# Working Group 3 – Digital Communication System (WG3)

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## Report and actions from ENAV24 and August Intersessional

The group walked through the action items from ENAV24 and the August intersessional. All actions are done except these:

### Aug19/Action3: Hideki: can we keep superseded documents accessible for ref?

### *Action Item: The* ***IALA Secretary*** *is asked to write a note on the web page where the documents can be downloaded that IALA secretary can be contacted for older versions.*

Status 2020-02-05 (Minsu): ongoing by external company doing updates to the web page.

### Aug19/Action7: coordination of ITU introduction to changes for ITU-R M.2092

This is an action this week, Christian Rissone has joined us to help finding that strategy, see 1.3.1.

### Aug19/Action9: QPSK point specifications publishing: open

The group received a proper IPR statement from ESA on the QPSK point files. G1139 will refer to G1139-1 for the QPSK/CDMA sequence from G1139 edition 4 on.

*Action Item: The* ***IALA Secretary*** *is asked to add the OUTPUT/G1139-1\_QPSK\_points.zip file to the edition 3 of G1139 on the IALA web page as document G1139-1.*

Status 2020-02-03: Minsu writes that this will be done this week.

*Action Item: Nader sends a letter to the BR (ITU) on the* QPSK/CDMA sequence

### Aug19/Action10: MASS guideline draft, see chapter 1.7

### Aug19/Action12: no response on registering VDES trademark, yet.

We leave it open, Chair to ask for progress.

### Aug19/Action13: VDE-SAT channelization and transmission structure -> Wikipedia

*Action: The* ***IALA Secretary*** *is urgently requested to ensure that the IALA IPR Wiki page is published correctly and linked from the IALA web and IALA Wikipedia pages.*

Minsu (2020-02-05): work in progress

## Input for this meeting

The group reviewed the list of input papers and assigned them to the following work topics.

* INPUT/dPMR: Jeffrey shared this information with us to keep us informed, no action required. WG2 is owner on digital voice for now, we’ll coordinate with WG2 at eNAV25;
* INPUT/Photos (WRC): ☺
* INTPUT/G1139 (see below in chapter)
* Email request to make a G1139 walkthrough session (Hans) based on 3 use cases, protocols and timing diagrams
* Email request to make a G1139 walkthrough session for the bulletin board (Hans)
* By email Pieter requests a G1139 walkthrough identifying where we have issues in general, harmonize VDE-SAT and VDE-TER
* Verbally, Ross requests that we revaluate Michaels’s proposals on the VDE-SAT  
  The group: these proposals are enhancements, let’s keep it time-boxed  
  The group decides
* IEC WG15 feedback, see below
* WRC-19 status (S. Bober), see below
* 20200205\_IMO\_proposal\_on\_VDES\_rev.7.0.docx
* INPUT/R-Mode Report - AIS and VDES Ranging - measurements results.pdf for information on current R-mode developments (can be used as a maturity indicator by Members)

## IMO Matters

Yoshio presented 20200205\_IMO\_proposal\_on\_VDES\_rev.7.0.docx where Japan and co-sponsors propose that IMO adds VDES into SOLAS chapter V as an alternative to AIS (where “VDES” here needs to contain a full AIS transceiver function).

*Action: Members are asked to seek support of that proposal at the IMO MSC 102 (13th of May 2020) meeting from their home countries; IMO delegates can contact Yoshio for advance clarification;*

## ITU/WRC-19 Matters

### ­­­WRC-19 Outcome

See INPUT/G1139/IALA Report\_of\_ITU\_WRC-19\_Sharm\_El-Sheikh\_28\_October\_to\_22\_November\_2019.docx

Stefan Bober presented the content of the Report. Highlights:

Before WRC-19, VDE-SAT frequencies were not allocated in Radio Regulations.

Compromise achieved during WRC-19 dismissed the 500kHz VDE-SAT downlink, but allows VDE-SAT as a secondary UL and secondary DL in the 150kHz lower and 150kHz upper leg of the existing VDE frequencies. UL/DL can be duplex and/or simplex in both bands. VDE-SAT is secondary to VDE-TER.

There is a list of countries that require coordination on the VDE-SAT downlink usage.

WG3 plans to address these changes into G1139 as of this intersessional.

AMRD were parted into group A (safety) and B (non-safety); group A are allowed on AIS frequencies, group B using AIS technology is using channel 2006; Power max. 100mW, antenna height max. 1 meter (for details please refer to the report). WG3 does not plan any further action.

Frequencies are allowed for NAVDAT, where IMO will draft a new performance for the receiver on board of ship, and a NAVDAT manual (as the NAVTEX manual). WG3 does not plan any further action.

As for WRC-23, the agenda item 1.11 modernization of GMDSS and implementation of e-navigation is approved.

IMO defines e-navigation and GMDSS modernization terms.

R-mode was included as agenda item for WRC-27 due to lacking maturity. If we can proof maturity by providing proper measurement reports on R-Mode through IMO and ITU-R WP5B, we might have a chance to get it inside WRC-23, though.

