



IALA ENG COMMITTEE

REPORT OF THE 12TH SESSION OF THE IALA ATON ENGINEERING AND SUSTAINABILITY (ENG) COMMITTEE

30 September to 16 October 2020

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Committee Secretary

16 October 2019

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International Association of Marine Aids to Navigation and Lighthouse Authorities
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**Report of the 12th Virtual Session of the IALA
AtoN Engineering and Sustainability (ENG) Committee
30 September to 16 October 2020
Executive Summary**

The 12th meeting of the ENG Committee (ENG12) was held for first time in IALA virtually from 30 September to 16 October 2020.

The session was attended by 128 registered participants from 31 countries. 35 participants attended for the first time.

Working in four working groups, the Committee considered 58 input papers and produced 13 output documents.

The Committee finalised the following draft Standards:

- Revised Standards 1020 on Marine Aids to Navigation design and delivery
- Revised Standards 1030 on Radionavigation Services

The Committee finalised the following draft Recommendations:

- Draft Recommendation on Terrestrial Radionavigation Services
- Draft Recommendation on Provision of GNSS Augmentation Services for maritime applications

The Committee finalised the following Guidelines:

- Revised Guideline 1135 on Effective Intensity Revision

The following liaison notes were prepared:

- Liaison Notes to RTCM on SC-104 & SC-134 activities (response)
- Liaison to CIRM on the Effect of Radars on Racons in busy harbours
- Liaison Notes to ARM on the Effect of Radars on Racons in busy harbours and IALA policy on use of AIS and Racons
- Liaison note to IMC inviting Racon manufacturers to get involved in the standardisation process
- Liaison note to ETSI TGMARINE on Radar Standards
- Liaison note to ARM on Enhanced radar positioning system
- Liaison note to CIRM on Enhanced radar positioning system
- Liaison note to ENAV on VDES R-Mode
- Liaison note to ARM requesting input on draft guideline on 3rd party quality control

The following table shows a summary of the ENG Committee task plan for the work period 2018-2022 and the progress made to date.

Overall status of the ENG Committee 2018-2022 Work Programme after ENG12:

Task		WG	Start Session	Planned End Session	Revised End Session	Progress Indicator			Status Overview
						Green	Yellow	Red	
Standard 1010 – AtoN planning and service requirements									
1.1.1	Revised guidance on Simulation Technology to revise G1097 in cooperation with ARM task 1.2.4	2	8	11					
1.2.1	Develop Guidance on checking that 3rd party AtoN providers are providing what they are obliged to provide– 3rd party AtoN provider quality control. (Joint ARM cooperation)	2	9	14					
Standard 1020 – AtoN Design and delivery									
2.1.1	Review and update V-119 on the Implementation of Vessel Traffic Services (R0119) (Output to be a revised Recommendation and associated Guideline),(includes task 1.1.3)	1	8	12					Both for approval to Council
2.1.2	Develop Guideline on Port Traffic Signals	1	11	12					
2.1.3	Develop E-112 Leading Lights and 1023 Leading Lines into a Guideline	1	9	13					
2.1.4	Complete Guideline 1061 Illumination of structures	1	10	14					
2.1.5	Update Guideline 1048 LED technologies and their use in signal lights	1	10	11					
2.1.6	Review & update guideline 1043 on Light sources Note: The old task in the 2014-2018 work period was Merge and update Guideline 1043 On Light Sources and Guideline 1048 on LED Technologies and Guideline 1049 on the Use of Modern Light Sources in Traditional Lighthouses (Task 5.1.9). Should this old task replace 2.1.5 and 2.1.6 as Task 2.1.5?	1	10	11					
2.1.7	Develop a guideline for E-106 Retroreflective materials	1	8	9					Completed
2.2.1	Develop E200-3 on light measurement into a Guideline	1	11	14					Likely to be next work plan
2.2.2	Develop new recommendation on marine light Terms of Measurement	1	12	14					Possibly needs to be pushed into new work plan
2.2.3	Develop E200-5 on Optical Performance into a Guideline	1	12	13					
2.2.4	Revise Guideline on effective intensity	1	9	11					Completed
2.2.5	Develop Guidance on monitoring of function and degradation of AtoN light sources	1	9	11					
2.2.6	Develop Guidance on service factor	1							
2.2.7	Develop Guidance on Colour fading of AtoN (plastic and painted) – methods to measure and assess	1	10	12					

2.2.8	Finish guideline G1148 Marine Signal Lights - Calculation of Luminous Intensity and Range Develop Guidance on service factors	1	8	10					Completed
2.2.9	Update Guideline 1041 on Sector Lights	1	9	12					
2.3.1	Develop guidance to identify appropriate standards for AtoN equipment with extreme environmental conditions. Humidity, temperature, enclosure ratings, UV etc) Also including peak intensity specification for LED AtoN, batteries, optic service factor, thermal cap, etc.	2/1	10	14					
2.3.2	Complete guidance on Maintenance of AtoN structures	2	8	12					Completed
2.3.3	Develop Guideline on Tidal flow data capture and display	2	8	12	14				
2.3.4	New Recommendation on the Responsible Design & Maintenance of AtoN (updated to include safety, sustainable design, and relevant building codes and standards)	2	8	10					Completed
2.3.5	Joint workshop with all 4 technical committees on Cyber Security in AtoN operations	2	8	12	14				
2.4.1	Develop Guidance on what constitutes a good marine AtoN solar panel	2	10	13					
2.4.2	Deliver a Workshop - IALA AtoN Engineering	1	11	13	14				
2.4.3	Monitor Battery development for use in AtoN	2	8	14					
2.5.1	Develop guidance quantifying characteristics to meet nautical and operational requirements and ways to verify them	2	8	13					
2.5.2	Develop new guideline on radar reflector (reflection) properties	2	8	13					
2.5.3	Creating an overview guidance on floating AtoN	2	8	13					
2.6.1	Develop Guidance on modern equipment in traditional lighthouses	2	10	14					
2.6.2	Monitor Climate Change to inform IALA of impact and potential adaptation requirements for AtoN providers	2	8	14					
2.6.3	1.1.1. IALA Heritage website: - Establish a World Heritage Lighthouse Cyber Centre, accessible via the IALA website. - Establish a database on World Heritage Lighthouses.	4	8	14					
2.6.4	Establish a concept for nominating one lighthouse as World Heritage Lighthouse of the year for each 'World AtoN Day'.	4	8	14					
2.6.5	Deliver Heritage Workshop	4	8	11					

2.7.1	Revise Recommendation R1004 to reference the UN Sustainable Development Goals	2	8	10				Completed
Standard 1030 – Radionavigation services								
3.1.1	Resilient PNT (applicable to all technical domains) – (identification, potential impact and mitigations)	3	8	11	14			
3.2.1	Terrestrial radionavigation systems	3	10	12				Completed
3.2.2	R-Mode (MF)	3	10	14				
3.2.3	R-Mode (AIS/VDES)	3	10	14				Task closed – VDES GL moved to ENAV
3.2.4	Workshop on R-Mode in 2019	3	9	10				Completed
3.2.5	Develop and maintain relevant Product Specifications eg. S-245 eLoran ASF data, S-246 eLoran transmitting station alamanc, S-247 Differential Loran reference station etc.	3	10	14				
3.2.6	Guidance on timing and synchronisation	3	8	12	14			
3.2.7	eRacon (standard approach) ; Review recommendations ENAV146 & R-101 & Guideline 1010	3	11	13	14			Run over into the new work period
3.3.1	Consideration of how and when to use SBAS in maritime.	3	9	13	14			
3.4.1	Consideration of how and when to use SBAS in maritime.	3	9	12				
3.4.2	Review existing DGNSS infrastructure and provide guidance for current system	3	10	12	14			
3.4.3	New Recommendation on augmentation for maritime use	3	8	10				
3.4.4	Provide guidance, strategy and advice on potential new uses of marine beacon DGNSS infrastructure	3	9	11				Item merged with 3.4.2
3.4.5	High accuracy systems	3	10	14				Run over into the new work period
3.5.1	Review and update current documentation under the preview of PNT WG	3	8	14				
3.5.2	Monitor developments in GNSS, DGNSS, radar, resilient PNT, e-Pelorus, terrestrial systems, R-Mode, inertial and any other relevant areas etc.	3	8	14				
3.6.1	Update to ITU M.823, potential replacement for A.915, Liaison with IMO, ITU, RTCM, etc on related topics and project areas.	3	8	14				
3.7.1	Input to MSP, Integrity considerations for resilient PNT, cybersecurity impact for PNT data, DATUM considerations	3	10	14				
Standard 1050 Training and Certification								
4.1.1	Development and review of WWA courses	1,2,3	8	14				
4.2.1	Navguide updates and review	VC	9	14				
Standard 1060 – Digital communication technologies								
5.1.1	Review telemetry Guideline 1008	2	10	14				

5.1.2	Review of engineering support for e-navigation services, (including hot/cold climates & radio propagation). TO BE CONFIRMED	3	8	14					
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Legend:

