# ENAV WG3 Digital Communication System Working Group Interesessional Meeting

# Report for February 2019 Intersessional

# General and Administrative items

The IALA ENAV working group 3 (Digital Communication System Working Group) met at the *Australian Maritime College Study Centre, Sydney* located at Darling Harbour, Sydney, Australia, the week of February 4-8, 2019, hosted by AMC Search. The focus for the meeting included the review of the outcomes of related meetings, including ITU-R WP5B, IEC TC80 WG15 and NCSR6; review and revision of IALA G1139 (VDES Technical); review of ITU-R M.1371. The meeting was chaired by Jillian Carson-Jackson, NI and co-chaired by Johnny Schultz, USCG.

In conjunction with the meeting, the Nautical Institute, South East Australia Branch, sponsored an Industry Panel discussion *‘Maritime Communications in a Digital Age’* on February 5, 2019. The focus session highlighted developments in VDES satellite and terrestrial; provided an overview of R-Mode to support resilient PNT; and provided an overview of developments in digital technology for the maritime environment, including dPMR.

A request for notification of any patents, including pending patents, the use of which may be required to practice or implement VDES or other work of the Committee. No patents were noted.

The WG3 intersessional agenda included:

1. Administrative items
   1. Review of report of last meeting (ENAV22) / action items
   2. IALA ENAV Task Plan / WG3 ToR
   3. Outcomes of IALA Council
   4. Update – ENAV23 / Seminar (Singapore)
2. Updates on activities related to Maritime Digital Communications / VDES
   1. VDES test beds / trials
      1. VDE-SAT (Hans-Christian Haugli)
      2. Interoperability Testing (TBC)
      3. VDES R-Mode (Krzysztof Bronk)(Ronald Raulefs)
      4. VDES Terrestrial Test Bed – Canada (JF Coutu) (Pieter Winter)
      5. Proposed changes – VDE-SAT uplink, ASM (Chris Short)
   2. 3GPP / 5G (TBC)
   3. dPMR (Ernie Batty)
3. Outcomes of Related Meetings
   1. ITU-R WP5B (Stefan Bober)
   2. IEC WG15 (Stefan Bober)
   3. NCSR 6 (Jillian Carson-Jackson – input from Hideki Noguchi)
   4. APT APG19-4 (Yoshio Miyadera)
4. Review of VDES technical guideline (G1139)
   1. Review latest document (edition 2)
   2. Confirm change proposals / implement if agreed
   3. Identify further changes required
5. ITU-R M.1371
   1. ENAV 22 input refers
6. AMRD – Technical aspects
   1. Report from NCSR and input from H Noguchi refers
7. Transition Strategy – maritime communications
   1. Analogue / Digital (small group brainstorm session)
8. Strategy to promulgate information on VDES
   1. Input – E2 Deliverable 1.22 / 1.27 (small group brainstorm session)
9. Any Other Business
   1. As identified during the meeting.
10. Close
    1. Next Meeting – IALA eNAV23 to be held 1-5 April, 2019, hosted by Singapore MPA at the Intercontinental Hotel, Singapore.

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

<https://www.iala-aism.org/file-sharing/ws-working-groups-working-space/WG3/20190204_Intersessional_Sydney>

Members can register with IALA for access to the fileshare.

The agenda was reviewed and agreed. The plan for the work during the week was confirmed, with adjustments identified as required based on the status of discussions.

Two working groups were identified, noting the timing for the work was dependent on the availability of experts for each item. All items were reviewed in plenary sessions.

|  |  |
| --- | --- |
| Working Group | Chair / Rapporteur |
| 1. G1139; ITU-R M.1371 | Johnny Schultz / Antti |
| 1. AMRD; VDE-R Mode; Transition Strategy, AOB items | Jeffrey van Gils / JF Coutu |

## Review of report of last meeting (ENAV22) / Action Items

J Carson-Jackson led a review of the outcomes of ENAV22. It was noted that all actions had been addressed.

## IALA ENAV WG 3 Terms of Reference / Task Plan

The draft Terms of Reference for WG 2 (3) was reviewed and revised. J Carson-Jackson noted she had confirmed with ENAV Chair and Co-Chair (H Noguchi and J Arroyo) that the intention is for the WG to maintain WG 3 reference.

