# ENAV WG3 Telecommunications Interesessional Meeting

# Report for January 2018 Intersessional

# General

The IALA eNAV working group 3 telecommunication met at ESA/ESTEC the week of Jan 15, 2018. The focus for the meeting was the further development on the VDE-SAT report prior to ITU WP 5B; review and revision of IALA Guideline 1139 on technical specification of VDES; review and response to ITU on development of Autonomous Maritime Radio Devices (AMRD).

The agenda included:

1. General:

* Update on the outcomes of ITU WP5B November 2017 meeting
* Review of IALA initiatives for VDES – publication of IALA Guideline 1139; 1117 vs 2;
* Update on related developments – E2 workshop on MCP (hosted at IALA); ETSI workshop on future evolution of marine communications; IALA Arctic Seminar (hosted by IALA).
* NCSR input NCSR 5-12-2; related document MCS.1 Circ.1460

1. VDE-Sat report development
   1. Finalise for input to ITU WP 5B May 2018
2. IALA G1139 review and revision
   1. Update of change log
   2. Revision process
   3. Link Layer
3. AMRD / MAtoN elements (ITU Liaison, including proposed changes to ITU-R M.1371-5)
4. Any other business
   1. Using VDES for R-Mode
   2. Promoting VDES to user groups
   3. Process to ITU delegates
5. Close
   1. Next Meeting – Intersessional week 2nd week of July

All documents related to the meeting are available on the file share at:

[*http://www.iala-aism.org/file-sharing/ws-working-groups-working-space/WG3/20180115%20intersessional%20ESTEC/Working%20Output*](http://www.iala-aism.org/file-sharing/ws-working-groups-working-space/WG3/20180115%20intersessional%20ESTEC/Working%20Output)

## Report of ITU meeting

Stefan Bober provided a briefing on recent ITU meetings and expectations for the IALA work. He noted the support from delegations during the meeting, highlighting the need for delegations to not only be briefed, but also to speak up during the meeting. Reference was made to the liaison from ITU to IALA on AMRD.

## Developments of VDES – IALA

Jillian Carson-Jackson provided an update on the documents regarding VDES approved by the IALA Council in December 2017. The revised VDES Overview – IALA Guideline 1117 edition 2 – was approved by Council and is available on the IALA website.

The process agreed at the end of ENAV21 with regards to the work (other than VDE-SAT) carried out on 2092-0 was reviewed. This included taking the last version of the revision of 2092 (working towards 2092-1) and converting it to an IALA Guideline document to enable the publication of the information within the IALA framework. IALA Guideline 1139 – Technical Specification of VDES – was agreed by IALA Council in December 2017 and is available on the IALA website.

The process to continue development of the technical aspects was discussed. The work on the document will continue and it was noted that the IALA document can be issued as a revised document when the WG feels it is appropriate.

The change log process, including the change log proposal template, was reviewed and updated, and a clean change log implemented based on IALA G-1139. Johnny Schultz agreed to maintain the change log.

It was agreed that, following WRC-19, the latest version of G-1139 will be used to prepare a submission to ITU for proposed changes to ITU-R M.2092.

## Update – related developments

### E2 workshop on MCP

Ernie Batty provided an update on the E2 sponsored workshop on the Maritime Connectivity Platform, which was hosted by IALA. The focus of the workshop was on the implementation of the MCP as well as the governance structure.

Related to the workshop, Jillian Carson-Jackson presented the input paper supplied by the IALA E2 project on possible approaches for interoperability of VDES and MCP.

### ETSI workshop on ‘future evolution of marine communications’

Derek Love provided a short overview of the workshop, which had a small reference to VDES. It was noted at the workshop that the ETSI standard on Broadband Maritime Broadband (ETSI EN 303 276) had been published. Points identified from the workshop included:

* Interest in combining technologies into a single “comms console” rather than multiple, separate boxes, or at least a common user interface panel.
* Potential for digital voice channels (6.25 kHz channel marine variant of dPMR) to improve spectrum efficiency.
* New OneNet IPV6 data standard from NMEA for on-board comms.
* Concern over approvals for software and update/maintenance policy.
* The possible demise of DSC?
* Requirement for data comms beyond 76 degrees north/south.
* Strong presence from 3GPP emphasising their high data rate (but limited range and availability).
* Definite requirement for data comms outside coastal areas (container and cargo monitoring).