Green – progress as planned

Yellow – task needs more time, target time prolonged

Red – task needs more time, target time prolonged

Grey – task completed / deleted

Blank – task not started

Table of Contents

General	9
1. Opening	9
2. Review of action items from ENG9	12
3. Review of input papers	12
4. Reports from other bodies	12
5. Reports from Rapporteurs	15
6. Advertising Online Presentations	16
7. Work Programme (2018 - 2022)	16
8. Establish Working Groups	17
12. WORKING GROUP 4 – The Heritage Forum	24
13. Review of output and working papers	27
14. Review of session report	28
15. Date and venue of next meeting	28
16. Close of the Meeting	28
17. List of Annexes	28
ANNEX A Agenda	29
ANNEX B List of Participants	31
ANNEX C Working Group Participants	33
ANNEX D List of Input Papers	38
ANNEX E List of Output and Working Papers	42
ANNEX F Action Items	44

Report of the 12th Session of the IALA ENG Committee

GENERAL

The 12th session of the IALA AtoN Engineering and Sustainability Committee (ENG) was held virtually for the first time in IALA, running from 30 September to 16 October 2020. The arrangements to coordinate the Committee workflows (considering the various documents: inputs, working papers, presentations and outcomes), running simultaneous meetings and ensuring the communications between the whole Committee, set a challenge and an important milestone for the IALA Secretariat. Through the existing platforms listed below, IALA settled the basis of the working arrangements for the virtual period.

- MS Teams (for conducting meetings)
- Outlook Groups (to communicate with the Committee participants, sharing and seeking for document approval)
- Nextcloud Platform (to support the collaborative work of the committees, sharing documents, uploading and downloading and make them available to all the Committees at any time)

These Platforms were supported by the IALA Dashboard developed and maintained by the secretariat that is designed to enhance the user experience of members and provide situational awareness regarding committee activity.

The Chairman was Simon Millyard, and the Vice Chairman was Michel Cousquer. The Secretary for the meeting was Jaime Alvarez.

1. OPENING

Simon Millyard introduced himself and the WG chairs and individually welcomed newcomers to IALA.

1.1 Welcome from the IALA Secretary-General and Deputy Secretary-General

The Secretary-General welcomed all participants and was very glad to see them all even if it is on a Computer screen. The Secretary-General expressed his wish to come back to normal again and thanked the Chair and Vice Chair of the Committee for their hard work in preparing for this meeting and for facilitating the friendly and hardworking atmosphere for which the Committee is known.

Since the successful Diplomatic Conference to adopt the Convention on the International Organization for Marine Aids to Navigation took place in Kuala Lumpur in February, the world has been in the grip of the COVID-19 pandemic. Faced with this unprecedented challenge in our lifetime and following the advice provided by the Authorities and actions taken by sister organizations IALA has implemented several protective measures. These have involved the cancellation or postponement, as appropriate, of Committee and other meetings, and halting the World-Wide Academy staff's travel for the purpose of conducting missions.

The Secretary-General recalled that the ENG Committee in Brazil and the Heritage Forum were very special events that many people had invested a lot of energy in planning and were unfortunately postponed to a later stage. The decision was also taken to postpone the four-yearly Symposium in Rotterdam, and the Dutch Ministry of Infrastructure and Water Management has just decided to host the Symposium as a virtual event in the period from 19 to 23 April 2021.

Sadly, the celebration of the main event for this year's celebration of World Marine Aids to Navigation Day, on 1 July, in Burgas, Bulgaria, also had to be cancelled.

The Secretary-General took the opportunity to thank all who participated in celebration of the WAtON day on social media.

All the meetings during the second half of this year can be viewed on the web site and will all be virtual.

The virtual meetings also include the important Mid-Term Assembly of the Industrial Members' Committee, due to take place on 6 October.

The IALA Secretariat will continue to monitor COVID-19 related developments and make decisions on activities on a case-by-case basis, updating our website with any further news that may affect members and our activities. Mr. Francis Zachariae is closely engaged for the support of all concerned, not least the Committee chairs, vice-chairs and working group Chairs, in minimizing the impact on the work programme and in advancing the work on important items, through e-mail correspondence and online meetings.

The main event was the Diplomatic Conference hosted so professionally by the Malaysian Delegation. The successful Conference now needs to be followed up by concrete action on the part of coastal State Governments to sign the Convention so that they may commence the national ratification process as early as possible. The signature ceremony is planned here in Paris 11-13 November this year.

In relation with the outcomes from the Council, one of the important decisions was the nomination of the IALA candidate for the Lighthouse of the Year – the Santo Antonio da Barra lighthouse. The MOF from Korea has produced a beautiful trophy.

The Secretary-General introduced Jaime Alvarez as technical advisor and secretary to the ENAV and ENG Committees. He has a strong technical background, knows IALA very well, and he is fluent in Spanish, French and English. Tom and Jaime will take care of two Committees each and the related seminars, workshops etc. This will also give the needed resources for improved necessary quality assurance of the guidance documents before they are submitted to Council and on the web site.

Marie-Helene has taken her retirement after almost 38 excellent years with IALA. She is replaced by Audrey Guinault who has been in IALA for some years.

The Secretary-General wished all participants a fruitful week and reminded everyone that the secretariat was ready to help in any way possible.

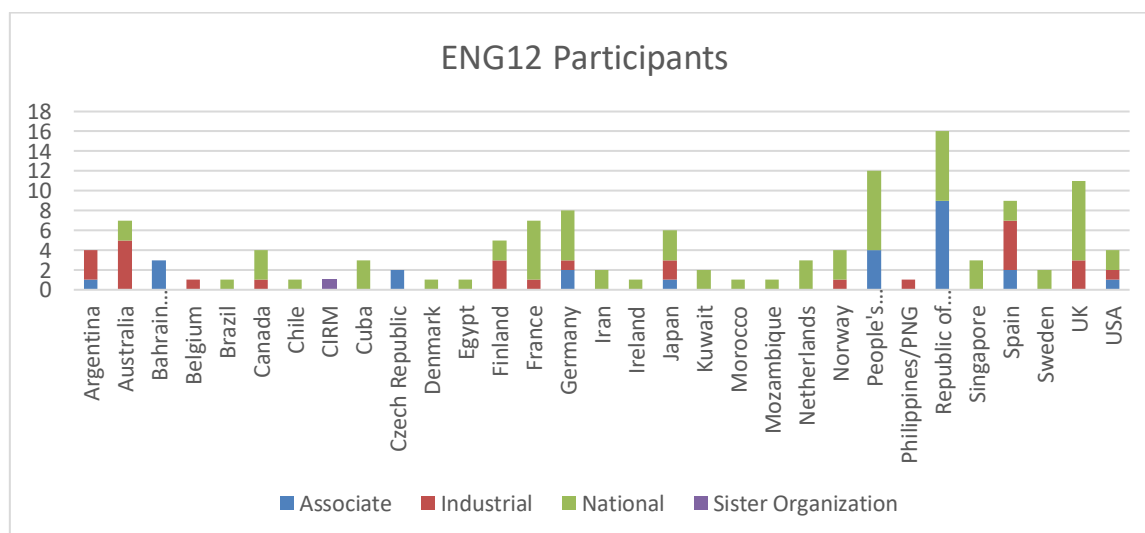
1.2 Approval of the agenda

The agenda (ENG12-1.2.1) was adopted.

1.3 Apologies and Introductions

The session was attended by 128 registered participants from 31 countries. 35 participants attended for the first time.

The following chart shows an analysis of participants:



The list of Committee Members who attended ENG12 is shown in ANNEX B. New participants were welcomed in addition to those returning to the Committee. The Committee did not received apologies.

Mr Chairman Simon Millyard expressed on behalf of the whole ENG Committee his gratitude for the hard work and supporting of the IALA members recently retired or moving to another role:

Marek Dziewicki– Maritime Office Gdynia, Poland.

Ivan Carlsson – Danish Maritime Authority

Juan Francisco Rebollo - Puertos del Estado Spain

Jordan Lane Beveridge – CCG (moving to another role in the Canadian Administration)



1.4 New working arrangements for ENG12

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.

Jaime Alvarez introduced the working arrangements for the Committee working period presenting the main documents distributed to the Committee and aiming at defining the working procedures:

- IALA Virtual Committee Working arrangements
- IALA Committee Tools

The secretariat presented the IALA Dashboard developed by IALA staff and is destined to be the One-Stop-Shop for conducting the IALA Committees and centralised all the information, status and meeting needs for the IALA member during the Committee working period. The Dashboard includes the following information:

- Bulletin board
- Committee Action Plan

- Meeting calendar
- Presentations scheduled
- Information related to the process of Document Silent Approval
- Link to the file share platform
- Link to the Meeting Documents

1.5 ENG committee structure

Mr. Chairman Simon Millyard then introduced and gave the floor to the Working Group Chairs and Vice Chairs:

- WG1 Light & Vision Physics chaired by Malcolm Nicholson
- WG2 Technical Knowledge and Sustainability chaired by Peter Schneider and Jörg Unterderweide
- WG3 Radionavigation Services chaired by Alan Grant
- WG4 Heritage Forum chaired by Peter Hill

2. REVIEW OF ACTION ITEMS FROM ENG10

Input paper ENG12-2.1.1 refers. Action items for the IALA Secretariat from ENG10 were noted as complete. WG chairs were requested to review Members actions.