Action – J Carson-Jackson was asked to forward the revised ToR for WG3 (Feb-2019-Sydney\_O-02-Revised WG3 ToR), including confirmation of the WG number reference, to H. Noguchi and J. Arroyo by 11 February 2019.

## Outcomes of IALA Council 68

J Carson-Jackson reviewed the outcomes of IALA Council 68, noting that all papers provided from the WG at ENAV 22 had been approved and actioned. She also noted relevant workshops and seminars that had been identified by Council, including the proposed IALA Workshop on Cyber Security (planned for 2020) and IALA Workshop on R-Mode (planned for September 2019). R-Mode was discussed further at agenda item 2.

## Update – ENAV23 / Seminar (April 2019, Singapore)

IALA ENAV 23 will be held at the Intercontinental Hotel, Singapore, from 1-5 April, 2019.

The IALA Seminar on the Initial Operating Capability Phase for E-Navigation Services will be held the week following ENAV 23 (8-10 April 2019) at the Intercontinental Hotel, Singapore. J Carson-Jackson reviewed the flyer, noting that Singapore MPA were hosting the seminar, with no registration fee. WG members, if attending, were asked to register in a timely manner to facilitate logistical planning for the event.

# Updates on activities related to maritime digital communications / VDES

A number of presentations were provided. Copies of the presentations were provided on the fileshare folder for the meeting.

## VDES Test Beds / Trials

### VDE-SAT

H Haugli provided an update on the VDE-SAT uplink trials, noting the results were very positive. He also highlighted the outcomes of the ITU WP5B meeting.

### Interoperability Testing

There was no input on any status of interoperability testing for VDES equipment.

### VDES R-Mode

K Bronk provided an update on Baltic R-Mode project, noting the status of the work for both AIS and VDES R-Mode. The presentation included an invitation to the R-Mode workshop to be held in September 2019 at IALA Headquarters in Saint Germain en Laye, France.

R Raulefs provided an update on VDES R-Mode activities, looking at the theoretical bounds for VDE as a candidate for R-mode. He noted that VDE is advantageous over AIS because of the applicable bandwidth. The results of the work motivated further work to look at the use of the outer bands of the 100 kHz band (or both outer 25 kHz bands) in the VDE downlink. Two approaches were investigated, using the synchronization or using a much longer known data sequence. Further practical measurements and investigations will follow-up in Q2/19.

Input from A Grant on R-Mode development was reviewed, including the proposed working method to facilitate input from both ENAV and ENG on the development of R-Mode. He highlighted the importance of the upcoming R-Mode workshop which is currently planned to be held from 9-12 September 2019 at IALA HQ.

### VDE Terrestrial Test Bed - Canada

JF Coutu provided an update on the VDE Terrestrial Test Bed carried out in Canada in January 2019. He highlighted the success of the trial in providing significant data from shore to ship using both the upper leg and the lower leg of the VDE frequencies. He noted that the use of the simplex mode for the lower leg made it easier to co-locate VDE terrestrial with AIS.

Discussion following the presenting recognised the success of the trial as well as concern over the ability to use the lower leg for shore to ship transmissions, as per Appendix 18 of the Radio Regulations. The trial results highlighted the success of using the lower leg of the VDE frequencies for shore to ship transmissions.

P Winter, on behalf of Stone Three, presented the results of various VDE field tests held over the past year. These were done using CML hardware that implemented the full G1139-2, including VDE and ASM. Results validated the expected performance and show that the VDE and ASM specification is mature enough to implement and use in the field.

### Proposed Changes – VDE SAT ASM Uplink

C Short provided an overview of the findings of exactEarth regarding VDE SAT ASM uplink. The presentation identified a number of proposals to ensure an effective satellite uplink on the VDE ASM frequencies. The comments were noted and provided for input to the review of G1139 (agenda item 4 refers).

