



IALA DTEC COMMITTEE

REPORT OF THE SECOND SESSION OF THE DIGITAL TECHNOLOGIES (DTEC) COMMITTEE

18 – 28 March 2024

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28 March 2024

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Report of the second session of the Digital Technologies (DTEC) committee

Executive Summary

The second session of the Digital technologies committee was held from 18 to 28 March 2024, chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The technical officer for the meeting was Jaime Alvarez.

There were 124 registered participants, 39 for the first time, from 25 countries and 5 sister organisations.

This was the second meeting for the 2023-2027 Work Programme, and the Committee considered 59 input papers and produced 22 output papers.

Key highlights:

- The DTEC Committee concluded the following review or draft Recommendation:
 - DTEC2-12.2.1.7 Review R1019 on Provision of maritime services in the context of e-Navigation in the domain of IALA
 - DTEC2-12.2.3.1 Review R1007 Ed1.1 The VHF Data Exchange System (VDES) for Shore Infrastructure
- The DTEC Committee concluded the finalization or review of the following guidelines:
 - DTEC2-12.2.1.2 Draft Guideline on Cyber Security
 - DTEC2-12.2.1.6 Draft Guideline on provision of MCP identities
 - DTEC2-12.2.1.8 G1128 Specification of e-Navigation Technical Services
 - DTEC2-12.2.1.8.1 G1128 ANNEX A Technical Service Specification Template
 - DTEC2-12.2.1.8.2 G1128 ANNEX B Technical Service Design Template
 - DTEC2-12.2.1.8.3 G1128 ANNEX C Service Instance Description Template
- The DTEC Committee concluded the following liaison notes:
 - DTEC2-12.2.1.1 Liaison note to ENG and ARM on Cyber Security Guideline
 - DTEC2-12.2.1.3 Draft Circular to IMO on Harmonisation of identifiers using MRN
 - DTEC2-12.2.1.4 Draft Input to NCSR on Use of MRN Circular
 - DTEC2-12.2.1.5 Liaison note to ARM on IMO Circular on MRN
 - DTEC2-12.2.1.10 Liaison note to IEC on the request to use elements of IEC 63173-1 in IALA Documents
 - DTEC2-12.2.1.11 Liaison note to Council on Maritime Connectivity Platform
 - DTEC2-12.2.1.12 Liaison note to ARM on R1019
 - DTEC2-12.2.2.1 Liaison note to 3GPP TSGs on the Update of IALA Task for Marine AtoN over IMT-2030
 - DTEC2-12.2.2.2 Liaison note to ARM, ENG, VTS on Tech Review Summary Table
 - DTEC2-12.2.2.3 Liaison note to IMO/ITU joint Experts Group on IALA Task for Marine AtoN over IMT-2030
 - DTEC2-12.2.2.4 Liaison note to ITU-R SG5 on IALA Task for Marine AtoN over IMT-2030
 - DTEC2-12.2.3.2 Liaison note to ENG on IALA Workshop on future radionavigation and radiocommunication systems
 - DTEC2-12.2.3.3 Liaison note to ENG on VDE-SAT

Planned intersessional work before DTEC2:

- Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN
 - 11 June 2024, 09:00-10:30 UTC
 - 29 August 2024, 09:00-10:30 UTC
- Task on Develop guidance on Digitalisation of Waterways (DTEC-7.1.2)
 - Tuesday 7 May 2024, 12:00 – 14:30 UTC
 - Thursday 27 June 2024, 12:00 – 14:30 UTC
 - Thursday 15 August 2024, 12:00 – 14:30 UTC

- Task on Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (MASS) DTEC-1.2.4
 - Wednesday 8 May 2024, 0900-1030 UTC
- Task on VDES Shore Infrastructure (DTEC-6.3.6)
- DTEC WG3 hybrid meeting to finalize a working document towards the preliminary draft revision of ITU-R M.2092-1:
 - The goal is to prepare a liaison note to ITU WP5B for DTEC3 using the collected ITU-R M.2092-1 change proposals.
 - The intersessional meeting will be held from 31 July to 2 August 2024, from 0900 - 1700 local time each day, at the RTCM HQ in Washington DC (1150 18th Street NW Suite 910, Washington, DC 20036 US), Room - A4A and Room – ARINC.

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Report of the second session of the Digital Technologies (DTEC) committee

1. INTRODUCTION

The second session of the Digital technologies committee was held from 18 to 28 March 2024, chaired by Hideki Noguchi and vice-chaired by Jorge Arroyo. The technical officer for the meeting was Jaime Alvarez.

There were 124 registered participants, 39 for the first time, from 25 countries and 5 sister organisations.

This was the second meeting for the 2023-2027 Work Programme, and the Committee considered 59 input papers and produced 22 output papers.



1.1 Welcome from the Secretary-General

The Secretary-General, Francis Zachariae, welcomed all participants on-site and on line and was glad to see them during the DTEC2 session.

The Secretary-General, noticed with special interest the working papers on MASS and cyber security. It was also noted the number of inputs on communication in general, including digital voice, AMSAs proposal for an IMO circular Letter on MRN, model courses, MCP guideline, the number of papers on VDES and the proposal for a guideline on digital waterways. All these aspects demonstrate the role of IALA as a forum for sharing experience and knowledge.

The Secretary-General recognised the nature of the work being more and more transversal, thus including other committees, some examples as digital communication, MRN and S100, MCP, Cyber security and MASS show this. The MASS report from the workshop held in the HQ – October 2023, which is an input paper and available on the website address relevant conclusion and is useful to guide the IALA members in the right direction when it comes to the future autonomy of ships.

The Secretary-General, addressed the process of transforming IALA to an Intergovernmental Organization with a current status of 27 ratifications made by the parliaments of the different states, other two ratifications or accessions to the Convention are in the pipeline. When 30 States have ratified, accepted or acceded to the Convention, IALA will be an IGO.

The Secretary-General wished all the participants good luck and thanked them once again for their contribution to the IALA family over this busy period.

1.2 Approval of the agenda

The agenda (DTEC2-1.2.1) was reviewed and adopted.

1.3 Introductions and apologies

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

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

No apologies were received.

1.4 Working arrangements

The following statements were read to Committee members:

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

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

2. REVIEW OF ACTION ITEMS FROM DTEC1

2.1 Action Items – IALA Secretariat

All action items from DTEC1 (DTEC2-2.1.1) were covered before the present meeting.

2.2 Action Items – DTEC Committee Participants

The Chair reviewed the progress of the action items with no further comment.

3. REPORTS FROM OTHER BODIES

3.1 IALA

3.1.1 IALA Council

Minsu Jeon, the Technical Operations Manager, reported on various key outcomes and decisions made at the Council meeting 79 held from 11 to 14 December 2023, at the Headquarters. This session marked the beginning of the new 2023 - 2027 work period. A significant outcome was the approval of the revised committee work program.

During the meeting, several documents were approved by the Council, including Guideline G1180 focusing on Resilient Position, Navigation, and Timing, the updated Model Course C0103-2 for VTS Supervisor training, and Guideline G1181, addressing VDES VHF Data Link (VDL) Integrity monitoring. Additionally, the Council endorsed a workshop proposal concerning the VTS competent authority, with Italy offering to host the event.

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

The Secretariat presented a paper to the Council on the necessity for more frequent updates to manuals, highlighting the rapid pace of technological evolution and the need for timely updates to ensure relevance

and effectiveness. The request for authorization to implement a new process allowing committees to expedite the publication of updates to manuals was approved.

The Council also expressed interest in the progress of the Maritime Connectivity Platform, tasking the Secretariat with preparing a detailed report for presentation at the 80th Council meeting in June. The discussion concluded that this paper would be developed by the Secretariat and will be based upon the work by the DTEC Committee.

Furthermore, a councillor requested the generation of a harmonized list of work item progress status. Discussion followed regarding the means of providing an overview of the status to the work that led to the Secretariat's agreeing evaluate the means of reporting to ensure consistency in reporting in the new work program online platform.

3.1.2 IALA Policy Advisory Panel

Minsu Jeon, reported that the 52th session of PAP which took place from 6th to 8th February 2024. Key highlights included the decision to implement new work programme tools for upcoming committee seasons and the approval of draft Terms of Reference (ToRs) for Committees and Subsidiary Bodies within the new Intergovernmental Organization (IGO) for submission to the inaugural General Assembly.

Additionally, updates were provided on various matters, including IALA's involvement in the review of the STCW Code, AIS document review, S-200 development, document management and data harmonization.

3.1.3 World Wide Academy

Latifa Oumouzzoune provided the Academy update (Training and Capacity building activities) during the previous years with a focus on the expected work to be done on bringing up to date the content of the modules including DTEC, VTS and the future workshop on AtoN engineering discussions.

3.2 Digital@Sea

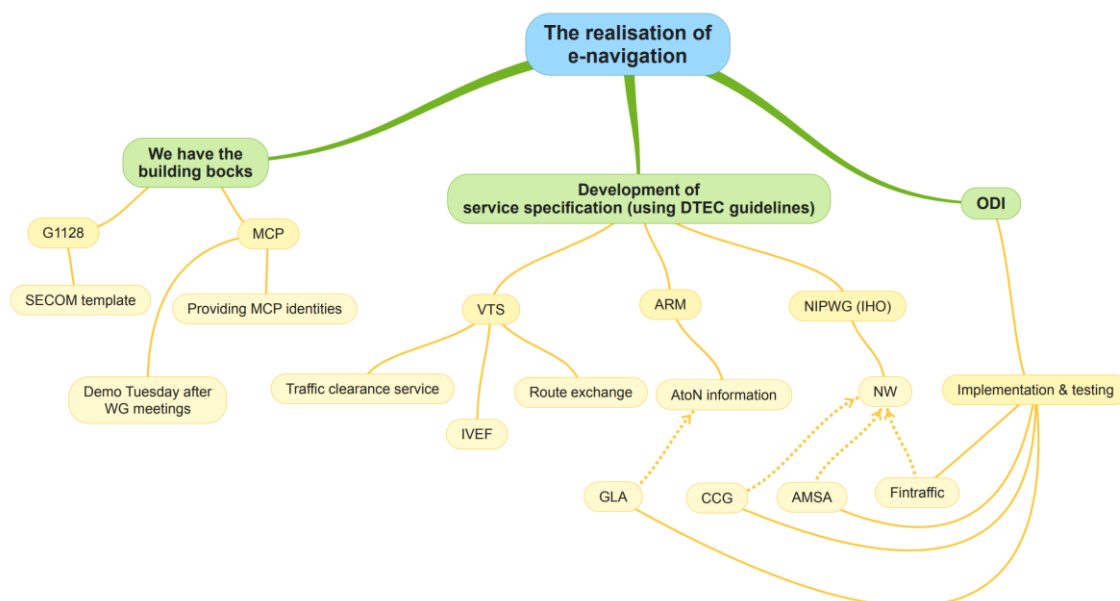
Minsu Jeon reported the innovative approach taken at the recent Digital@Sea International held in Copenhagen, Denmark on 30-31 Jan 2024. Discussion noted that with three events the schedule was reasonably intense and this would be discussed at the next steering committee.

The dates for the upcoming Digital@Sea Conferences are:

- Digital@Sea North-America on 8-9 May 2024 in Atlantic Beach, FL, US
- Digital@Sea Asia Pacific and Capacity Building workshop in 2024 in Seoul, Korea

3.2.1 MCP and the Open Digital Incubator

Thomas Christensen provided a briefing on the implementation of eNavigation through a number of organisations (National members) wishing to provide different services using the MCP, as shown in the following diagram:



It is also relevant to note the guidelines, services and entities dedicated to the different purposes of such implementation.