3. REVIEW OF INPUT PAPERS

3.1 Input papers

It was noted that all input papers were available on the IALA website. The Committee considered 58 input papers.

4. REPORTS FROM OTHER BODIES

4.1 Reports from IALA

4.1.1 IALA Council

IALA Council 70 and 71 had met since ENG10. The Committee noted in particular that:

- The Council approved the Revocation of Guideline 1072 - AtoN Information Exchange and Presentation.
- The Council approved the document Workshop Proposal on Marine Aids to Navigation in the Autonomous World (C71-8.2.2).
- The Council agreed to send NL Paper on the Impact of MASS on VTS to all Committees.
- The Council decided the Santo Antonio da Barra lighthouse of Brazil as the heritage lighthouse of the year 2020.

4.1.1.1 Drivers & Trends

Chairman stressed the fact that the Drivers and Trends document (ENG12-4.1.1.1) was discussed in depth during Council 71 where the Council look at 9 Maritime trends relatives to AtoN, the last one added during this session:

1. Increased Digitalization, including big data and future communication;
2. Development of autonomous, automated and unmanned vessels;

3. Need for increased connectivity and interoperability;
4. Cyber-crime vulnerability and cyber security;
5. Changes in trade patterns due to global economic developments;
6. Large cruise ships going to remote locations like the Arctic;
7. Competing use of the oceans (Marine Spatial Planning); and
8. Demand for efficiency in the transport chain.
9. High demand for sustainable and environmentally friendly operations and development.

4.1.1.2 Heritage Lighthouse Award

WG4 Chair Mr. Peter Hill the accolade of IALA Heritage Lighthouse of the Year 2020 which has been conferred by Council upon Santo Antônio da Barra Lighthouse. This stunning lighthouse forms part of a fort in the city of Salvador, Brazil. The original tower of the lighthouse at this site dated back to 1698 and so lays a claim to being the oldest lighthouse site in the Americas. An artwork to commemorate the award has been produced by the Republic of Korea.

Nominations are now open for the 2021 accolade – this link is at IALA members disposal <https://www.iala-aism.org/heritage/> for more information.

4.1.2 IALA Policy Advisory Panel (PAP)

4.1.2.1 Technical Documents Catalogue

Mr. Chairman announced the publication made available by the secretariat, putting all the Standards, Recommendations and Guidelines together (ENG12-4.1.2.1).

4.1.2.2 Sustainability

Mr. Chairman also stressed sustainability is one of the vital aspects of the UN Sustainable Development Goals, the Council is leading the activity to bring this goal to the IALA framework. Mr. Chairman asks the IALA Participants to think about the tasks that IALA could support for promoting the Sustainability topic.

4.1.2.3 2022-2026 Work Programme

The Committee work programme needs to be ready for the Council by the first half of 2021 and then be approved by the General Assembly in 2022. Mr Chairman asked all the participants to look at the Drivers and Trends document and liaise with the WG Chairs, Committee Chair / Vice Chairs and the Secretariat to start thinking to the next 4 years work programme.

4.2 IMO Meetings

IALA Technical Manager, Minsu Jeon presented the status of IMO meetings highlighting the fact that all the meetings of the first half of the year have been postponed due to the pandemic situation. IMO NCSR7 met in January and approved the draft revision of resolution A.857(20) that will now be considered at MSC102.

- MSC102 will be held virtually on 4 - 11 November 2020.
- NCSR8 planned for next February 2021, still to be confirmed.

4.3 IHO/IALA liaison

IALA Secretariat is keeping communications with IHO. Regular IALA IHO Technical Cooperation meeting was held on 14 October 2020 virtually and discussed the following points of the agenda:

- Update on S-100
- IHO testbed activities

- General developments of S-200 including ENG Product Specifications S-240 series
- IALA Guideline on web service based S-100 data exchange
- Definition of S-201 features and attributes

4.4 ITU

Topics of IALA interest: GMDSS, VDES, AIS, ARMD, NAVTEX. IALA submitted two documents to ITU WP5B meetings:

- Liaison note on assignment and use of identities in the Maritime Mobile Service for MRD Group B
- Multicountry proposal in the revision of Rec. ITU-R M.2092-0

Regarding VDES, the multicountry proposal was well accepted and will be a base document for further developments in ITU. IALA G.1139 will be updated according to the developments in ITU.

MRD work is expected to be finalised during the next ITU WP5B meeting

Regarding the MRCP (Maritime Radio Communication Plan), IALA submitted a paper to ITU in 2018 and WP5B just started to work through the paper to provide an overview of systems in the maritime world wide radio mobile communication systems. ITU required IALA for further contributions.

4.5 IEC

Manuel Lopez briefed about the progress of the standardisation at receiver level for the use of standardised SBAS shipborne receivers. The European Commission (EGNOS owner), the GNSS Agency, GSA (EGNOS Services Programme Manager), the European Space Agency, ESA (EGNOS design agency) and the European Satellite Services Provider, ESSP (EGNOS service provider) are working in close collaboration to support the standardisation of SBAS in maritime receivers. In addition, two of officially recognised European Standardisation Organisations, the European Committee for Standardisation, CEN and the European Committee for Electrotechnical Standardisation, CENELEC, are working on a proposal to develop a new test standard on SBAS for shipborne receivers in the International Electrotechnical Commission, IEC (IEC 61108-x).

4.6 RTCM

Alan Grant provided a brief update on RTCM activities informing the Committee that the RTCM Annual Assembly was in progress virtually and that members of ENG WG3 provided an update on R-Mode at the May meeting of the RTCM SC-104 committee. Grant also introduced an action for WG3 to respond to an IALA liaison note regarding changes to the RTCM broadcast standard which will be reviewed during this ENG12 period.

4.7 PIANC

Minsu Jeon informed participants about the PIANC new publication on “Standardisation of inland waterways” in Oct 2021 and started work on the impact of “Alternative fuel for recreational vessels on marina design and management” in early 2020. And its InCom Working Group started working on a guideline for sustainable performance indicators for the inland waterway in November 2019. IALA monitors the work in PIANC, any subject in the scope of IALA will be coordinate with them. IALA will report back to the Committees about sustainability developments in PIANC.

4.8 CIE

No report due to activity being suspended during the pandemic.

4.9 Report e-Navigation Underway conference and Digital@Sea

The fourth e-Navigation Underway Asia-Pacific Conference was held in September 2020, in Sejong City, Korea, as a hybrid type meeting using an online conference platform. About 700 participants, from more than 50 countries, participated in the event online. The quality of the presentations was high, with good

discussions on a variety of topics under the conference theme – which was “Collaborating to Harmonize Maritime Digitization”.

It was the last event under the title of “e-Navigation Underway”, and now it handover to the new initiative named “Digital@Sea”. This new initiative, D@S is a broadened version of the e-Navigation agenda.

This new D@S will include;

- Conferences series / international, Asia Pacific, North America
- D@S Clusters which would / include and test / various national initiatives
- And the Capacity building programme.

So the e-Navigation underway international will also change the name to Digital@Sea International, and the first D@S International conference will be held in January or Feb next year in Copenhagen, Denmark might be virtual, and the details will be informed to all members in due course.

And as regards ENUW North America, RTCM as the organiser is looking for a proper time to host the conference next year. It was reported that it might be held in conjunction with the RTCM conference in September 2021, and this will be confirmed about six months ahead of time.

5. REPORTS FROM RAPORTEURS

5.1 Power

No update on Power.

5.2 Lights

No update on Lights.

5.3 Buoys

Peter Schneider gave a presentation on the design and prototype production of the new all purpose buoy for the WSV fleet of over 5,000 floating AtoN. The presentation is available in the IALA file share [platform](#).

5.4 PNT

Alan Grant provided a short update on two topics. The first² was the MarRINav project that was completed by a consortium in the UK this year which looked at resilient PNT options for the UK. This project identified GNSS supported by eLoran, VDES R-Mode and absolute radar positioning as the preferred solution for the UK, but recognised that different solutions may be more appropriate for different nations/authorities. The project approach and detailed documentation may be of interest and benefit to others and is available on the project website (www.marrinav.com).

The second topic was to raise awareness to Committee members that the General Lighthouse Authorities of the UK and Ireland have taken the decision to close their marine radiobeacon DGPS service from the end of March 2022. There are a number of input documents to this meeting that provide further information as required.

5.5 Environment

ENG Chairman Simon Millyard gave an update on Environmental matters and requested that ENG participants consider wats that IALA can enhance its advice to members on improving their Environmental performance. The Council 71 report was highlighted to show that the Drivers and Trends document has been updated to include “High demand for sustainable and environmentally friendly operations and development.”