### 3GPP / 5G

J Carson-Jackson noted the status of the work at 3GPP on the Maritime Vertical. She reviewed the document provided by 3GPP (H Koo), specifically noting the activity at 3GPP to finalise the intention is to finalise Stage 1 MARCOM standardization at their SA1 meeting in Tallinn in February 2019. This will mean that maritime usage is officially included in the scope of 3GPP works. There will be a requirement to ensure the development of the Maritime Vertical within the development of 3GPP reflects the needs of the maritime industry. This will require input from maritime areas, including IALA.

It was agreed that there is a need to review the capability provided through the 3GPP Maritime Vertical in detail, noting that this will be an activity for ENAV 23, WG2 (Emerging Digital Communications Working Group). In related discussions, it was highlighted that a number of technologies need further review, including:

* 3GPP (5G)
* dPMR
* Digital HF (MIL-STD-188-141)
* NAVDAT
* Lorawan (<https://lora-alliance.org/about-lorawan> )

Action – J Carson-Jackson was asked to liaise with IALA with regards to the development of the maritime vertical at 3GPP.

### dPMR

E. Batty provided an overview of digital private mobile radio (dPMR). Discussion following the presentation noted the capability of the technology, and the need to assess the technology further. It was agreed that the presentation should be provided to ENAV 23, WG2.

With reference to the technology analysis template developed by WG2 at ENAV 22, it was identified that additional technical elements should also be considered. M Johnson agreed to develop the technical assessment criteria further, for input to ENAV23.

Action – E Batty was asked to provide a presentation and input paper on dPMR to ENAV23.

Action – M Johnson was asked to develop technical assessment criteria for digital communication technologies and submit this as input to ENAV 23.

# Outcomes of related meetings

## Report of ITU WP5B

S Bober provided a briefing on recent ITU meeting and expectations for the IALA work. He noted WP 5B finalised working towards a Preliminary Draft New Report ITU-R M.[VDE-SAT] - Technical studies on the satellite component of the VHF data exchange system. The input documents of IALA and from others were incorporated into the document. ITU SG5 approved this document which is now ‘Report ITU-R M.2435-0 Technical Studies on the Satellite Component of the VHF Data Exchange System’.

In addition, WP 5B continued the work towards a new Draft Recommendation ITU-R M.[AMRD] defining autonomous maritime radio devices (AMRD) and their technical and operational characteristics. An AMRD is a mobile station operating at sea and transmitting independently of a ship station or a coast station. ITU WP 5B sent a liaison statement to IALA on this issue (agenda item 6 refers)

ITU-R WP5B continued working towards the revision of ITU-R M.1371-5 but will be carried on at the next meeting. ITU-R WP 5B sent a liaison statement to IALA on this issue (agenda item 5 refers)

In discussion it was noted that there is an ongoing requirement to provide briefing information to delegations attending ITU meetings regarding maritime items. It was also noted that similar briefs should be provided to delegates attending the related regional meetings.

Action items with reference to these matters are identified under agenda item 5 and 6.

### IEC TC80 WG 15

S Bober provided an update on the outcomes of the IEC WG15 meeting held in Brisbane, Australia from 28 Jan to 1 Feb 2019. The outcomes of the meeting were reviewed in further detail during the review of IALA G1139. IEC TC80 WG15 sent a liaison statement to IALA on this matter (agenda item 4 refers)

## NCSR 6

J Carson-Jackson provided an overview of the outcomes of NCSR 6 with regards to AMRD (agenda item 6 refers) and proposed items from IALA to WRC-19 for consideration for WRC-23 agenda, including VDES R-Mode and the provision of a means to accommodate digital systems in the VHF maritime mobile band, which would include digital voice. J Carson-Jackson noted the input from H Noguchi on each item.

In particular, she noted the fact that the proposed agenda item for WRC-19 with regards to enabling the use of VDES frequencies for both communication and navigation. While NCSR did not agree to the item, there is an opportunity to further explain the requirement for the agenda item at the upcoming 15th meeting of the joint IMO / ITU Experts Group meeting to be held 8-12 July 2019.

In plenary, it was noted that there is an existing agenda item for WRC-23 on ‘e-navigation’. It was felt that the proposed agenda item for VDES R-Mode could fit under this existing agenda item. It was agreed to review this further and propose that R-Mode, to provide resilient PNT as identified in e-navigation, be included in that agenda item.

