workshop in Dublin from 6–10 October.

Secretary-General 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 (DTEC5-1.2.1).

1.3 Apologies

No apologies were received. A list of participants who attended DTEC5 can be found on the IALA Dashboard for DTEC and in Annex B.

1.4 Working Arrangements

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

IALA complies with the EU General Data Protection Regulations. A list of participants, including email addresses, will be included in the report of this meeting and may also appear in other committee-related platforms. Any participant who does not wish their contact details to be shared should inform the Committee Secretary as soon as possible.

The Committee Secretary asked the following statement:

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

The IALA patent statement and licensing declaration of MS@MS by KRISO were mentioned by the Deputy Secretary-General.

The Committee Secretary gave all participants a briefing on the *Committee Working Arrangements* document and available tools. This brief included an overview of the DTEC5 Action Plan that had been agreed by the DTEC Committee Management Team (CMT) to be progressed during DTEC5 through Task Groups (TG). Each task had a deadline for expressions of interest to participate in the specified Task Group Leader (TGL) by a specific date.

The Action Plan, available on the [IALA Task Register](#), listed task items that were worked on at DTEC4.

The deadline for submitting documents to the silent approval procedure was set to 07 October 2025, 12:00 UTC, for all the documents due to these [deadlines](#).

2. REVIEW OF ACTION ITEMS FROM DTEC4

The Committee Secretary confirmed that all Secretariat actions from DTEC4 were completed (input paper DTEC5-2.1.1).

3. REPORTS FROM OTHER BODIES

3.1 IALA

3.1.1 IALA Council

Minsu Jeon, IALA Technical Director, provided a summary of key outcomes from the second session of the Council, held from 9 – 13 June 2025 in Nice, France, alongside the UN Ocean Conference. This marked the first full Council meeting since the Organisation's transition to intergovernmental status.

The Council formally approved the revised Committee work programme. All proposed updates and progress reports submitted by the committees were endorsed, with many of the topics scheduled for further discussion during the current PAP week.

One notable decision was the establishment of a drafting group tasked with preparing a policy on co-sponsoring documents with other intergovernmental organisations. This initiative aims to improve clarity and consistency in how external papers are shared and supported. The matter was addressed further under agenda item 3.1.1.

The Council also approved a wide range of DTEC Committee technical documents submitted by the committees. Highlights included:

- G1128, Edition 1.7 – Specification of electronic Navigation Technical Services
- G1190, Edition 1.0 – Maritime Service Registry Technical Specification
- G1192, Edition 1.0 – VHF Data Exchange System authentication
- G1193, Edition 1.0 – VHF Data Exchange System signal measurement

In addition to approving these documents, the Council noted progress reports on future developments of the S-200 Product Specifications and associated technical services.

A further proposal from the ENG Committee was accepted regarding the Heritage Lighthouse of the Year award. Given the growing number of nominations, the revised process now limits Member States to one nomination per year. The period will run from 1 October to 30 September, with structured criteria covering heritage significance, conservation, public access, and global promotion. Nominations will be reviewed by the ENG Working Group, then the ENG Committee, before final approval by Council.

Finally, the Council approved several liaison arrangements with external bodies, including:

- To IHO on S-125 Product Specification.
- To RTCM on Standard 10402.n.
- To IEC on S-421 schema and SECOM OpenAPI redistribution.
- Information paper to IMO MSC on VHF Data Exchange System for shore infrastructure.

3.1.2 IALA Policy Advisory Panel (PAP)

Minsu Jeon reported on the 58th session of the PAP, held at IALA Headquarters from September 9 to 12. The Panel agreed that IALA's strategic vision, along with its drivers and trends, should be refreshed to reflect the evolving operational and technical context. A dedicated workshop will be organised, and the review is expected to result in concrete recommendations at PAP 60 in February 2026.

The session also confirmed the timeline for the 2027–2030 Work Programme and Awards, with committees preparing draft contributions throughout 2026 and the Secretariat consolidating them for review in early 2027. On technical services and product specifications, the Panel discussed guidance for S-200 and S-201 product specifications as well as Guideline 1128, and agreed on a harmonised way forward for these deliverables.

With respect to S-230 Application Specific Messages, PAP endorsed further intersessional work, supported by a focused technical review. To facilitate this, ARM and DTEC will convene a joint inter-committee meeting during the next session. Finally, the Panel endorsed an updated out-of-session co-sponsorship policy and supported further development of the IALA Work Programme Management Tool, previously known as the Task Register, to improve efficiency and transparency.

In conclusion, the Panel noted the progress achieved and encouraged continued dialogue, particularly on the role of S-230 ASM within the broader S-200 series.

The committees are advancing work on several S-100 and S-200 product specifications. In particular, VTS is progressing with S-210 and S-211 towards S-2124 VTS communications, while the ENG Committee has developed the S-240 series, such as for radio navigation stations. It was also noted that IMO is moving towards the adoption of S-103, expected in 2029.

Given the technical significance of these developments, and especially the role of Working Group 1, the Secretariat recalled that PAP agreed to hold an inter-committee meeting on the matter. DTEC was requested to assign a coordinator, in coordination with ARM, to support this process.

3.1.3 WWA updates

Jaime Alvarez, Technical Officer of IALA WWA, noted that the Academy's mission is to ensure that all coastal States can meet their SOLAS Chapter V obligations, build capacity, and demonstrate conformance with IALA Standards, supporting the strategic goal of a sustainable and efficient global network of marine navigation.

During 2025, activities focused on education, training, and capacity-building missions in regions such as Indonesia, Iraq, Sri Lanka, Honduras, the Dominican Republic, and others. Training was delivered in multiple languages—English, French, Spanish, and Indonesian—covering subjects such as risk management, AtoN management, IRAP, and S-200 data production. Cooperation with IMO and regional hydrographic commissions also remained a strong component of the work.

Looking ahead to 2026, the Academy plans further missions in Gambia, Iraq, the Philippines, Vanuatu, and Timor-Leste, prioritising archipelagic and IMSAS-target countries. Training courses will continue in various regions and languages, with a focus on resilient PNT, digitalisation, and maritime informatics. Collaboration with the technical committees will be strengthened, including updates to the model courses (e.g., L1.4) and the development of new guidelines and skills for the digital environment.

The Academy also highlighted its role in linking Spanish- and Portuguese-speaking regions with IALA's technical work, with further regional meetings planned in Mexico in 2026. Closer cooperation with DTEC is sought to align digital skills training with committee expertise and ongoing tasks.

3.2 Digital@Sea

Minsu Jeon reported that the Digital@Sea initiative, a successor to the well-known e-Navigation Underway, is being advanced in cooperation with IALA, DMA, the Korea Coast Guard, the Canadian Coast Guard, and RTCM. In April 2025, a Digital@Sea North America event was held in Florida. The next event, Digital@Sea Asia-Pacific, will take place alongside a capacity-building seminar from 20–24 October 2025 in Seoul, Korea.

3.3 IHO

Minsu Jeon reported on recent activities with the IHO, with a focus on harmonisation, product development, and technical alignment.

He noted that cooperation with IHO continues across several areas. A key example is the joint work on S-125 Marine Aids to Navigation Information, led through ARM, with updates shared at the IHO HSSC meeting in May. IHO will also participate in upcoming ARM meetings. Collaboration extends to the GI Registry, where IALA terms and features are being registered, and to training, with IHO providing lectures in IALA training courses. In addition,

the two organizations are preparing their third joint workshop, tentatively planned for early September next year in Istanbul.

3.4 IMO

Hideki Noguchi provided an update on recent developments within the IMO, drawing on outcomes from MSC110, NCSR12, and related intersessional meetings.

MSC 110 approved the draft amendment to SOLAS Chapter V introducing VDES, together with performance standards for VDES shipborne equipment and guidelines on VDES operations. Formal adoption is expected at MSC 111 in May 2026, with entry into force on 1 January 2028.

At NCSR 12, work began on guidelines for IP-based connectivity under the S-100 framework, with a correspondence group established for NCSR 13. Members interested are encouraged to join via their IMO delegations. NCSR 12 also amended Resolution A.1046(27) on worldwide radionavigation services to include space-based augmentation systems, and future work will focus on performance standards for SBAS shipborne receivers.

3.5 ITU

Stefan Bober provided an update on the May session of ITU WP5B, which continued work on revisions to Recommendation ITU-R M.2092-1, expected to be finalized this autumn and published in spring 2026. Similarly, the revision of ITU-R M.1371-5 (AIS) is on track, with IALA's input on navigation message 28 accepted, and related technical issues resolved.

Work also continues on a new report assessing the potential introduction of R-Mode in VDES, now a priority given IMO's new work item. In addition, a revised Recommendation ITU-R M.585-9 on identity assignment and use in the maritime mobile service has been prepared, with implications for AIS messages 21 and 28. Further studies are ongoing on NAVDAT, DSC, AMRD, and the use of Appendix 18.

3.6 IEC

Stefan Bobber reported that IEC WG 15 is progressing work on standards for AIS and VDES. The standard for VDES shipborne mobile stations, initially planned for completion this year, has been delayed pending publication of ITU-R M.2092-2 and IMO performance standards. Work has begun on a draft standard for VDES shore stations, with formal development expected to start next year. IEC is also considering a simplified "Class C" VDES mobile station. Following updates to ITU-R M.1371-5, IEC will need to revise its related AIS standards. Development of a VDES test standard is also underway, and participation from interested parties is encouraged.

3.7 ISO

Minsu Jeon reported on an overview of ongoing engagement with ISO, noting that within ISO, the most relevant work for IALA is under TC 8/SC 11, which addresses administrative and operational data. Key standards include the ISO 28005 series on electronic port clearance and ship–shore reporting, as well as standards for electronic logbooks, maintenance systems, and onboard software logging. These links directly to the IMO compendium and protocol optimization, supporting consistent and reliable information exchange between ships, port reporting centers, and e-navigation services.

3.8 ISO-IEC JTC 1

Jin Hyoung Park reported on the ISO-IEC 17th plenary meeting of IoT and TTA Twin/JTC1, which was held in Montreal from 2–6 June. Key outcomes included circulation of ISO/IEC CD 3188 on Digital Twin Reference Architecture, relevant for DTEC Working Group 2, and approval of a new preliminary work item on a Usage Guide for this architecture. A new work program on Digital Twin information exchange requirements was also launched. Work continues on the IoT reference architecture, while maritime-related projects under Working Group 7 focus

on underwater lighting management and shipborne IoT systems. DTEC members are invited to contribute new maritime applications linked to Digital Twin and IoT. The next plenary will take place in Berlin, 24–28 November.

3.9 RTCM

Jonny Schultz, a participant from the US Coast Guard, reported that RTCM continues work in SC 139 on the MMMS system and has initiated a new Special Committee 140 focused on dual-constellation, multi-frequency GNSS. These represent the main ongoing activities relevant to the committee, while other RTCM work is proceeding in parallel.

3.10 3GPP

Hyunhee Koo (3GPP representative at SyncTechno Inc.) provided the 3GPP update on three agenda items: 6G timeline and 6G studies.

Regarding the 6G timeline, she noted that there has been no change since the update shared at the DTEC4 meeting. She explained that 3GPP plans to review the progress of 6G standardization at its plenary meeting in December, with the possibility of updating the timeline then.

She also reported that 3GPP currently has six active studies focused on 6G. Among these, she highlighted two key studies. The first, carried out by 3GPP SA Working Group 1, is examining 6G use cases and service requirements. This study is expected to conclude early next year, after which formal work on developing the Stage 1 specification will begin. The second, initiated by the 3GPP RAN plenary, is studying 6G scenarios and requirements related to radio interfaces.

These two studies are expected to be relevant for Marine AtoN use cases under the draft IALA Guideline within DTEC Task 6.2.1. In this context, contributions based on the draft IALA Guideline currently being developed by the IALA DTEC Task Group on IMT-2030 could be considered for input to 3GPP, provided the Task Group's work is completed within the 3GPP timeline.

3.11 VDES Alliance

Stefan Pielmeier, Chair of WG3, provided an update on VDES Alliance. He noted that the VDES Alliance currently has 19 members, including 18 contributing and one observing member. Two guidelines have been published, with two more in finalization, and all are publicly accessible on the Alliance's homepage. Cooperation with IALA has been established, and inputs from the Alliance are planned for the next DTEC meeting to support ongoing guideline work. The VDES Alliance manages the registration of three satellites, offering coordination of satellite and network IDs. Its strategic focus remains on ensuring interoperability between devices—ship-to-ship, ship-to-shore, and ship-to-satellite—through practical testing, particularly where IEC test standards are still developing. The Alliance also promotes VDES as a mature technology for applications such as S-100 over VDES, demonstrating its capabilities at IMO events. The Alliance continues to welcome new members and coordinates with similar groups, including in Japan, to avoid duplication of work.

3.12 MCP updates

Thomas Christensen from AIVeNautics reported that next week, the Digital Incubator Initiative will host an online seminar focused on SECOM and MCP technologies in the maritime domain. The seminar will cover both general concepts and practical implementation of technical services based on these technologies. The target audience includes IT professionals and practitioners involved in implementing such services. Information on the program and participation is available on the IALA website, making it easy for interested parties to join.

4. PRESENTATIONS

All presentations given at DTEC5 can be found on the [fileshare](#). The following presentations were given at DTEC5:

- 4.1 MS@MS technology (Dr. Wooseong Shim, KRISO)
- 4.2 Digitalization of VHF voice communication (KONISHI Takahiko, JCG)
- 4.3 Sharing of Singapore Maritime Digital Twin Developments (Luthfi Bafana, MPA)
- 4.4 Presentation on Large Language Models: Applications and Opportunities for VTS
(Dr Zhao Liangbin and Dr Fu Xiuju, A-STAR)
- 4.5 Communication Performance Evaluation of VDES in Tokyo Bay (Koichi Nishimura, TST Corporation)
- 4.6 Overview of the Nelson project (Olli Soininen, Fintraffic)

During the physical week, additional presentations on MMS, VDES, and the Maritime Connectivity Platform were given for all Working groups.