5.6 Use of drones

No report due to activity being suspended during the pandemic.

5.7 IALA Dictionary

Michel Cousquer gave a short update on the IALA Dictionary. The IALA Dictionary is supported by the secretariat, and the Committee were requested to use it in all their work and to use the Dictionary Amendment Proposal template form to advise of any required changes.

5.8 IALA Bulletin liaison

Michel Cousquer briefed the Committee on the need for contributions to the IALA Bulletin. Bulletin issues will be in June and December each year with e-Bulletin issues at two-month intervals.

5.9 Update on IALA VTS-ENAV Symposium 2021

On behalf of the Symposium hosts, Maarten Berrevoets provided ENG12 with a brief update. The Symposium has now been postponed to 19 - 23 April 2021. It is now proposed that the event will be organized as a virtual Symposium. The programme for the event will be shortly discussed and advertised on the Symposium [website](#).

6. ADVERTISING ONLINE PRESENTATIONS

Six presentations were announced to be running during the ENG Working Period. The presentations are available on the IALA YouTube website.

6.1 Brief on WWA / Kevin Gregory

Update on the activities of the Academy during the period of COVID-19. Video [link](#)

6.2 IALA's Role and Strategy for the S-200 product specifications / Minsu Jeon

Update on IALA's Role and Strategy for the S-200 product specifications. Video [link](#)

6.3 EGNOS test Finland / Rodrigo Gonzalez

Presentation on the GNSS data campaign assessing EGNOS performance at user level in the maritime domain at high latitudes in Europe along Gulf of Finland. GPS standalone performance is also assessed. Video [link](#)

6.4 R-mode / Michael Hoppe and Stefan Gewies

Update on R-mode stressing the following matters: the installation of MF R-Mode test bed in the Baltic Sea, VDES R-Mode activities/results, Status VDES R-Mode standardization, MF R-Mode measurement campaign in the MF R-mode test bed with Fyrbyggaren. Video [link](#)

6.5 Measurement Method for Surface Colors of Visual Aids to Navigation / Wang Lingyan

Presentation on measuring methods and requirements for Surface Colors of Visual Aids to Navigation and considerations to put it together as a new IALA guideline or supplement to G1134. Video [link](#)

6.6 Use of Modern Equipment on Heritage Lighthouses / Li Ai

Presentation to address the discussions of type of equipment that should be used to upgrade heritage lighthouses and the functions that this modern equipment can achieve. Video [link](#)

6.7 Galileo Maritime Safety Information / Maria Mota

Presentation on the Maritime Safety Information related to the Galileo service degradations. Video [link](#)

7. WORK PROGRAMME (2018 - 2022)

The ENG Committee Workplan for the 2018-2022 work period was reviewed. Paper ENG12-7.1 refers.

The ENG Work Programme Task Register for 2018-2022 was reviewed. Paper ENG12-7.2 refers.

The following shows a summary of progress on the Task Plan at the end of ENG12.

Action item:

The **IALA Secretariat** is requested to forward the **ENG Committee Task Plan for 2018-2022, ENG12-7.2 to ENG13**.

8. ESTABLISH WORKING GROUPS

8.1 Establishing working groups

Three working groups were established, as outlined below. A list of working group participants is at ANNEX C. The Chairman thanked Peter Schneider and Jörg Unterderweide for covering the chairmanship of WG2 following the departure of Jordan Lane-Beveridge.

Working Group		Working Group Chair	Working Group Vice Chair
WG 1	Visual & Physical AtoN	Malcolm Nicholson	Alwyn Williams
WG 2	Knowledge & Sustainability		Peter Schneider Jörg Unterderweide
WG 3	Radionavigation Services	Alan Grant	Michael Hoppe
WG 4	The Heritage Forum	Peter Hill	Jonghun Kim

9. WORKING GROUP 1 – VISUAL & PHYSICAL ATON

The working group met virtually and was made up of 15 members, and the group considered 8 input papers. Some of the papers received were for information, whilst others were input to developing guidelines. The main aim of this session was to continue the work identified in the work program and update the task register.

9.1 Update Guideline 1048 LED technologies and their use in signal lights (Task 2.1.5)

This task commenced at ENG9 for three sessions. It will now merge guidelines 1043 & 1048. This work was started during the last work program, but due to other priorities was not completed.

Action Item:

Jonas Lindberg is requested to work on the partially combined Guidelines on LED technologies and their use in signal lights and submit an input paper to ENG13.

9.2 Review & update guideline 1043 on Light sources (Task 2.1.6)

Refer to the chapter 9.1(Task 2.1.5)

9.3 Develop E200-3 on measurement of light into a Guideline (Task 2.2.1)

This task was due to start at ENG11 for four sessions. However, this work can only be started when task 2.2.2 on Marine Light Terms of Measurement has been completed. Refer to task register ENG8-12.2.12 for the scope of work.

9.4 Develop new Recommendation on Marine Light Terms of Measurement (Task 2.2.2)

The draft document from ENG8 was reviewed; however, progress was very limited due to the somewhat complex and potentially far-reaching nature of the document. It was decided that members of the task group submit input documents to ENG13 to progress some of the ideas highlighted in the draft document.

Action item:

That Committee Participants are requested to submit input documents to ENG13 regarding the definitions that determine the performance of lights.

9.5 Develop E200-5 on Optical Performance into a Guideline (Task 2.2.3)

This task started at ENG12 for two sessions. Refer to task register ENG8-12.2.12 for the scope of work. The task group met virtually and discussed the way forward. It was felt that the existing recommendation was very dated and that the approach would be to take the new IALA Guideline format and populate the relative title headings and then see where the information fitted to these headings.

Action item:

Malcolm Nicholson is requested to populate the IALA Guideline template with the relative title headings from IALA E-200-5 and submit an Input Paper to ENG13.

9.6 Revise Guideline on effective intensity (Task 2.2.4)

This task was finalised during ENG11 and submitted to ENG12 for approval. Following a small correction, the document was approved by the ENG12 silent assent process, and will be submitted to the Council for approval.

Action item:

IALA Secretariat is requested to forward the revised Guideline G1135 to the IALA Council for approval.

9.7 Develop Guidance on monitoring of function and degradation of AtoN light sources (Task 2.2.5)

This task was due to commence at ENG9, and it was envisaged to add to Guideline G1077. Refer to task register ENG8-12.2.12 for the scope of work. An input paper from Peter Dobson and Alwyn Williams was received, but due to prioritisation of other work, it was not reviewed in detail. It is recommended that more information is gathered from other members on how they monitor the function and degradation of AtoN light sources to ensure a good balance of approaches. This task will commence at ENG13.

Action item:

That Committee Participants are requested to submit input papers on their methods of monitoring the function and degradation of AtoN light sources to ENG13.

9.8 Develop Guidance on service factors (Task 2.2.6)

Task completed in ENG10 as it has been incorporated into Guideline G1148.

9.9 Develop Guidance on Colour fading of AtoN (plastic and painted) – methods to measure and assess (Task 2.2.7)

Guideline G1134 was reviewed following some comments that were received from Germany and Cuba.

Work on the colour fading has progressed, with colour swatches being accepted as a means of determining the compliance of a surface colour with IALA Recommendation R0201, but only when other means of measurement is not available or impractical. The use of “delta E” as a metric to determine the acceptable amount of colour fading was discussed. It was decided that this approach is too complex, especially given that the requirements of Recommendation R0108 still need to be met.

The task group members will edit the Guideline intersessionally to cover the subjects of colour fading and colour measurement following the discussions at ENG12.

Action Item:

Jørgen Royal Petersen and Frank Hermann to update Guideline G1134 with information on weathering and colour fading intersessionally, and submit as input to ENG13.

Wang Lingyan and Frank Hermann to update Chapter 2 of Guideline G1134 with details of the measurement method and devices intersessionally, and submit as input to ENG13.

9.10 Finish Guideline G1148 Marine Signal Lights - Calculation of Luminous Intensity and Range (Task 2.2.8)

Task completed at ENG10.

9.11 Update G1041 on Sector Lights to define 'Angle of Uncertainty' (Task 2.2.9)

This task was due to start at ENG9 for two sessions. However, due to working on other documents, this task was not started. Refer to task register for the scope of work and updated time frame for completion.

9.12 Deliver a Workshop – IALA AtoN Engineering (Task 2.4.2)

Following the approval from the Council and submission from Australia to host the workshop, a steering committee meeting was held during ENG12. As the global pandemic has no immediate end, a decision on whether the workshop will go ahead in one form or another will be made in January 2021.

10. WORKING GROUP 2 – KNOWLEDGE & SUSTAINABILITY

The Working Group was joined by 38 members who participated in five Task Groups. The Working Group reviewed 15 input papers. Some of these documents were for information, some Liaison notes and the remainder were input to guideline development. The key tasks for the ENG12 session for Working Group 2 are highlighted below; however, the overarching goal was to continue with the work as identified in the 2018-2022 work program.