Input from H Noguchi was reviewed, noting in particular the requirement for agenda item proposals to ITU to include:

* Feasibility within the next 4 years
* Cost estimate
* Compelling need

Discussion to accommodate digital systems on the VHF maritime mobile band is identified at agenda item 7.

AMRD response is identified at agenda item 6.

## APT APG19-4

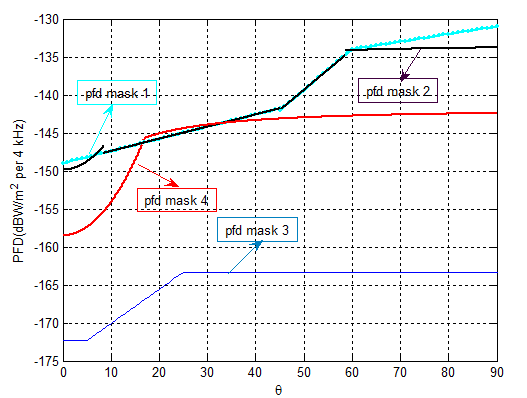
Y Miyadera provided an update on the outcomes of the recent Asia Pacific Telecommunity (APT) Preparatory Group (APG) meeting (APG19-4) meeting on WRC-19 agenda item 1.9.2 (VDE-SAT) that was held from 7-12 January 2019 in Busan, South Korea. The key points noted were that four APT member states support Method F of Draft CPM report, and a new Method G was proposed. The new Method G proposes modifying the value of the pdf mask based on Method D. APG 19-4 agreed to propose Method G to CPM 19-2 meeting in February 2019 (ref. Addendum 5 to Document CPM19-2/14-E).

Proposed modification to the Draft CPM report: China proposed new Method G that applied a pfd mask 4 (below) to Method D (frequency plan Alternative 2) as a proposed amendment to draft CPM report.

The comparison of pfd masks in the Report ITU-R M.2435-0 (ref. APG19-4/INP-99), pfd mask 1 is quoted in Methods B and F, pfd mask 2 is quoted in Method E, pfd mask 3 is quoted in Method D, and pfd mask 4 is quoted in new Method G. The comparison of pfd masks in the Report ITU-R M.2435-0 (ref. APG19-4/INP-99) is reproduced below.

The proposed modifications were noted. As these have not yet been confirmed into CPM text, it was noted that the current IALA position does not require amendment at this time, however this will be reviewed at ENAV23, following CPM 19-2.

Action – J Carson-Jackson was asked to include a review of the IALA position on the ITU CPM text at ENAV23, following CPM 19-2.

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pfd mask 4





# Review of VDES Technical Guideline (G1139)

The latest version of IALA Guideline G1139 (Ed.2) was reviewed, noting the change proposals received and the outcomes of the IEC WG15 meeting. The change log was updated. A quality assurance procedure was agreed, with the following steps:

1 – change proposal received (J Schultz)

2 – change reviewed and agreed (ENAV WG3)

3 – change implemented (S Pielmeier)

4 – change implementation reviewed against change log / change log updated (J Schultz)

5 – editorial review (J Carson-Jackson)

Noting the number of corrections and editorial amendments it was agreed that there would be benefit in issuing G1139, Ed. 2.1 following ENAV23.

The life-cycle of IALA G1139 was discussed, noting the document (latest version) will be reviewed once the ITU WRC-19 outcomes are known. The appropriate sections of G1139 will then be used to develop input to ITU for the further development of ITU-R M.2092-0 (working towards ITU-R M.2092-1).

It was highlighted that the extent of the changes that will be proposed will require clear explanation, and that an effective approach could be to highlight these changes to national members (administrations) prior to providing the input to ITU WP5B. As the intention is to provide the input to the first ITU WP5B meeting following ITU WRC-19 (to be held in May 2020), the timing for this would be in February-March 2020.

## Presentations from China

Two presentations were provided by M. Wang on VDE-SAT uplink transmission timing and VDE-SAT Channel Plan.