During the Closing of the physical week, Jeffrey van Gils from the Netherlands' Ministry of Infrastructure and Water Management provided a presentation on digital VHF radios. The link to the animation part of the presentation: https://www.youtube.com/watch?v=W97T_8JXBXA

The DTEC dashboard contains recordings of the presentations and the results of the internal analysis conducted during the session.

5. WORK PROGRAMME MANAGEMENT

5.1 Work Programme 2025 – 2027, Task Plan, Task Register

The DTEC Committee Management Team updated the Task plan before the DTEC5 session. The Chair and Vice-Chair updated the Task Plan and Task Register using the online task management tool, and the committee noted these updates. The current status of tasks can be found [here](#).

5.2 Action Plan for DTEC5

The [DTEC5 Action Plan](#), which can be found on the IALA Task Register, was noted by the Committee Secretary.

6. REVIEW OF INPUT PAPERS

The input papers for DTEC5 consisted of new papers and working papers from the previous session. The input paper list (DTEC5-6.0.1) includes the working papers from DTEC4.

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.

7. 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 / Jin Hyoun Park
WG2 – Emerging Digital Technologies	Jillian Carson-Jackson / Olli Soininen
WG3 – Digital Communication Systems	Stefan Pielmeier / Stefan Bober

8. WORKING GROUP 1 – DIGITAL INFORMATION SYSTEM (WG1)

During the 5th session of the DTEC committee, the WG1 – Digital Information Systems tackled several tasks related to digital infrastructures and refined Guideline G1191.

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

Over the course of the week, the WG held focused sessions and concentrated on the following:

- Developing the concepts and operational issues of the Maritime Connectivity Platform (MCP) by discussion of G1128 and updating G1191.
- Maritime Resource Names (MRN).
- IP-based communication.
- Product Specification on Disaster Management.

Close to 26 individual participants attended one or more task group meetings formed under Working Group 1 – Digital Information Systems (WG1) during DTEC5.

The Work Plan was introduced, reviewed, and adopted by Working Group 1. Additionally, the WG reviewed the Task register for the DTEC WG1.

Throughout the physical session of the week, the WG focused on the following tasks:

- DTEC 7.1.5 Review G1128 Specification of e-Navigation technical services.
- DTEC 7.1.14 Defining IALAs' Role in MCP Trust Infrastructure.
- DTEC 7.1.15 Development of Product Specification for Disaster Management.
- DTEC 7.1.17 Update G1191 Maritime Service Registry.
- DTEC 7.2.1 Task on Maritime Resource Names (MRN) (Contribute to the standardisation efforts with respect to the requirements of the S-100 domain experts).
- Input paper to NCSR about IP Connectivity.

8.1 Task 7.1.5 Review G1128 Specification of e-Navigation technical services

Task group leader: Juho Pitkänen

Comments:

Based on practical experience, implementing parties have identified necessary updates to G1128, which will be discussed at DTEC6 or DTEC7 with a primary focus on interoperability and defining test cases.

The WG explored adopting Git-based tools and repositories for document development and operational workflows, noting that such platforms could complement the IALA website. We encourage the IALA Secretariat to implement GIT infrastructure to streamline collaborative document work, versioning, issue management, and other member contributions to committee inputs and to deliver technical artifacts.

Action item(s):

IALA Members are encouraged to prepare an input paper with the proposals for updates to G1128 for DTEC6.

8.2 Task 7.1.14 Defining IALAs' Role in MCP Trust Infrastructure (Consider developing a Recommendation for digital platforms)

Task group leader: Thomas Christiansen

Input paper:

6.2.1.1	Proposal to Establish an Operational MCP Instance under IALA Custodianship
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Comments:

The WG discussed the pros and cons of IALA operating its own MCP Instance (covering MIR and MSR). IHO plans to implement an MCP Instance, and there was a discussion to join forces with IHO.

Key outcomes:

- Estimated the efforts required by IALA.
- Agreed to involve the other committees and PAP in the discussion.
- Defined that the IALA MCP Instance will include the MCP components MIR and MSR in accordance with IALA publications, with MMS considered in future phases.
- Founded a task group to conduct a feasibility study, supported by members, to identify and answer open operational questions of an IALA MCP.

The following should be noted:

- The IALA MCP instance can be used to facilitate the operation of technical services for the maritime services by IALA Members in the context of AtoNs and VTS.
- It supports users in making use of the technical services for the maritime services.
- It will be an incubator for implementing technical services and can provide experiences and support for members
- MIR is a Public Key Infrastructure (PKI) implementation and can serve as the VDES Public Key Infrastructure.
- The MIR and MSR can be used for operating MMS by other service providers.
- IALA will be a trusted body to provide a list of official member states' services.
- IALA can make sure that the services registered in the Registries pass the compliance tests.
- IALA MIR will include a Root CA and intermediate CA.

The feasibility study shall scope:

- Liability issues for IALA.
- Operational Model.

- Financial implications / business model.

WG1 wrote a liaison note to the ARM, ENG, and VTS committees to inform them about this undertaking and provide advice for additional questions to be examined in the feasibility study.

WG1 wrote a liaison note to PAP to provide advice for additional open questions to be addressed by the feasibility study.

The WG1 established an intersessional task group under the lead of Thomas Christensen to prepare a list of topics and questions to be addressed by a feasibility study to prepare the decision whether and how IALA shall operate an MCP instance.

Output:

- DTEC5-15.2.2 Liaison Note to PAP on IALA MCP Instance
- DTEC5-15.2.3 Liaison Note to VTS, ARM, ENG on IALA MCP Instance

Action item(s):

The **Secretariat** is requested to forward the output documents DTEC5-15.2.2 Liaison Note on IALA MCP Instance to PAP for consideration.

The **Secretariat** is requested to forward the output documents, DTEC5-15.2.3 Liaison Note to VTS, ARM, and ENG on the IALA MCP Instance, to all committees for consideration.

Committee participants are invited to join the intersessional task group meeting to progress the work on the IALA MCP Instance on 30 October 2025 at 08:00 UTC, and are encouraged to express interest in this task by contacting Thomas Christiansen (thomas@dmc.international).

8.3 Task 7.1.15 Development of Product Specification for Disaster Management

Task group leader: CDR. Masatora Ono

Input papers:

6.2.1.3	Contribution to the development of a new Product Specification on disaster management
6.2.1.3.1	Annex to the Input PS on Disaster Management

Comments:

Masatora Ono introduced the input presentation to DTEC5. The WG noted and discussed the submission. It was questioned whether a new PS shall be created or if this input can be used as input for S-124 or S-212. The VTS committee just started a task group for “VTS information services,” and the WG proposed to bring this contribution to this task group.

According to the input document, the focus of a Product Specification on disaster management is on VTS information exchange, and WG1 closes the task. VTS is already addressing VTS information exchange in a task group. If it turned out that the application of such a PS is beyond the scope of VTS, the task shall be reopened.

Action item(s):

IALA Members are encouraged to contribute to the VTS committee intersessional work group on VTS information services to address disaster management issues.

8.4 Task 7.1.17 Update G1191 Maritime Service Registry

Task group leader: Juho Pitkänen

Input papers:

6.2.1.2	Proposed updates to G1191
6.2.1.2.1	Draft Guideline G1191

Comments:

The WG made editorial and technical adjustments to ensure the guideline meets the needs of implementers.

The WG made editorial and technical adjustments by:

- adjusting the usage of callback URL and Transactions IDs during communication with an MSR;
- MSR stays connected during communication;
- changed the uptime requirement of an MSR from 99.9% to 99.5% of time;
- change the cardinality of search retrievals for Searching MSR from 0..1 to 0..n;
- replace parameter name searchParameter by SearchFilterObject.

Output:

- DTEC5-15.2.5 Revised Guideline G1191 Ed1.1

Action item(s):

The **Secretariat** is requested to forward the output document DTEC5-15.2.5 Revised Guideline G1191 Ed1.1 to the Council for approval.

8.5 Task 7.2.1 Task on Maritime Resource Names (MRN) (Contribute to the standardization efforts with respect to the requirements of the S-100 domain experts)

Task group leader: Axel Hahn

Input papers:

6.2.1.4	Report of the MRN task group
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Comments:

The WG reviewed and discussed the MRN Task Group's report and appreciates the progress achieved.

Referencing the DTEC4 output, the Working Group requests that responsibility for MRN remain with DTEC. Originally introduced to manage identities within the Maritime Connectivity Platform (MCP), the MRN concept has since been widely debated and adopted for identity management in frameworks such as S-100. IALA holds a specific role in governing OID namespaces.

DTEC recognizes that MRN and its management have broad applications both within IALA and across the wider shipping domain, not limited to AtoNs. Because of this extensive scope, DTEC4 already recommended that MRN work stay under DTEC's list of tasks.

Naturally, some aspects of MRN are application-specific—for example, the potential establishment of a unified register for AtoN IDs, which shall be handled by experts in other committees.

Key outcomes:

- Liaison note to other committee to confirm DTEC's responsibility for MRN guidelines.

Output:

- DTEC5-15.2.2 Liaison Note to VTS, ARM, PAP on MRN

Action item(s):

The **Secretariat** is requested to forward the output document DTEC5-15.2.2 Liaison Note on MRN to ARM and VTS for their consideration and to PAP for decision.

8.6 Input paper to NCSR about IP Connectivity

Task group leader: Mikael Renz and Jin H. Park

Comments:

The correspondence group highlighted the need to distinguish standardization of SECOM and MCP from operational issues. Referencing IMO work, the WG recommends:

- Recognizing the positive impact of IP-based connectivity on shipping.
- Ensuring secure communication via MIR and Technical Service Specifications.
- Supporting SECOM and MCP as interoperable, standardized solutions.

Key outcomes:

The input paper to IMO/NCSR highlighted that SECOM/MCP offers a highly suitable standardization approach for supporting IP-based communication and ensuring interoperability. Leveraging the MCP suite of IALA guidelines and SECOM will foster the implementation of Maritime Services in the context of e-navigation.

Output:

- DTEC5-15.2.1 Input Paper to NCSR13

Action item(s):

The **Secretariat** is requested to forward the output document DTEC5-15.2.1 Input Paper to NCSR13 to the Council for approval.

9. WORKING GROUP 2 – EMERGING DIGITAL TECHNOLOGIES (WG2)

During the 5th session of the DTEC committee, the WG2 – Emerging Digital Technologies worked on several tasks related to emerging digital technologies.

Referencing Document(s): DTEC 05 – WG2 overview-vs2a (fileshare)

The proposed working schedule was introduced, reviewed, and adopted by the WG.

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:

- DTEC 1.2.1 – Providing guidance on the process to implement developments of innovation.
- DTEC 1.2.4 – Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS).
- DTEC-1.2.5 – Review of IALA G1178 – AI / ML Guideline.
- DTEC-5.1.2 - Training on the implementation of digital solutions.
- DTEC 6.2.1 – Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN.
- DTEC 7.1.1 – Develop a discussion paper on digitalisation in the scope of IALA.

- DTEC 7.1.2 – Develop a guideline on the developments and implementation of the digitalisation of waterways.
- DTEC 7.2.2 – Consider guidance on the implementation of S-100 from AtoN Authority Perspective.
- DTEC 8.3.1 – Review of new / candidate technologies for use in the IALA domain.

9.1 Task 1.2.1 Providing guidance on the process to implement the developments of innovation

Task group leader: Jillian Carson-Jackson

Input papers:

DTEC5	late	Innovation to Implementation
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Comments:

The group noted that, due to unexpected circumstances, the document will not be finalized at this meeting.

The draft guideline was reviewed in detail and will be carried forward as a working document. The document is now quite mature, and it is planned to be finalized at DTEC6.

Output:

DTEC5-15.5.2 Draft guideline implementation of innovation

Action item(s):

IALA Members are requested to review the draft guideline on the implementation of innovation and provide input to DTEC6, noting that the document is scheduled for completion.

The **Secretariat** is requested to forward the DTEC5-15.5.2 Draft Guideline for Innovation Implementation as a working document to DTEC6.

9.2 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: Jillian Carson-Jackson

Input papers:

DTEC5	6.2.2.1	LN to all Committees Regarding the Draft Recommendation on Digitalisation of AtoN
DTEC5	6.2.2.1.1	Draft Recommendation on Digitalization of AtoN and Services for Vessels of Varying Levels of Autonomy

Comments:

It was noted that ongoing work on the draft guideline for the provision of marine AtoN for autonomous vehicle/vessel operations had been put on hold until ARM had finished reviewing the documents.

The input papers were reviewed. It was noted that there could be an overlap in the concepts included in the draft recommendation and IALA R1019. A liaison note was prepared, noting the results of the discussion and inviting ARM to take into consideration revising R1019 in lieu of developing a new recommendation.

In addition, DTEC highlighted that consolidated documentation would be useful to IALA members. This could be in the form of a single guideline, with input from ARM, DTEC, ENG, and VTS.

Output:

DTEC5-15.3.6 Liaison note to ARM on draft Recommendation on Digitalization Marine AtoN

Action item(s):

The **Secretariat** is asked to forward the working paper DTEC5-15.3.6 Liaison note on the draft Recommendation on Digitalization of Marine AtoN to ARM.