10.1 Review and update Guideline 1097 (Task 1.1.1.)

This task is continued by ARM, since both G1058 *Use of Simulation as a Tool for Waterway Design and AtoN Planning* and G1097 *Technical Features and Technology Relevant for Simulation of AtoN* are supported by ARM. ENG has co-coupled the work of ARM and is ready for further support.

10.2 Third party quality control (Task 1.2.1.)

The Working Group continued to develop a new guideline on third party AtoN provider quality control. This work continued on from ENG10, no input papers were provided into ENG12 however, ENG11 input was considered. Two online meetings were held during ENG12 to progress the work to a draft state, delegates worked individually on content with a final review of the draft state, not all delegates could attend online meetings due to timings, and these comments were included in the final draft. A final edit was undertaken ready for sharing with the ARM Committee and continuation at ENG13. The group included national and industrial members, delegates from Scotland, Australia, New Zealand, Singapore, Uruguay, with the assistance of WG2 chairs from Germany, and the IALA secretariat. The working group will continue these works intersessionally in preparation for ENG13. It is recommended that the draft guideline be forwarded to the ARM Committee for their review and feedback.

Action Item:

The IALA Secretariat is requested to forward the draft guideline on Third Party AtoN Provider Quality Control (ENG12-13.2.1) to ENG13.

The IALA Secretariat is requested to forward the Liaison Note on Third Party AtoN Provider Quality Control (ENG12-13.2.2) and draft guideline (ENG12-13.2.1) to the ARM Committee for review and request their feedback to ENG13 and intersessional working group through the secretariat.

That Committee Participants are requested to provide any examples of contracting out maintenance and renewal activities including pre-qualification of Contractors and monitoring of their performance to ENG13.

10.3 Extreme environmental conditions (Task 2.3.1.)

The Task Group continued developing the draft Guideline to identify appropriate Standards for AtoN Equipment in extreme environmental Conditions by adding further descriptions, examples and pictures to the draft document. The Task Group consisted of 16 participants in six sessions over the ENG12 period. An

input paper on AtoN Provision in cold Climates was recognised and agreed to be implemented in the revision of G1108 *Providing AtoN services in Polar Regions* intersessionally. The revised Guideline will be reviewed at ENG 13. Li Ai gave a presentation on Application of modern Technology on conventional large Beacon, and an associated input paper was recognised. Alison Raby made a significant contribution on wave impact on rock lighthouses. The Task Group members made good progress in developing this document and will continue at ENG13.

Action Item:

The IALA Secretariat is requested to forward the draft Guideline on Extreme Environmental Conditions (ENG12-13.2.3) document to ENG13.

That Committee Participants are requested to share their experiences and examples from their specific areas and to provide input paper for ENG13.

10.4 Tidal flow data capture and display (Task 2.3.3.)

An input paper from ARM Committee, which was a reply on ENGs request to all committees (ENG10-14.2.5) was noted. ARM suggested fundamental modifications that necessitate a significant revision of the existing draft to emphasise that this was an option following a Risk Assessment and that there are various ways to offer tidal flow information. It was agreed to suspend work on this task item because of the fundamental concerns and recheck the need for a general Guideline for the next work term.

10.5 Solar Panel Guideline (Task 2.4.1)

The task group met on 3 separate occasions throughout the ENG 12 session to review and develop the draft guideline on “what makes a good marine solar panel.” The meetings were attended by 15 participants from 11 different countries.

Good progress was made on the Guideline, with useful and interesting input from members across the globe. The Guideline still requires further work on a number of sections on an intersessional to allow the Guideline to be developed ready for further review and input at the next Engineering committee meeting.

Action Item:

The IALA Secretariat is requested to forward the draft Guideline on the Properties of a good Marine Solar Panel (ENG12-13.2.4) to ENG13.

10.6 Develop guidance quantifying characteristics (Task 2.5.1)

The work on this task was postponed to ENG13.

10.7 Radar Reflector (Task 2.5.2.)

The working group had a total of four sessions during the ENG12 phase to review and further develop the draft guideline "Radar Reflector (Reflection) Properties". The sessions were attended by 10 participants from 9 different countries.

Valuable contributions from Trinity House, Rijkswaterstaat, US Coast Guard and WSV (Germany) were incorporated into the existing paper. It requires further elaboration of a number of sections and additional input, especially regarding calculation, simulation and measurement methods.

Overall, during ENG 12, the working group has made considerable progress in the elaboration of the draft guideline, intersessional work has been agreed.

Action Item:

The IALA Secretariat is requested to forward the draft Guideline on Radar Reflectors (ENG12-13.2.5) to ENG13.

10.8 Guidance on Floating AtoN (Task 2.5.3.)

A Liaison note from ARM was noted on Auto Deployment of the Wreck Marker Buoy. It was decided to defer the work on Guidance on Floating AtoN to ENG13.

Action Item:

The IALA Secretariat is requested to forward working paper ENG12-13.2.6 on Brainstorming for Floating AtoN (ENG10-14.2.17) to ENG13.

10.9 Review telemetry Guideline 1008 (Task 5.1.1.)

Due to limited time slots, the Task Group will meet during the silent approval period. Twelve participants expressed their interest in that task. Two meetings are scheduled. The draft revised guideline will be forwarded to ENG13 for further progress.

Action Item:

The IALA Secretariat is requested to forward the review of Guideline 1008 on telemetry (ENG12-13.2.7) to ENG13.

11. WORKING GROUP 3 – RADIONAVIGATION SERVICES

The WG Chair and Vice Chair express their gratitude to WG participants for their hard work and effort during this busy period. The WG Chair and Vice Chair would also like to thank all of the Task Group leaders for their time and effort in progressing their work items in this new approach.

As the new IALA fileshare will not be cleared after each meeting, working documents have been placed in a folder marked as such within each task's sub-folder.

11.1 Resilient PNT (Task 3.1.1)

During this session, a draft guideline on resilient PNT was progressed by the task group, with the latest version carried over as a working document.

11.2 Terrestrial radionavigation systems (Task 3.2.1)

A draft Recommendation (ENG12-13.3.1) was completed during this session and submitted for approval.

Action items:

The IALA Secretariat is requested to forward ENG12-13.3.1, Draft Recommendation on Terrestrial Radionavigation Services to Council for approval.

11.3 R-Mode (MF) (Task 3.2.2)

The Committee progressed the development of the draft Guideline on R-Mode implementation using MF radio beacon and VHF transmissions. As outlined under Task 3.2.3, it was agreed to reduce the scope of this Guideline to focus on MF R-Mode and guidance to service providers seeking to provide R-Mode transmissions.

The latest version of the draft Guideline has been put in the working documents folder for further consideration at ENG13.

11.4 R-Mode (AIS/VDES) (Task 3.2.3)

The Committee reviewed a Liaison Note from the ENAV Committee (ENG12-3.1.28.3) and an input paper on the key issues with the implementation of VHF R-Mode (ENG12-3.1.36). The ENG and ENAV Committees held a joint meeting to discuss how they can work together on R-Mode. It was agreed that the draft Guideline on the technical characteristics of VDES R-Mode would be led by the ENAV Committee, while the draft Guideline on R-Mode operational aspects, with a focus on MF R-Mode, would be led by the ENG Committee.

Recognising the importance to work together on these two important Guidelines, a joint work space has been established on the file share.

Action item:

The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.2 “Technical Specification of VDES R-Mode” to the ENAV Committee.

11.5 Workshop on R-Mode in 2019 (Task 3.2.4)

This item has been completed.

11.6 R-Mode testbed progress coordination (Task 3.2.5)

The Committee received a presentation on the latest progress of from the R-Mode Baltic Sea project. The presentation is available on the IALA youtube channel via the following link: <https://youtu.be/wjiCp7sVyOE>

The Committee also received an update on the Korean R-Mode testbed project (TRACE) (ENG12-3.1.34), and on the “Proposals on the key issues in the implementation of the VHF R-Mode (ENG12-3.1.36) from Dalian Maritime University, China.

11.7 Develop and maintain relevant product specifications (Task 3.2.6)

The latest version of the S-240 DGNSS almanac (ENG12-3.1.24) was reviewed and updated in this session. This update provides corrections to some omissions and errors observed in the version that is currently available on the IALA website. This amended version was passed to the secretariat for uploading onto the IALA website.

Action item:

The **IALA Secretariat** is requested to upload the S-240 DGNSS Station Almanac Product Specification version 1.0.0 (ENG12-13.3.3) to the IALA website for further testing.

11.8 Guidance on timing and synchronisation (Task 3.2.7)

There was no work on this task during this session. The Committee notes the lack of expertise in this area and invites members to consider supporting this topic.

Action item:

That Committee Participants are invited to consider whether they or any of their colleagues have expertise in timing and synchronization aspects required to support ENG Task 3.2.7. Please let the WG3 Chairman (Dr Alan Grant - alan.grant@qla-rad.org) know of suitable experts who can support this topic.