3.3 IMO

Hideki Noguchi provided a summary of milestones reached during the recent IMO meetings – The input paper DTEC2- 3.5 IALA Report Joint IMO-ITU Expert group 9th to 13th October 2023 was addressed:

- Briefing on the outcome of relevant IMO and ITU bodies
- Draft performance standards for NAVDAT and amendments to resolution MSC.509(105)
- Revision of resolution A.1001(25) - Provision of recognised mobile satellite services for the global maritime distress and safety system (GMDSS)
- Consideration of matters related to VDES
- Improving the security and integrity aspects of AIS
- Presentation on "AIS security" by Gareth Wimpenny, CIRM
- Presentation on "VHF Data Exchange System" by Hideki Noguchi, Japan

3.4 IHO

Minsu Jeon has provided an update on the recent activities with the IHO. A liaison note from IALA to NIPWG concerning S-125 was issued. Additionally, steering committee meetings took place regarding the upcoming second IALA IHO joint workshop on S-100/200, scheduled to be held in Annapolis, USA, from 9 – 13 September 2024. The registration for the event will be published on the IALA website soon.

He also emphasized that finalizing S-125 is crucial for advancing S-124, and the IHO will be invited to the headquarters for further liaison and discussions on this matter, among others.

The importance of IALA's participation at the Regional Hydrographic Commissions was also stressed, highlighting the value of collaboration and engagement between IALA and the hydrographic commissions at a regional level to promote the work around AtoN.

3.5 ITU

3.5.1 ITU-R WP5B

Stefan Bober, IALA representative in ITU provided a summary of activities addressed during the 3 weeks work in Dubai during the WRC-23.

The full report is available under the reference DTEC2-3.5.1 IALA Report of ITU WRC-23 Dubai 20 November to 15 Dec 2023.

3.6 IEC

Stefan Bobber reported the committee about the progress on IEC TC80 WP15 responsible for AIS and VDES. The group is assigned to produce test standards for VDES mobile stations within the next two years. The standard should be published in 2026. First VDES standards for mobile units and shore infrastructure / base stations are needed shortly after the previous one. The full report is available as input paper for DTEC2 / DTEC2-3.6 IEC TC80 WG 15 - AIS and VDES - Report to IALA DTEC2.

3.7 ISO

Jin H Park provided a summary of action in ISO that are related to DTEC scope of work. ISO has several subcommittees and working groups related to the maritime sectors. IALA is currently following activities of such committees and working groups.

Among them, the committee most related to IALA DTEC is the ISO/IEC JTC1 SC41 IoT and Digital Twin Subcommittee, which operates jointly with IEC. In particular, the WG7 of the SC41, where I serve as the convener, is focused on Maritime, underwater IoT and digital twin applications.

The question on harmonisation of data elements were addressed at this stage by some participants having in mind the different organisation/entities that contribute and harmonise data elements;

- IALA → MRN and S-200
- IHO → S-100
- FAL → IMO FAL Compendium
- MSC → Common Maritime Data Structure (CMDS)
- ISO

It is clear that in IALA, the committee in charge of contribution and harmonisation of the IALA data elements is the ARM Committee, so participants, external organisations and sister organisations should refer to the ARM Committee.

3.8 RTCM

Jorge Arroyo continued with the update on RTCM, Digital@Sea North America will be hosted by RTCM followed by the RTCM assembly. DTEC vice chair invited all participants to the 2024 Digital@Sea North America Conference 8 – 9 May 2024, in Atlantic Beach, FL, USA, with the theme of "Evolving Navigation through eNavigation."

Jorge Arroyo mentioned the following special committees as relevant for the DTEC committee (among others):

- Special Committee 121 on Automatic Identification Systems (AIS) and Digital Messaging
- Special Committee 138 on Ranging Mode (R-Mode) Application for VHF Data Exchange System (VDES)
- Special Committee 139 on Digital Maritime Messaging Service

3.9 3GPP

Hyunhee Koo (3GPP representative/SyncTechno Inc.) provided an update on the Release 19 prioritization outcomes as concluded in the 3GPP TSG plenaries in December 2023. Koo presented the list of studies that have been decided to be standardized within the Release 19 Stage 2 and Stage 3 timeline, focusing on system architecture and radio interface perspectives. Koo highlighted that, during the 3GPP TSG plenary in December, the ongoing efforts by public safety stakeholders since 2013 culminated in achieving a consensus among the majority of stakeholders on the development of features supporting device-to-device communication with a single-hop relay. This is particularly significant in scenarios where network infrastructure is inaccessible, all within the Release 19 timeline.

Furthermore, Hyunhee Koo noted that the timeline for Release 20, considered the first release for IMT-2030, is expected to be decided in a 3GPP TSG plenary scheduled for the same week as the DTEC2.

Lastly, Hyunhee Koo mentioned that further review and discussion on the 3GPP update presentation would continue during DTEC WG2 meeting. Koo requested that participants attending the DTEC Committee pay special attention to the Task Group on Marine AtoN over IMT-2030 within DTEC WG2 during this time and at intersessional meetings between DTEC2 and DTEC3.

4. PRESENTATIONS

Presentations below were provided during the Opening Plenary, and the links are available in the [dashboard](#):

4.1 Demonstration of the digital voice communication - Miyuki Haraguchi (Japan Coast Guard)

Miyuki Haraguchi provided an overview of the tests performed using analogue and digital VHF means. The role of using the right CODEC was addressed due to the high performances achieved with digital VHF voice communications, but still some progress can be made to obtain the full capabilities of the system.

The presentation with the voice tests can be found as part of DTEC2 [inputs](#) with number DTEC2-4.1 Demonstration on Digital Voice Communication.

4.2 ESA project on VDES R-Mode: ICING – Hans Christian Haugli (Space Norway)

Hans Christian Haugli provided the overview of the project aiming at providing timing through VDE-SAT.

4.3 Presentations during the working period

The following presentations will be held during the working group sessions.

4.3.1 Demonstration MMS over VDES – Thomas Christensen (MCP) / Jin H Park (AIVeNautics) / Stefan Pielmeir (Sternula)

The demonstration aims at proving the transfer of data standardised according to the IALA Guidelines through the MCP using IP, then VDES satellite connectivity. The data transferred was a demo navigation warning. The trial was successfully achieved and a relevant explanation of the shore/ship hardware needed was also provided. The demonstration is available [online](#).

4.3.2 Technical presentation ESA project on VDES R-Mode: ICING – Anders Bjornevik and Oyvind Pettersen (Kongsberg)

Anders Bjornevik and Oyvind Pettersen went more in depth into the project, providing detailed information on the architecture, receiver, shore and satellite components and the performance tested and results issued from the campaigns. The recording can be found [here](#).

4.3.3 Digitalisation of waterways – Henna Uronen, Heikki Paukeri and Kaj Lundqvist (FTIA)

The speaker provided the finish approach for digitalization in their waterways. The recording is available through this [link](#).

4.3.4 Update on the use of LEO satellites – JF Coutu (Canadian Coast Guard)

The recording is available through this [link](#).

5. REVIEW OF INPUT PAPERS

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

6. ESTABLISH WORKING GROUPS AND TASK GROUPS

The Chair invited all Working Group Chairs to introduce the work planned for the DTEC2.

Working Group (WG)	Working Group Chair / Vice Chair
WG1 – Digital Information System	Axel Hahn / Jin H Park
WG2 – Emerging Digital Technology	Jillian Carson-Jackson / Woo-seong Shim
WG3 – Digital Communication System	Stefan Pielmeier / Stefan Bober

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

7.1 Synopsis of the session

The WG worked on several tasks regarding cyber security, MRN, and MCP specifications, discussed options for ASM Product Specification (PS) and worked on technical specifications in cooperation with SECOM and an update of G1128.

7.2 Review of Work Plan

Referencing Document(s): DTEC WG1 Work Program

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

7.3 Task on Maritime Connectivity Platform specifications (DTEC-7.1.4)

Task Group Leader: Michael Thomsen, Thomas Christensen

Referencing Document(s):

5.2.1.3	Introducing MCP identities to the IALA domain February 2024
5.2.1.3.1	IALA Guideline on the provision of MCP identities
5.2.1.3.2	A proposed update to IALA Recommendation R1019

Two documents were on the table in the working group. A proposed guideline on the provisioning of MCP identities, and a proposed update of G1019 on Provision of maritime services in the context of e-navigation in the domain. The purpose of the latter is to reflect the specific work done on e-navigation in IALA, i.e. development of product specifications, technical service specifications and MCP specifications.

Output:

DTEC2-12.2.1.6 Draft Guideline on the provision of MCP identities

DTEC2-12.2.1.7 Review R1019 on Provision of maritime services in the context of eNavigation in the domain of IALA

Action item

The **Secretariat** is requested to forward the output documents, DTEC2-12.2.1.6, Draft Guideline on the provision of MCP identities to Council for approval.

The **Secretariat** is requested to forward the output document DTEC2-12.2.1.7 Review R1019 on Provision of maritime services in the context of eNavigation in the domain of IALA to ARM Committee.

7.4 Task on Develop guidance on cyber security for Marine AtoN (DTEC-1.4.2)

Task Group Leader: Gerrit Jan de Bie

Referencing Document(s):

DTEC2- 5.2.0.4	Liaison note ARM to all committees on cyber security guideline.
DTEC2-5.2.0.4.1	Draft Guideline on Cyber Security.

WG1 reviewed and edited DTEC2-5.2.0.4.1 received from the VTS committee to be forwarded to ARM and ENG.

Outputs:

DTEC2-12.2.1.1 Liaison Note from DTEC2 to ARM and ENG on Cyber Security guideline

DTEC2-12.2.1.2 Draft Guideline on Cyber Security (ARM17-11.3.3.1)

Action item

The **Secretariat** is requested to forward the output documents on DTEC2-12.2.1.1 Liaison Note from DTEC2 to ARM and ENG on Cyber Security guideline and DTEC2-12.2.1.2 Draft Guideline on Cyber Security to ARM and ENG Committee.

7.5 Task on Product Specification for Disaster Management (DTEC-6.1.1)

Task Group Leader: Kinji Takeuchi, Jin Hyoung Park

Referencing Document(s):

5.2.1.1	Proposal for the development of a new Product Specification on Application Specific Messages (ASM) for disaster management
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WG1 and WG3 held a joint meeting to discuss the proposal. The need and feasibility of the work were discussed, leading to the following conclusions:

- (1) WG1 works on a draft data model for the proposed service on data exchange,
- (2) WG1 provides examples of data from actual analyzed use cases,
- (3) WG3 assesses the size, and proper methods for serialization and compression of the data for the usage for ASM in general,
- (4) WG3 proposes alternative VDES methods for the transport of this data (ASM (VDES channel), VDE-TER and/or VDE-SAT).

It was also concluded that results from (4) should be added to the S-100 Hydrographic Data Model part 14 for use in other product specifications.

Action item

That **Committee participants** are requested to approve the new task to develop PS for ASM-based communication for disaster management.

That **Committee participants** are invited to provide input to develop PS for ASM-based communication for disaster management to DTEC3.

7.6 Task on Maritime Resource Names (MRN) (DTEC-7.2.1.a)

Task Group Leader: Rasmus Madsen Jensen

Referencing Document(s):

5.2.1.2	Input paper on MRN
5.2.1.2.1	Annex 1- Draft Circular to MSC on Harmonisation of identifiers using MRN
5.2.1.2.2	Annex 2 - Draft Input to NCSR on Use of MRN Circular
IMO NCSR 10/7	Consideration of descriptions of maritime services in the context of e-Navigation – Harmonization of identifiers using Maritime Resource Names.
IMO NCSR 10/22	Report to the Maritime Safety Committee (see sections 7.3, 7.4)

IALA submitted a paper (NCSR 10/7) to NCSR introducing Maritime Resource Names (MRN). The paper was noted by the Sub-Committee, and IALA representatives also presented the concept of MRN in plenary. The NCSR Sub-Committee invited interested Member States and organisations to submit detailed proposals on an IMO circular to provide guidance to Member States on the use of MRN.