9.3 Task 1.2.5 Review of IALA G1178 – AI / ML Guideline

Task group leader: Olaf Christians

Input papers:

DTEC5	6.2.2.6	Information Paper on Large Language Models Application and Opportunities for VTS
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Comments:

The Guideline G1178 Introduction to Artificial Intelligence (AI) from an IALA Perspective (Edition 1.0, December 2022) was reviewed, noting comments from DTEC4

The existing guideline provides a useful initial framework, addressing fundamental AI concepts, risks such as bias, transparency, and accuracy, and proposing an initial audit regime. However, it is clear that since 2022, artificial intelligence has advanced at an unprecedented pace, particularly in areas such as generative AI, explainable AI, and data-driven decision support for maritime applications

Discussion emphasised the pace of change and the breadth of new use cases—ranging from computer vision for vessel tracking and anomaly detection, to natural language processing for VHF communications support, to predictive analytics for traffic optimisation. This means that a simple update of the existing document is insufficient. Instead, a new version of G1178 will be drafted.

Key outcomes include:

1. The working group agreed that G1178 will undergo a complete rewrite rather than a simple revision.
2. The new guideline will reflect current technological trends, collect practical use cases across IALA domains, and address key risks such as trust, liability, data protection, and explainability.
3. The new guideline will also introduce an updated audit and assurance framework and highlight the specific data challenges faced in the maritime sector.

Input from all IALA Committees will be sought to ensure comprehensive coverage and relevance for members and stakeholders.

Action item(s):

Committee participants are invited to join the intersessional task group meeting to progress the work on the Guideline G1178 (Task DTEC-1.2.5), and are encouraged to express interest in this work by contacting Olaf Christian (olaf.christians@airbus.com) before 1 Dec 2024.

The Secretariat is asked to forward DTEC5-15.3.5 Liaison note to all committees on AI Guideline G1178, to ENG, ARM, and VTS for consideration.

9.4 Task 5.1.2 Training on the implementation of digital solutions

Task group leader: Jillian Carson-Jackson

Input papers:

DTEC5	6.2.2.11	Input paper on Training in Implementation of Digital Solutions
DTEC5	6.2.2.11.1	Draft C1004 Global navigation satellite systems and e-navigation

Comments:

Jaime Alvarez from IALA WWA introduced the input and led a review of the existing draft C1004 model course to complete the task DTEC-5.1.2.

A number of amendments were proposed, which will be further developed by the IALA WWA. Amendments to the course content were discussed and refined based on expert input from the group, ensuring alignment with current trends in e-Navigation and communications. The Working Group agreed that this initiative is a crucial step in addressing the digital skills gap and supporting Member States in the practical implementation of modern AtoN and the digitalization of maritime services.

9.5 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:

DTEC5	6.2.2.4	Draft IALA Guideline on Marine AtoN over IMT-2030
DTEC5		Task DTEC-6.2.1-TG IMT-2030 agenda and schedule with detailed contents
DTEC5		Task DTEC-6.2.1-Report of ITG on IMT-2030
DTEC5		Report of 3GPP update

Comments:

The draft Guideline on Marine AtoN over IMT-2030 was reviewed, noting progress in developing maritime use cases and digital services. Further development of the draft Guideline was agreed to be handled via email threads after DTEC5, to complete the draft Guideline by the next DTEC6. It is expected to continue developing as the document as a working document (a 'living' document) as the standardization of IMT-2030 progresses.

The Karlsruhe Workshop underlined the need for IALA to actively contribute to 6G development, focusing on MASS, ship-to-x communication, resilient PNT, and digital AtoN monitoring.

The group agreed that continued work on the Guideline, in close liaison with ITU-R and 3GPP, and alignment with existing IALA frameworks are essential next steps. The group agreed on the importance of pursuing IALA's membership in the 3GPP MRP in a timely manner. This would be in accordance with the administrative procedures of both IALA and 3GPP, with the aim of introducing IALA at the 3GPP PCG meeting in November 2025.

In addition, Annex F of the Karlsruhe workshop report was reviewed, and it was noted that further discussion is needed to determine how it should be integrated into the draft IALA Guideline on Marine AtoN over IMT-2030, within the scope and objectives of Task DTEC6.2.1.

Under any other business, it was reported that the task group leader would participate in the ITU-R WP5D 50 meeting, to be held from October 7 to 16, 2025, as an IALA delegate.

Key outcomes include:

Agreement to continue work on the document through the intersessional activity.

Action item(s):

Committee participants are invited to send an email to the task group leader, H Koo (koo@synctechno.com), by 31 October 2025 to join the correspondence group for the intersessional work on the task DTEC-6.2.1 on developing use cases for maritime in IMT-2030 and on discussing how to integrate Annex F of the Karlsruhe workshop report into the drafting of the IALA Guideline on IMT-2030, respectively.

The **Secretariat** is asked to follow up on the necessary procedures with the aim of introducing IALA at the 3GPP PCG meeting in November.

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

Task group leader: Nicholas Chiew

Input papers:

DTEC5	6.2.2.2	Liaison note on IALA Digitalisation Discussion Paper
DTEC5	6.2.2.3	Liaison note to DTEC Discussion on Digitalization
DTEC5	6.2.2.7	Progress Update for Task to Develop Discussion Paper on Digitalization in the scope of IALA
DTEC5	6.2.2.15	Liaison note to DTEC and ARM on draft Recommendation on digitalization of Marine Aids to Navigation
DTEC5	6.2.2.16	LN to DTEC - VTS response on Discussion on Digitalization
DTEC5	15.5.6	Input Paper on Progress Update for Task on Developing a Discussion Paper on Digitalisation in the Scope of IALA

Working Papers:

DTEC5-15.5.3 Progress Update – Developing a discussion paper on digitalization in the scope of IALA

Comments:

The Task Group Leader presented the input paper DTEC5-6.2.2.7.

The working group reviewed the progress updates from the intersessional meeting held in September 2025 and continues to make good progress at DTEC5.

At DTEC5, the working group continued its work on the draft discussion paper and produced the 1st draft of the discussion paper titled “Vision Towards Digitalization in the IALA Domain”. The key developments include the proposed IALA digitalization vision statement, the proposed IALA digitalization strategies, discussions, and categorization of IALA publications with respect to the various identified maritime digital technologies in the IALA domain.

To further the developments, it is requested to forward the draft discussion paper to ARM, VTS, and ENG for comments and inputs. The work is on track to be completed by DTEC 7.

Key outcomes include:

- A Liaison note will be forwarded to ARM, VTS, and ENG for inputs and comments on the draft discussion paper.

Output:

DTEC-15.3.4 Draft Discussion Paper On IALA Vision Towards Digitalization - LN to IALA Committees

Action item(s):

The **Secretariat** is requested to forward DTEC5-15.3.4 Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization to all committees.

The **Secretariat** is requested to forward the working paper DTEC5-15.5.3 Developing a Discussion Paper on Digitalisation in the Scope of IALA (Task DTEC 7.1.1) to DTEC6 for further review.

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

Task group leader: Kaisu Heikoinen

Input papers:

DTEC5	6.2.2.5	Report on Task DTEC-7.1.2 Digitalization of waterways
DTEC5	6.2.2.5.1	Draft Guideline on Digitalization of waterways
DTEC5	6.2.2.5.2	Draft Liaison note DTEC to all committees on Digitalisation of Waterways Guideline

Comments:

The progress on Task 7.1.2 was reviewed, noting the substantial advances made since DTEC4, in particular:

- incorporating input on connectivity;
- cybersecurity;
- simulation tools;
- restructuring the guideline to emphasize best practices in digital twin development.

Participants acknowledged that further work was still required, including completing the best practice checklist, updating figures for the maritime domain, and elaborating on the guidance on the architecture framework. The session concluded that the guideline was on track for finalization at DTEC7, with members invited to provide additional input.

Key outcomes include:

The work will continue intersessionally. The intersessional meetings will be announced in the Committee Dashboard Calendar with a link to the latest version of the draft Guideline. The meetings will be held on:

- 6th November 2025 at 09:00 – 10:30 UTC (intercommittee meeting).
- 5th February 2026 at 09:00 – 10:30 UTC (Task Group meeting).

Output:

- DTEC5-15.3.7 Liaison note to all committees on Digitalisation of Waterways Guideline v2.0
- DTEC5-15.3.7.1 Draft Guideline on Digitalization of waterways

Action item(s):

The **Secretariat** is requested to forward DTEC5-15.3.7 Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization and DTEC5-15.3.7.1 DTEC5-15.3.7.1 Draft Guideline on Digitalization of waterways to all committees.

The **Secretariat** is requested to forward the working paper DTEC5-15.5.5 Draft Guideline on Digitalization of waterways (Task DTEC 7.1.2) to DTEC6 for further review.

9.8 Task 7.2.2 Consider guidance on the implementation of S-100 from the AtoN Authority Perspective

Task group leader: Jan-Henrik Oltmann

Input papers:

DTEC5	6.2.2.9	Report on the on IMT Workshop for Marine AtoNs, September 2025, Germany
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Comments:

The working group discussed the background of S-100 services. The document trail from several IMO instruments, ranging from circulars to resolutions, forms the basis for the requirements placed on authorities to implement maritime services. According to the current IMO framework, ships will be able to use S-100 from 2026, and the use of S-100 will become mandatory for newbuilds from 2029.

The group identified a potential need for an IALA Guideline to support shore authorities in implementing S-100 services. It was further noted that there is a need to establish a task to address cooperation with IMT-2030.

The report from the recent IALA IMT Workshop was also reviewed and discussed.

Key outcomes include:

- Strategic importance: IMT-2020/2030 (5G/6G) confirmed as essential IP-supportive carriers for Maritime Services and S-100 connectivity.
- IALA role: WG2 endorsed IALA's leading role in representing maritime/AtoN needs in 5G/6G development and standardization.
- Engagement: Strong need for liaison with 3GPP/ETSI, IMO, ITU to integrate maritime requirements into future IMT standards.
- New task: WG2 agreed on the need for a dedicated task to advance IMT family implementation in the maritime domain.

Output:

Output documents were developed and reviewed:

- DTEC5-15.3.2 – New Task proposal IMT-Family Application to Maritime
- DTEC5-15.3.3 Information paper to IMO NCSR of IALA Workshop on International Mobile Telecommunication (IMT) for Marine Aids to Navigation

Action item(s):

The **Secretariat** is requested to forward DTEC5-15.3.3 Information paper of IALA Workshop on International Mobile Telecommunication (IMT) for Marine Aids to Navigation to IMO NCSR.

The **Secretariat** is requested for review DTEC5-15.3.2 – New Task Proposal IMT-Family Application to Maritime (within the domain of IALA) and confirm the next steps for action on the new task proposal.

9.9 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: Jillian Carson-Jackson

Reviewed documents:

DTEC5	6.2.2.8	MS@MS Technology Demonstration	KRISO
DTEC5	6.2.2.10	DanPilot's Remote Pilotage initiative	Secretariat
DTEC5	6.2.2.10.1	DanPilot - Remote Pilotage initiative correspondence	DanPilot
DTEC5	6.2.2.10.2	IMPA comments on Danpilot's Remote Pilotage Initiative	IMPA
DTEC5	6.2.2.13	Input paper on Galileo OSNMA and VDES	GSC / EUSPA
DTEC5	6.2.2.14	Digital Compliance Solutions (DCS) for Net Zero Shipping	ALLFORLAND, UIPA

9.9.1 DTEC-8.3.1 Ongoing Review of Technologies

Reviewed documents:

- Emerging Techn (Qualcomm - 5G-NR Positioning)
- Summary Note - New Technologies Reviewed-DTEC05
- SADRMT-status of review-DTEC05

Comments:

The review of three candidate technologies and supporting documents has been completed in accordance with the IALA G1153 review process.

- QUALCOMM 5G-NR Positioning (may have specific interest for ENG)
- SADRMT (Ship Air Draft Remote Measurement Technology) (may have specific interest for VTS)
- Metal Wave Radio Free communication technology (MS@MS) (may have specific interest for ARM).

The reviews of these technologies are now considered complete.

As a related activity, the 'Candidate Technology Tracker' was updated, and all completed documents were placed on the file share.

To facilitate access to the summary of technology reviews, a folder is located to the parent folder of the Committee File Share. Within the folder there are sub-folders for each technology, including the detailed review and related documents. In addition, 'parent' of the folder contains the Candidate Technology Tracker Summary tables, as updated at each DTEC meeting. (Figures 1 and 2 refer)

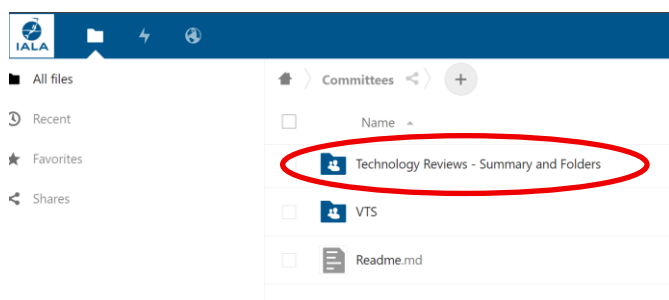


Figure 1 – Location of the Technology Reviews

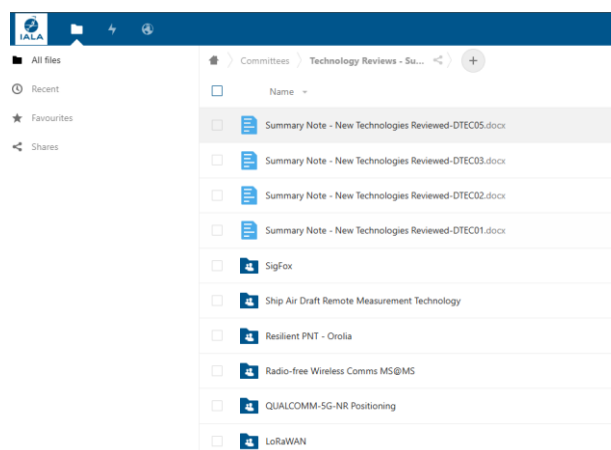


Figure 2 – Contents of the Technology Review Summary folder

9.9.2 DTEC-8.3.1 Review of G1153

The review of G1153 – *Template for the Review of Emerging Technologies for Possible Use by IALA Members* commenced at DTEC4, with a liaison to LAP to confirm terminology in light of the move of IALA from NGO to IGO. The response from LAP is expected at DTEC6. It was noted that there may be other areas to amend / update, including the reference to the Technology Readiness Level (TRL).