11.9 eRacon (standard approach); Review recommendations ENAV146 & R-101 & Guideline 1010 (Task 3.3.1)

The Committee reviewed input ENG12-3.1.38, a liaison note from CIRM on the Effect of Radars on Racons. The Committee wrote a liaison note in response thanking them for their work. CIRM suggested that the IALA policy on the use of AIS and racons “be given further consideration as there may be situations where a racon may not be necessary, and an AtoN alone may be suitable.” The Committee has reviewed the policy and has determined that there may be insufficient guidance in the policy and a lack of visibility of the policy in IALA documents. A liaison note to the ARM committee requesting it to review the IALA policy was prepared. A suggestion to use the IALA web site for visibility is included.

Further to the on-going work on the problems of racons in busy harbours (ENAV20-13.11), a liaison note to IMC Committee was prepared, inviting racon manufacturers to participate in future work on racon and radar standards with other groups as needed.

The ENG Committee learned about work being undertaken by ETSI TGMARINE to write standards for solid state radars for use in inland waterways. A liaison note to ETSI TGMARINE was prepared to request ETSI TGMARINE to update IALA on progress.

Work on Enhanced Radar Positioning System (ERPS) was progressed. As the ERPS approach is larger than the IALA ENG Committee, the Committee wrote liaison notes to the ARM Committee, the IMC Committee (included in liaison note mentioned above), and CIRM inviting participation.

The Guideline, “Draft Guideline 1147 on Enhanced Radar Positioning System”, was progressed and the latest version has been stored in the working document folder on the file share.

Action item:

The IALA Secretariat is requested to forward liaison note ENG12-13.3.4 for CIRM “On the Effect of Radars on Racons in Busy Harbours” to Council for approval.

The IALA Secretariat is requested to forward liaison note ENG12-13.3.5 “On the Effect of Radars on Racons in Busy Harbours and IALA policy on use of AIS and Racons” to the ARM committee.

The IALA Secretariat is requested to forward liaison note ENG12-13.3.6 “Invitation to Racon Manufacturers” to the IMC Committee attaching the papers ENAV10-13.11 and ENAV21-13.10.

The IALA Secretariat is requested to forward liaison note ENG12-13.3.7 for ETSI TGMARINE “On Radar Standards” to Council for approval. If approved, the secretariat is requested to send the liaison note to ETSI TGMARINE via Andrea.Lorelli@etsi.org with copy to pete.hizzey@wanadoo.fr.

The IALA Secretariat is requested to forward liaison note ENG12-13.3.8 “Enhanced Radar Positioning System” to the ARM Committee attaching the paper ENG12-13.3.4 “Enhanced Radar Positioning Systems for Resilient Positioning.”

The IALA Secretariat is requested to forward liaison note ENG12-13.3.9 for CIRM “Enhanced Radar Positioning System” to Council for Approval attaching the paper “Enhanced Radar Positioning Systems for Resilient Positioning.”

11.10 Consideration on how and when to use SBAS (Task 3.4.1)

This task is complete.

11.11 Review of existing DGNSS infrastructure and provision of guidance for current system (Task 3.4.2)

The Committee reviewed the work plan and agreed that this Task and Task 3.4.4 should be merged. The draft Guideline on this topic developed during the workshop on the future of marine radiobeacon DGNSS was reviewed and developed further.

The latest version of the draft is held in the file share as a working document.

11.12 Recommendation on augmentation for maritime use (Task 3.4.3)

A draft Recommendation was completed during this session and submitted for approval.

Action item:

The IALA Secretariat is requested to forward ENG12-13.3.10, Draft Recommendation on Provision of GNSS Augmentation Service for maritime applications” to Council for approval.

11.13 Provide guidance, strategy and advice on new uses of marine beacon DGNSS infrastructure (Task 3.4.4.)

This work item has been merged with Task 3.4.2 and will be closed.

11.14 High accuracy systems (Task 3.4.5.)

The previous task leader for this work item has retired and will no longer attend the Committee. A new task leader has been identified, and the scope of this work item will be reviewed, and it will be re-planned between this meeting and ENG13.

11.15 Review and update current documentation under the purview of PNT WG (Task 3.5.1)

The Committee reviewed the Radionavigation Services Standard and provided comments to the secretariat. The Committee reviewed the changes required to the IALA WWRNP but did not progress to making any changes in this work period.

11.16 Monitor developments in GNSS, DGNSS, radar, resilient PNT, e-Pelorus, terrestrial systems, R-Mode, inertial and any other relevant areas etc. (Task 3.5.2)

The Committee discussed a number of general topic areas, including the GLA decision to close its DGPS service, the MarRINav project, EGNOS performance trials, autonomous vessels, differential Loran C trials in China, Datum issues in the United States and the Development of SBAS for BeiDou.

11.17 Liaison with sister organisations (IMO, ITU, RTCM etc.) on related topics (Task 3.6.1)

The Committee reviewed a liaison note received from RTCM at ENG10 (ENG-10.3.1.24) which asked IALA to consider the planned update to RTCM v2.4 broadcast messages, as well as seeking IALA's views on the future of the radiobeacon DGNSS service as a whole. The Committee prepared a response (captured in the associated liaison note) that addresses these questions and seeks additional information on the proposed changes to the RTCM messages and reports on the outcome of the IALA workshop on the future of marine radiobeacon DGNSS.

Action item:

The IALA Secretariat is requested to forward liaison note ENG12-13.3.11 for RTCM "IALA response to RTCM Liaison Note on SC-104 & SC-134 activities" to Council for Approval.

11.18 Input to MSP, Integrity considerations for resilient PNT, cybersecurity impact for PNT data, datum considerations (Task 3.7.1)

The Committee reviewed the draft guideline on the definition and harmonisation of the format and structure of maritime services in the context of e-Navigation. The Committee provided a draft entry on PNT and augmentation services to the secretariat for further consideration and advice on the scope expected. The latest version of this document has been stored in the working document area of the file share.

11.19 Development and review of WWA courses (Task 4.1.1)

No updates during this session.

11.20 NAVGUIDE updates and review (Task 4.2.1)

Some updates to the NAVGUIDE were discussed during this session but only at the early stage, and no changes were proposed at this meeting.

12. WORKING GROUP 4 – THE HERITAGE FORUM

ENG WG4 – Heritage Forum considers its overall objective to be;

"To further the declaration and recommendations contained within the Incheon Declaration and within IALA Recommendation R1005 – 'Conserving the built heritage of lighthouses and other aids to navigation'.

Over the course of ENG 12, WG4 received the participation of 10 persons from 6 nation states, the full list of those participating being;

<i>Peter Hill (Chair)</i>	<i>Trinity House, UK</i>
<i>Jonghun Kim (Vice-Chair)</i>	<i>PaiChai University, Korea</i>
<i>Hideki Noguchi</i>	<i>Japan Coast Guard, Japan</i>
<i>Ke Ranxuan</i>	<i>Navigation Institute of JiMei University, China</i>
<i>Capitain Piovesana</i>	<i>Brazilian Navy, Brazil</i>

Yonghun Cho	Aids to Navigation Div., MOF, Korea
Mike Bae	Aids to Navigation Div., MOF, Korea
Sihyeon Park	National Lighthouse Museum, K-AtoN, Korea
Mr Sak LEE	Aids to Navigation Div., MOF, Korea
Ms Amy Wood	Australian Maritime Systems

The group was pleased to receive the following presentation;

- The artwork for IALA Heritage of the Year 2020 and Beyond (Sihyeon Park, Korea)

The group met twice over the course of ENG12 with tasks assigned for completion between the two meetings.

12.1 Heritage seminar (Task 2.6.6)

The indefinite postponement of the Heritage Seminar due to COVID-19 was noted by the group with understanding and regret. Originally planned to run in conjunction with ENG11 in Salvador, Brazil, considerable work had been put into organising the seminar – especially by Brazil.

The group noted the possibility of re-scheduling once the future becomes a little clearer and also the possibility of a virtual seminar – although that would preclude a site visit which is an invaluable ingredient to the seminar. It was observed that a virtual seminar may attract participants who may not otherwise attend and that for this reason would be a useful add-on to an in-person seminar.

12.2 IALA Heritage Lighthouse of the Year 2020 – Santo Antônio da Barra Lighthouse (Task 2.6.5)

The Republic of Korea had again produced a beautiful artwork to commemorate IALA Heritage Lighthouse of the Year 2020, and this was now with Secretariat in Paris. With regret, it was noted that it would not be possible for the award to be handed over to Brazil in person. Instead, it had been proposed that the artwork be formally presented virtually at the IALA Council meeting scheduled for December 2020 and then couriered to Brazil.

The need to promote the current holder of the accolade was acknowledged. The heritage website was an important aspect of this. It was additionally proposed that Peter Hill and Alberto Piovesana would draft an article and submit to IALA Secretariat for publication in the IALA Bulletin.

Action Items:

The IALA Secretariat is requested to arrange for the presentation of the artwork virtually to representatives from Brazil at the December 2020 Council meeting.

The IALA Secretariat is requested to publish submitted articles about the IALA Heritage Lighthouse of the Year 2020 in the bulletin.