The first document, DTEC2-5.2.1.2.1, contains a draft IMO Circular to MSC on Harmonisation of identifiers using MRN that includes guidance on how to implement MRNs and a list of MRN use-cases for consideration of the Sub-Committee. The second document, DTEC2-5.2.1.2.2, contains a draft input to NCSR on the use of MRN and the reference to the IMO MSC Circular which is DTEC2-5.2.1.2.1.

The WG1 reviewed and revised the document. This paper can also be used as an informative document for IALA members, or to update existing IALA guidance.

During the discussion, it was proposed to separate G1143 into two parts, namely “Part1: Generic guidance on MRN” and “Part2: Guidance on applying MRN in the domain of IALA” to provide more organization-agnostic information on MRN.

Outputs:

DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of Identifiers using MRN

DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of Identifiers using MRN

DTEC2-12.2.1.5 Liaison note to ARM on IMO Circular on MRN

Action item

The **Secretariat** is requested to forward the following output documents to ARM: DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of identifiers using MRN; the DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of identifiers using MRN and the DTEC2-12.2.1.5 Liaison note to ARM on IMO Circular on MRN.

That Committee participants are requested to consider separating G1143 into two parts as proposed: namely “Part1: Generic guidance on MRN” and “Part2: Guidance on applying MRN in the domain of IALA” to provide more organization-agnostic information on MRN.

7.7 Task on G1128 Specification of e-Navigation Technical Services (DTEC-7.1.5)

Task Group Leader: Thomas Christensen, Juho Pitkänen, Mikael Olofsson

Referencing Document(s):

5.2.1.4	Input on the proposed update of IALA Guideline G1128
5.2.1.4.1	G1128 Ed1.5 Draft v4 Specification of e-Navigation Technical Service
5.2.1.5	Input on SECOM design template
5.2.1.5.1	IALA Service Design - Template SECOM REST before DTEC02

A new version of G1128 'The Specification of e-Navigation Technical Services' was discussed and amended.

In addition to G1128 itself - a template for service designs using SECOM was discussed. In principle the document was accepted - but since it uses elements from the IEC standard IEC 63173-2 (SECOM), the task group prepared a liaison note to IEC asking for permission to use these elements in this IALA document.

Thus, the SECOM design template is passed on to DTEC3 and a liaison note to IEC is forwarded for approval by the committee.

Guideline G1128 shall be available on the web site of IALA. The accompanying Word Templates (Annexes to G1128) shall be made available on the IALA web page for technical services.

Outputs:

DTEC2-12.2.1.8	G1128 Specification of e-Navigation Technical Service
DTEC2-12.2.1.10	Liaison note to IEC: Request to use elements of IEC 63173-2 in IALA document
DTEC2-12.2.1.9	Service Design Template for SECOM Service

Action item

*The **Secretariat** is requested to forward, DTEC2-12.2.1.8, G1128 Specification of e-Navigation Technical Service to Council for approval.*

*The **Secretariat** is requested to publish the accompanying Word Templates DTEC2-12.2.1.8.1 G1128 ANNEX A Technical Service Specification Template; DTEC2-12.2.1.8.2 G1128 ANNEX B Technical Service Design Template; DTEC2-12.2.1.8.3 G1128 ANNEX C Service Instance Description Template on the IALA web page for technical services if the Council approve the revised Guideline.*

*The **Secretariat** is requested to forward DTEC2-12.2.1.10 LN to IEC: Request to use elements of IEC 63173-2 in IALA document to Council for approval and to forward it to IEC.*

*The **Secretariat** is requested to forward DTEC2-12.2.1.9 Service Design Template for SECOM Service to DTEC3.*

7.8 Task on Service Design for VTS Traffic Clearance (DTEC-7.2.1.b)

Task Group Leader: Thomas Christensen

Referencing Document(s):

5.2.1.6	Input on service design for traffic clearance service
5.2.1.6.1	Service Design for VTS Traffic Clearance

This information paper comprises progress made on online inter-sessional VTS task group meetings held 14-15th of February 2024. The annex is an updated version of a service design for the traffic clearance service

based on SECOM. This will be progressed further on the upcoming VTS committee meeting - and is submitted to DTC for information only. The propose is both to inform on the progress of this specification and to provide an example of the use of G1128.

The WG1 noted the document provided.

7.9 Task on Service Design Technical service for AtoN (DTEC-7.2.1.c)

Task Group Leader: Thomas Christensen

Referencing Document(s):

5.2.1.7	Input on the update of Technical service for AtoN
5.2.1.7.1	Provision of AtoN Information Service to End users

The document is an update to the draft technical service specification for provisioning AtoN information to end-users. The update is a result of the inter-sessional task group meeting held on 17 January 2024.

This document is sent to DTEC as information - and to ARM as input for further progress during the next ARM committee meeting. The purpose is both to inform on the progress of this specification and to provide an example of the use of G1128.

The WG1 noted the document provided.

7.10 Task on developing an information note on the Introduction of MCP (No assigned number)

Task Group Leader: Axel Hahn

WG1 has drafted a document to introduce concepts and the current status of MCP to the Council. Rather than introducing the technical aspects of MCP when writing the material, WG1 has tried to focus on the benefits that users can get from using MCP.

Output:

DTEC2-12.2.1.11 Liaison note on MCP to Council

Action item

*The **Secretariat** is requested to forward the output document DTEC2-12.2.1.11 Liaison note on MCP to Council to note.*

***Axel Hahn** is requested to present the document DTEC2-12.2.1.11 Liaison note on MCP to Council.*

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

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:

- Review of Emerging Technologies (ongoing task, includes a review of Guideline G1153)
- Develop a Manual on Maritime Communications (MARCOM Manual) based on the work carried out during the last work session (carried forward from the last work programme, relates to the revised approach for MRCP)
- Task DTEC 6.2.1 – Contribute to the Development of IMT-2030 by formulating user requirements for Marine AtoN. (note the revised title of the task as discussed at DTEC1)

- Task DTEC 7.1.2 - Digitalisation of Waterways
- Task DTEC 6.3.2 - Digital Communication - Develop a guideline for migrating current analogue VHF voice communications to digital VHF voice communications (joint session with WG3)
- Task DTEC 1.2.4 - Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)
- Task DTEC 1.2.1 - Providing guidance on the process to implement developments of innovation
- Task DTEC 5.1.2 - Training on the implementation of digital solutions
- Task DTEC 7.1.1 - Develop a discussion paper on digitalisation in the scope of IALA (discussion regarding potential Task Group Leader only)

In addition, to address comments and concerns regarding the implementation of S-100 from a strategic perspective, the working group held a discussion session on an overview of S-100 implementation from an Authority perspective as a joint session with WG1.

8.1 Task on Review of Candidate Technologies (DTEC-8.3.1)

Input papers DTEC2-5.2.2.6, DTEC2-5.2.2.6.1 and DTEC2-5.3.3 were reviewed. In addition, input from previous meetings regarding new technology reviews were considered.

The working group focused on completing reviews of the technologies presented.

8.1.1 Review of Sigfox

DTEC2-5.3.3 was forwarded to DTEC2 to finalize the review of Sigfox based on the Guideline G1153 template

Input paper: DTEC2-5.3.3

The group noted that this is a niche technology with specific use cases. Overall, the technology is noted as 'Green' with some amber areas related to cybersecurity, potential longevity of the technology and bandwidth requirements. It is noted that the technology would require encryption before being used to control AtoN. Use may be suitable to monitor AtoN without additional encryption.

Additional encryption will require additional bandwidth, which then limits the available bandwidth for the transfer of data.

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

Input papers: DTEC2-5.2.2.6 and DTEC2-5.2.2.6.1

It was noted that the SADRMT was initially presented at ENAV30. The document ENAV30-5.1.2.4 presented prototype testing information to measure and support ensuring ships' air draft using remote measurement technology. The input to DTEC2 provided supplementary and updated information to support the review of the details provided in the G1154 table.

Following the presentation of the input paper, the group discussed vessel height detection systems within the VTS (Vessel Traffic Services) environment. Members noted a largely manual process for measuring air draft, with some systems providing 'air gap' and others using the selection of top and bottom lines in CCTV images to calculate vessel heights. It was noted that automation in this process, with increased accuracy, would assist in efficiency and support safe transits under bridges and overhead structures. The significance of accurate measurements was highlighted, particularly in ensuring safe air clearance, with the possibility for alerts triggered by the system when vessels breach safety zones, in a manner similar to that currently done for the dynamic approach to under keel clearance.

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

The review of SADRMT is anticipated to be completed at DTEC3. The current review document is classified as a working paper DTEC2-12.2.2.5 WP Review of Ships' air draft remote measurement technology and will be forwarded to DTEC3 for further review. It is anticipated that the review of SADRMT will be completed at DTEC2.

Action item

That Committee participants with experience in, or technology to support, remote air draft measurement for ships are requested to review the work on SADRMT DTEC2-12.2.2.5 and provide input to DTEC3.

The Secretariat is requested to forward DTEC2-12.2.2.5 WP Review of Ships' air draft remote measurement technology to DTEC3 for further review.

8.1.3 Review of Navigation Radar Intercept Sensor (NRIS)

Input paper: DTEC2-5.2.2.8, DTEC2-5.2.2.8.1

At DTEC1, Paul Herselmen of Reutech provided a presentation on the NRIS technology – the use of Passive Navigation Radar Receivers in Support of Maritime Vessel Monitoring. The presentation noted the current coastal surveillance scenario, noting the present coastal radar system and its limitations in terms of horizon distance, and performance degradation under poor weather conditions. All technologies have their limitations, but collectively they can present reliable, accurate maritime domain awareness. Limitations of current coastal radar can be overcome with augmenting coastal radar/AIS with passive receiver direction finding. When they were installed two or more, they can provide approximately the position of monitoring targets by biangulation. He concluded that navigation radar detection and monitoring augmented current radar, not replaced it.

Following the presentation, the Committee requested further input using the Guideline G1153 template for review at DTEC2. The review was completed, noting the technology as 'Green'. One element was indicated as 'Amber' – relating to a compliance summary that will be forwarded following the meeting.

8.1.4 Summary of Candidate Technologies Reviewed

At ENAV30 a summary table of the outcomes of the technologies reviewed was developed. This was forwarded to all IALA Committees for comment. A liaison from the ENG Committee (EM1 5.1.2.2) was reviewed, and the candidate technology summary table was revised. At EM1 the Committee agreed that a liaison note be forwarded to the IALA Legal Advisory Panel (LAP) with a request to provide suitable wording for a caveat to be included in the table. LAP provided the Liaison Note for Emerging Technology A liaison from LAP was received, reviewed and agreed for inclusion in the Summary of Candidate Technology Table.

Disclaimer:

IALA is an international association that deals with Marine Aids to Navigation. The association aims to provide information and support to its members and the maritime community through its standards, recommendations, guidelines and other documents as accurately as possible. However, the planning, implementation and operation of Marine Aids to Navigation remains the sole responsibility of the respective national members, authorities, administrations or other entities according to their respective national law including the decision to use IALA's standards, recommendations, guidelines and other documents. IALA shall in no event be held responsible for any claim, damages or other liability, whether in an action of contract, tort or otherwise, arising from, or out of or in connection with the above-mentioned documents, the use of or other dealings with them.

In a related discussion, it was noted that the candidate technology summary table and supporting documents maybe difficult to find on the IALA fileshare. Suggestions were made to improve location and labelling. In addition, as G1153 is revised, the summary table will need to refer to the version of G1153 against which the technologies were reviewed.

Updates were made to the Technology Review Summary document, noting the status of the review. This includes items that were initially presented but have not been progressed and updates on reviews that have been completed. A liaison note DTEC2-12.2.2.2 Liaison note to ARM, ENG, VTS on Tech Review Summary Table was developed to be forwarded to all committees, noting the updates to the summary technology table and the location of the table and supporting review documents on the FileShare.