### IALA Arctic Seminar

Jean-Francois Coutu provided an overview of the IALA sponsored Arctic Seminar. He noted the conclusions from the workshop:

1. A harmonized approach should be adopted for marking polar routes and providing digital services with common standards of provision, web-based services and other means.
2. IALA-NET is a suitable platform for exchanging and storing historical AIS data for statistical analysis and the use of Risk Management tools.
3. Since connectivity is a primary enabler for development in the Arctic, the limited communication infrastructure continues to be a major challenge.
4. VDES-SAT could provide virtual AtoNs and other e-navigation services in the arctic. The frequency allocation needs to be supported at ITU.
5. A multi-system approach should be developed for resilient PNT, using a mixture of GNSS and terrestrial systems and a multi-system receiver.
6. There is a significant shortage of hydrographic survey data to give a comprehensive set of(simplified) ENC for Arctic voyages. Crowd sourcing of hydrographic data can give a significant contribution.

### Transition of Analogue to Digital

Input to NSCR 5 from the Netherlands (NCSR 5/12/2) regarding the ongoing use of voice on the identified VDES frequencies was noted, including the time-line reference to MSC.1/Circ.1460. Discussion highlighted that the paper from the Netherlands is clarifying the action, based on the extension of the implementation date for the upgrade of VHF equipment which allows for a transition of period of seven year where both the analogue functionality and digital functionality exist (in accordance with appendix 18 or the Radio Regulations – aim for completion of the transition before 1 January 2024).

# VDE-SAT Report

The working group reviewed the output from the ITU-R WP 5B meeting in November on the ‘Working Document towards a Preliminary Draft New Report ITU-R M.[VDES-SAT]’. The review resulted in 13 new tasks for the task list in addition to the 1 open task from a previous meeting.

The open tasks were addressed and proposals to resolve them were reviewed and discussed. 10 of the proposals were approved and the tasks closed. One of the tasks was found to be obsolete. One of the remaining open tasks is intended as a reminder to add results from VDE-SAT test and measurement campaigns as that become available. Thus, this task will remain open as input to the report will be considered by ITU-R WP 5B. The two remaining open tasks will be addressed by members of the group outside the purview of IALA.

The approved proposals were merged into one, and uploaded to the IALA WG3 file share in the working output folder for this meeting along with the updated task list.

A brief draft Liaison Statement to ITU-R WP 5B was also prepared to serve as a cover letter for the input from IALA to the Working Document towards a Preliminary Draft New Report ITU-R M.[VDES-SAT].

Action - IALA secretariat is requested to provide the liaison statement and the draft document working towards PDNR ITU-R M.[VDE-SAT] to the IALA council for fast track approval. Once approved, the IALA secretariat is requested to submit the liaison note and document to ITU-R WP 5B. (documents: Jan2018-ESTEC-output02a and output02b)

# Technical Specification of VDES (IALA Guideline 1139)

Following confirmation from ITU WP 5B that ITU-R M.2092-0 will not be opened for review until after WRC-2019, the group agreed to review and update of the IALA Guideline 1139 – Technical Specification for VDES, approved by IALA Council in Dec 2017 (section 1.2 refers).

The process to transition from the work on ITU-R M.2092-1 to work on G1139 was agreed, including a detailed review of the change log that has been maintained for 2092. The group reviewed each remaining item on the change log. All outstanding changes from the 2092 change log were reviewed, closed or revised as required. Any outstanding items were transferred to the new change log with G1139 references. Additional change log items were included based on the discussions at the intersessional meeting. A revised change request template was created. All documents were uploaded to the file share.

Action – members were asked to review the change log (now referencing G1139), located on the WG fileshare, and address actions identified.

## VDE Link Layer

The link layer input papers were reviewed.

The two main parts of the specification that was discussed:

* Link Layer (including TBB).
* Presentation Interface.