Output:

- Technology reviews completed.
- Technology tracker updated.
- DTEC5-15.3.1 Liaison note to ARM, ENG, VTS on Update of Emerging Technology Review.

Action item(s):

The **Secretariat** is requested to forward DTEC5-15.3.1 Liaison note on Update of Emerging Technology Review to ENG, ARM, and VTS.

IALA Members are invited to note the revision of the G1153 Template for the Review of Emerging Technologies for Possible Use by IALA Members and provide input to DTEC6.

IALA Members are requested to identify any new emerging technologies that may be suitable for review and provide input to DTEC6.

9.9.3 DTEC-8.3.1 – Presentations

Task group leader: Olli Soininen

Presentations:

Lukas Kim	Digital Compliance Solutions (DCS) for next zero shipping
Magnus Nyberg	Onboard GNSS interference-resilient solution for ships
Eduardo Diaz	Galileo OSNMA
Olli Soininen	NELSON project implementation

Comments:

Four presentations were provided:

- Lukas Kim presented Digital Compliance Solutions (DCS) for Net Zero Shipping, a Korean initiative (2025–2027) to support compliance with strengthened IMO and EU environmental regulations. The project focuses on operational performance optimisation, energy efficiency enhancement, and fleet management support, highlighting the need for international data standards and reliable ship–shore data exchange.
- Magnus Nyberg presented Saab TransponderTech’s Onboard GNSS Interference-Resilient Solutions, addressing the increasing risks of GNSS jamming and spoofing through multi-GNSS, multi-frequency receivers, advanced filtering, and spoofing detection. These solutions, tested in the Baltic region, ensure resilient positioning and enable VDES-based interference reporting.
- Eduardo Díaz introduced Galileo OSNMA, a GNSS data authentication service declared operational in July 2025, which validates navigation messages to counter spoofing. Its applications include secure VDES reporting, enhanced navigation in interference areas, and authenticated records for accident investigations, with recommendations for integration into IALA guidelines.
- Olli Soininen presented the NELSON Project Implementation, an EU-funded initiative (2025–2028) developing smart and digital fairways in Finland, Sweden, and Spain. The project includes deployment of VDES infrastructure, development of harmonised S-100 based ship–shore services, remote pilotage use cases, and large-scale validation of digital maritime services to support safety, efficiency, and the green transition.

Key outcomes include:

Based on the information provided in the presentations, the working group decided to include Galileo OSNMA and the Saab resilient PNT solution in the list of new technologies to be further evaluated. The group also agreed to consider whether the IALA MarCom Manual requires updating in light of the perspectives received during the presentations, particularly regarding GNSS resilience, authentication of navigation messages, and integration with VDES.

Output:

Anticipated input to DTEC 6 – completed reviews using G1153 on Galileo OSNMA and SAAB resilient PNT.

9.9.4 [DTEC-8.3.1 Tech Review - other documents](#)

Task group leader: Jillian Carson-Jackson

Input papers:

DTEC5	6.2.2.10	DanPilot's Remote Pilotage initiative
DTEC5	6.2.2.10.1	DanPilot – Remote Pilotage initiative correspondence
DTEC5	6.2.2.10.2	IMPA comments on Danpilot's Remote Pilotage Initiative

The input documents were reviewed. Noting there was no representation from DanPilot, J Carson-Jackson introduced the papers by DanPilot on its Remote Pilotage initiative (DTEC5-6.2.2.10 and related correspondence).

Representatives from the International Maritime Pilots’ Association (IMPA) introduced their written comments provided by the (DTEC5-6.2.2.10.2). Reference was made to the broader context of the international “R-Pilot” study and its Phase 2 Technology Readiness Assessment (TRA)

The review confirmed that the DanPilot initiative, supported by Danelec, represents a technical trial of remote pilotage concepts under controlled conditions. IMPA’s comments, along with the findings of the R-Pilot TRA, underline that such systems remain at an early stage of development and present both opportunities and significant limitations when assessed against the requirements of safe navigation in mandatory pilotage waters.

It was emphasised that this work within IALA is limited to reviewing and noting the documents and comments presented. The review process does not imply endorsement or opposition by IALA to the concept of remote pilotage. IALA does not hold, and has not adopted, any official position on remote pilotage.

Action item(s):

*The **Secretariat** is requested to invite IMPA to keep the Committee informed about the progress of the International Study on Remote Pilotage (R-Pilot) and any areas where it may be beneficial to develop consequential technical recommendations and guidelines within the respective areas of expertise of the organisations, following the cooperative agreement between IALA and IMPA.*

9.10 Review of additional documents

Additional documents were identified for review:

DTEC5	6.2.2.12.1	DTEC5-6.2.2.12.1 Annex ICAO CIRCULAR 364 (1)
DTEC5	6.2.2.12	DTEC5-6.2.2.12 ICAO CIRCULAR 364

Comments:

The additional documents, related to the ICAO Circular 364 on the design and operations of water aerodromes, were reviewed.

The Circular provides initial guidance for large water aerodromes serving seaplane operations, covering aspects such as certification, data quality, physical characteristics, visual aids, emergency planning, and maintenance

IALA experts were invited to contribute to ensure consistency with maritime standards, particularly in the field of buoyage, visual aids, and obstacle marking.

The review noted that the reference to IALA had not been updated to reflect the name 'International Organization of Marine Aids to Navigation' following the formal move from an NGO to an IGO.

10. WORKING GROUP 3 – DIGITAL COMMUNICATION SYSTEMS (WG3)

During the 5th session of the DTEC committee, the WG3 worked mainly on VDES and AIS topics to further develop the tasks assigned to the working group.

Referencing Document(s): DTEC WG3 Work Program

The group reviewed the tasks in the online IALA Committee Task Plan: <https://www.iala-task-register.com/committee-working-group?id=13>. Updates on the status at the start of the meeting were performed, and the group did not identify any new 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.

During DTEC5, the Working Group met in a hybrid meeting environment and focused on the following tasks:

Task	Description
DTEC 6.3.4	Develop Guidelines on VDES Authentication Techniques
DTEC 6.3.5	Develop Guidelines on VDES resource sharing and coordination/cooperation

DTEC 6.3.6	Maintain existing IALA Standards, Recommendations, and Guidelines regarding the VHF Data Exchange System (VDES)
DTEC 6.3.7	Liaise with ITU, IEC, and IMO on VDES Topics
DTEC 6.3.8	Liaise with IEC on the Test standard for VDES
DTEC 6.3.9	Develop guidance on documentation on communications channels for public service digital information services in coastal areas
DTEC 6.3.10	New IALA Guideline on Shore-based VDES infrastructure

10.1 Task 6.3.4 on VDES Authentication Techniques

Task group leader: Jan Šafář

Input papers:

S3C Presentation	https://nextcloud.iala.int/f/380003
DTEC5-6.2.3.6	Extending VDES Authentication in ITU-R M.2092 (Stefan Pielmeier, SAAB, CML)

Comments:

S3C presented the main IMO requirements, the consequential concepts of authentication in VDES identified up to now, and proposed that they be added to ITU-R M.2092.

The group discussed each proposal in detail and amended the proposed changes based on the input and discussion.

Key outcomes include:

- Agreement on the proposed changes for ITU-R M.2092.
- The group's encouragement to the Chair of the group to bring the changes forward to the ITU-R WP5B meeting through the Danish administration.
- Encouraging DTEC committee members to inform their ITU representatives to support the input from the floor at the ITU-R WP5B meeting in November.

The input was used as part of Task 6.3.7 to compile a combined revision proposal for ITU-R M.2092-1.

10.2 Task 6.3.5 Develop Guidelines on VDES resource sharing and coordination/cooperation

Task group leader: Koichi Yoshida

Input papers:

DTEC5-6.2.3.8	Draft guideline on VDES resource sharing
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Comments:

Koichi Yoshida (OPRI) presented the current development of the draft guideline.

The group agreed that further work is necessary intersessionally and may be based on inputs from other organizations, such as the VDES Alliance, which recently published guidelines on the topic.

The group also agreed to spend a short time during the planned intersessional in February on this topic.

Action item(s):

Committee participants are invited to join the intersessional task group meeting to progress the work on the guideline on VDES resource sharing, and are encouraged to express interest in this task by contacting Koichi Yoshida (koichi.yoshida.bbnj@gmail.com).

10.3 Task 6.3.6 on the necessary updates to use VDES ASM channels

Task group leader: WG3 Plenary

Input papers:

DTEC5-6.2.3.4	ASM Improvements (China MSA)
DTEC5-6.2.3.7	Proposal on revision of R0144 harmonized implementation of ASMs

Comments on DTEC5-6.2.3.4:

Yao Gaole (China MSA) presented input 6.2.3.4, explaining the limited application protocols for using ASM channels today.

IMO SN.1/Circ. 289 cannot utilize the new features of ASM channels, such as MITDMA.

The paper proposes a phased approach:

- Transition approach: minor revision of Circ. 289 to leverage the ASM channel capabilities
- New IALA work item on a new guideline for specifying a new guideline for the use of ASM channels and formats, e.g., for Notices to Mariners or Route Exchange

The group proposes to instead of creating a new guideline, to update IALA Guideline G1095 on harmonized implementation of ASM's.

Ozkan Istandbullu (IMO) informed the group that to update SN.1/Circ. 289, a new output proposal to MSC is required. The group agrees that an update of SN.1/Circ. 289 should include new ASM and VDE functions provided by VDES.

The group agreed to create a new task to cover the update of G1095 and the creation of a change proposal to Circ. 289. China MSA shared the plan to provide concrete proposals at DTEC6.

Comments on DTEC5-6.2.3.7:

Shuaiheng Huai (China MSA) presented the input. The group reviewed and revised the document in plenary and agreed to submit it to the Council for approval.

Output:

DTEC5-15.4.3 Revised Recommendation R0144

Action item(s):

The **Secretariat** is requested to forward the output DTEC5-15.4.3 Revised Recommendation R0144 to the Council for approval.

10.4 Task 6.3.6 on the revision of G1117

Task group leader: WG3 Plenary

Input papers:

DTEC5-6.2.3.11 DTEC5-6.2.3.11.1	VPFI updates
DTEC5-6.2.3.10	SBAS updates over ASM (ESSP/EUSPA)
DTEC5-6.2.3.12	Updates on G1117 with Galileo OSNMA (GSC/EUSPA)
DTEC5-6.2.3.6	To include new protocol format descriptions to support VDES authentication, consequent on the work of IEC and 6.2.3.6

The group reviewed Input DTEC5-6.2.3.11 from Saab:

The Chair of WG3 presented the input, proposing to split out the VPFI definition and allocations to a separate document outside G1117. The group agrees to that.

It is also proposed to keep G1117 as a “VDES overview” document to list use cases of VDES.

The input documents were revised by the group in the process.

No outputs were generated, and the inputs will be carried on to DTEC6 as working documents for final touches and council approval/publication.

Action item(s):

Committee participants are invited to contribute to the work on the VPFI updates in the correspondence group and encouraged to express interest in this task by contacting Stefan Pielmeier (sp@albatros-tech.eu).

Input DTEC5-6.2.3.10 on GNSS Augmentation over VDE ASM:

The group received a walkthrough of the proposed changes by Jose-Luis (ESSP) and agreed to the proposed update of G1117, which is included in the planned revision of G1117. It is not yet fully understood how on-board equipment would need to be modified to actually utilize these augmentations. Jose-Luis informed the audience that ESSP has submitted the input paper to ENG21 about this. The Liaison note will be proposed in ENG21 to work jointly on this topic during the next sessions of the DTEC and ENG.

Input DTEC5-6.2.3.12 on Galileo OSNMA

The input was presented by Eduardo Diaz from GSC/EUSPA. The update to G1117 was agreed to be included into the working draft by the members of the group.

Johan Lindborg from SAAB proposed to add a flag in future position reports from VDES to indicate that the ship's GNSS received authentication.

Key outcomes include:

- A new recommendation on VPFI was drafted and will be finalized for DTEC6, and the contained Annex on VPFI will be extracted to become a new guideline on VPFI (also planned for DTEC6).
- A G1117 working draft was developed based on the inputs above and reviewed by the group.
- The working draft should be the basis for any future change proposals on the guideline.
- The working draft is found in the WG3/DTEC5/WORKING folder.
- The VPFI used in the working draft all need review according to the rules that will be defined in the VPFI guideline on how to select the proper VPFI Level.

- The working drafts can be found in the WG3/DTEC5/WORKING folder.

Action item(s):

Committee participants are invited to provide proposals to Guideline G1117 at DTEC6, using the working document in track changes to highlight their modifications compared to the working version.

10.5 Task 6.3.7 on the revision of ITU-R M.2092-1

Task group leader: WG3 Plenary

Input papers:

DTEC5-6.2.3.5	Change Proposals to the revision of ITU-R M.2092-1 (China MSA)
pdrrec_m.2092-1.docx	Change Proposal on the revision of ITU-R M.2092-1 (US) on Blocking
DTEC5-6.2.3.6	Task 6.3.4

Comments:

The group reviewed Input 6.2.3.5 from China MSA:

MSA-1: the group could not agree to forward that issue to ITU WP5B

MSA-2: the group needs more information to understand on which case the ACK/NACK is broken.