During the meeting, participants shared valuable insights regarding the utilization of 5G technology in the maritime domain. A member highlighted the potential of 5G networks for enhancing communication and services within ports, citing examples from Belfast, Newcastle and Singapore. Real-time translation services and CCTV surveillance using 5G were particularly notable advancements discussed. These elements were noted as pertinent to the work on the task DTEC-6.2.1 on IMT-2030.

It was noted that many test beds were not being reported using the updated Guideline G1107 Ed3.0 Planning and reporting testbeds on the maritime domain. Members are encouraged to report on their test beds to the benefit of the broader IALA Community.

Action item

That Committee participants are encouraged to report on test beds and trials in the maritime domain, noting the updated Guideline G1107.

The ***Secretariat*** is requested to forward the updated Candidate Technology Summary Table DTEC2-12.2.2.2 to all Committees.

8.2 Task on Develop a Manual on Maritime Communications (MARCOM Manual) (DTEC-6.3.14)

Task Group Leader: E Batty

Working paper: Draft MarCom Manual for DTEC2 WG2 review (provided on IALA FileShare).

It was noted that there is no task number currently associated with this task element, which was brought forward from the last work programme.

The scope and objectives of the document were briefly discussed, noting its alignment with the IALA vision. The core objective was amended, and the document as a whole was reviewed and updated.

The paper DTEC2-12.2.2.6 WP Manual on Maritime Communications (MARCOM Manual) will be forwarded for finalisation at DTEC3, following a technical review by WG3.

Action item

The ***Secretariat*** was asked to forward DTEC2-12.2.2.6 WP Manual on Maritime Communications (MARCOM Manual) to DTEC3 for final review.

That Committee participants are asked to review and provide input on DTEC2-12.2.2.6 WP Manual on Maritime Communications (MARCOM Manual) for final review and completion at DTEC3.

8.3 Task on Contribute to the development of IMT-2030 by formulating user requirements for Marine AtoN (DTEC-6.2.1)

Task Group Leader: Hyounhee Koo

Input paper : DTEC2-5.2.2.7, DTEC2-5.2.2.7.1, DTEC2-5.2.2.7.2, DTEC2-5.2.2.7.3

The outcomes of the intersessional meetings between DTEC01 and DTEC02 were reviewed and discussed accordingly. Regarding the draft Recommendation (DTEC2-5.2.2.7.1) and draft Guideline (DTEC2-5.2.2.7.2), it was agreed to amend by replacing 'by AtoN authorities' to read 'for Marine AtoN over IMT-2030':

- DTEC2-5.2.2.7.1 Draft Recommendation on the use of international mobile telecommunications (IMT) for Marine AtoN over IMT-2030

- DTEC2-5.2.2.7.2 Draft Guideline on integration and use of International Mobile Telecommunications (IMT) technologies for Marine AtoN over IMT-2030

The revised contents of DTEC2-5.2.2.7.2 were also reviewed and discussed, and it was noted that further work would continue during the intersessional meetings between DTEC02 and DTEC03.

A liaison note to be forwarded to 3GPP was finalised as document DTEC2-12.2.2.3.

It was also agreed that IALA informs IMO (MSC and/or IMO-ITU Experts Group) and ITU-R Study Group 5 of IALA's work for Marine AtoN over IMT-2030. Liaison notes for IMO and ITU were finalised as document DTEC2-12.2.2.4.

The proposed dates and times for the intersessional meetings, which will be advised on the Dashboard, are:

- 11 June 2024 09:00-10:30 UTC
- 29 August 2024 09:00-10:30 UTC

Action Item

*That **Committee participants** are invited to join the intersessional task group DTEC-6.2.1 working on developing use cases for maritime in IMT-2030, noting the dates and times will be included on the Committees Calendar.*

*The **Secretariat** is requested to forward the Liaison note DTEC2- 12.2.2.1 on Marine AtoN over IMT-2030 to the Council for approval and then, once approved, send it to the IMO (MSC and/or IMO-ITU Experts Group), ITU-R Study Group 5, and 3GPP.*

8.4 Task on Develop guidance on Digitalisation of Waterways (DTEC-7.1.2)

Task Group Leader: Kaisu Heikonen

Input paper : DTEC2-5.2.2.4, DTEC-5.2.2.5, DTEC-5.2.2.5.1

Henna Uronen and Heikki Paukkeri gave an online presentation on FTIA's Digital model/twin development project. The recording of the presentation and the presentation slides are available through the committee dashboard.

China MSA presented the input paper DTEC2-5.2.2.4 and its content was found to be useful to be included into the draft new guideline. The objectives of the task and the scope of the guideline were discussed, and it was agreed to continue drafting the guideline based on the scope and structure suggested in input papers DTEC2-5.2.2.5 and DTEC2-5.2.2.5.1.

The Task group will continue to work intersessionally. The Committee participants are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways and to express their interest to Kaisu Heikonen (kaisu.heikonen@ftia.fi) by 12th April 2024. The intersessional meetings will be published on the Committee Dashboard. The tentative dates for the intersessional meetings are:

- Tuesday 7 May 2024 at 12:00 - 14:30 UTC
- Thursday 27 June 2024 at 12:00 - 14:30 UTC
- Thursday 15 August 2024 at 12:00 - 14:30 UTC

Action item

*The **Committee participants** are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways and to express their interest to Kaisu Heikonen (kaisu.heikonen@ftia.fi) by 12th April 2024.*

8.5 Task on developing guidance on Digital VHF communication (DTEC-6.3.2)

Task Group Leader: [TBC]

Input paper: DTEC2-3.5; DTEC2-3.5.1; DTEC2-5.2.2.2; DTEC2-5.3.1; late paper (provided by R Norsworthy) USWP5B32-12_digital-voice_firstdraft; DTEC2 plenary presentation on digital VHF voice (Japan Coast Guard)

Joint session with WG3.

The focus of the task ‘*Develop a guideline for migrating current analogue VHF voice communications to digital VHF voice communications*’ was highlighted while noting the outcomes of the ITU WRC23. As presented in DTEC2-3.5.1, WRC-23 identified a preliminary question for consideration by WP5B in advance of WRC-31:

“WRC-31 is invited:

- 1 to consider, based on the results of studies, and within the Radio Regulations, excluding new allocations under Article 5, possible regulatory changes to advance digital voice and data technologies in the MMS within the VHF maritime mobile band”.

Derek Love presented the input paper on demonstrations for VHF digital communications. Following discussion on the paper, the members of WG2 and WG3 participated in demonstrations using hand held VHF radios capable of using both analogue and digital voice.

Ross Norsworth presented on the development of an input paper to ITU regarding a Working Document Toward a Preliminary Draft of New Recommendation ITU-R M.[DIGITAL-VOICE] that describes the technical characteristics of a proposed new system for transmission of digital voice communications in the VHF maritime mobile band. The proposal is a new technology that will permit the possible expansion of the number of VHF maritime voice channels. Studies are underway concerning operational reliability, impacts to the GMDSS, mode of operation (simplex/duplex), bandwidth, range, etc. which are the necessary objectives to determine the feasibility of implementation of digital voice radio telephony in the VHF maritime mobile band.

Based on the papers presented, and the outcomes of WRC-23, it was noted that the initial focus for the task has been overcome by events, and was no longer appropriate in the current IALA work program. The development of a guideline for the migration of analogue to digital VHF may be appropriate for the next work program, noting tests and trials that are expected to occur in the lead up to WRC-31.

The overall concept of digitalisation of maritime communications was discussed. It was proposed that the current task could be revised to address this in a more holistic manner, developing a document that identifies and evaluates feasible future scenarios of maritime communications, taking into account the present status available and developing candidate technologies. It was noted that the VTS Committee has been working on developments of digital communications in the VTS environment and that there are additional areas of activity regarding digital communications within the marine AtoN environment.

To this end a revised task focus was developed: Develop a guideline outlining and evaluating feasible future scenarios of digital communications within the domain of IALA, taking into account the present status and availability of current and developing candidate technologies.

Action item

*The **Secretariat** is requested to inform to the Council the outcome of WRC-23, and the implications on the current work program for task DTEC 6.3.2,*

*The **Secretariat** is requested to inform the Council on the proposed revised focus for the task to Develop a guideline outlining and evaluating feasible future scenarios of digital communications within the domain of IALA, taking into account the present status and availability of current and developing candidate technologies. It is expected that this guideline would be developed in a holistic manner with cross-committee participation.*

8.6 Task on Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (MASS) (DTEC-1.2.4)

Task Group Leader: Jillian Carson-Jackson and Minsu Jeon

The group noted the inter-sessional work carried out to revise the working document of the guideline to reflect the table of contents as provided by the MASS Task Force and presented in MTF05-4.2 (Report of the 5th session of the IALA Mass Task Force).

The MASS Guidelines will be developed further during inter-sessional activities, with the first inter-sessional meeting planned for:

- Wednesday, 8 May 2024, 0900-1030 UTC

Action item

That Committee participants are invited to join the inter-sessional task group DTEC-1.2.4 on the development of the IALA MASS Guidelines noting the link will be provided on the IALA committee calendar.

8.7 Task on Providing guidance on the process to implement developments of innovation (DTEC-1.2.1)

Task Group Leader: Ernest Batty

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

8.8 Task on Training on the implementation of digital solutions (DTEC-5.1.2)

Task Group Leader: [TBC]

Input paper: DTEC2-5.2.2.3; Working paper from DTEC1

WWA representatives joined WG2 for this session. The outcomes of DTEC1 (mind map activity) was noted.

The input from China MSA 'Proposal on developing a new model course on AIS data analysis skills' was introduced and reviewed. Based on discussions an approach for a possible new course was developed DTEC2-12.2.2.7 WP Proposal on developing a new model course on AIS data analysis skills. The WWA agreed to take the information from the working paper to develop an initial model course, which will then be provided for review to the VTS Committee (WG3) with further revision at DTEC3.

Action item

The WWA is requested to develop a base model course for AIS data analysis skills, which will be forwarded through the VTS Committee to DTEC3.

8.9 Discussion session on the implementation of S-100 from an AtoN Authority perspective

Task Group Leader: Jan Hendrick Oltmann

Based on input from the working group it was agreed to have a focus session in conjunction with WG1 to discuss the implementation of S-100 from a holistic manner, as faced by AtoN Authorities.

Jan Hendrick Oltmann provided an overview of the trigger points for the overview discussion, noting the focus on digitalisation and the work to bring in multiple domains in a new manner to support the objectives of AtoN authorities.

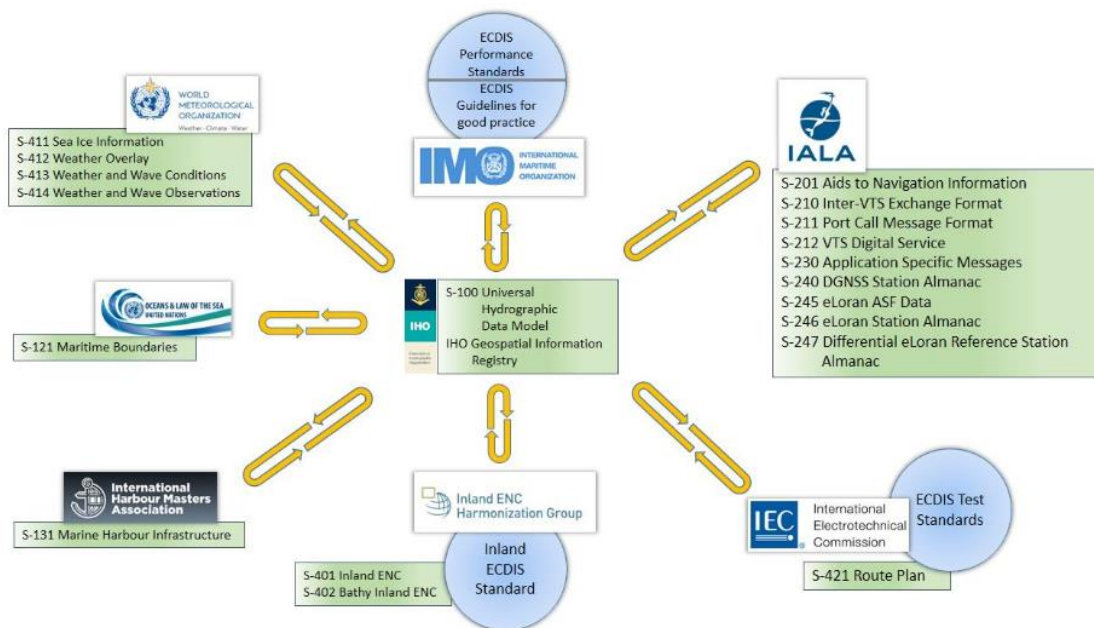
An overview of research into the different S-100 documents developed or in development was presented. This included a review of the the IHO 'navigation packages' for phase 1 and phase 2.