The discussion noted that all agreed items and future work that needs to be done should be captured in the document. A number of topics were identified for further development, which include:

* Can the MMSI be used to facilitate broadcast, geo-cast and multi-cast functionality.
* Need to confirm / agree the recommendation that EDN (End Delivery Notification) be removed.
* Discuss and clarify duty cycle restrictions on VDES to retain AIS situational awareness.

A number of items will be further developed through correspondence. Pieter Winter agreed to facilitate a correspondence group on this matter.

Action – Pieter Winter to initiate a correspondence group for link layer development. Members to contact Pieter Winter if they wish to participate in the link layer development correspondence group.

## VDES interoperability with MCP

Jillian Carson-Jackson provided an introductory presentation on the input paper ‘Integrating VDES and MCP’.

Related to the discussion JF Coutou reviewed a presentation that was provided to the IALA Arctic Seminar.

The working group noted that the focus of their work is to provide VDES as a pipe (transport layer) to enable interfacing in MCP. The conclusion of the group was that it is more feasible to add a gateway instead of adding TCP/IP into VDES. It was noted that there would be benefit in following this up with clarification of options related to interoperability of the MCP with digital data interfaces (i.e. TCP/IP, gateway, or a hybrid option).

# AMRD / MAtoN

The liaison from ITU regarding autonomous maritime radio devices (AMRD) was reviewed. The work of the ARM Committee on mobile aids to navigation (MAtoN) was also reviewed, noting the recently published IALA Recommendation R1016 on MAtoN. Discussion on the possible relationship between AMRD and MAtoN led to the conclusion that there is a need to clarify these definitions, and to confirm if MAtoN would be consider the relationship (if any) between AMRD and MAToN.

Jean-Francois Coutu provided a presentation on experiences in Canada with AMRD proliferation, including issues with screen clutter; incorrect use of equipment and the possibility that misunderstanding of the unit name field could lead to issues on shipboard ECDIS equipment.

The group agreed that the issue of AMRD proliferation on AIS frequencies is a real and pressing safety issue. It was noted that Canada will be highlighting this issue at ITU. In addition, the matter is also of concern for IMO. It was identified that the matter has been discussed in the IMO/ITU Joint Experts Group (JEG). The group felt that there may be an opportunity for the issue of a safety of navigation circular or similar to bring the matter to the attention of IMO members.

It was agreed that a liaison on the matter would be provided to ITU WP 5B. However, as this liaison does not change the proposed spectrum allocations, the liaison does not need to be fast tracked for submission. The process agreed was to liaise with the ARM Committee on some matters raised in the ITU liaison, and provide a liaison to ITU WP5B for the November 2018 meeting.

Prior to the provision of the liaison from IALA following consideration by the ARM Committee, it was agreed that a short liaison, highlighting the recent publication of the IALA Recommendation R-1016, would be provided to ITU WP 5B for the May 2018 meeting, if an approval process can be agreed with the IALA Secretariat.

Based on the input from Jean-Francois Coutu a draft IALA Recommendation was developed. It was agreed that this document would be forwarded to the next intersessional working group meeting for further review and revision. Following this, the document will be forwarded to ARM for their consideration at their next meeting in October 2018.

Action – The liaison note from ENAV (WG3) to ARM (including the liaison from ITU to IALA) on AMRD be forwarded to the ARM Committee for review. (documents: Jan2018-ESTEC-output04a and 04b)

Action – The liaison note to ITU on AMRD (publication of IALA R1016; clarification request on Message 28) be forwarded to Council for electronic review and then to ITU WP5B for the May 2018 meeting. Review process to be confirmed in consultation with IALA Secretariat. (document: Jan2018-ESTEC-output03)

Action – WG3 members review the draft IALA Recommendation on AMRD, which will be further developed at the next intersessional meeting of the working group. (document: Jan2018-ESTEC-working02)

# Other Items

## Agenda items for consideration – WRC2023

Christian Rissone noted that WRC2019 will be identifying agenda items for consideration at WRC2023. He highlighted that these items would need to be included in the ITU process in a timely manner. There are two areas of work that could provide opportunity for items of relevance – ENAV and GMDSS modernization.