MSA-3: the group welcomed the very well-prepared presentation and the tests that were run in China on this important and difficult topic. The Quebec intersessional meeting also discussed the topic of the need to allow overlapping service areas. Priorities are to be used by the mobile only if transmitted from the same control station. Johan Lindborg presented a conclusion document from the Quebec meeting and this meeting on the VDE-TER area switching rules as an input to this discussion. MSA-3 is recommended by the group to be forwarded to ITU.

MSA-4 and MSA-5 are recommended by the group to be forwarded to ITU.

The group discussed that the change proposals from DTEC5-6.2.3.6 and 6.2.3.5 should be included in a single input to WP5B. The merge is performed by Attie Labuschagne (S3C) and reviewed by the group.

The chair of WG3 will input the changes to WP5B as input from Denmark, giving China the option to co-sign.

The group reviewed Input "INPUT/2092/pdrrec_m.2092-1.docx":

The group discussed the input but didn't find consensus on the topic. The group gave feedback on the input to be considered for the discussions at ITU-R WP5B.

Output:

- DTEC5-15.4.2 Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1

Action item(s):

The **Secretariat** is requested to support the output document DTEC5-15.4.2 Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1 from the floor during the ITU-R WP5B meeting, 18-27 November 2025.

Committee participants are invited to request that the country's ITU-R WP5B representatives support the DTEC5-15.4.2 Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1 from the floor during the ITU-R WP5B meeting, 18-27 November 2025.

10.6 Task 6.3.7 on new VDES Performance Standard

Task group leader: WG3 Plenary

Input papers:

IMO/MSC110-WP.1-Rev.1	Draft Report of MSC 110
IMO/MSC110-WP.11	VDES amendments to IMO instruments
IMO/MSC-FAL.1/Circ.3/Rev.3	GUIDELINES ON MARITIME CYBER RISK MANAGEMENT

Comments:

The workgroup chairs presented the draft MSC 110 report and the MSC 110 approved IMO Performance Standard and Guidelines for VDES. The group identified which changes to current documents in IALA, IEC, and ITU might be indicated by the IMO requirements for VDES.

The notation “covered in IEC documentation” indicates WG3 observation that the IEC document 80_1165e_CD on VDES Mobile Station addresses the topic in a suitable way.

The notation “ITU change planned” indicates that the group reached consensus on how to address the topic in the process of revision of ITU-R M.2092-1.

Key outcomes:

Mapping draft IMO Performance Standard on VDES (PS) to 2nd CD IEC 63514 ED1 and WD on revision ITU-R M.2092-1

- a) Prioritize some applications (PS 2.1.2) – covered in IEC documentation
- b) Prioritization of functions (PS 2.1.3) – covered in IEC documentation
 - 1. AIS
 - 2. ASM
 - 3. VDE TER
 - 4. VDE SAT
- c) Equipment functionalities (PS 2), IEC may include Tx power 12,5W or 1 W (or disable 1W) (PS 2.1.8) – covered in IEC documentation
- d) Control automatically of VDE SAT tx via VDES base station - (ps 2.1.9) – covered in IEC documentation
- e) legacy ASM (Circ 289) via ASM channel – covered in IEC documentation
 - PS 2.3), currently addressed without ack,
 - ack (message 6) can be done, legacy PI sentences on the transmitter side, input to IEC TC80 WG 15, input ITU-R M.2022-1 revision
 - does this possibly work on the VDE channels?
 - Answer: ASM message 0 is a container, a broadcast; ASM content is addressed or broadcast.
 - using ASM message 0 does not expect an acknowledgement, even if the content is an addressed message, (no automatic acknowledgement the link layer) – no change
- f) selecting coms component (ASM, VDE-TER, VDE-SAT) via use interface (PI) – covered in IEC documentation
- g) receive via VDL and output on PI – covered in IEC documentation

- h) receive via PI and transmit via VDL – covered in IEC documentation
- i) operation continually – covered in IEC documentation
- j) MKD – covered in IEC documentation (PS 4.1)
- k) PI – covered in IEC documentation (PS 4.2)
- l) M 585 – covered in IEC documentation (PS 5)
- m) Information – covered in IEC documentation] (PS 6)
- n) Cybersecurity PI such as IEC 61162-460 – IEC more consideration needed (PS 7.1.1)
- o) Integrity and authentication (PS 7.2.1)
 - digital signature for ASM and VDE_TER, VDE-SAT, sender is identified for bulletin board and messages, – covered in IEC documentation
 - consider for all messages, input DTEC5-6.2.3.6 covers that, ITU change planned
- p) Integrity and authentication (PS 7.2.2)
 - authentication of AIS, input to IEC TC80 WG 15, input ITU-R M.2092-1 revision, ITU change planned
- q) Operational readiness time – covered in IEC documentation (PS 8)
- r) ASM channel

Output:

DTEC5-15.4.1 Liaison to IEC on the new requirements from IMO on AIS Authentication.

Action item(s):

The **Secretariat** is requested to forward the output documents DTEC5-15.4.1 Liaison to IEC on the new requirements from IMO on AIS Authentication to Council for approval, with subsequent submission to IEC TC80 WG15.

10.7 Task 6.3.10 on shore-based VDES infrastructure

Task group leader: WG3 Plenary

Input papers:

6.2.3.3	Proposal to add higher layer interfaces to the VDES shore infrastructure guideline (China MSA)
Draft guideline	

Comments on DTEC5-6.2.3.3:

Shuaiheng Huai (China MSA) presented the input, and the group agreed that such input could be added to the working draft of the VDES shore infrastructural guideline.

China MSA informed the group about the plan to work on this up to DTEC6.

Comments on the working draft VDES shore infrastructure guideline:

Lukas (All4Land) shared the status of the working draft with the group, as of the status after Quebec intersessional, and explained which chapters are currently under development by which committee participants.

The link to the latest version of the working paper draft guideline for VDES shore infrastructure available here: [Draft Guideline for Shore VDES Infrastructure](#)

The group agreed that further intersessional work is needed to progress the work at the required speed. Therefore, the group proposed several intersessional arrangements to progress the work further:

- Virtual intersessional with the goal to align further on the resource management: 13-15 UTC, 17 November 2025. Please see the IALA DTEC calendar for details and the meeting link.
- Physical intersessional in Saint-Germain-en-Laye, 16-20 February 2026, on this topic and with a short slot for the VDES resource sharing guideline (Task DTEC 6.3.5).

Action item(s):

Committee participants are invited to join the intersessional task group to advance the work on the Shore-based VDES infrastructure guideline and are encouraged to express interest in this task by contacting Lukas Kim (lukaskimatwork@all4land.com).

10.8 Task 6.3.14 Maintenance of the VDES Roadmap

Task group leader: WG3 Plenary

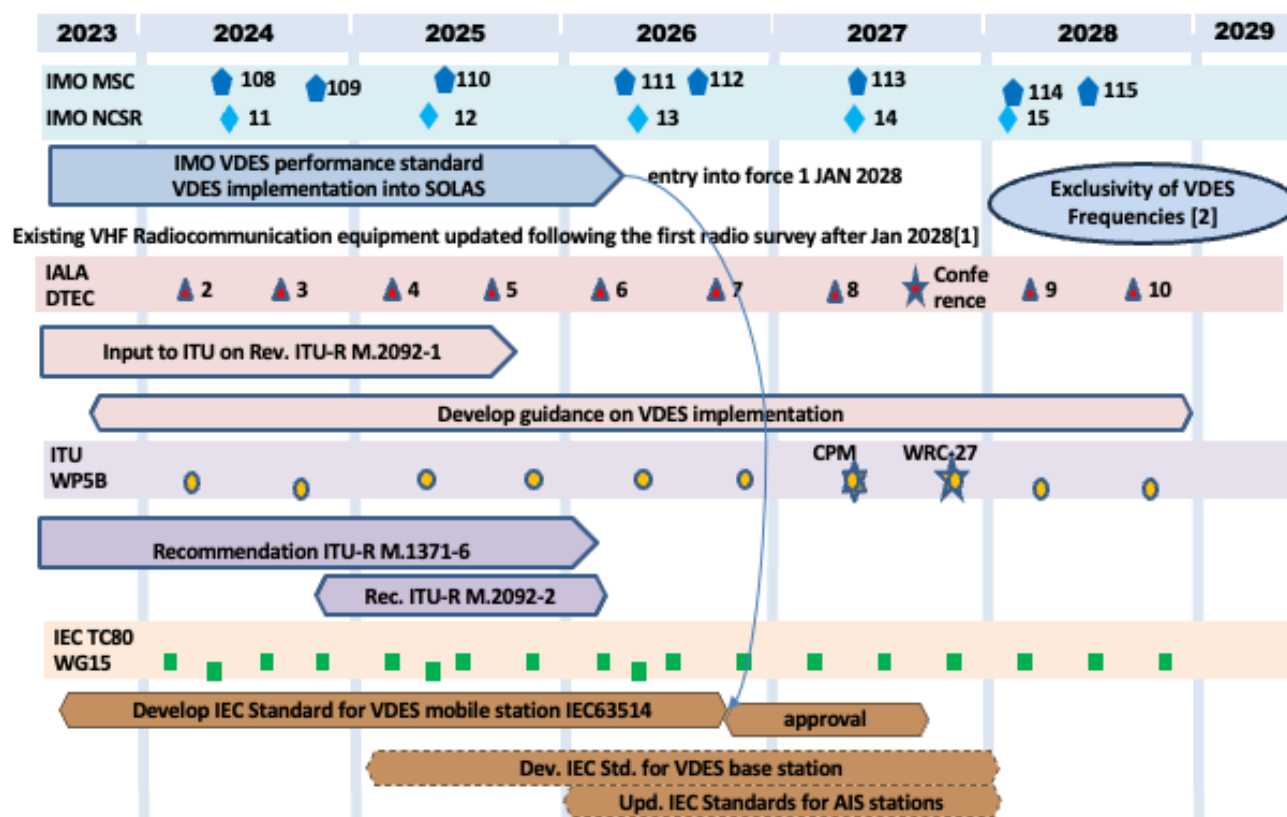
Input papers:

none	
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Comments:

The group reviewed the working version of the VDES roadmap from DTEC3 and amended the IMO and IALA bars, with only minor clarifications.

Possible Road Map VDES standardisation - maritime -



2

[1]: MSC.1/Circ.1460/Rev.5

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

Figure 3 VDES implementation plan, see file Committees/ENAV-DTEC/WG3/20250929_DTEC5/WORKING/20251002_VDES_Roadmap.pptx

10.9 Task 6.3.14 VDES R-Mode

Task group leader: WG3 Plenary

Input papers:

Presentation on R-mode	WG3/DTEC5/Presentations/
Draft of IMO Performance Standard for R-Mode Receiver Equipment	WG3/DTEC5/Input/R-Mode Or https://nextcloud.iala.int/f/382705
Draft of revision IMO A.1046	Document was submitted to IALA ENG Or https://nextcloud.iala.int/f/376259

Comments:

Ronald Raulefs (DLR) shared an update on the following objectives regarding R-Mode:

1. It was noted that G1117 requires input for the "Guideline for Exchanging GNSS Interference Data."
Action Item: It was suggested to define the required message and provide this input for G1117 accordingly.
2. A call was made for adjustments to G1158 before the DTEC 6 meeting. The suggested adjustments include:
 - Adding authentication to VDES R-Mode.
 - Enhancing the flexibility and scalability of VDES R-Mode in conjunction with shoreline infrastructure.
 - Addressing the timing information for ASM R-Mode.
3. Information was provided on the current activities at ITU WP5B, specifically concerning:
 - A study item on the co-existence of VDES R-Mode and VDES communication. A request was made to please consider the use of time and frequency (as per the IEC VDES mobile station standard) for coordination between bases. A further request was made to also consider the 50 kHz link-IDs from the IEC VDES mobile testing station standard.
 - The proposed timeline is to conclude this study by Q2 2026, noting there will be no further WP5B meetings on this topic before WRC'27.
4. It was shared that MSC 110 (6/2025) has accepted the proposal to develop a performance standard for an R-Mode receiver. This will start in 6/2026 at NCSR 13. There is a first current draft of the IMO performance standard for R-Mode developed and it addresses
 - VDES (DTEC) and MF (ENG);
 - Emphasizes the independence to GNSS;
 - Outlines the performances for accuracy (50/100 m), continuous availability and timing alerts for integrity and system failures.

Further it was discussed:

- The terminology of "backup," "contingency," and "alternative" was discussed. It was noted that the term "alternative (terrestrial radionavigation)" is currently used in the draft performance standard to emphasize the independence to GNSSs. The term "backup" indicates that the system may start once the primary fails, and the term "contingency" is associated by IMO in other documents with a plan.
- There was a discussion about R-Mode's role as a continuous, non-primary radionavigation system.
- The question regarding the output from the R-Mode receiver was addressed. It was clarified that the receiver should provide at least two outputs, allowing position information, UTC, COG, SOG, and alarms to be supplied to other equipment in line with international standards.
- Action Item: Two documents are currently being developed and are open to feedback:
 - The draft of an IMO performance standard for an R-Mode receiver was presented: <https://nextcloud.iala.int/f/382705>
 - It was suggested by IMO MSC to revise A.1046. A proposed revision to IMO A.1046, which was presented by Hideki. This revision suggests including "R-Mode as a terrestrial

radionavigation system” and was submitted to ENG-21 (available at: <https://nextcloud.iala.int/f/376259>).