12.3 IALA Heritage Lighthouse of the Year 2021 (Task 2.6.4)

It was agreed that nominations should now be open for 2021 Heritage Lighthouse of the Year with the deadline for the submission of nomination forms to be the 28th February 2021 for consideration by WG4 at ENG13. All nominations previously submitted would also be re-considered.

Further to a presentation from Sihyeon Park (National Lighthouse Museum of Korea) about the design of the 2019 and 2020 awards, the group was asked to consider whether future years' awards should continue to be individually designed or whether a single reoccurring design should be settled upon. The group agreed that from 2021 this should be a single reoccurring design as that would provide an established 'brand'.

Action Items:

Yonghun Cho (MOF, Korea) is requested to oversee and resource the design and construction of the artwork to be presented to IALA Heritage Lighthouse of the Year accolade holder 2021 using the design established in 2020.

That Committee Participants are encouraged to submit nominations for IALA Heritage Lighthouse of the Year 2021 and/or to encourage colleagues within their organisations to do so.

The **IALA Secretariat** is requested to encourage IALA National Members to submit nominations for IALA Heritage Lighthouse of the Year 2021.

12.4 Heritage Lighthouse Database and Cybercentre (tasks now combined and re-named 'IALA Heritage Webpage') (Task 2.6.3.& 2.6.4)

Significant progress on the database of IALA Heritage lighthouses within the IALA Heritage webpages was noted. IALA Secretariat had commissioned a web design company to undertake this task and drafts were now available for consideration. This was now at V.2 following comments previously made by Peter Hill in his capacity of Chair to WG4. It was agreed that WG4 participants would provide comments to Peter Hill over the course of ENG12 for Peter Hill to collate and feed into the design as appropriate.

The web 'database' of IALA Heritage Lighthouses is to take its data (including photographs) from the submitted nomination forms for IALA Heritage Lighthouse of the Year. This minimises the administration and the extent to which IALA assumes direct responsibility for the content. Ephemeral data (such as opening times of visitor centres) to be omitted.

Peter Hill had updated the nomination form so that its completion expressly consents to the publication of submitted data and photos. Nomination forms previously submitted did not include this consent, so the express consent of past nominations needs to be sought. Hideki Noguchi made a request to IALA Secretariat seek this consent.

It was further noted that Cordouan Lighthouse (the inaugural holder of the accolade in 2019) was considered prior to the creation of nomination forms and as such there was no such data available for this lighthouse. Peter Hill to make contact with the nominee to request data be provided in the form of the nomination form with consent to publish.

The group's thanks were to be conveyed to IALA Secretariat for the great work already undertaken.

Action Items:

The IALA Secretariat is requested to expedite the production of the database element of the website once comments on the latest draft had been provided by Peter Hill.

12.5 Consideration of matters to progress into the work programme 2022 2026

The new task plan was noted, and projects the group would like to progress during this task plan were discussed as follows:

12.5.1 Continued development, promotion and administration of "IALA Heritage Lighthouse of the Year"

Agreed to progress into the next work period.

12.5.2 Continued development of an IALA Heritage website

- Providing easy links to IALA Heritage documents,
- Celebrating IALA Heritage Lighthouse of the year and
- Incorporating a growing database of IALA Heritage Lighthouse from nominations submitted.

Agreed to progress into the next task plan

12.5.3 Developing an (approx.) 2-hour heritage module within the IALA Level 1.1 course describing how heritage and conservation issues may be incorporated into AtoN management

Kevin Gregory (IALA Education and Development Manager) attended the second meeting of WG4 to assist the group in understanding the steps involved in this. Kevin agreed to circulate the course materials from 'similar module' to the group together with competencies and textbook.

Based on discussions, Amy Wood commenced a working draft of the module objectives, competencies and outlines which the group discussed further. Amy Wood agreed to lead the project to work this up further over the course of the next task plan with assistance from Peter Hill and other group participants.

Agreed to progress into the next task plan

12.5.4 Review all existing guidance documents and manuals associated with ENG WG4, amending, updating or disbanding documents where appropriate to ensure a coherent suite of relevant guidance documents can be downloaded via the IALA Heritage webpages

The following were considered to comprise the existing portfolio of such guidance documents and manuals;

- 1063-Ed.1-Agreements for Complementary use of Lighthouses - Dec2008
- 1074-Ed.1-Branding and Marketing of Historic Lighthouses -Dec2009
- 1075-Ed.1-A Business Plan for the complimentary use of a Historic Lighthouse -Dec2009
- 1080-Ed1-The Selection and Display of Heritage Artefacts - Dec2011
- 1093-Ed.1-The Management of-Surplus Lighthouse Property - Dec2012
- IALA Complementary Lighthouse Use Manual – Dec 2017
- IALA Lighthouse Conservation Manual 2006
- IALA NavGuide (2018) (8.10: preservation of historic aids to navigation)

Additionally, it is planned that the IALA Heritage webpages will link to;

- The Incheon Declaration 2018
- IALA Recommendation R1005 - Conserving the Built Heritage of Lighthouses and other Aids to Navigation – June 2017

Action Items:

That Committee Participants are requested to note WG4's intention to progress into the next work period (2022-2026) the development of the IALA Heritage webpages and database, the continued development of IALA Heritage Lighthouse of the Year scheme, the development of a Heritage Module for the IALA Level 1.1 course and a full review of guidance documents, manuals and other documents associated with WG4.

13. 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 E.

14. REVIEW OF SESSION REPORT

The report of the meeting (ENG12-14.1) 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 IALA Secretariat is requested to forward the summary of the ENG13 Committee report (ENG12-14.1) to Council to note.

15. DATE AND VENUE OF NEXT MEETING

The next session of the ENG Committee is planned to be held between 15 to 19 March 2021 at IALA Headquarters, Saint Germain-en-Laye, France. The Secretariat will continue to monitor global events of the COVID-19 pandemic and advise its Members of any changes that may be instigated.

Other IALA events will be publicised on the IALA website.

16. CLOSE OF THE MEETING

The Committee Chairman thanked the Vice-Chair, working group Chairs and all Participants for their hard work and effective output during the session and the four-year work period. He thanked the IALA Secretariat for their support.

17. LIST OF ANNEXES

- 1 Agenda
 A copy of the agenda is at ANNEX A.
- 2 Participants
 A list of participants is at 0.
- 3 Working Group Participants
 A list of working group participants is at ANNEX C.
- 4 Input Papers
 A list of input papers is at 0.
- 5 Output and Working papers
 A list of output and working papers is at ANNEX E.
- 6 Action Items
 A list of action items is at 0.



12th Meeting of the AtoN Engineering and Sustainability Committee (ENG12)

The 12th meeting of the **AtoN Engineering and Sustainability Committee** will be held from 30 September – 16 October 2020 virtually.

The opening plenary will commence at 1000 – 1200 UTC on Wednesday 30 September 2020, and the closing plenary will begin at 1000 – 1200 UTC on Friday 16 October.

AGENDA

Opening Plenary

2. Introduction
 - 2.1. Welcome address from the Secretary-General/Deputy Secretary-General
 - 2.2. Approval of the agenda Simon Millyard
 - 2.3. Apologies and Introductions Simon Millyard
 - 2.4. New working arrangements for ENG12 Jaime Alvarez
 - 2.5. ENG committee structure Simon Millyard
 - 2.5.1. WG1 Overview
 - 2.5.2. WG2 Overview
 - 2.5.3. WG3 Overview
 - 2.5.4. WG4 Overview
3. Review of action items from last meeting Simon Millyard / Jaime Alvarez
 - 3.1. Review of action items from ENG10
4. Review of input papers Simon Millyard
 - 4.1. Review of input papers to ENG 12
 - 4.2. Input papers for action/allocation
5. Reports from other bodies
 - 5.1. IALA
 - 5.1.1. IALA Council
 - 5.1.1.1. Drivers & Trends Simon Millyard
 - 5.1.1.2. Heritage Lighthouse Award Peter Hill
 - 5.1.2. IALA Policy Advisory Panel (PAP)
 - 5.1.2.1. Technical Documents Catalogue Simon Millyard
 - 5.1.2.2. Sustainability Simon Millyard
 - 5.1.2.3. 2022-2026 Work Plan Simon Millyard