Members were asked to consider the matter, which will be included as an agenda item for the next intersessional meeting of the working group. The procedure for provision of agenda items would be through an input paper to the joint IMO/ITU JEG meeting to be held in September. Papers will be required 4 weeks in advance.

Action – members consider suitable agenda items for WRC2023 and provide input on these as appropriate for review and discussion at the next intersessional meeting of the IALA ENAV WG3.

## R-Mode over VDES

The working group reviewed input papers on R-Mode using VDES application. It was noted that R-Mode has been discussed inside IALA for several years. There have been a number of R-Mode trials and test beds that are using various techniques of R-Mode using different carriers from MF through to VHF (AIS), which is included in VDES. The published test results are promising.

It is proposed that the VDES specification be expanded slightly to enable R-Mode on VDES by ensuring that the VDES shore station can accept an external, highly accurate and stable clock input. This is required to ensure that the stability of the VDES timing parameters remain accurate over periods of time that satisfy this application.

A liaison note to WG 2 /PNT regarding the technical requirements for VDES shore stations to be able to support R-Mode using VDES was drafted. Questions have been proposed in the liaison note regarding the expected requirements for: a) data rate; b) access bandwidth; c) packet size and data structure; and d) update rate required for the communication.

Action – The liaison note on requirements for VDES regarding R-Mode using VDES application be forwarded as soon as possible to the chair and vice-chair of WG2/PNT, with the request for a response in time for consideration at the next intersessional meeting of WG 3 in July 2018. (document: Jan2018-ESTEC-output05)

## Promoting VDES to user groups

Suggestions on how to promote and provide information on VDES to user groups – both afloat and ashore – were discussed. It was agreed that a small group would develop this further, in the form of a style of ‘marketing plan’. Suggestions to assist with promotion of VDES included:

* Focus presentations at the IALA Conference in May, including information provision at the IALA booth;
* Development of a ‘brochure’ or flyer on VDES (what it is, why it is needed; what VDES can do for you);
* Develop a visual representation / short ‘video’ on VDES

Action – Pete Besio to convene a correspondence group to develop a ‘marketing strategy’ for VDES.

## Briefing for ITU meetings

Stefan Bober noted that the briefing notes for IALA members had assisted in providing support during ITU meetings, however these notes need to be provided at least one week in advance of the meeting. Other options could include provision of additional background information on VDES (see section 5.3) with the briefing notes.

In addition, if possible, delegations should consider including those who are knowledgeable on VDES to participate in the meetings. Members of the working group could attend the regional and/or full ITU meetings to provide technical support. To support this, it was noted that it may be appropriate for the IALA Secretary General to provide a letter/email of support for the approach to assist members of the WG when approaching the appropriate ITU representative.

The need for input to ITU was highlighted. Representatives from Space Norway noted that there could be opportunity to access the NorSat-2 VDE SAT signal for research purposes, on the proviso that the results of studies carried out would be provided to ITU.

Action – Jillian Carson-Jackson to follow up on development of an action plan for briefings to be provided to IALA members in advance of regional and full ITU meetings.

Action – members to investigate opportunities to access and assess the sat-downlink, noting the offer from Space Norway to assist with access to the NorSat-2 VDE SAT signal, on the proviso that results from any studies done are provided to ITU in a timely manner. Members who are interested in pursuing this opportunity should contact Lars Loge or Hans Christian Haugli.

# VDES Seminar

ESTEC hosted a VDES seminar on Tuesday 16 January 2018. Presentations provided at the seminar were uploaded to the fileshare system.

The members of the working group thanked Nader Alagha for organizing the seminar.

# eNAV committee requirements progress summary

The table provided reflects the completed status of the work for the working group as agreed for the 4 year IALA work session, which was completed at ENAV21.