- The discussion on terrestrial radionavigation solutions also included the following:
 - While eLoran is not yet present at IALA, it is addressed as a terrestrial radionavigation system in IMO MSC.401(95) and addressed with a performance standard by RTCM SC-127.

Action item(s):

Committee participants are kindly asked to provide feedback about the draft of the IMO Performance standard for R-Mode receiver equipment to Ronald.Raulefs@dlr.de by November 7, 2025, at the latest.

Committee participants are invited to contribute to the revision of the working document DTEC5-15.5.7 G1117 Ed3.0 VHF Data Exchange System (VDES) Overview for the next DTEC6 meeting in track changes.

Committee participants are invited to contribute to the revision of Guideline G1158 in preparation for the DTEC6 meeting.

10.10 Review of IALA Work Programme 2025-2027 and DTEC WG3 Task Register

The IALA work programme was reviewed in conjunction with the DTEC WG3 detailed task register.

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

11. SUMMARY OF OUTPUT AND WORKING PAPERS

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

Outputs from DTEC5 were approved by the Committee using the approval procedure. The output documents and working papers are listed in Annex D.

12. REVIEW OF SESSION REPORT

The draft report of the meeting (DTEC5-12.1) was approved by the Committee at the Closing Plenary.

13. DATE AND VENUE OF NEXT MEETINGS

DTEC6 is planned to be held between 23 – 27 March 2025 at IALA Headquarters, Saint Germain-en-Laye, France.

Other IALA events will be published on the IALA website.

14. ANY OTHER BUSINESS

The Chair thanked China MSA for their inputs to the revision of Chapter 9 of NAVGUIDE during DTEC5, and the secretariat will forward them to DTEC6 as working documents. He encouraged members to provide inputs to both Chapters 9 and 10 of NAVGUIDE so that a more holistic review can be carried out at DTEC6.

The Chair asked the members if the Committee meeting was needed in September or October 2027, since there was the IALA Conference and General Assembly in November 2027, and normally, IALA Committees did not have a meeting in the second half of 2027. There were some supports to have a meeting, and no objection was raised.

Action item(s):

*The **Chair** is kindly asked to bring the request from the DTEC Committee to have a DTEC meeting in the second half of 2027 to PAP and decide as appropriate.*

15. CLOSING OF THE MEETING

The Chair thanked all Committee participants again for their engagement and hard work. He hoped that all the participants would return to DTEC6.

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

16. 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

5th Meeting of the Digital Technologies Committee (DTEC5)

The physical week of the 5th session of the DTEC Committee will take place from 29 September to 03 October 2025 at the IALA HQ in Saint Germain-en-Laye, France. Please note that the Opening Plenary will be held in a hybrid format on Monday, 29 September, starting at 08:00 UTC (10:00 CEST). The Closing Plenary will be held online on Thursday, 09 October 2025, starting at 12:00 UTC (14:00 CEST).

Agenda

1. Introduction
 - 1.1. Welcome from the Secretary-General Francis Zachariae
 - 1.2. Approval of agenda Hideki Noguchi
 - 1.3. Apologies Hideki Noguchi
 - 1.4. Working arrangements Alisa Nechyporuk
2. Review of action items from last session
 - 2.1. Review of action items from DTEC4 Hideki Noguchi
3. Reports from other bodies and initiatives
 - 3.1. IALA Minsu Jeon
 - 3.1.1. IALA Council Minsu Jeon
 - 3.1.2. IALA Policy Advisory Panel (PAP) Minsu Jeon
 - 3.1.3. WWA Updates Vincent Denamur
 - 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. NCSR
 - 3.5. ITU Stefan Bober
 - 3.6. IEC Stefan Bober / Jorge Arroyo
 - 3.7. ISO Minsu Jeon
 - 3.8. ISO-IEC JTC 1 Jin Hyoung Park
 - 3.9. RTCM Ross Northsworby / Johnny Schultz
 - 3.10. 3GPP Hyounhee Koo
 - 3.11. VDES Alliance Stefan Pielmeier
4. Presentations
 - 4.1 MS@MS technology (Dr. Wooseng Shim, KRISO)
 - 4.2 Digitalization of VHF voice communication (KONISHI Takahiko, JCG)
 - 4.3 Sharing of Singapore Maritime Digital Twin Developments (Luthfi Bafana, MPA)
 - 4.4 Presentation on Large Language Models: Applications and Opportunities for VTS

(Dr Zhao Liangbin and Dr Fu Xiuju, MPA)

- 4.5 Communication Performance Evaluation of VDES in Tokyo Bay (Koichi Nishimura, TST Corporation)
- 4.6 Overview of the Nelson project (Olli Soininen, Fintraffic)
- 4.7 MMS/SECOM, MMS/VDES, MCP, and live demonstrations of the MSR and Trust System (Tuesday, 16:00) (Lars Moltsen/Mads Svendsen, Jin Hyoung Park, Thomas Christenen)
- 4.8 Digital VHF radios (Friday, Closing Plenary) (Jeffrey van Gils)
5. Work programme management
 - 5.1. Work Programme, Task Plan, Task Register
 - 5.2. Action plan for this session
6. Review of input papers
 - 6.1. Introduction of input papers Submitter(s)
 - 6.2. Allocation of input papers Hideki Noguchi
7. DTEC5 Working Group programmes and arrangements
 - 7.1. WG1 – Digital Information System Axel Hann
 - 7.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
 - 7.3. WG3 – Digital Communication System Stefan Pielmeier
8. Break out into Working Groups
9. Reconvene Plenary Session (Friday 03 October, 07:00 – 09:00 UTC, 09:00 – 11:00 CEST)
10. Summary of Working Group reports, documents, and output papers (Plenary Session)
 - 10.1. WG1 – Digital Information System Axel Hann
 - 10.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
 - 10.3. WG3 – Digital Communication System Stefan Pielmeier
11. DTEC5 Output Review Period
12. Closing Plenary (Thursday 09 October, 12:00 – 14:00 UTC, online)
 - 12.1. Review of session report
 - 12.2. Review of outcome documents
 - 12.3. Date and venue of next meeting
13. Close of the meeting
14. Any other business
15. Summary of output and working papers
 - 15.1. Committee-wide
 - 15.2. WG1 output
 - 15.3. WG2 output
 - 15.4. WG3 output
 - 15.5. Working papers

ANNEX B LIST OF PARTICIPANTS

First Name	Last Name	Member Type	Country	Organization
Julius	Moeller	Member State	Australia	Australian Maritime Safety Authority
Marcos	Silva	Member State	Brazil	Diretoria de Hidrografia e Navegação
Alain Serge	Mbene Koah	Affiliate	Cameroon	Port Authority of Kribi
Barry	Baker	Member State	Canada	Canadian Coast Guard
Glenn	Coady	Member State	Canada	Canadian Coast Guard
Natacha	Riendeau	Member State	Canada	Canadian Coast Guard
Rodrigo	Araneda	Member State	Chile	Minister of Foreign Affairs of Chile
Henry	Arriagada	Member State	Chile	Minister of Foreign Affairs of Chile
Héctor	Fuentes	Member State	Chile	Minister of Foreign Affairs of Chile
José	Mella	Member State	Chile	Minister of Foreign Affairs of Chile
Jordan	Pérez	Member State	Chile	Minister of Foreign Affairs of Chile
Víctor	Pizarro	Member State	Chile	Minister of Foreign Affairs of Chile
Rodolfo	Silva	Member State	Chile	Minister of Foreign Affairs of Chile
Luis	Salas	Member State	Chile	Minister of Foreign Affairs of Chile
Dennis	Alcayaga	Member State	Chile	Minister of Foreign Affairs of Chile
Italo	Barattini	Member State	Chile	Minister of Foreign Affairs of Chile
David	Muñoz	Member State	Chile	Minister of Foreign Affairs of Chile
Shuaiheng	Huai	Member State	China	Ministry of Transport of the People's Republic of China (MOT)
Li	Hui	Member State	China	Maritime Safety Administration
Chunxu	Li	Affiliate	China	China Waterborne Transport Research Institute
Shuo	Wang	Member State	China	Maritime Safety Administration
Woodsun	Water	Affiliate Industrial	China	China Head Aerospace Technology Co
Gaole	Yao	Member State	China	Maritime Safety Administration
Eduardo	Diaz	Affiliate	Czech Republic	GSC (European GNSS Service Centre) / EUSPA
Rasmus Madsen	Jensen	Member State	Denmark	Danish Maritime Authority
Lars	Moltsen	Affiliate Industrial	Denmark	Sternula A/S
Michael	Pfeiffer	Member State	Denmark	Danish Emergency Management Agency
Stefan	Pielmeier	Affiliate Industrial	Denmark	Sternula A/S
Christopher	Saarnak	Member State	Denmark	Danish Emergency Management Agency
Michael	Strandberg	Member State	Denmark	Danish Maritime Authority
Mads Sølvér	Svendsen	Affiliate Industrial	Denmark	Sternula A/S
Jakob	Weibrecht	Affiliate Industrial	Denmark	Sternula A/S
Kaisu	Heikonen	Member State	Finland	Finnish Transport Infrastructure Agency
Antti	Kukkonen	Affiliate Industrial	Finland	Furuno Finland Oy
Ramin	Miraftabi	Affiliate	Finland	Fintraffic Vessel Traffic Services Ltd

First Name	Last Name	Member Type	Country	Organization
Juho	Pitkänen	Affiliate	Finland	Fintraffic Vessel Traffic Services Ltd
Dmitry	Rostopshin	Affiliate Industrial	Finland	ICS Technologies S.R.L.
Olli	Soininen	Affiliate	Finland	Fintraffic Vessel Traffic Services Ltd
Olaf	Christians	Affiliate Industrial	France	Airbus Defence and Space
Anne	Duret	Member State	France	Direction générale des affaires maritimes, de la pêche et de l'aquaculture
Xavier	Hernoe	Member State	France	Direction générale des affaires maritimes, de la pêche et de l'aquaculture
Antoine	Rigole	Member State	France	Direction générale des affaires maritimes, de la pêche et de l'aquaculture
Abas	Saidykhan	Associate	Gambia	Gambia Maritime Administration
Ousman	Touray	Associate	Gambia	Gambia Maritime Administration
Stefan	Bober	Member State	Germany	Federal Waterways and Shipping Agency
Axel	Hahn	Affiliate	Germany	German Aerospace Centre
Michael	Kirkedal Thomsen	Affiliate	Germany	German Aerospace Centre
David	Marchant	Affiliate	Germany	German Aerospace Centre
Jan-hendrik	Oltmann	Member State	Germany	Federal Waterways and Shipping Agency
Ronald	Raulefs	Affiliate	Germany	German Aerospace Centre
Jochen	Ritterbusch	Member State	Germany	Federal Maritime and Hydrographic Agency
Frébory	Dioubate	Associate	Guinea	Agence de Navigation Maritime - Ministère des Transports
Ronan	Boyle	Member State	Ireland	Commissioners of Irish Lights
Juha	Hollanti	Affiliate Industrial	Ireland	Wärtsilä Voyage Limited
Francesco	Borghese	Affiliate Industrial	Italy	ELMAN S.r.l.
Luca	Fiorentino	Affiliate Industrial	Italy	ELMAN S.r.l.
Michele	Fiorini	Affiliate Industrial	Italy	Leonardo S.p.A
Francesco	Stagira	Associate	Italy	Italian Coast Guard
Damiano	Varde	Associate	Italy	Italian Coast Guard
Hollo	Kambire	Associate	Ivory Coast	Port Autonome d'Abidjan
Mayumi	Arita	Member State	Japan	Japan Coast Guard
Michael	Card	Affiliate Industrial	Japan	Zeni Lite Buoy Co Ltd
Junji	Fukuto	Affiliate	Japan	JSTRA
Natsuki	Kayamori	Affiliate Industrial	Japan	ArkEdge Space Inc.
Daisuke	Kimura	Affiliate Industrial	Japan	Furuno Electric Co Ltd
Kenji	Kogo	Affiliate Industrial	Japan	IHI Corporation
Takahiko	Konishi	Member State	Japan	Japan Coast Guard
Minoru	Kowaki	Affiliate Industrial	Japan	Furuno Electric Co Ltd
Yoshio	Miyadera	Affiliate Industrial	Japan	Japan Radio Co., Ltd.
Daichi	Nakamura	Affiliate Industrial	Japan	ArkEdge Space Inc.
Koichi	Nishimura	Affiliate Industrial	Japan	TST Corporation