Discussion noted the value in the work presented by China and it was agreed that a correspondence group consisting of M. Wang, N Alagha, H Haugli and C Short would prepare an input paper for further review at ENAV23.

Action – M Wang, N Alahga, H Haugli, R Raulefs and C Short were asked to form a correspondence group to develop an input paper on the results of the Chinese proposals presented at the Sydney 2019 WG3 intersessional meeting, and provide input to ENAV23.

Action – J Carson-Jackson was asked to confirm with ENAV Chair / Co-Chair regarding the opportunity to publish a G1139 ed. 2.1 following ENAV23.

Action – J Schultz, S Pielmeier and J Carson-Jackson were asked to implement the identified process for updating G1139, implementing the changes agreed at the Sydney Feb. 2019 intersessional meeting, and provide the revised document as input to ENAV23.

# ITU-R M.1371-5 review

The input received regarding proposed changes to ITU-R M.1371-5 were reviewed. It was noted that some of the proposed changes related to the discussion on AMRD and MAtoN. Noting the requirement for input to ITU WP5B is 29 April, 2019, it was agreed that the final review of the proposed changes, and the liaison to ITU WP5B, would be prepared at ENAV23.

In the review, it was agreed to identify MAtoN in message 21 to enable identification of the MAtoN in the short term. There is a note added to highlight the implementation of message 29 for MAtoN, which will be a single slot message, based on the proposal provided to ITU-R WP5B for changes to ITU-R M.1371-5. Work commenced on a review of the proposed message 28 for AMRD. Due to time constraints it was not possible to complete the review at the intersessional. This work will be completed at ENAV23.

In preparation, an overview of the status of the review was presented, and an initial response will be drafted as input to ENAV23. With the short turn around for the input to ITU, the outcome of ENAV23 will be subject to the IALA Council electronic review and approval process.

Action – J Schultz was asked to prepare a draft liaison from IALA to ITU WP5B (in response to Document Annex 6 to Document 5B/646-E) and provide as input to ENAV23.

Action – J Carson-Jackson was asked to ensure the working document on the review of ITU-R M.1371 Feb2019-Sydney\_W-01\_1371-drafting-20190207 for further development by WG3 at ENAV23.

Action – J Carson-Jackson was asked to highlight the proposed approach for the response from IALA to ITU (in response to Document 5B/TEMP/268) to IALA, noting the time-line for IALA Council approval following ENAV23.

# autonomous marine radio devices (AMRD)

The status of discussion on AMRDs was noted. In particular, the input from IALA to ITU NCSR6, the report of NCSR6 and the document provided by H Noguchi regarding the activity related to AMRD at NCSR6. Liaison with P Day was included in the review, through electronic means.

A revised document highlighting the understanding of WG3 regarding AMRD and related definitions was prepared Feb2019-Sydney\_W-02\_PAP37-MAtoN\_AMRD. It was agreed to provide the document to ENAV Committee Chair H Noguchi and ARM Chair P Day to facilitate discussion at PAP. Depending on the outcome of the discussion, WG3 may consider the matter further during ENAV23, noting ENAV23 will be held in Singapore at the same time as ARM9 at IALA Headquarters in Saint Germain-en-Laye, France.

Action – J van Gils was asked to prepare a draft liaison from IALA to ITU WP5B (in response to Document Annex 24 to Document 5B/646-E) and provide as input to ENAV23.

Action – J Carson-Jackson was asked to forward the revised document on AMRD Feb2019-Sydney\_W-02\_PAP37-MAtoN\_AMRD to H Noguchi, J Arroyo and P Day by 9 February 2019 to facilitate discussion on the matter at PAP (12-13 February 2019).

# Transition Strategy – maritime digital communications

It was noted that the work plan for the coming 4 years includes a review of digital maritime communications. Discussion highlighted the current activity to identify additional digital channels in the Maritime Mobile Band to support AMRD, as well as the ongoing developments in digital communications, including digital voice, that could be used to support maritime communications.

Related to the discussion on the proposed agenda items to WRC-23, the compelling need for an agenda item for consideration at WRC-2023 to provide a means to accommodate digital systems in the VHF maritime mobile band was confirmed.