Three working documents for the discussion were presented:

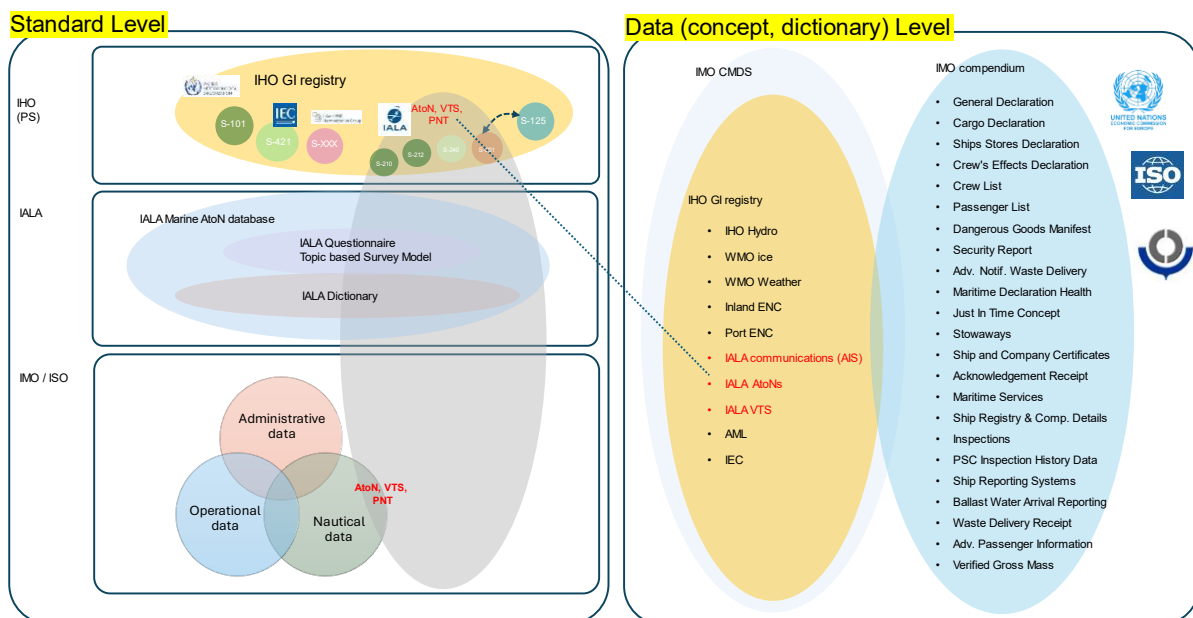
- Roadmap for the S-100 Implementation Decade (2020 –2030) - Collaboration with IMO and other liaising organizations
- Roadmap for the S-100 Implementation Decade (2020 –2030) – S-100 Timelines

- S-100 World documents (compiled by Jan Hendrick Oltmann, March 2024)

There was significant discussion on the topic, with the sharing of how different national members address S-100 within their administrations. For example, some members noted that they have replicated the structure as presented in the Roadmap for the S-100 Implementation Decade (2020-2030) as noted below.



Minsu Jeon presented a working copy of a holistic approach to S-100 implementation, with a focus on the IALA domain, as noted below.



Disclaimer - This is a working document

A number of focus questions were articulated to facilitate the discussion:

- How does IALA support S-100 implementation for their (national) members regarding "Marine AtoN" domain?
 - A) Indication of an "IALA S-100-Package" (noting these would not necessarily be confined to S-200-standards);

- B) Configuration advice to existing S-100-standards;
- C) Creating of additional standards;
- D) Providing root level data operational (i.e. MRN-root?).
- What (runtime) operational impact / options are posed by certain S-100 definitions:
 - A) Each single data object but in particular the more complex ones prompts at least one use case (and maybe even one new business case while being always part of at least one business case).
 - B) What reengineering of associated business process is needed?
- How to use data exchanged via S-100? How to share best practices?
- Co-operative system: What are IALA's requirements for shipboard (stipulated) functionality for its S-100-based services? How can they best be shared and implemented by members?
- Guidance for the MRN implementation in IALA members.

In summary, it was agreed that there would be benefit in developing guidance for IALA members in the implementation of S-100 from a holistic, marine AtoN Authority perspective. Presented in a guideline that focuses on sharing of best practices, this could include:

- How to approach a harmonised approach with a concept of 'release' dates for packages
- Who is doing this focus on harmonisation on the implementation of S-100 models.
- Define an IALA package for release 1 of S-100
- Do a survey of IALA members on how they are dealing with S-100 implementation

It was agreed to approach the Council with a request for a new task to develop guidance on the implementation of S-100 from a Marine AtoN Authority perspective.

Action item

*The **Secretariat** is requested to identify the most appropriate manner to identify a potential new task for the 2023-2027 work program that is focused on developing guidance on the implementation of S-100, based on the discussion notes from DTEC2.*

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

The IALA work programme (DTEC2-3.1.5) was reviewed in conjunction with the DTEC WG2 detailed task register.

It was noted that Task DTEC-7.1.1 Develop a discussion paper on digitalisation in the scope of IALA is scheduled to commence at DTEC3. Dennis Khoo from Singapore MPA was identified as a potential Task Group Leader for this activity, to be confirmed by DTEC3.

The Task Plan items for WG2 were reviewed. The development of the online Task Plan and Task Register tool, as being prepared by IALA, was noted. All Task Group Leaders agreed to work to include the task register elements within the new tool in advance of DTEC3.

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

9.1 General Note

The WG3 took up topics from the work programme assigned to the group, mainly related to communications to support e-Navigation.

All file references are relative to this base path: <https://nextcloud.iala-aism.org/> folder /Committees/ENAV%20-%20DTEC/WG3/20240318_DTEC2.

9.2 Agenda

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

9.3 Task on updates from other bodies for DTEC-6.3.7 and DTEC-6.3.8

- ITU (Stefan Bober), see Input DTEC2-3.5.1
 - WRC-23 decisions and updates. The group was informed that IMO would require the inclusion of the VDES frequencies into the ITU RR Appendix 15 for protection and subsequent use of VDES for the GMDSS. Yoshio mentioned that WRC-31 has a preliminary agenda item that could be a vessel to allow for that change.
 - WRC-23 made provisional changes in the Radio Regulations to enable the introduction of BDMSS (BeiDou) into the GMDSS, subject to further verification at WRC-27.
 - Agenda item 10 “improving the utilization of the VHF maritime mobile band” becomes a provisional agenda item for WRC-31, but studies (VDES R-mode and VHF digital voice) can start now
 - IMO’s position on WRC-31 agenda items needs to be nursed to recommend both new technologies to ITU, otherwise ITU cannot support the initiatives; for both technologies inputs to IMO are under preparation (digital voice from the Netherlands, R-mode from Germany)
 - The group notes that ACS (automatic connection system) is used to assist radio operators in automatically selecting the proper HF band for voice communications.
- IEC (Stefan Bober), see Input DTEC2-3.6
 - VDES IEC standard will be IEC 63514 ED1, planned to be published in August 2026
 - Volunteers are welcome to Stefan Bober, cochair of DTEC WG3
 - IEC work is dependent on the revision of ITU-R M.2092-1
 - Maintenance of the AIS standards is needed when ITU R-M 1371-5 is revised (target is 2025)
- RTCM (Ross Norsworthy)
 - SC139 MMS
 - SC121 AtoN
 - SC138 R-mode
- MCC (Stefan Pielmeier)
 - The MCC is still supporting the MMS work at RTCM very strongly.

9.4 Warning to all equipment manufacturers about the 2038 rollover issue

Earny Batty reminded the workgroup chair, that Linux time counters will roll over in the year 2038, see https://en.wikipedia.org/wiki/Year_2038_problem. Manufacturers of equipment are recommended by the committee to implement the available patches and test proper operations over the time rollover date and time before shipping.

That Committee participants are recommended to require that all equipment purchased from now on is tested to operate properly at the rollover date which is exactly at 03:14:07 UTC on 19 January 2038.

9.5 Task on maintaining the timeline of VDES and AIS development (DTEC-6.3.10)

The group discussed the timeline of VDES and its supporting standards in the group, resulting in this roadmap. In that context, Koichi Yoshida made the group aware of MSC.1/Circ.1676 (30 June 2023).

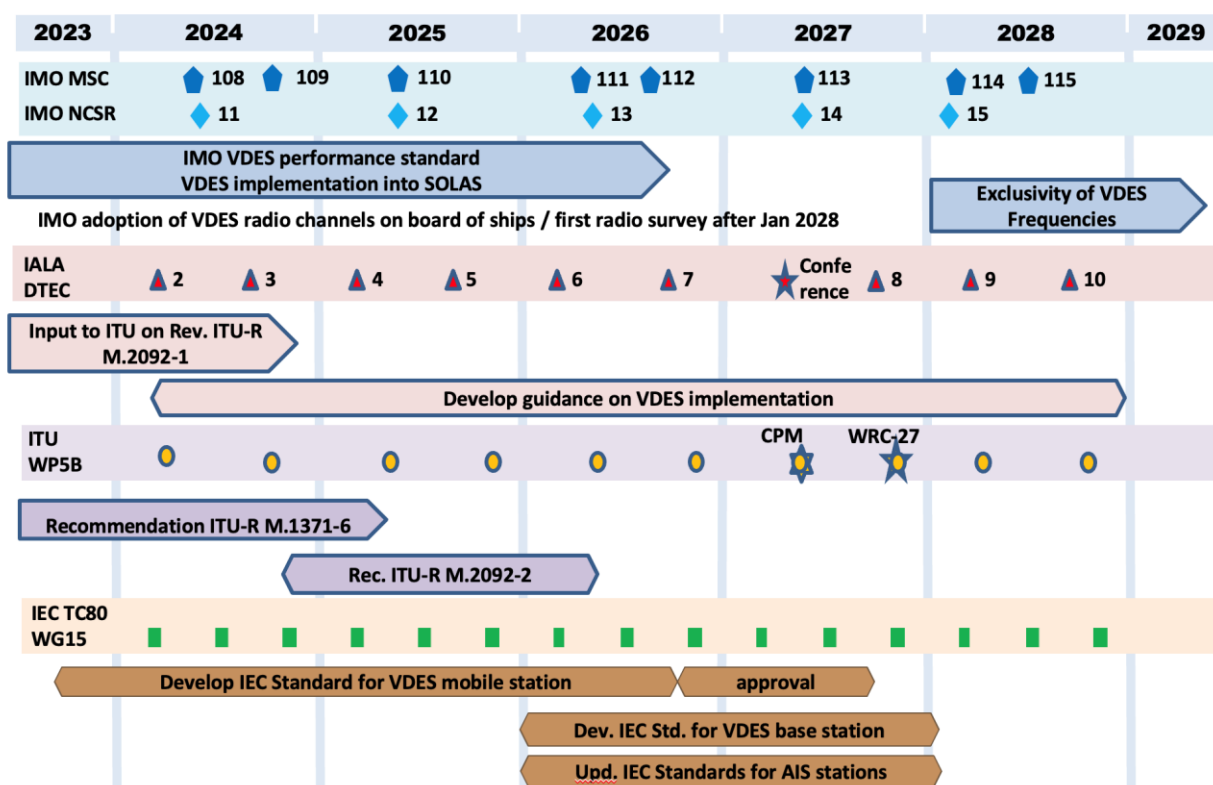


Figure 1 updated VDES implementation plan, see Presentations/20240319_VDES_Roadmap.pptx

9.6 Task on the Report on the NCSR Correspondance Group VDES Performance Standard (DTEC-6.3.11)

Hideki Noguchi presented the report on the NCSR Correspondance Group for the VDES Performance Standard.