Generally, a feedback from WRC-19 is that frequency administrations feel disconnected from IALA. It is our duty as IALA workgroup members to keep our administrations informed proactively. Please everybody in WG3, contact your administrations and find out how they want to be informed by you of the work we do at IALA, and how you can represent at ITU yourselves.

*Action:* ***Workgroup members*** *are requested to keep their local frequency administrations informed about the items we work on at IALA to prepare for our work at WP5B and WRC-23.*

*Action:* ***Ronald Raulefs*** *takes action to make a communication plan towards ITU-R and IMO for R-mode with the goal to get it into WRC-23. Ronald to plan with Christian Rissone to take the topic up on the joint IMO/ITU expert group in July 2020.*

### ITU-R M.2092 revision

We should attend WP5B; please join WP5B meeting on Tuesday 28th of April 2020 to Friday 1st of May, in Geneva, helping to work towards a draft preliminary new revision of 2092.

Plan:

* Intersessional approved changes will be incorporated into G1139 an input for eNAV25
* After intersessional G1139 will be used as a baseline for creating an ITU-R formatted input to ITU “PDRR to ITU-R M.2092-0” as WORKING input to this working group
* eNAV25 WG3 will perform final adjustments to “PDRR to 2092” and G1139
* US will submit “PDRR to 2092” as a multi-country contribution to WP5B (IALA, ESA, US, Canada, Denmark, Germany, Norway, Sweden, Japan, France, South Korea, ATU, UK, others from CEPT)
* eNAV25 WG3 will keep G1139 aligned to “PDRR to 2092” and request committee and council approval for a new Rev. 4 of G1139
* Submission of “PDRR to 2092” to ITU-R WP5B has to happen latest at the 20th of april 2020 16:00 UTC, by the US and signature countries
* Korea is invited to present “PDRR for 2092” at ITU WP5B. This document should be represented to be revisions as a **consequence to WRC-19 and intensive testing**

Status 2020-02-04 is that the US accepted to take the lead on coordinating the multi-country proposal.

For countries who have problems in signing the multi-country proposal, it is encouraged to make their own multi-country proposal but proposing the same document.

CEPT has a meeting 31st of March, agenda point 8 is preparation of WRC-23; the group asks Christian Rissone to present the “PDRR to 2092” there.

*Action:* ***Workgroup members*** *are expected to send contact information of their country’s WP5B representative to Ross.*

## Revise G1139 – Technical Specification of VDES

### Process

As decided by the August 2020 intersessional meeting, following process applies in regard to VDES work progress:



NOW

(source WORKING/20191011\_2092\_WG3\_phases\_ver3.pptx)

### Input papers

Following input papers were reviewed by the group (all files in folder INPUT/G1139/):

* IALA Report\_of\_ITU\_WRC-19\_Sharm\_El-Sheikh\_28\_October\_to\_22\_November\_2019.docx
  + Stefan Bober presented this to the group for noting.
* WRC-19 Provisional Final Act PFA-WRC19-E.pdf
  + Just for noting.
* R16-WRC19-C-0381!!MSW-E.docx
  + The group reviewed the changes decided on the Radio regulations for VDE-SAT.
* 20200120\_G1139\_CP\_NEW-1\_LarsLoge WRC19 changes
  + The group agreed that a sub working group is walking through the document and performs the editorial work directly in our working version. Track changes enables us to identify these changes afterwards in the group.
  + The sub working group produced a change of the current working document to capture the changes on Annex A. The group walked through these changes on Thursday 15- and approved these changes with minor changes throughout the session that were applied directly to the working document. OUTPUT DOCUMENT: WORKING/2020206\_Revisions to G1139 Rev\_3.docx
  + OUTPUT: updated change request INPUT/20200120\_G1139\_CP\_NEW-1\_LarsLoge\_Attachement1 revised r1.docx approved by the group for Appendix D changes only.
* 20191202\_G1139\_CP1\_PieterWinter on R-mode non FEC link IDs
  + Agreed by the working group with a small change applied to the CP and uploaded to the file share as 20200204\_G1139\_CP1\_PieterWinter\_editedbywg.docx
* 20191202\_G1139\_CP\_2\_PieterWinter on addition of short broadcast messages
  + Agreed by the working group as proposed.
* 20200203\_G1139\_CP\_3\_PieterWinter.docx missing Reed-Müller generator matrix
  + Agreed by the working group in the “recommended” form with table.
* 20200202\_G1139\_Encapsulated AIS messages via ASM message 0.docx from IEC
  + Agreed by the working group as proposed.
* 20200126-G1139\_CP\_1\_to\_18-Jan\_Safar.docx
  + Included in the work of the VDE-SAT WRC-19 input incorporation sub working group.
* 20200130\_G1139\_CP\_000\_StefanPielmeier.docx
  + Will be integrated in the CP from Hans to be received at eNAV25
* 20200201\_G1139\_new1\_JS.docx Common header structure for all ASM messages and addition of a session ID to ASM
  + This change proposal is collecting input from IEC WG15, was walked through by the group and approved as proposed
* 20200201\_G1139\_new2\_JS.docx ASM retransmissions,
  + This change proposal was walked through by the group and approved as proposed.
* 20200204\_G1139\_CP\_1\_3\_NaderALAGHA.docx editorial improvements
  + Approved as proposed
* 20200206\_G1139\_KSX\_Clarify A\_1\_2\_4\_5\_Truncation of FEC encoder.docx
  + Clarification on ASM Uplink processing by Kongsberg, approved as proposed
* Previously by email approved 20191007\_G1139\_CP\_item67\_exactEarth.docx on SAT-UL ASM
  + Was not approved by the group after clarification by the involved parties
  + It will be removed from the working document
* 20200204\_G1139\_KSX\_Correct D\_2\_11\_JT\_v1.docx 3 extra sentences to the D\_11 proposal
  + Approved by the group as proposed
* 2020115\_Revisions to G1139 Rev\_3.docx
  + Our working document, version used to continue with work
* [ENAV24] Proposal from Pieter to discuss different VDE-SAT scenarios
  + Covered through a breakout group, resulting in:
  + WORKING/20200205\_G1139\_Subworkinggroup\_input\_to\_CP\_for\_VDE\_Sat.docx  
    a list of gaps identified that need to be filled by change proposals to eNAV25
  + INPUT/CP 6 Feb 20 Space Norway ANNEX D Technical Characteristics of VDE v0.docx