First Name	Last Name	Member Type	Country	Organization
Hideki	Noguchi	Affiliate	Japan	Japan Ship Technology Research Association
Masatora	Ono	Member State	Japan	Japan Coast Guard
Tetsuo	Takahashi	Affiliate Industrial	Japan	ArkEdge Space Inc.
Kinji	Takeuchi	Member State	Japan	Japan Coast Guard
Ryohei	Uemura	Affiliate Industrial	Japan	ArkEdge Space Inc.
Masanori	Watagawa	Affiliate Industrial	Japan	ArkEdge Space Inc.
Hiroaki	Watanabe	Affiliate Industrial	Japan	TST Corporation
Koichi	Yoshida	Member State	Japan	Ocean Policy Research Institute (OPRI), Sasakawa Peace Foundaion (SPF)
Takashi	Ogai	Affiliate Industrial	Japan	IHI Corporation
Thomas	Christensen	Affiliate Industrial	Korea, South	AIVeNautics
Oliver	Haagh	Affiliate Industrial	Korea, South	AIVeNautics
Koo	Hyunhee	Observer	Korea, South	Synctechno
Hyun	Kim	Affiliate Industrial	Korea, South	GMT Cybernetics Co Ltd
Peter	Kim	Affiliate Industrial	Korea, South	GMT Cybernetics Co Ltd
Lukas	Kim	Affiliate Industrial	Korea, South	ALLFORLAND
Yumin	Kim	Affiliate Industrial	Korea, South	GC Co. Ltd
Sanghyun	Kim	Member State	Korea, South	Minstry of Oceans and Fisheries
Elly Seomgyeol	Lee	Affiliate Industrial	Korea, South	GMT Cybernetics Co Ltd
Dayoung	Park	Affiliate	Korea, South	Korea Maritime Cooperation Center
Jin Hyoung	Park	Affiliate Industrial	Korea, South	AIVeNautics
Wooseong	Shim	Affiliate	Korea, South	KRISO – Korea Research Institute of Ships and Ocean Engineering
Dayoung	Song	Affiliate	Korea, South	Korea Maritime Cooperation Center
Abdul Aziz	Abd Majid	Member State	Malaysia	Ministry of Transport
Zulkifly	Ariffin	Affiliate Industrial	Malaysia	Greenfinder SDN BHD
Syukur	Hamid	Affiliate Industrial	Malaysia	Greenfinder SDN BHD
Ramli	Yusoff	Member State	Malaysia	Ministry of Transport
Adil	Bouhifd	Observer	Morocco	TANGER MED PORT AUTHORITY
Youssef	Taoufik	Observer	Morocco	SOCIETE DE GESTION DU PORT DE TANGER VILLE
Nader	Alagha	Affiliate	Netherlands	ESA - European Space Agency
Maarten	Berrevoets	Member State	Netherlands	Ministry of Infrastructure and Water Management
Gerrit Jan	De Bie	Affiliate	Netherlands	Port of Rotterdam Authority
Jeffrey	Van Gils	Member State	Netherlands	Ministry of Infrastructure and Water Management
Harald	Åsheim	Member State	Norway	Norwegian Coastal Administration
Anders	Bjørnevik	Affiliate Industrial	Norway	Kongsberg Discovery AS - Seatex
Todd	Schuett	Affiliate Industrial	Norway	Kongsberg Norcontrol AS
Krzysztof	Bronk	Affiliate	Poland	National Institute of Telecommunications

First Name	Last Name	Member Type	Country	Organization
Catarina	Nunes	Member State	Portugal	Direção de Faróis (Lighthouse Directorate)
Pedro	Vacas De Carvalho	Member State	Portugal	Direção de Faróis (Lighthouse Directorate)
Khalid	Mujali	Member State	Saudi Arabia	Saudi Ports Authority
Luthfi	Bafana	Member State	Singapore	Maritime and Port Authority
Nicholas	Chiew	Member State	Singapore	Maritime and Port Authority
Xiuju	Fu	Affiliate	Singapore	A*STAR
Wing Kei	Ho	Member State	Singapore	Maritime and Port Authority
Dennis	Khoo	Member State	Singapore	Maritime and Port Authority
Zhao	Liangbin	Affiliate	Singapore	A*STAR
Indranil	Sen	Affiliate Industrial	Singapore	NCS Pte. Ltd
Jotham	Teo	Member State	Singapore	Maritime and Port Authority
Marcos	Lopez Cabeceira	Affiliate Industrial	Spain	GMV Aerospace and Defence S.A.U
Jose Luis	Martin Sánchez	Affiliate	Spain	ESSP-SAS
Taoufik	El Bacha	Affiliate Industrial	Sweden	Saab TransponderTech AB
Johan	Lindborg	Affiliate Industrial	Sweden	Saab TransponderTech AB
James	Mann	Affiliate Industrial	Sweden	AAC Clyde Space
Magnus	Nyberg	Affiliate Industrial	Sweden	Saab TransponderTech AB
Mikael	Renz	Member State	Sweden	Swedish Maritime Administration
Nurullah	Koc	Member State	Türkiye (republic Of)	Directorate General of Coastal Safety
Caner	Olkan	Affiliate Industrial	Türkiye (republic Of)	HAVELSAN AS
Bugra	Yildirim	Affiliate Industrial	Türkiye (republic Of)	HAVELSAN AS
Richard	Allan	Member State	United Kingdom	HM Coastguard
Paul	Burton	Affiliate	United Kingdom	UK Hydrographic Office
Huw	Escott	Affiliate Industrial	United Kingdom	CML Microcircuits
Lawrence	Hughes	Member State	United Kingdom	Department of Transport
Dabin	Kim	Affiliate Industrial	United Kingdom	CML Microcircuits
Attie	Labuschagne	Affiliate Industrial	United Kingdom	CML Microcircuits
Derek	Love	Affiliate Industrial	United Kingdom	CML Microcircuits
Rhyno	Meyer	Affiliate Industrial	United Kingdom	IMIS Global Ltd
Wayne	Quinn	Member State	United Kingdom	Maritime Coastguard Agency
Jan	Safar	Member State	United Kingdom	Department of Transport
Pieter	Winter	Affiliate Industrial	United Kingdom	CML Microcircuits

First Name	Last Name	Member Type	Country	Organization
Gareth	Wimpenny	Member State	United Kingdom	Department of Transport
Patrick	Armstrong	Associate	United States	US Coast Guard
Jorge	Arroyo	Associate	United States	Honorary IALA Member, US Coast Guard
Clayton	Diamond	Affiliate	United States	American Pilots' Association Inc
Sean	Foster	Associate	United States	US Coast Guard
Patrick	Gallagher	Associate	United States	US Coast Guard
Ross	Norsworthy	Associate	United States	US Coast Guard
Johnny	Schultz	Associate	United States	US Coast Guard
Jillian	Carson-jackson	Sister Organisations		Nautical Institute
Cafer Ozkan	Istanbullu	Sister Organisations		IMO
Matthew	Williams	Sister Organisations		IMPA

All papers are posted on the Committee section of the IALA website. Items in blue = late or updated paper.

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC5	1.2.1	Provisional agenda v1.0	Secretariat	All
DTEC5	1.4	Programme for the week	Secretariat	All
DTEC5	2.1	Final report of DTEC4	Secretariat	All
DTEC5	2.1.1	DTEC4 Action Items	Secretariat	All
DTEC5	3.1.1	Report of the 2nd session of the IALA Council	Secretariat	All
DTEC5	3.1.2.1	Report of PAP57	Secretariat	All
DTEC5	3.1.2.2	Report of PAP58	Secretariat	All
DTEC5	3.4.1	IALA Report on MSC110	Secretariat	All
DTEC5	3.4.2	IALA Report on NCSR12	Secretariat	All
DTEC5	3.5.1	IALA Report on ITU-R WP5B meeting 29 April to 8 May 2025	Secretariat	All
DTEC5	6.0	Input paper Committee meeting template	Secretariat	All
DTEC5	6.0.1	List of input papers	Secretariat	All
DTEC5	6.2.0.1	Proposal on the revision of relevant sections of the NAVGUIDE 2023	China MSA	All
DTEC5	6.2.0.1.1	Annex Update of the Chapter 9 of the 2023 NAVGUIDE	China MSA	All
DTEC5	6.2.1.1	Proposal to Establish an Operational MCP Instance under IALA Custodianship	AMSA, MOF, GRAD, Fintraffic VTS, AIveNautics	WG1
DTEC5	6.2.1.2	Proposed updates to G1191	Fintraffic VTS, Finland AIveNautics, Korea GRAD, UK & Ireland	WG1
DTEC5	6.2.1.2.1	Draft Guideline G1191	Fintraffic VTS, Finland AIveNautics, Korea GRAD, UK & Ireland	WG1

DTEC5	6.2.1.3	Contribution to the development of a new Product Specification on disaster management	Japan Coast Guard	WG1
DTEC5	6.2.1.3.1	Annex to the Input PS on Disaster Management	Japan Coast Guard	WG1
DTEC5	6.2.1.4	Report of the MRN task group	Martijn Ebben (TGL on MRN)	WG1
DTEC5	6.2.2.1	LN to all Committees Regarding the Draft Recommendation on Digitalisation of AtoN	ARM20	WG2
DTEC5	6.2.2.1.1	Draft Recommendation on Digitalization of AtoN and Services for Vessels of Varying Levels of Autonomy	ARM20	WG2
DTEC5	6.2.2.2	Liaison note on IALA Digitalisation Discussion Paper	ENG20	WG2
DTEC5	6.2.2.3	Liaison note to DTEC Discussion on Digitalization	ARM20	WG2
DTEC5	6.2.2.4	Draft IALA Guideline on Marine AtoN over IMT-2030	Hyouunhee Koo (SyncTechno)	WG2
DTEC5	6.2.2.5	Report on Task DTEC-7.1.2 Digitalization of waterways	Task Group DTEC-7.1.2	WG2
DTEC5	6.2.2.5.1	Draft Guideline on Digitalization of waterways	Task Group DTEC-7.1.2	WG2
DTEC5	6.2.2.5.2	Draft Liaison note DTEC to all committees on Digitalisation of Waterways Guideline	Task Group DTEC-7.1.2	WG2
DTEC5	6.2.2.6	Information Paper on Large Language Models Application and Opportunities for VTS	A*STAR, MPA	WG2
DTEC5	6.2.2.7	Progress Update for Task to Develop Discussion Paper on Digitalization in the scope of IALA	MPA	WG2
DTEC5	6.2.2.8	MS@MS Technology Demonstration	KRISO	WG2
DTEC5	6.2.2.9	Report on the IMT Workshop	Secretariat	WG2
DTEC5	6.2.2.10	DanPilot's Remote Pilotage initiative	Secretariat	WG2
DTEC5	6.2.2.10.1	DanPilot - Remote Pilotage initiative correspondence	DanPilot	WG2
DTEC5	6.2.2.10.2	IMPA comments on Danpilot's Remote Pilotage Initiative	IMPA	WG2

DTEC5	6.2.2.11	Input paper on Training in Implementation of Digital Solutions	IALA WWA	WG2
DTEC5	6.2.2.11.1	Draft C1004 Global navigation satellite systems and e-navigation	IALA WWA	WG2
DTEC5	6.2.2.12	ICAO CIRCULAR 364	Secretariat	WG2
DTEC5	6.2.2.12.1	Annex ICAO CIRCULAR 364	ICAO	WG2
DTEC5	6.2.2.13	Input paper on Galileo OSNMA and VDES	GSC / EUSPA	WG2
DTEC5	6.2.2.14	Digital Compliance Solutions(DCS) for Net Zero Shipping	ALLFORLAND, UIPA	WG2
DTEC5	6.2.2.15	Liaison note to DTEC and ARM on draft Recommendation on digitalization of Marine Aids to Navigation	VTS58	WG2
DTEC5	6.2.2.16	LN to DTEC - VTS response on Discussion on Digitization	VTS58	WG2
DTEC5	6.2.3.1	Liaison note to all Committees on the AIS Model course	ARM20	WG2 WG3
DTEC5	6.2.3.1.1	Overview of the AIS Model course	ARM20	WG2 WG3
DTEC5	6.2.3.2	Result of a Field Trial on VHF Digital Voice Communication	Japan Coast Guard	WG3
DTEC5	6.2.3.3	Proposal to Supplement the Guideline for Shore VDES Infrastructure with a Chapter on Data Service Interface Specification	China MSA	WG3
DTEC5	6.2.3.4	Proposal on improving the ASM Application protocol	China MSA	WG3
DTEC5	6.2.3.5	Proposed Revision to Recommendation ITU-R M.2092-1	China MSA	WG3
DTEC5	6.2.3.6	Extending VDES Authentication Support	Stefan Pielmeier and CML	WG3
DTEC5	6.2.3.7	Proposals for Revised R0144 on Harmonized Implementation of Application Specific Messages (ASM)	China MSA	WG3
DTEC5	6.2.3.8	Discussion on draft Guidelines on VDES Resource Sharing	Koichi Yoshida	WG3

DTEC5	6.2.3.9	Report on the WG3 intersessional meeting on VDES	Stefan Pielmeier	WG3
DTEC5	6.2.3.10	Draft G1117 on VHF Data Exchange System (VDES)	ESSP SAS	WG3
DTEC5	6.2.3.11	VDES Protocol Format Id updates	Stefan Pielmeier, Saab TransponderTech AB	WG3
DTEC5	6.2.3.11.1	Draft Recommendation VDE Protocol Format Identifiers	Stefan Pielmeier, Saab TransponderTech AB	WG3
DTEC5	6.2.3.11.2	Revised G1117 on VHF Data Exchange System (VDES) Overview	Stefan Pielmeier, Saab TransponderTech AB	WG3
DTEC5	6.2.3.12	Update of G1117 and G1180 with Galileo OSNMA	GSC / EUSPA	WG3

Working papers from DTEC4

Meeting	WP no.	Working Paper Title	Source	Action
DTEC4	15.5.1	S-100 from an Authority Perspective	WG2	to DTEC5
DTEC4	15.5.2	Draft IALA Guideline on Marine AtoN over IMT-2030	WG2	to DTEC5
DTEC4	15.5.3	G1178 Ed1.0 An intro to AI in IALA Domain	WG2	to DTEC5
DTEC4	15.5.4	Recommendations for updating the cybersecurity related chapters of the MASS Guideline	WG2	to DTEC5
DTEC4	15.5.5	Input Paper on Progress Update for Task on Developing a Discussion Paper on Digitalisation in the Scope of IALA	WG2	to DTEC5
DTEC4	15.5.6	Draft IALA Guideline on Digitalization of waterways	WG2	to DTEC5

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
DTEC5	15.2.1	Input Paper to NCSR13	WG1	Council
DTEC5	15.2.2	Liaison note to PAP, ARM, and VTS regarding MRN	WG1	PAP, ARM, VTS
DTEC5	15.2.3	Liaison note to VTS, ARM, and ENG on operational IALA MCP instance	WG1	VTS, ARM, ENG
DTEC5	15.2.4	Liaison note to PAP on MCP	WG1	PAP
DTEC5	15.2.5	Revised Guideline G1191	WG1	Council
DTEC5	15.3.1	Liaison note to ARM, ENG, VTS on Tech Review Summary Table	WG2	ARM, ENG, VTS
DTEC5	15.3.2	Task proposal IMT-Family Application to the Maritime Domain	WG2	Secretariat
DTEC5	15.3.3	Information paper to IMO NCSR on IALA Workshop on International Mobile Telecommunication (IMT) for Marine Aids to Navigation	WG2	Council
DTEC5	15.3.3.1	Report on the on IMT Workshop for Marine AtoNs	WG2	Council
DTEC5	15.3.4	Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization	WG2	ARM, ENG, VTS
DTEC5	15.3.5	Liaison note DTEC to all committees on AI Guideline G1178	WG2	ARM, ENG, VTS
DTEC5	15.3.5.1	Revised G1178 An intro to AI in IALA Domain	WG2	ARM, ENG, VTS
DTEC5	15.3.6	Liaison note to ARM on draft Recommendation on Digitalization Marine AtoN	WG2	ARM
DTEC5	15.3.7	Liaison note to all committees on Digitalisation of Waterways Guideline	WG2	ARM, ENG, VTS
DTEC5	15.3.7.1	Draft Guideline on Digitalization of waterways	WG2	ARM, ENG, VTS
DTEC5	15.4.1	Liaison note to IEC TC80 WG15	WG3	Council
DTEC5	15.4.2	Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1	WG3	Member States
DTEC5	15.4.3	Revised Recommendation R0144	WG3	Council

Working papers will remain within the Committee for further review during DTEC6.