A discussion on the topic raised with the view to:

- support the report on the NCSR Correspondance Group for the VDES Performance Standard as it is.
- the recommendation to designate VDES in SOLAS V as mandatory. Additionally it was recommended revising the proposals for SOLAS IV, adding footnotes “VDES could add functions to support GMDSS”. The US agrees.

It was recalled that NCSR11 (4 - 13 June 2024) will provide a recommendation to MSC, and it is possible to amend SOLAS proposals for chapters IV and V at MSC109. The input deadline for submission of commenting documents (less than 4 pages) to NCSR 11 is the 15th of April 2024. It was proposed to deliver a presentation during the NCSR11 lunchtime aiming at explaining VDES use cases. An email should be sent to the IMO Secretariat (ncsr@imo.org) along with relevant information about the subject of the presentation. Presentation slots are limited and allocation of a slot is not guaranteed. NCSR 11 may not be finalizing the VDES Performance Standard at this session. The focus of the presentation could also include the publication of the IALA G1117 and G1181. NCSR can continue to propose to amend.

During the IMO/ITU Experts Group, at its 19th session, the participants showed a lot of interest in the CIRM presentation on AIS authentication using VDES, which could be also useful for IMO Member States attending NCSR11. During the working week an IMO delegation was requested to propose an NCSR lunchtime presentation to the IMO Secretariat.

During the discussions different use cases for VDES were addressed as relevant:

- the “protection of the AIS VDL” or “not losing the AIS service”
- VDES as an enabler of greener shipping (just in time).

- the reduction of waiting time through using just-in-time arrival management through VDES communication can save time and fuel worth many VDES terminals (the EU project “DYNAPORT” addresses that topic)

The working group chair invites participants of the working group to propose amendments to G1117 or the creation of a new guideline on green shipping through VDES which constitute as well a cost efficient solution.

9.7 Task on Input from RTCM to NCSR11 on MMS (DTEC-1.2.2)

Johnny Schultz shared the draft NCSR11 input paper document with the group for comments by the group during DTEC2. The plan is to submit that input paper to NCSR11 shortly after DTEC2 by USCG.

9.8 Task on Liaison about visualization of mobile AtoN information (DTEC-7.2.2)

Stefan Bober informed the group about a mismatch between IEC 62288 ed.3 in Recommendation R0126 (A-126) in regards to visualization of mobile AtoN, to ask ARM to revise R0126 (A-126).

USCG volunteered to investigate and provide input to ARM and IEC as appropriate.

9.9 Task on VDES Shore Infrastructure (DTEC-6.3.6)

9.9.1 Guideline on VDES shore infrastructure

The discussion based on input DTEC2-5.2.3.8 started to discuss the structure and background. The group agreed that the new guideline on VDES contains all VDES components: AIS, VDE-TER, VDE-SAT and ASM; listing best practices that solve aspects of service delivery to guide IALA members on how to design VDES shore infrastructure.

The group agreed, that it would be beneficial to start out with a scope, background and relation to other IALA documents section at the beginning of the new guideline.

The group intends to develop a new guideline to replace the existing R0124.

Action item

That Committee participants who have the experience to contribute or are stakeholders in shore infrastructure are asked to assist in the drafting of these first chapters of the new guideline intersessionally as part of a new correspondence group on “VDES shore infrastructure” with lukas@nsone.com, who is the task leader.

9.9.2 Revision of R1007 on VDES shore infrastructure

Ke Zhang (China MSA) presented DTEC2-5.2.3.2, proposing to update R1007 with the 3 new and/or updated IALA documents:

- Guideline G1158 VDES R-mode
- Guideline G1117 VDES Overview
- Guideline G1181 VDES VDL Integrity monitoring

The group amended R1007.

The Secretariat is requested to forward DTEC2-12.2.3.1 Review R1007 Ed1.1 The VHF Data Exchange System (VDES) for Shore Infrastructure to the Council for approval.

9.10 Task on Data model using ASM for disaster management (DTEC-6.1.1)

The group reviewed input DTEC2-5.2.1.1 on a new proposed data model using ASM for disaster management.

Facts: ASM maximum size is 2.2kB using the ASM channel multislot messages.

WG3 proposes:

- that the task is splitting into creating a product specification for disaster management, and then,
- dependent on the data needs of that product, and the serialization methods,
- WG3 can assist with selecting proper methods to transport that data over the suitable VDES communication components,
- considering the MMS (as introduced in Guideline G1117) as an option.

The group:

- agrees to develop the Product Specification for disaster management,
- and proposes using digital “file” data transport over VDE as defined in Guideline G1117, with or without MMS,
- to transport serialized S-100 product specifications,
- It might be considered to provide a “file” data transport method for ASM in Guideline G1117.

9.11 Task on Singapore Status of VDES developments

Terence See (MPA) presented DTEC2-5.2.3.6, showing the very ambitious VDE-SAT and VDE-TER trials and first results.

9.12 Task on the Workshop Proposal

The group reviewed and amended the workshop proposal on future radionavigation and radiocommunication systems made by Hideki Noguchi.

Action item

*The **Secretariat** is requested to forward the DTEC2-12.2.3.2 Liason note to ENG on the Workshop Proposal on future radionavigation and radiocommunication systems.*

9.13 Task on VDES ITU-R M.2092-1 clarifications (DTEC-6.3.7)

9.13.1 Change proposals

The group reviewed DTEC2-5.2.3.7 input from NSONESOFT.

NSO-1 was accepted by the group.

NSO-2 pending further clarification on what use case can trigger that problem with the default bulletin board.

NSO-3 was rejected by the group.

NSO-4 was approved as a typo (Kongsberg and CML already used 238 in their implementations).

NSO-5 was seen as a nice to have and some members voiced that the text in IEC TC80 is already covering that topic, so it is unnecessary to implement that change. The group agreed not to accept the change.

NSO-6 pending further clarification: we might consider removing the whole Note, but the remaining text of the section is unclear.

NSO-7 was approved by the group, as the no-FEC case is impossible.

NSO-8 pending verification by CML who volunteered to provide verification before the intersessional meeting.

NSO-9 was approved by the group as amended.

NSO-10 was approved by the group, as amended.

NSO-11 was approved by the group.

The group reviewed DTEC2-5.2.3.1 input from China MSA and invited China to provide a change proposal for ITU-R M.2092-1 before the intersessional in July 2024.

The group reviewed DTEC2-5.2.3.3 input from China MSA and invited China to consider providing input for DTEC3 with concrete proposals to update IALA ASM documentation, including an update of IALA ASMs for future compatibility with VDES ASMs.

9.13.2 New point files and revision of ITU-R M.2092-1 at ITU

The old VDE-SAT point files for the spread spectrum wave forms are found not fulfilling the spectrum mask as of a phase discontinuity when concatenated. ESA has developed new VDE-SAT point files to replace the old ones in footnote 9 of pg. 112 in ITU-R M.2092-1. These new files are backwards compatible supporting receivers that do not use the new point files.

The group agrees that the urgency to update the point files at ITU is not that high, as the new files are backwards compatible.

The group discussed that we include the new point files into an ITU WP5B input in November 2024, and the US is volunteering.

The group agreed to organize a DTEC WG3 intersessional to finalize a working document towards the preliminary draft revision of ITU-R M.2092-1. The goal is to prepare a liaison note to ITU WP5B for DTEC3 using the collected ITU-R M.2092-1 change proposals.

The hybrid intersessional meeting will be held from 31 July to 2 August 2024, from 09:00 – 17:00 local time each day, at the RTCM HQ in Washington DC (1150 18th Street NW Suite 910, Washington, DC 20036 US), Room - A4A and Room – ARINC. Virtual means to participate via MS Teams link will be prepared as well as the venue allows.

Action item

That Committee participants who plan to participate in the intersessional meeting to finalize a working document towards preliminary draft revision of ITU-R M.2092-1 physically shall register with ross_norsworthy@msn.com CC stefan@sternula.com.

The **Secretariat** is requested to provide and publish in the Dashboard calendar the link to the intersessional meeting related to the ITU-R M.2092-1 change proposals.

9.14 Task on VDES R-mode (DTEC-6.3.4)

Kongsberg Seatex presented the results of the ICING project, a presentation of the project was delivered during the plenary and is available through the following input DTEC2-4.2 Space Norway and Kongsberg Discovery VDES Satellite Precision Time Service Tests and as input DTEC2-5.2.3.5, demonstrating the good possibilities of using VDES R-mode with VDE-SAT.

China MSA presented the former change proposal of Guideline G1158 (DTEC1- 5.1.3.4) which addressed three proposals:

- Physical layer
- MAC layer
- Application layer

The change proposals for Guideline G1158 were accepted by the group during DTEC2.

Ronald Raulefs (DLR) accepted to be the editor of a new revision on Guideline G1158.

The group invited China to consider providing a change proposal for ITU-R M.2092-1 to define a dedicated link-ID for VDES ASM R-Mode.

A draft input document to IMO MSC 109 was shared that asks IMO MSC 109 to develop a VDES R-Mode performance standard.

Action item

That Committee participants are invited to provide feedback to Ronald.Raulefs@dlr.de by 1 June 2024, on the draft input to IMO found in the nextcloud folder ENAV – DTEC – WG3 – 20240318_DTEC2 - Input - R-Mode - MSC109_VDES_RMode_2501_v5.docx; [file](#).

That Committee participants are invited to provide contributions to the revision of Guideline G1158 to DTEC3. The possible topics are: refine the text following ITU-R M.2092-1, add the agreed proposal from China MSA, and adjust the document to match IMO terms.

9.15 Task on VDES/AIS interference cancellation (DTEC-6.3.10)

The group got a presentation by Ronald Raulefs (DLR) about DTEC2-5.2.3.10 on the topic of possible interference cancellation for collocated shore infrastructure for AIS reception and VDE-TER/ASM transceivers.

The output power was 2 watts.

The system presented was an experimental system, showing interesting results.

The USCG adds that they operate the coast stations with 100W transmitters, using 10 dB insertion loss for combination of multiple voice and AIS services co-site using a commercially available Cobham interference cancellation system.

The group mentioned that VDES transmitters with digital transmitters might pose a problem because of the higher noise floor of the transmitter, and in use with interference cancellation, clean transmissions are of high importance.

9.16 Task on the Guideline on VDES Authentication (DTEC-6.3.4)

Jan Safar (GLA) presented the method and rough structure of the proposed new guideline on VDES Authentication as of DTEC2-5.2.3.9.

Action item

That Committee participants interested in contributing to the work on the new guideline on VDES Authentication are invited to email the task group lead, Jan Safar, jan.safar@gla-rad.org, to join the group.

9.17 Task on VHF Digital Voice (DTEC-6.3.2)

WG3 participated in the session of WG2 on digital voice, handling input DTEC2-5.2.2.9. See the WG2 report for any details.

9.18 Task on VDES resource sharing (DTEC-6.3.5)

DTEC2-5.2.3.4 was presented by Koichi Yoshida (Draft VDES Resource sharing guideline) pointing out the opportunities and the importance of coordination and sharing of VDES resources between the active VDES players. The group noted that the proposed activity is part of the DTEC program. Koichi Yoshida is inviting any kind of input for the DTEC3, or personally to yoshida@rime.jp.