Hans Haugli presented the draft change proposal to the group. The group is very thankful for the high effort put into it. A sub working group was formed to complete this work by correspondence with the target to finalize a complete change proposal including impact indications for all annexes before eNAV25 (Hans Haugli, Nader, Pieter, Peter, Cato, Johnny, Jan);

* [ENAV24] 20190918\_G1139\_CP\_0\_PieterWinter.docx (Stone3)
  + The group acknowledges the propose mechanism as appropriate. The action to include it into G1139 is awaiting proposals for pre-defined bulletin boards.  
    The group agrees on keeping the proposal open until we have pre-defined bulletin boards available that we can use together with the proposed method.
  + The group assessed this a not of high priority compared to preparing our ITU-R inputs, Stone 3 takes back this change proposal request.
* 20200207\_G1139\_CP\_4\_PieterWinter\_edited.docx endianness
  + The group approved the CP with changes saved to the file.
* there are no proposals received on number of simultaneous TX & RX required
  + The group approved following text: “The VDES shipborne mobile equipment must have one multi-function transmitter and a multi-channel and multi-function receiver capable of simultaneously supporting the functions specified in this recommendation. These functions include AIS, ASM, VDE-TER and VDE-SAT.” [*Action: Johnny/Ross to place this in the general section of the document for the eNAV25 input, as part of general section 1.4.1*]
  + The detailed equipment requirements will have to be defined in the IEC standard
* 20190919\_G1139-3\_Problems\_Krontech\_ver.3\_YB commented WG3.docx (KT)
  + The group decided that we have addressed all comments by KT as good as it was possible in the context of other change proposals affecting the same areas.
  + *Action: The chairman of WG3 will thank KT and ask for further comments as input to eNAV25 based on the new revision of our working document as soon as that is available*

### G1139 walkthrough session for the bulletin board

Purpose: highlight issues and delegate work to solve them. The group asks Stone3 and Krzysztof to bring forward the identified items to eNAV25 as change proposals.

### Add Link Layer FEC for VDE-SAT and consider how to use 150kHz channels

The group encourages the members to come forward with change proposals for eNAV25.

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These changes will be applied on top of this version WORKING/G1139/2020115\_Revisions\_G1139\_Rev\_3.docx.

The change log (WORKING/G1139/20200115\_G1139\_WD\_changelog.xlsx) was used to track all updates, agreed actions and open issues.

The updated working document will be uploaded into eNAV25/WORKING folder when ready.

The next deadline for Change Proposals to fix errors in G1139 is the **6th of March 2020.**

*Action Items:* ***Workgroup******Members*** *are invited to review the G1139 changelog and submit change proposals for the coming eNAV25 meeting not later than 6th of March 2020 to https://www.iala-aism.org/file-sharing/ws-working-groups-working-space/WG3/20200312\_ENAV25/INPUT.*

Action Items: **ENAV Committee Members** are asked to note the development process for G1139 – Technical Specification for VDES and provide input on edition 4 to ENAV25.

### Patents (news from Geir)

Jin Park made a new patent on VDES Routing, see <https://patentscope.wipo.int/search/en/detail.jsf?docId=KR152920697&tab=NATIONALBIBLIO>.

The IALA secretariat confirmed to the chairman of the workgroup that it will take contact with Jin to clarify.

## Revision of the G-1117

Peter (Saab) and Juntae (Korea) were looking at the G-1117 in a sub working group to identify on a high level first screening what is being wrong and requires changes from WG3 point of view. The group identified that there are corrections required to the document. The result is stored in ENAV25/INPUT/1117-Ed.2-VHF-Data-Exchange-System-VDES-Overview\_Dec2017-1 JvG.pdf. Further action to be taken with WG2 at eNAV25.

## Revision of the MRCP

Yoshio proposed to work on a first draft new revision of the MRCP providing an input to eNAV26.

## Administrative

The group reviewed this report and approved it.

The group plans to meet for eNAV25 and eNAV26.