A session to identify a draft strategy for the transition from analogue to digital communications in the maritime environment resulted in the development of a mind map (Feb2019-Sydney\_W-03\_draft-Evolution plan mindmap) and the draft input paper (proposed for PAP, ENAV and ARM) (Feb2019-Sydney\_W-04\_draft paper-digital evolution). It was agreed to forward these documents to H Noguchi and J Arroyo for possible discussion at PAP. Based on the results, it was agreed for forward these documents to ENAV23, WG2, for further review and development. It was also noted that there could be benefit in holding a joint session of WG2 and WG3 during ENAV23 to consider digital developments in the maritime environment (agenda item 2.1.6 refers).

Action – J Carson-Jackson was asked to forward the mind map and related draft strategy on the transition of from analogue to digital communications in the maritime environment (Feb2019-Sydney\_W-03\_draft Evolution plan mindmap and Feb2019-Sydney\_W-04\_draft paper-digital evolution) to H Noguchi and J Arroyo for consideration at PAP37 as well as to ENAV23 for further consideration by WG2 and WG3.

# Strategy to promulgate information on VDES

The document created during EfficienSea 2 was noted, as was the work carried out during the Yiwu July 2018 meeting. Due to time constraints, no further action was taken on this item.

# any other business

A number of items were identified for work at either this meeting, or inclusion in the agenda for ENAV23.

## Outcome of MSC99 (MSC.452(99) and MSC.252(83))

MSC.452(99) was reviewed, noting the key change related to the display of ASM on the Integrated Navigation System (INS). The resolution recommends Governments to ensure that INS equipment installed on or after 1 July 2020 will conform to the revised performance standards, which includes a revision to paragraph 7.7.1 Mandatory data display functions:

“presentation of received safety related messages, such as AIS safety-related and binary messages, Application Specific Messages (ASM), Maritime Safety Information messages"

The implications of this obligation were discussed and it was noted that there would be benefit in updating the IALA Recommendation E-NAV 144 on the Harmonisation of the implementation of ASM.

Action – J Carson-Jackson to include a review of E-NAV 144 on the Harmonisation of the Implementation of ASM, noting MSC.452(99) (amending MSC.252(83), as an agenda item for ENAV23.

## NTSB Report Sinking of El Faro

M Johnson noted the report into the sinking of the US Cargo Vessel El Faro in 2015 has been issued (url <https://www.ntsb.gov/investigations/accidentreports/reports/mar1701.pdf> ). The report includes recommendation on the transmission of weather reports to be transmitted by ships on AIS. Specifically, the recommendations state:

*‘If the actions recommended to the National Oceanic and Atmospheric Administration in Safety Recommendation M-17-52 establish that the automatic identification system (AIS) is a viable means by which to relay (with acceptable time delay) meteorological and oceanographic data and metadata from vessels at sea for use by global meteorological authorities, propose to the International Maritime Organization that vessels required to use AIS also be equipped with meteorological and oceanographic sensors―including, at a minimum, sensors for barometric pressure and sea-surface temperature―that will automatically disseminate the data at high-temporal resolution via AIS. (M-17-48)*

*Propose to the International Maritime Organization that vessels under regulations of the International Convention for the Safety of Life at Sea that are not already automatically disseminating meteorological and oceanographic data by other means be required to manually disseminate such data while at sea via the automatic identification system or the Voluntary Observing Ship program at the times of 0000 coordinated universal time (UTC), 0600 UTC, 1200 UTC, and 1800 UTC. (M-17-49)’*

It was noted that there could be an opportunity to make use of VDE terrestrial to support automated weather transfer.

## STM update / STM Baltsafe

STM BALT SAFE (2019-2021) will contribute to increased safety of navigation in the Baltic Sea by providing Sea Traffic Management (STM) enabled maritime services to the tanker traffic in the Baltic. The project will address the recently amended HELCOM recommendations 34 E/2 “Further testing and development of the concept of exchange of voyage plans as well as other e-navigation solutions to enhance safety of navigation and protection of the marine environment in the Baltic Sea region”. Tanker ships will be made safer by making them STM compatible hence given the ability to send and receive voyage plans with other ships and with public authorities in Baltic Sea countries. By the STM BALT SAFE project, the institutional capacity of the public sector on supporting and developing safety of navigation services and efficiency of transport will be enhanced.