The workgroup chair notes that the VDES Alliance has a working group working on an input to IALA for this activity.

Space Norway informed the group about the ESA project that Space Norway has together with Sternula, called MaSSha, which also addresses satellite network sharing.

10. REVIEW OF OUTPUT AND WORKING PAPERS

The Committee reviewed and endorsed the reports of each Working Group. The Committee approved the output and working documents as indicated in ANNEX D.

11. REVIEW OF SESSION REPORT

The report of the meeting (DTEC2-11.1) was considered and approved. Committee Participants were requested to advise any corrections/amendments within one week, following which the final version of the report will be issued via the IALA web site.

Action item

*The **Secretariat** is requested to forward the summary of the DTEC2 Committee report to Council to note (DTEC2-11.1).*

12. DATE AND VENUE OF NEXT MEETING

The next physical session of the DTEC Committee is planned to be held from 30 September to 4 October 2024 at Headquarters, Saint Germain-en-Laye. Other IALA events will be publicised on the IALA website.

13. ANY OTHER BUSINESS

During the closing plenary, the Deputy Secretary-General reiterated the IALA patent policy statement first mentioned at the opening plenary, and asked if anyone present at the closing plenary had 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 the DTEC Committee, and in particular VDES related patents.

There was no response from the participants.

14. CLOSE OF THE MEETING

The Committee Chairman thanked the Vice-Chair, working group Chairs and all Participants for their hard work and output during the session and the four-year work period. He thanked the IALA Secretariat for their support. The vice Secretary-general celebrated the face-to-face meeting and good outputs from DTEC2, now proceeding to Council for approval. Omar Fritz Eriksson also thanked the intersessional work already scheduled that will be published in the Dashboard.



Digital Technologies Committee meeting 2 (DTEC2)

The 2nd session of the Digital Technologies Committee will take place at IALA HQ on Monday 18th (0900 - 1100 UTC) to Friday 22nd (0900 – 1100 UTC) March 2024; and the Closing Plenary will be held online Thursday 28th (11.00 – 12.00 UTC). Members are requested to submit comments or input to this session on any ongoing work items or propose new ones to committees@iala-aism.org no later than 30 days prior to the session, indicating the relevant DTEC Work Programme Task and author(s). Submissions received after the deadline will only be accepted at the discretion of the Chair.

Agenda

1. Opening Plenary
 - 1.1. Welcome from the Secretary-General
 - 1.2. Approval of agenda Hideki Noguchi
 - 1.3. Apologies and introductions Hideki Noguchi
 - 1.4. Programme for the session Jaime Alvarez
2. Review of action items from last session
 - 2.1. Review of action items from DTEC1 Hideki Noguchi / Jaime Alvarez
3. Reports from other bodies and initiatives:
 - 3.1. IALA
 - 3.1.1. IALA Council Minsu Jeon
 - 3.1.2. Policy Advisory Panel (PAP) Minsu Jeon
 - 3.1.3. WWA Latifa Oumouzoune
 - 3.2. Digital@Sea Minsu Jeon
 - 3.2.1. MCP and the Open Digital Incubator Thomas Christensen
 - 3.3. IMO Hideki Noguchi
 - 3.4. IHO Minsu Jeon
 - 3.5. ITU Stefan Bober
 - 3.6. IEC Stefan Bober / Jorge Arroyo
 - 3.7. ISO Jin H Park / Minsu Jeon
 - 3.8. RTCM Jorge Arroyo
 - 3.9. 3GPP Hyounghee Koo
4. Presentations
 - 4.1. Demonstration of the digital voice communication Miyuki Haraguchi
 - 4.2. ESA project on VDES R-Mode: ICING Hans Christian Haugli / Anders Bjørnevik
 - 4.3. VDES Resource sharing Koichi Yoshida (TBC in WG3 plenary)
 - 4.4. Demonstration MMS over VDES (Tuesday 19 March – Coffee break PM in Plenary room)
 - 4.5. Technical presentation ESA project on VDES R-Mode: ICING (TBC in WG3 plenary)
5. Review of input papers
 - 5.1. Introduction of input papers Submitter(s)

- 5.2. Allocation of input papers Hideki Noguchi
- 6. DTEC2 Working Group programmes and arrangements
 - 6.1. WG1 – Digital Information System Axel Hahn
 - 6.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
 - 6.3. WG3 – Digital Communication System Stefan Pielmeier
- 7. Break-out into Working Groups
- 8. Reconvene Plenary Session (Friday 22 March 2024, 0900 – 1100 UTC)
- 9. Presentation of Working Group reports, documents, and output papers (Plenary Session)
 - 9.1. WG1 – Digital Information System Axel Hahn
 - 9.2. WG2 – Emerging Digital Technology Jillian Carson-Jackson
 - 9.3. WG3 – Digital Communication System Stefan Pielmeier
- 10. DTEC2 Output’s Review Period
- 11. Closing Plenary (Thursday 28 March, 1100 - 1300 UTC, online)
 - 11.1. Review of session report
 - 11.2. Review of outcome documents
 - 11.3. Date and venue of next meeting
- 12. Close of the meeting

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ANNEX B LIST OF PARTICIPANTS

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

ANNEX C LIST OF INPUT PAPERS

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

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2	1.2.1	Preliminary Agenda DTEC2	IALA	All
DTEC2	1.4	Programme for the week	IALA	All
DTEC2	2.1.1	DTEC1 Action Items	IALA	All
DTEC2	2.1.2	Report of DTEC1	IALA	All
DTEC2	3.1.1	Final Report Council79 (C79-19.1)	IALA	All
DTEC2	3.1.2	Report of PAP51 (PAP51-7.1)	IALA	All
DTEC2	3.1.5	Work programme 2023-2027	IALA	All
DTEC2	3.5	IALA Report Joint IMO-ITU Expert group meeting	Stefan B	All
DTEC2	3.5.1	IALA Report of ITU WRC-23	Stefan B	All
DTEC2	3.6	IEC TC80 WG 15 - AIS and VDES	Stefan B	All
DTEC2	4.1	Demonstration on Digital Voice Communication	Japan Coast Guard	All
DTEC2	4.2	Space Norway and Kongsberg Discovery VDES Satellite Precision Time Service Tests	Space Norway / Kongsberg	All
DTEC2	4.3	3GPP update	3GPP	All
DTEC2	5.0	Input paper Committee meeting template	IALA	All
DTEC2	5.0.1	List of input papers	IALA	All
DTEC2	5.2.0.1	Workshop proposal on future radionavigation and radiocommunication systems	DTEC Chair	All
DTEC2	5.2.0.2	The Future of MASS 2024	IALA	All
DTEC2	5.2.0.3	Liaison note ARM to all committees on Best practice of Quality Management Systems for AtoN Service Delivery	ARM17	All

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2	5.2.0.4	Liaison note ARM to all committees on cyber security guideline	ARM17	All
DTEC2	5.2.0.4.1	Draft Guideline on Cyber Security	ARM17	All
DTEC2	5.2.0.4.2	Draft Guideline on Cyber Security (review after VTS55)	VTS55	All
DTEC2	5.2.0.5	Liaison note ENG to DTEC on Developments on the Maritime Internet of Things	ENG17	All
DTEC2	5.2.0.6	WP Guideline on developments and implications of MASS for coastal authorities_rev1	DTEC1	All
DTEC2	5.2.0.7	Report of IMO NCSR Correspondence Group on VDES	Japan Coast Guard	All
DTEC2	5.2.0.7.1	Report of the Correspondence Group on VDES (NCSR 11-9-X)	Japan Coast Guard	All
DTEC2	5.2.1.1	Proposal for the development of a PS on ASM for disaster management	Japan Coast Guard	WG1
DTEC2	5.2.1.2	Input paper on MRN	AMSA	WG1
DTEC2	5.2.1.2.1	Annex 1- Draft Circular to MSC on Harmonisation of identifiers using MRN	AMSA	WG1
DTEC2	5.2.1.2.2	Annex 2 - Draft Input to NCSR on Use of MRN Circular	AMSA	WG1
DTEC2	5.2.1.3	Introducing MCP identities to the IALA domain February 2024	DLR, AMSA, Fintraffic, Finland, SAAB, AIVeNautics, GLA, Port of Rotterdam, UCPH/UiO	WG1
DTEC2	5.2.1.3.1	IALA Guideline on provision of MCP identities	DLR, AMSA, Fintraffic, Finland, SAAB, AIVeNautics, GLA, Port of Rotterdam, UCPH/UiO	WG1
DTEC2	5.2.1.3.2	Proposed update to IALA Recommendation R1019	DLR, AMSA, Fintraffic, Finland, SAAB, AIVeNautics, GLA, Port of Rotterdam, UCPH/UiO	WG1
DTEC2	5.2.1.4	Input on the proposed update of IALA Guideline G1128	Fintraffic	WG1

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2	5.2.1.4.1	G1128 Ed1.5 Draft v4 Specification of e-Navigation Technical Service	Fintraffic	WG1
DTEC2	5.2.1.5	Input on SECOM design template	SAAB	WG1
DTEC2	5.2.1.5.1	IALA Service Design - Template SECOM REST_before DTEC02	SAAB	WG1
DTEC2	5.2.1.6	Input on service design for traffic clearance service	Fintraffic, Swedish Maritime Administration, AIVeNautics, Agency for maritime and coastal services, Port of Rotterdam, SAAB (Navelink/Combitech)	WG1
DTEC2	5.2.1.6.1	Service Design for VTS Traffic Clearance	Fintraffic, Swedish Maritime Administration, AIVeNautics, Agency for maritime and coastal services, Port of Rotterdam, SAAB (Navelink/Combitech)	WG1
DTEC2	5.2.1.7	Input on the update of Technical service for AtoN	GLA, USCG, AIVeNautics	WG1
DTEC2	5.2.1.7.1	Provision of AtoN Information Service to End users	GLA, USCG, AIVeNautics	WG1
DTEC2	5.2.2.1	Liaison note to DTEC on Tech Review Summary Table (LAP25-17.3)	LAP25	WG2
DTEC2	5.2.2.2	Demonstration paper for VHF digital communications	Japan Coast Guard	WG2 / WG3
DTEC2	5.2.2.3	Proposal on developing a new model course on AIS data analysis skills	China MSA	WG2
DTEC2	5.2.2.4	Proposals on certain key aspects for the development and implementation of digital fairway	China MSA	WG2
DTEC2	5.2.2.5	Status of task DTEC-7.1.2 - Guideline on Digitalization of waterways	Finnish Transport Infrastructure Agency	WG2
DTEC2	5.2.2.5.1	Draft IALA Guideline on Digitalization of waterways	Finnish Transport Infrastructure Agency	WG2

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2	5.2.2.6	Updated and Supplement Information for the Review of Ships' Air Draft Remote Measurement Technology (SADRMT)	China MSA	WG2
DTEC2	5.2.2.6.1	Annex1 emerging technology review table of SADRMT	China MSA	WG2
DTEC2	5.2.2.7	Report of ITG on IMT-2030	ITG on IMT	WG2
DTEC2	5.2.2.7.1	Draft IALA Recommendation on Marine AtoN over IMT-2030	ITG on IMT	WG2
DTEC2	5.2.2.7.2	Draft IALA Guideline on Marine AtoN over IMT-2030	ITG on IMT	WG2
DTEC2	5.2.2.7.3	Liaison note on the Update of IALA Task for Marine AtoN over IMT-2030	ITG on IMT	WG2
DTEC2	5.2.2.8	Input on the Navigation Radar Intercept Sensor (NRIS)	Reutech	WG2
DTEC2	5.2.2.8.1	Technology review table on the Navigation Radar Intercept Sensor (NRIS)	Reutech	WG2
DTEC2	5.2.2.9	Implementing digital voice in marine VHF bands	CML	WG2
DTEC2	5.2.2.10	Digital voice communication in the VHF maritime mobile band	US Coast Guard	WG2
DTEC2	5.2.3.1	Proposal on the Supplement of ASM FATDMA Mechanism	China MSA	WG3
DTEC2	5.2.3.2	Proposals for Revised R1007 on VHF Data Exchange System VDES for Shore Infrastructure	China MSA	WG3
DTEC2	5.2.3.3	Proposals on Adapting AIS Binary Information to VDE-ASM	China MSA	WG3
DTEC2	5.2.3.4	Input paper VDES Resource Sharing OPRI	OPRI	WG3
DTEC2	5.2.3.5	Input paper VDE-SAT Precision Time Service test results ICING	Space Norway / Kongsberg	WG3
DTEC2	5.2.3.6	Input paper on VDES Development in SG	Singapore MPA	WG3
DTEC2	5.2.3.7	Proposal on the revisions to the data transfer protocol details and other contents in ITU-R M.2092-1	NSONESOFT	WG3
DTEC2	5.2.3.8	Working Draft of New Guideline on The VDES Service and Infrastructure	NSONESOFT	WG3