Meeting	Agenda Item	Working Paper Title	Source	Action
DTEC5	15.5.1	Proposal on the revision of relevant sections of the NAVGUIDE 2023 (DTEC5-6.2.0.1)	All	to DTEC6
DTEC5	15.5.2	Draft guideline implementation of innovation	WG2	to DTEC6
DTEC5	15.5.3	Draft Discussion Paper ON VISION TOWARDS DIGITALIZATION IN THE IALA DOMAIN V3.2	WG2	to DTEC6
DTEC5	15.5.4	G1178 DRAFT An intro to AI_ML in IALA Domain	WG2	to DTEC6
DTEC5	15.5.5	Draft Guideline on Digitalization of waterways	WG2	to DTEC6
DTEC5	15.5.6	VDES Protocol Format Id updates	WG3	to DTEC6
DTEC5	15.5.6.1	Draft Recommendation VDE Protocol Format Identifiers	WG3	to DTEC6
DTEC5	15.5.7	G1117 Ed3.0 VHF Data Exchange System (VDES) Overview	WG3	to DTEC6

Action Item Number	Action Items for the IALA Secretariat	Task Number
AI-DTEC5-1	<i>The Secretariat is requested to forward the output documents DTEC5-15.2.2 Liaison Note on IALA MCP Instance to PAP for consideration.</i>	DTEC 7.1.14
AI-DTEC5-2	<i>The Secretariat is requested to forward the output documents, DTEC5-15.2.3 Liaison Note to VTS, ARM, and ENG on the IALA MCP Instance, to all committees for consideration.</i>	DTEC 7.1.14
AI-DTEC5-3	<i>The Secretariat is requested to forward the output document 15.2.2 to ARM and VTS for their consideration and to PAP for decision.</i>	DTEC 7.2.1
AI-DTEC5-4	<i>The Secretariat is requested to forward the output document 15.2.1 to the Council for approval.</i>	DTEC 7.2.1
AI-DTEC5-5	<i>The Secretariat is requested to forward the output document DTEC5-15.2.5 Revised Guideline G1191 Ed1.1 to the Council for approval.</i>	DTEC 7.1.17
AI-DTEC5-6	<i>The Secretariat is requested to forward the output document DTEC5-15.2.2 Liaison Note on MRN to ARM and VTS for their consideration and to PAP for decision.</i>	DTEC 7.2.1
AI-DTEC5-7	<i>The Secretariat is requested to forward the output document DTEC5-15.2.1 Input Paper to NCSR13 to the Council for approval.</i>	DTEC 7.2.1
AI-DTEC5-8	<i>The Secretariat is requested to forward the DTEC5-15.5.2 Draft Guideline for Innovation Implementation as a working document to DTEC6.</i>	DTEC 1.2.1
AI-DTEC5-9	<i>The Secretariat is asked to forward the working paper DTEC5-15.3.6 Liaison note on the draft Recommendation on Digitalization of Marine AtoN to ARM.</i>	DTEC 1.2.4
AI-DTEC5-10	<i>The Secretariat is asked to forward DTEC5-15.3.5 Liaison note to all committees on AI Guideline G1178, to ENG, ARM, and VTS for consideration.</i>	DTEC 1.2.5
AI-DTEC5-11	<i>The Secretariat is asked to follow up on the necessary procedures with the aim of introducing IALA at the 3GPP PCG meeting in November.</i>	DTEC 6.2.1
AI-DTEC5-12	<i>The Secretariat is requested to forward DTEC5-15.3.4 Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization to all committees.</i>	DTEC 7.1.1
AI-DTEC5-13	<i>The Secretariat is requested to forward the working paper DTEC5-15.5.3 Developing a Discussion Paper on Digitalisation in the Scope of IALA (Task DTEC 7.1.1) to DTEC6 for further review.</i>	DTEC 7.1.1

AI-DTEC5-14	<i>The Secretariat is requested to forward DTEC5-15.3.3 Information paper of IALA Workshop on International Mobile Telecommunication (IMT) for Marine Aids to Navigation to IMO NCSR.</i>	DTEC 7.2.2
AI-DTEC5-15	<i>The Secretariat is requested to review DTEC5-15.3.2 – New Task Proposal IMT-Family Application to Maritime (within the domain of IALA) and confirm the next steps for action on the new task proposal.</i>	DTEC 7.2.2
AI-DTEC5-16	<i>The Secretariat is requested to forward DTEC5-15.3.1 Liaison note on Update of Emerging Technology Review to ENG, ARM, and VTS.</i>	DTEC 8.3.1
AI-DTEC5-17	<i>The Secretariat is requested to invite IMPA to keep the Committee informed about the progress of the International Study on Remote Pilotage (R-Pilot) and any areas where it may be beneficial to develop consequential technical recommendations and guidelines within the respective areas of expertise of the organisations, following the cooperative agreement between IALA and IMPA.</i>	DTEC 8.3.1
AI-DTEC5-18	<i>The Secretariat is requested to forward the output DTEC5-15.4.3 Revised Recommendation R0144 to the Council for approval.</i>	DTEC 6.3.6
AI-DTEC5-19	<i>The Secretariat is requested to support the output document DTEC5-15.4.2 Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1 from the floor during the ITU-R WP5B meeting, 18-27 November 2025.</i>	DTEC 6.3.7
AI-DTEC5-20	<i>The Secretariat is requested to forward the output documents DTEC5-15.4.1 Liaison to IEC on the new requirements from IMO on AIS Authentication to Council for approval, with subsequent submission to IEC TC80 WG15.</i>	DTEC 6.3.7
AI-DTEC5-21	<i>The Secretariat is requested to forward DTEC5-15.3.7 Liaison note to ARM, ENG, VTS on Draft Discussion Paper on IALA Vision Towards Digitalization and DTEC5-15.3.7.1 Draft Guideline on Digitalization of waterways to all committees.</i>	DTEC 7.1.2
AI-DTEC5-22	<i>The Secretariat is requested to forward the working paper DTEC5-15.5.5 Draft Guideline on Digitalization of waterways (Task DTEC 7.1.2) to DTEC6 for further review.</i>	DTEC 7.1.2
Action Item Number	Action Items for Participants	Task Number
AI-DTEC5-23	<i>IALA Members are encouraged to prepare an input paper with the proposals for updates to G1128 for DTEC6.</i>	DTEC 7.1.5
AI-DTEC5-24	<i>Committee participants are invited to join the intersessional task group meeting to progress the work on the IALA MCP Instance on 30 October 2025 at 08:00 UTC, and are encouraged to express interest in this task by contacting Thomas Christiansen (thomas@dmc.international).</i>	DTEC 7.1.14

AI-DTEC5-25	IALA Members are encouraged to contribute to the VTS committee intersessional work group on VTS information services to address disaster management issues.	DTEC 7.1.15
AI-DTEC5-26	IALA Members are requested to review the draft guideline on the implementation of innovation and provide input to DTEC6, noting that the document is scheduled for completion.	DTEC 1.2.1
AI-DTEC5-27	Committee participants are invited to join the intersessional task group meeting to progress the work on the Guideline G1178 (Task DTEC-1.2.5), and are encouraged to express interest in this work by contacting Olaf Christian (olaf.christians@airbus.com) before 1 Dec 2024.	DTEC 1.2.5
AI-DTEC5-28	Committee participants are invited to send an email to the task group leader, H Koo (koo@synctechno.com), by 31 October 2025 to join the correspondence group for the intersessional work on the task DTEC-6.2.1 on developing use cases for maritime in IMT-2030 and on discussing how to integrate Annex F of the Karlsruhe workshop report into the drafting of the IALA Guideline on IMT-2030, respectively.	DTEC 6.2.1
AI-DTEC5-29	IALA Members are invited to note the revision of the G1153 Template for the Review of Emerging Technologies for Possible Use by IALA Members and provide input to DTEC6.	DTEC 8.3.1
AI-DTEC5-30	IALA Members are requested to identify any new emerging technologies that may be suitable for review and provide input to DTEC6.	DTEC 8.3.1
AI-DTEC5-31	Committee participants are invited to join the intersessional task group meeting to progress the work on the guideline on VDES resource sharing, and are encouraged to express interest in this task by contacting Koichi Yoshida (koichi.yoshida.bbnj@gmail.com).	DTEC 6.3.8
AI-DTEC5-32	Committee participants are invited to contribute to the work on the VPFI updates in the correspondence group and encouraged to express interest in this task by contacting Stefan Pielmeier (sp@albatros-tech.eu).	DTEC 6.3.6
AI-DTEC5-33	Committee participants are invited to provide proposals to Guideline G1117 at DTEC6, using the working document in track changes to highlight their modifications compared to the working version.	DTEC 6.3.6
AI-DTEC5-34	Committee participants are invited to request that the country's ITU-R WP5B representatives support the DTEC5-15.4.2 Draft input to ITU-R WP5B on the revision of ITU-R M.2092-1 from the floor during the ITU-R WP5B meeting, 18-27 November 2025.	DTEC 6.3.7
AI-DTEC5-35	Committee participants are invited to join the intersessional task group to advance the work on the Shore-based VDES infrastructure	DTEC 6.3.10

	<i>guideline and are encouraged to express interest in this task by contacting Lukas Kim (lukaskimatwork@all4land.com).</i>	
AI-DTEC5-36	Committee participants are kindly asked to provide feedback about the draft of the IMO Performance standard for R-Mode receiver equipment to Ronald.Raulefs@dlr.de by November 7, 2025, at the latest.	DTEC 6.3.14
AI-DTEC5-37	Committee participants are invited to contribute to the revision of the working document DTEC5-15.5.7 G1117 Ed3.0 VHF Data Exchange System (VDDES) Overview for the next DTEC6 meeting in track changes.	DTEC 6.3.14
AI-DTEC5-38	Committee participants are invited to contribute to the revision of Guideline G1158 in preparation for the DTEC6 meeting.	DTEC 6.3.14
AI-DTEC5-39	The Chair is kindly asked to bring the request from the DTEC Committee to have a DTEC meeting in the second half of 2027 to PAP and decide as appropriate.	

Working Group 1**Digital Information Systems**

Chair – Axel Hahn, German Aerospace Centre

Vice-chair – Jin Hyoung Park, Aivenautics

Last name	First name	Organization	Task Number
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Michael	Strandberg	Danish Maritime Authority	
Matthew	Williams	IMPA	
Jochen	Ritterbusch	Federal Maritime and Hydrographic Agency	
Maarten	Berrevoets	Ministry of Infrastructure and Water Management	
Dayoung	Park	Korea Maritime Cooperation Center	
Sanghyun	Kim	Ministry of Oceans and Fisheries	
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Julius	Moeller	Australian Maritime Safety Authority	
Ramli	Yusoff	Marine Department Malaysia	
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Juho	Pitkänen	Fintraffic VTS	
Nurullah	Koç	Directorate of General coastal safety of Republic of Türkiye	
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Matthew	Williams	IMPA	
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Mikael	Renz	Sweden	
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Chair – Stefan Pielmeier, Sternula AS

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

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Borghese	Francesco	ELMAN S.r.l.	All
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Watanabe	Hiroaki	TST Corporation	All
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Kim	Younghun	GMT Co Ltd	
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Last name	First name	Organization	Task Number
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Mohd Daud	Norazihan	Ministry of Transport Malaysia	
van Gils	Jeffrey	Ministry of Infrastructure and Water Management	
Safar	Jan	General Lighthouse Authorities of the UK & Ireland	6.3.4
Kogo	Kenji	IHI Corporation	All
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Shim	Woo-Seong	KRISO	All
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Yao	Gaole	China MSA	All
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Gallagher	Patrick	US Coast Guard	All
Touray	Ousman	Gambia Maritime Administration	All
Saidykhan	Abas	Gambia Maritime Administration	All
Åsheim	Harald	Norwegian Coastal Administration	All
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