The project will build on the methods, results and the maritime service infrastructure developed in previous projects like EfficienSea II, MONALISA 2.0 and Sea Traffic Management Validation project and will encompass exchange of voyage plans and integration of STM functionalities in VTS shore centres. Services for enhanced monitoring of maritime traffic, different automatic reporting services to Ship Reporting Systems e.g. GOFREP and SOUNDREP as well as automated reporting to Maritime Single Windows, will be developed and tested in the project. Different services that optimize the ship´s voyage and decrease the administrative burden will also be developed and tested within the project. VDES will be used for testing of automatic reporting and distribution of ice charts. Both terrestrial and satellite-based VDE will be demonstrated.

# Closing and date of next meeting

The members of the working group thanked AMCS (AMC Search) and J Carson-Jackson for hosting the meeting in Sydney, Australia

ENAV 23 will be held April 1-5, 2019, hosted by Singapore MPA at the Intercontinental Hotel, Singapore.

# Output and Working Papers

Output papers (‘O’) will be provided to ENAV23. Working (’W’) papers will be forwarded to the next meeting of the WG3.

| Number | Title | Action |
| --- | --- | --- |
| Output 01 | Feb2019-Sydney\_O-01\_Report-WG3-Intersessional | Forward to IALA Secretariat |
| Output 02 | Feb-2019-Sydney\_O-02-Revised WG3 ToR | Forward to H Noguchi and J Arroyo |
| Working 01 | Feb2019-Sydney\_W-01\_1371-drafting-20190207 | Forward to WG3 at ENAV23 |
| Working 02 | Feb2019-Sydney\_W-02\_PAP37-MAtoN\_AMRD | Forward to H Noguchi, J Arroyo and P Day in advance of PAP37 / following PAP37 forward to WG3 at ENAV23 |
| Working 03 | Feb2019-Sydney\_W-03\_draft Evolution plan mindmap | Forward to H Noguchi, J Arroyo in advance of PAP37; forward to WG3 at ENAV23 |
| Working 03a | Feb2019-Sydney\_W03a\_draft Evolution plan mindmap (in MSword format) | Forward to H Noguchi, J Arroyo in advance of PAP37; forward to WG3 at ENAV23 |
| Working 04 | Feb2019-Sydney\_W-04\_draft paper-digital evolution | Forward to H Noguchi, J Arroyo in advance of PAP37; forward to WG3 at ENAV23 |
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# Attendees

| Name | Organization |
| --- | --- |
| Antti Kukkonen | Furuno Finland Oy |
| Attie Labuschagne | CML Microcircuits (Stone Three) |
| Cato Eliassen | Kongsberg Seatex AS |
| Chris Short | exactEarth |
| Ernest Batty | IMIS Global |
| Hans Christian Haugli | Norwegian Coastal Administration (Space Norway) |
| Harald Åsheim | Norwegian Coastal Administration (KYSTVERKET) |
| Jeffrey van Gills | Ministry of Infrastructure and Watermanagement, |
| Jeonghyeon Kim | Korean Register of Shipping (I-Storms) |
| JF Coutu | Canadian Coast Guard |
| Jillian Carson-Jackson | The Nautical Institute |
| Johan Lindborg | SAAB AB Transpondertech |
| Johnny Schultz | US Coast Guard |
| Judy Johnson | Shine Micro |
| Junt-Tae Kim | Korean Register of Shipping |
| Krzysztof Bronk | National Institute of Telecommunications |
| Mahesh Alimchandani | Australian Maritime Safety Authority (AMSA) |
| Mark Campbell | Australian Maritime Systems Group (AMSG) |
| Mark Johnson | Shine Micro |
| Michael Wang | Southwest University |
| Nadar Alagha | ESA |
| Nick Bonser | Australian Maritime Safety Authority (AMSA) |
| Peter Pokorny | Australian Maritime College |
| Pieter Winter | CML Microcircuits (Stone Three) |
| Prema Shree Bhautoo | SeaPort OPX (DHI Group) |
| Ronald Raulefs | German Aerospace Centre (DLR) - Institute of Communications and Navigation |
| Ross Norsworthy | (RTCM) |
| Stefan Bober | Federal Waterways & Shipping Administration, FVT-Traffic |
| Stuart Shepard | Australian Maritime Safety Authority (AMSA) |
| Yoshi Miyadera | Japan Radio Co. Ltd. |
| JJ Zhang | Nanjing University of Science and Technology |