\* On target, behind target but under control behind target needs action

| **Task** | **Start Session** | **Planned End Session** | **Revised End Session** | **Progress Indicator** | | | **Status Overview** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Green** | **Yellow** | **Red** |
| **WG3 Telecommunications** |  |  |  |  |  |  |  |
| 1.4.1 Develop VDES Message Structures | 18 | 21 |  |  |  |  | Complete at ENAV21 |
| 1.4.2 Assist in the Development of Message Structures for e-Nav | 18 | 21 |  |  |  |  | Commence ENAV18 provided WG1 is ready |
| 2.1.1 Update the Marine Radio Communication Plan | 20 | 21 |  |  |  |  | Commence ENAV20 |
| 2.1.2 Develop Recommendation on VDES | 15 | 21 |  |  |  |  | On-going |
| 2.1.3 Organise a Workshop on VHF Data Exchange System | 17 | 17 |  |  |  |  | Complete |
| 2.2.1 Update IALA Recommendations and Guidelines for AIS and VDES | 15 | 21 |  |  |  |  | On-going |
| 2.3.1 Manage Application Specific Message (ASM) catalogue | 20 | 21 |  |  |  |  | Complete until ENAV20 |
| 3.2.1 Liaise with ARM regarding Virtual AtoN | 17 | 17 |  |  |  |  | Complete |

# Output and Working Papers

Output papers will be referred to IALA council for approval using the agreed fast track process. Working papers will be forwarded to the next meeting of the WG3 Intersessional meeting.

| Number | Title | Action |
| --- | --- | --- |
| Output 01 | Report on WG3/Comms Intersessional Jan 2018 | Forward to IALA Secretariat |
| Output 02 (02a and 02b) | Liaison note to ITU-R WP5B on VDE-SAT / PDNR\_ITU-R\_M\_VDES-SAT\_WG3\_2018-01\_output.docx | Forward to ITUWP5B (May 2018) |
| Output 03 | Liaison note to ITU on AMRD *(note - for May 2018 meeting)* | Forward to ITU WP5B (May 2018) |
| Output 04 (04a and 4b) | Liaison note to ARM on AMRD (package – includes Liaison IALA from ITU on AMRD; Liaison note from IALA to ITU WP5B on AMRD; | Forward to ARM |
| Output 05 | Liaison to WG2/PNT on R-mode over VDES | Forward to Chair / vice-chair of WG2 |
| Working 01 | PDNR\_ITU-R\_M\_VDES-SAT\_tasks20180118.xlsx | Forward to next intersessional |
| Working 02 | Draft IALA Recommendation on AMRD | Forward to next intersessional |
| Working 03 | Change log for G1139 | Forward to next intersessional |
|  |  |  |

# Attendees

| **Title** | **First Name\*** | **Last Name\*** | **Initials** | **Company\*** |
| --- | --- | --- | --- | --- |
| Mr. | Ernie | Batty | E.B. | IMIS Global (South Africa) |
| Mr. | Ernest | Batty | E.B. | Senro Global Limited |
| Mr. | Peter | Besio | P.B. | L3T (U.SA1:E37.A.) |
| Mr. | Stefan Karl | Bober | S.B. | WSV / FVT (German Waterways and Shipping Administration) |
| Ms. | Margaret | Browning | M.B. | exactEarth |
| Mr. | Michael | Card | M.C. | IALA |
| Ms. | Jillian | Carson-Jackson | J.C-J | IALA E2 |
| Mr. | Jean-Francoois | Coutu | J-F.C. | Canadian Coast Guard |
| Mr. | Cato Giil | Eliassen | C.E. | Kongsberg Seatex |
| Mr. | FUJIO | ENDOI | F.E. | Japan Coast Guard |
| Mr. | Patrick | Gallager | P.G. | United States Coast Guard |
| Mr. | Hans Christian | Hougli | H.H. | Space Norway |
| Mr. | Juntae | Kim | J.K. | Korean Register of Shipping |
| Mr. | Jeonghyeon | Kim | J.K. | I-Storm Co.,Ltd. |
| Mr. | Waldo | Kleynhans | W.K. | Private |
| Mr. | Antti | Kukkonen | A.K. | Furuno Finland oy |
| Mrs. | Philip | Lane | P.L. | Comité International Radio-Maritime (CIRM) |
| Mr. | Johan | Lindborg | J.L. | Saab AB |
| Mr. | Lars | Loege | L.L. | Statsat AS |
| Mr. | Derek | Love | D.L. | CML Microcircuits |
| Mr. | Yoshio | MIYADERA | Y.M. | Japan Radio Co. |
| Mr. | Hiroyasu | Nakagawa | H.N. | FURUNO ELECTRIC CO., LTD. |
| Mr. | HIDEKI | NOGUCHI | H.N. | Japan Coast Guard |
| Mr. | Ross | Norsworthy | R.N. | RTCM, US Coast Guard |
| Mr. | Neil | Peniket | N.P. | SRT Marine Technology |
| Mr. | Ronald | Raulefs | R.R. | DLR |
| Mr. | CHRISTIAN | RISSONE | C.R. | ANFR |
| Mr. | Jan | Safar | J.S. | General Lighthouse Authorities of the UK & Ireland |
| Mr. | Johny | Schultz | J.S. | United States Coast Guard |
| Mr. | YAUCHI | TAKAMASA | Y.T. | Oki Consulting Solutions Co., Ltd. |
| Mr. | Robert | Tremlett | R.T. | Orbcomm |
| Mr. | Wim | van der Heijden | W.H | IALA Committee Seceretary |
| Mr. | Jeffrey | van Gils | J.G. | Ministry of Infrastructure and Water management - Rijkswaterstaat |
| Mr. | MICHAEL MAO | WANG | M.W. | Southeast University, China |
| Mr. | Pieter | Winter | P.W. | Stone Three |
| Mr. | TINGTING | XIA | T.X. | Nanjing University of Science and Technology, China |
| Mr. | JINGJING | ZHANG | J.Z. | Nanjing University of Science and Technology, China |