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2	5.2.3.9	Draft IALA Guideline on VDES Authentication	GRAD	WG1/WG3
DTEC2	5.2.3.10	Multiantenna and Interference Cancellation for Colocation of VDE-TER and AIS	WSV	WG3
DTEC2	5.3.1	WP LN to ITU WG5B on Draft New Report ITU-R M.[Digital-Voice]	DTEC1	WG2
DTEC2	5.3.2	WP Proposed new work items Digital fairway	DTEC1	WG2
DTEC2	5.3.3	WP Review of Sigfox	DTEC1	WG2

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

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2-	12.2.1.1	Liaison note to ENG and ARM on Cyber Security Guideline	DTEC2	ENG18 / ARM18
DTEC2-	12.2.1.2	Draft Guideline on Cyber Security	DTEC2	ENG18 / ARM18
DTEC2-	12.2.1.5	Liaison note to ARM on IMO Circular on MRN	DTEC2	ARM18
DTEC2-	12.2.1.6	New draft Guideline on the provision of MCP identities	DTEC2	Council
DTEC2-	12.2.1.7	Review R1019 on Provision of maritime services in the context of eNavigation in the domain of IALA	DTEC2	ARM
DTEC2-	12.2.1.8	G1128 Specification of e-Navigation Technical Services	DTEC2	Council
DTEC2-	12.2.1.8.1	G1128 ANNEX A Technical Service Specification Template	DTEC2	Council
DTEC2-	12.2.1.8.2	G1128 ANNEX B Technical Service Design Template	DTEC2	Council
DTEC2-	12.2.1.8.3	G1128 ANNEX C Service Instance Description Template	DTEC2	Council
DTEC2-	12.2.1.10	Liaison note to IEC on the request to use elements of IEC 63173-1 in IALA Documents	DTEC2	Council
DTEC2-	12.2.1.11	Input to Council on overview of the Maritime Connectivity Platform (MCP) and progress update	DTEC2	Council
DTEC2-	12.2.1.12	Liaison note to ARM on R1019	DTEC2	ARM18
DTEC2-	12.2.2.1	Liaison note to 3GPP TSGs on the Update of IALA Task for Marine AtoN over IMT-2030	DTEC2	Council
DTEC2-	12.2.2.2	Liaison note to ARM, ENG, VTS on Tech Review Summary Table	DTEC2	ENG18 / ARM18 / VTS56
DTEC2-	12.2.2.3	Liaison note to IMO MSC on IALA Task for Marine AtoN over IMT-2030	DTEC2	Council
DTEC2-	12.2.2.4	Liaison note to ITU-R SG5 on IALA Task for Marine AtoN over IMT-2030	DTEC2	Council
DTEC2-	12.2.3.1	Review R1007 Ed1.1 The VHF Data Exchange System (VDES) for Shore Infrastructure	DTEC2	Council

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2-	12.2.3.2	Liaison note to ENG on IALA Workshop on future radionavigation and radiocommunication systems	DTEC2	ENG
DTEC2-	12.2.3.2.1	Revised Workshop proposal on future radionavigation and radiocommunication systems	DTEC2	Council ENG
DTEC2-	12.2.3.3	Liaison note to ENG on VDE-SAT	DTEC2	Council ENG

Working papers will remain within the Committee for further review during DTEC2.

Meeting	Agenda Item	Output Paper Title	Source	Action
DTEC2-	12.2.1.9	Service Design Template for SECOM Service	DTEC2	DTEC3
DTEC2-	12.2.1.3	Draft Circular to MSC on Harmonisation of Identifiers using MRN	DTEC2	DTEC3
DTEC2-	12.2.1.4	Draft Input to NCSR on Use of MRN Circular	DTEC2	DTEC3
DTEC2-	12.2.2.5	WP Review of Ships' air draft remote measurement technology	DTEC2	DTEC3
DTEC2-	12.2.2.6	WP Manual on Maritime Communications (MARCOM Manual)	DTEC2	DTEC3
DTEC2-	12.2.2.7	WP Proposal on developing a new model course on AIS data analysis skills	DTEC2	DTEC3

ANNEX E ACTION ITEMS

Action Items for the IALA Secretariat

1. The **Secretariat** is requested to forward the output documents, DTEC2-12.2.1.6, Draft Guideline on the provision of MCP identities to Council for approval. 15
2. The **Secretariat** is requested to forward the output document DTEC2-12.2.1.7 Review R1019 on Provision of maritime services in the context of eNavigation in the domain of IALA to ARM Committee. 15
3. The **Secretariat** is requested to forward the output documents on DTEC2-12.2.1.1 Liaison Note from DTEC2 to ARM and ENG on Cyber Security guideline and DTEC2-12.2.1.2 Draft Guideline on Cyber Security to ARM and ENG Committee. 15
4. The **Secretariat** is requested to forward the following output documents to ARM: DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of identifiers using MRN; the DTEC2-12.2.1.3 Draft Circular to MSC on Harmonisation of identifiers using MRN and the DTEC2-12.2.1.5 Liaison note to ARM on IMO Circular on MRN. 16
5. The **Secretariat** is requested to forward, DTEC2-12.2.1.8, G1128 Specification of e-Navigation Technical Service to Council for approval. 17
6. The **Secretariat** is requested to forward DTEC2-12.2.1.10 LN to IEC: Request to use elements of IEC 63173-2 in IALA document to Council for approval and to forward it to IEC. 17
7. The **Secretariat** is requested to forward DTEC2-12.2.1.9 Service Design Template for SECOM Service to DTEC3. 17
8. The **Secretariat** is requested to forward the output document DTEC2-12.2.1.11 Liaison note on MCP to Council to note. 18
9. The **Secretariat** is requested to forward DTEC2-12.2.2.5 WP Review of Ships' air draft remote measurement technology to DTEC3 for further review. 20
10. The **Secretariat** is requested to forward the updated Candidate Technology Summary Table DTEC2-12.2.2.2 to all Committees. 21
11. The **Secretariat** was asked to forward DTEC2-12.2.2.6 WP Manual on Maritime Communications (MARCOM Manual) to DTEC3 for final review. 21
12. The **Secretariat** is requested to forward the Liaison note DTEC2-12.2.2.1 on Marine AtoN over IMT-2030 to the Council for approval and then, once approved, send it to the IMO (MSC and/or IMO-ITU Experts Group), ITU-R Study Group 5, and 3GPP. 22
13. The **Secretariat** is requested to inform to the Council the outcome of WRC-23, and the implications on the current work program for task DTEC 6.3.2, 23
14. The **Secretariat** is requested to inform the Council on the proposed revised focus for the task to Develop a guideline outlining and evaluating feasible future scenarios of digital communications within the domain of IALA, taking into account the present status and availability of current and developing candidate technologies. It is expected that this guideline would be developed in a holistic manner with cross-committee participation. 23

15. The **Secretariat** is requested to identify the most appropriate manner to identify a potential new task for the 2023-2027 work program that is focused on developing guidance on the implementation of S-100, based on the discussion notes from DTEC2. 26
16. The **Secretariat** is requested to forward DTEC2-12.2.3.1 Review R1007 Ed1.1 The VHF Data Exchange System (VDES) for Shore Infrastructure to the Council for approval. 29
17. The **Secretariat** is requested to forward the DTEC2-12.2.3.2 Liason note to ENG on the Workshop Proposal on future radionavigation and radiocommunication systems. 30
18. The **Secretariat** is requested to provide and publish in the Dashboard calendar the link to the intersessional meeting related to the ITU-R M.2092-1 change proposals. 31
19. The **Secretariat** is requested to forward the summary of the DTEC2 Committee report to Council to note (DTEC2-11.1). 33

Action Items for Participants

20. That **Committee participants** are requested to approve the new task to develop PS for ASM-based communication for disaster management. 16
21. That **Committee participants** are invited to provide input to develop PS for ASM-based communication for disaster management to DTEC3. 16
22. That **Committee participants** are requested to consider separating G1143 into two parts as proposed: namely “Part1: Generic guidance on MRN” and “Part2: Guidance on applying MRN in the domain of IALA” to provide more organization-agnostic information on MRN. 16
23. **Axel Hahn** is requested to present the document DTEC2-12.2.1.11 Liaison note on MCP to Council. 18
24. That **Committee participants** with experience in, or technology to support, remote air draft measurement for ships are requested to review the work on SADRMT DTEC2-12.2.2.5 and provide input to DTEC3. 20
25. That **Committee participants** are encouraged to report on test beds and trials in the maritime domain, noting the updated Guideline G1107. 21
26. That **Committee participants** are asked to review and provide input on DTEC2-12.2.2.6 WP Manual on Maritime Communications (MARCOM Manual) for final review and completion at DTEC3. 21
27. That **Committee participants** are invited to join the intersessional task group DTEC-6.2.1 working on developing use cases for maritime in IMT-2030, noting the dates and times will be included on the Committees Calendar. 22
28. The **Committee participants** are invited to join the intersessional task group DTEC-7.1.2 on Digitalisation of Waterways and to express their interest to Kaisu Heikonen (kaisu.heikonen@ftia.fi) by 12th April 2024. 22
29. That **Committee participants** are invited to join the inter-sessional task group DTEC-1.2.4 on the development of the IALA MASS Guidelines noting the link will be provided on the IALA committee calendar. 24

30. The **WWA** is requested to develop a base model course for AIS data analysis skills, which will be forwarded through the VTS Committee to DTEC3. 24
31. **That Committee participants** are recommended to require that all equipment purchased from now on is tested to operate properly at the rollover date which is exactly at 03:14:07 UTC on 19 January 2038. 27
32. **That Committee participants** who have the experience to contribute or are stakeholders in shore infrastructure are asked to assist in the drafting of these first chapters of the new guideline intersessionally as part of a new correspondence group on “VDES shore infrastructure” with lukas@nsonesoft.com, who is the task leader. 29
33. **That Committee participants** who plan to participate in the intersessional meeting to finalize a working document towards preliminary draft revision of ITU-R M.2092-1 physically shall register with ross_norsworthy@msn.com CC stefan@sternula.com. 31
34. **That Committee participants** are invited to provide feedback to Ronald.Raulefs@dlr.de by 1 June 2024, on the draft input to IMO found in the nextcloud folder ENAV – DTEC – WG3 – 20240318_DTEC2 - Input - R-Mode - MSC109_VDES_RMode_2501_v5.docx; [file](#). 32
35. **That Committee participants** are invited to provide contributions to the revision of Guideline G1158 to DTEC3. The possible topics are: refine the text following ITU-R M.2092-1, add the agreed proposal from China MSA, and adjust the document to match IMO terms. 32
36. **That Committee participants** interested in contributing to the work on the new guideline on VDES Authentication are invited to email the task group lead, Jan Safar, jan.safar@gla-rad.org. to join the group. 32



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International Association of Marine Aids to Navigation and Lighthouse Authorities