# Action Items

1. [*Action – J Carson-Jackson was asked to forward the revised ToR for WG3 (Feb-2019-Sydney\_O-02-Revised WG3 ToR), including confirmation of the WG number reference, to H. Noguchi and J. Arroyo by 11 February 2019. 2*](#_Toc1909091)
2. [*Action – J Carson-Jackson was asked to liaise with IALA with regards to the development of the maritime vertical at 3GPP. 4*](#_Toc1909092)
3. [*Action – E Batty was asked to provide a presentation and input paper on dPMR to ENAV23. 4*](#_Toc1909093)
4. [*Action – M Johnson was asked to develop technical assessment criteria for digital communication technologies and submit this as input to ENAV 23. 4*](#_Toc1909094)
5. [*Action – J Carson-Jackson was asked to include a review of the IALA position on the ITU CPM text at ENAV23, following CPM 19-2. 5*](#_Toc1909095)
6. [*Action – M Wang, N Alahga, H Haugli, R Raulefs and C Short were asked to form a correspondence group to develop an input paper on the results of the Chinese proposals presented at the Sydney 2019 WG3 intersessional meeting, and provide input to ENAV23. 8*](#_Toc1909096)
7. [*Action – J Carson-Jackson was asked to confirm with ENAV Chair / Co-Chair regarding the opportunity to publish a G1139 ed. 2.1 following ENAV23. 8*](#_Toc1909097)
8. [*Action – J Schultz, S Pielmeier and J Carson-Jackson were asked to implement the identified process for updating G1139, implementing the changes agreed at the Sydney Feb. 2019 intersessional meeting, and provide the revised document as input to ENAV23. 8*](#_Toc1909098)
9. [*Action – J Schultz was asked to prepare a draft liaison from IALA to ITU WP5B (in response to Document Annex 6 to Document 5B/646-E) and provide as input to ENAV23. 8*](#_Toc1909099)
10. [*Action – J Carson-Jackson was asked to ensure the working document on the review of ITU-R M.1371 Feb2019-Sydney\_W-01\_1371-drafting-20190207 for further development by WG3 at ENAV23. 8*](#_Toc1909100)
11. [*Action – J Carson-Jackson was asked to highlight the proposed approach for the response from IALA to ITU (in response to Document 5B/TEMP/268) to IALA, noting the time-line for IALA Council approval following ENAV23. 8*](#_Toc1909101)
12. [*Action – J van Gils was asked to prepare a draft liaison from IALA to ITU WP5B (in response to Document Annex 24 to Document 5B/646-E) and provide as input to ENAV23. 8*](#_Toc1909102)
13. [*Action – J Carson-Jackson was asked to forward the revised document on AMRD Feb2019-Sydney\_W-02\_PAP37-MAtoN\_AMRD to H Noguchi, J Arroyo and P Day by 9 February 2019 to facilitate discussion on the matter at PAP (12-13 February 2019). 9*](#_Toc1909103)
14. [*Action – J Carson-Jackson was asked to forward the mind map and related draft strategy on the transition of from analogue to digital communications in the maritime environment (Feb2019-Sydney\_W-03\_draft Evolution plan mindmap and Feb2019-Sydney\_W-04\_draft paper-digital evolution) to H Noguchi and J Arroyo for consideration at PAP37 as well as to ENAV23 for further consideration by WG2 and WG3. 9*](#_Toc1909104)
15. [*Action – J Carson-Jackson to include a review of E-NAV 144 on the Harmonisation of the Implementation of ASM, noting MSC.452(99) (amending MSC.252(83), as an agenda item for ENAV23. 9*](#_Toc1909105)