# Action Items

1. [*Action - IALA secretariat is requested to provide the liaison statement and the draft document working towards PDNR ITU-R M.[VDE-SAT] to the IALA council for fast track approval. Once approved, the IALA secretariat is requested to submit the liaison note and document to ITU-R WP 5B. (documents: Jan2018-ESTEC-output02a and output02b) 3*](#_Toc519568038)
2. [*Action – members were asked to review the change log (now referencing G1139), located on the WG fileshare, and address actions identified. 3*](#_Toc519568039)
3. [*Action – Pieter Winter to initiate a correspondence group for link layer development. Members to contact Pieter Winter if they wish to participate in the link layer development correspondence group. 4*](#_Toc519568040)
4. [*Action – The liaison note from ENAV (WG3) to ARM (including the liaison from ITU to IALA) on AMRD be forwarded to the ARM Committee for review. (documents: Jan2018-ESTEC-output04a and 04b) 5*](#_Toc519568041)
5. [*Action – The liaison note to ITU on AMRD (publication of IALA R1016; clarification request on Message 28) be forwarded to Council for electronic review and then to ITU WP5B for the May 2018 meeting. Review process to be confirmed in consultation with IALA Secretariat. (document: Jan2018-ESTEC-output03) 5*](#_Toc519568042)
6. [*Action – WG3 members review the draft IALA Recommendation on AMRD, which will be further developed at the next intersessional meeting of the working group. (document: Jan2018-ESTEC-working02) 5*](#_Toc519568043)
7. [*Action – members consider suitable agenda items for WRC2023 and provide input on these as appropriate for review and discussion at the next intersessional meeting of the IALA ENAV WG3. 5*](#_Toc519568044)
8. [*Action – The liaison note on requirements for VDES regarding R-Mode using VDES application be forwarded as soon as possible to the chair and vice-chair of WG2/PNT, with the request for a response in time for consideration at the next intersessional meeting of WG 3 in July 2018. (document: Jan2018-ESTEC-output05) 5*](#_Toc519568045)
9. [*Action – Pete Besio to convene a correspondence group to develop a ‘marketing strategy’ for VDES. 6*](#_Toc519568046)
10. [*Action – Jillian Carson-Jackson to follow up on development of an action plan for briefings to be provided to IALA members in advance of regional and full ITU meetings. 6*](#_Toc519568047)
11. [*Action – members to investigate opportunities to access and assess the sat-downlink, noting the offer from Space Norway to assist with access to the NorSat-2 VDE SAT signal, on the proviso that results from any studies done are provided to ITU in a timely manner. Members who are interested in pursuing this opportunity should contact Lars Loge or Hans Christian Haugli. 6*](#_Toc519568048)