- | | | |
|------|--|-------------------------------------|
| 5.2. | IMO | Minsu Jeon |
| 5.3. | IHO/IALA liaison | Minsu Jeon |
| 5.4. | ITU | Minsu Jeon |
| 5.5. | IEC | Manuel Lopez |
| 5.6. | RTCM (104) | Alan Grant |
| 5.7. | PIANC | Minsu Jeon |
| 5.8. | CIE | Alwyn Williams |
| 5.9. | E-Navigation Underway / Digital@Sea | Minsu Jeon |
| 6. | Reports from rapporteurs | |
| 6.1. | Power | Peter Dobson |
| 6.2. | Lights | Alwyn Williams |
| 6.3. | Buoys | Peter Schneider |
| 6.4. | PNT | Members of WG3 |
| 6.5. | Environment | Simon Millyard |
| 6.6. | Use of drones | Jørgen Royall Petersen |
| 6.7. | IALA Dictionary | Michel Cousquer |
| 6.8. | IALA Bulletin liaison | Michel Cousquer |
| 6.9. | Update on IALA VTS-ENAV Symposium 2021 | Maarten Berrevoets |
| 7. | Advertising Online Presentations | |
| 7.1. | Brief on WWA | Kevin Gregory |
| 7.2. | IALA's Role and Strategy for the S-200 product specifications | Minsu Jeon |
| 7.3. | EGNOS test Finland | Rodrigo Gonzalez |
| 7.4. | R-mode | Michael Hoppe / Stefan Gewies |
| 7.5. | Measurement Method for Surface Colors of Visual Aids to Navigation | China MSA |
| 7.6. | Use of Modern Equipment on Heritage Lighthouses | China MSA |
| 8. | Work Programme (2018 - 2022) | |
| 9. | Overview of planned work for ENG12 | |
| 9.1. | WG 1 - Visual & Physical AtoN | Alwyn Williams |
| 9.2. | WG 2 - Knowledge & Sustainability | Peter Schneider/ Jörg Unterderweide |
| 9.3. | WG 3 - Radionavigation Services | Alan Grant |
| 9.4. | WG 4 - Heritage | Peter Hill |
| 10. | Establish Working Groups and Task Groups | |
| 11. | END OF OPENING PLENARY | |
| 12. | Working Groups/Task Groups progress work plan | |
| 13. | CLOSING PLENARY | |
| 14. | Review of output and working papers | |
| 15. | Review of session report | |
| 16. | Date and venue of next meeting | |
| 17. | Close of meeting | Simon Millyard |

ANNEX B

LIST OF PARTICIPANTS

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ANNEX C WORKING GROUP PARTICIPANTS

Working Group 1 Visual & Physical AtoN

Chair – Malcolm Nicholson

Vice Chair – Alwyn Williams

	Members	Organisation / Country
1	Malcolm Nicholson (Chair)	Sealite, Australia
2	Alwyn Williams (Vice Chair)	GRAD
3	Eng Soon Aw	Maritime and Port Authority of Singapore
4	Fernando Romero	Mediterraneo Senales Maritimas S.L.
5	Frank Hermann	Federal Waterways & Shipping Administration
6	Helberto Rivas Alonso	Oficina Nacional Hidrografia y Geodesia - GEOCUBA

7	Johnny Menard	Swedish Maritime Administration (SMA)
8	Jonas Lindberg	Sabik Oy
9	Jorgen Royal Petersen	Danish Maritime Authority (DMA)
10	Julio Fidel Sierra Almaguer	Oficina Nacional Hidrografia y Geodesia - GEOCUBA
11	Paul Mueller	Tideland Signal Corporation
12	Pierre-Luc Delage	Canadian Coast Guard
13	Sami Lasma	Finnish Transport Infrastructure Agency
14	Wang Lingyan	China Maritime Safety Administration
15	Wayne Danzik	US Coast Guard

Working Group 2

Knowledge & Sustainability

Chair – Jörg Unterdeweide

Chair – Peter Schneider

	Name	Organisation / Country
1	Jörg Unterdeweide (Chair)	German Federal Waterways & Shipping Administration, Germany
2	Peter Schneider (Chair)	German Federal Waterways & Shipping Administration, Germany
3	Alain GODDYN	Engie Solutions
4	Alison RABY	Plymouth University under Trinity House
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8	Eng Soon AW	Maritime and Port Authority of Singapore
9	Gillian BURNS	Northern Lighthouse Board
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21	Lingyan WANG	China Maritime Safety Administration
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29	Rob DALE	Trinity House
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36	Stein Ivar HANSEN	Norwegian Coastal Administration
37	Wayne DANZIK	US Coast Guard
38	William Butler	AMSA

Working Group 3

Radionavigation Services

Chair – Alan Grant

Vice Chair – Michael Hoppe

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1	Dr Alan Grant	GLA Research and Development (GRAD)
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12	Gillian Burns	Northern Lighthouse Board

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16	James Owen	Pharos Marine Automatic Power Ltd
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38	Younghoon Han	Korea Research Institute of Ships & Ocean Engineering (KRISO)

Working Group 4

Heritage Forum

Chair – Peter Hill

Vice Chair – Jonghun Kim

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1	Peter Hill (Chair)	Trinity House, UK
2	Jonghun Kim (Vice-Chair)	PaiChai University, Korea

3	Amy Wood	Australian Maritime Systems
4	Capitain Piovesana	Brazilian Navy, Brazil
5	Hideki Noguchi	Japan Coast Guard, Japan
6	Ke Ranxuan	Navigation Institute of JiMei University, China
7	Mike Bae	Aids to Navigation Div., MOF, Korea
8	Sak LEE	Aids to Navigation Div., MOF, Korea
9	Sihyeon Park	National Lighthouse Museum, K-AtoN, Korea
10	Yonghun Cho	Aids to Navigation Div., MOF, Korea

ANNEX D LIST OF INPUT PAPERS

All papers were posted to the Committee website

Meeting	Agenda Item	Input Paper Title	Source	Presented by / WG
ENG12-	1.2.1	Provisional Agenda	IALA Secretariat	ALL
ENG12-	2.1.1	ENG10 Action Items	IALA Secretariat	ALL
ENG12-	2.1.2	Report 10th Session IALA ENG Committee final	IALA Secretariat	ALL
ENG12-	3.1.1.1	Input Draft Guideline G1134 on Surface Colours used as Visual Signals on AtoN	Danish Maritime Authority	WG1
ENG12-	3.1.1.2	WD G1134 Surface Colours Used as Visual Signals on AtoN_Dec2017	Danish Maritime Authority	WG1
ENG12-	3.1.2	The Proposal of a Measurement Method for Surface Colours of Visual Aids to Navigation	MSA China	WG1
ENG12-	3.1.3.1	Input G1135	GRAD	WG1
ENG12-	3.1.3.2	G1135 Effective Intensity Revision	GRAD	WG1
ENG12-	3.1.4	Method of Measuring Light Source Degradation	GRAD	WG1
ENG12-	3.1.5.1	G1008-Ed2-Remote-Control-and-Monitoring_June-2009	Middle East Navigation Aids Service	WG2
ENG12-	3.1.5.2	G1008-Draft UPDATE Ed3- Remote Control and Monitoring	Hidrovia S.A. - Ayudas a la Navegación	WG2
ENG12-	3.1.5.3	Inputs for IALA Guideline 1008 rev1_MENAS	Middle East Navigation Aids Service	WG2
ENG12-	3.1.6.1	Input on Solar panel Guideline	Trinity House	WG2
ENG12-	3.1.6.2	Draft_Guideline_solar_modules - 31-08-20. rev D	Trinity House	WG2
ENG12-	3.1.7.1	Input draft Guideline on radar reflectors	WSV	WG2
ENG12-	3.1.7.2	Draft_Guideline_on_radar_reflectors	WSV	WG2
ENG12-	3.1.8	Draft Guideline AtoN equipment exposed to extreme environmental conditions	Hidrovia S.A. - Ayudas a la Navegación	WG2
ENG12-	3.1.9	Wave loading on rock lighthouses v3	Trinity House	WG2
ENG12-	3.1.10	Application of modern technology on conventional large beacon	Korea Institute of Aids to Navigation	WG2
ENG12-	3.1.11	Construction of standardized remote control and monitoring system of aids to navigation in China	MSA China	WG2

ENG12-	3.1.12	WG3 plan for correspondence working	GRAD	WG3
ENG12-	3.1.13.1	GLA DGPS user consultation - ENG12 & ARM12	GRAD	WG3
ENG12-	3.1.13.2	DGPS user consultation survey (final) v2	GRAD	WG3
ENG12-	3.1.13.3	Closure of GLA DGPS service	GRAD	WG3
ENG12-	3.1.14.1	Summary Input paper on EGNOS perfo along Finnish	ESSP	WG3
ENG12-	3.1.14.2	Input paper on EGNOS perfo along Finnish coast	ESSP	WG3
ENG12-	3.1.14.3	GNSS_performance_Gulf_Finland_Nov2019	ESSP	WG3
ENG12-	3.1.15	Information update of BDS and BDSBAS	China waterborne Transport Research Institute	WG3
ENG12-	3.1.16	R-Mode navigation data PPT	From CG3	WG3
ENG12-	3.1.17	Recommendation on augmentation services	From CG3	WG3
ENG12-	3.1.18	Recommendation on provision of GNSS Augmentation services for maritime applications	From CG3	WG3
ENG12-	3.1.19	Cover note on Recommendation on Terrestrial radionavigation services	From CG3	WG3
ENG12-	3.1.20	Recommendation on Terrestrial radionavigation services	From CG3	WG3
ENG12-	3.1.21	WD Enhanced radar draft G1147	From CG3	WG3
ENG12-	3.1.22	WD Resilient PNT map	From CG3	WG3
ENG12-	3.1.22.1	WD Resilient PNT map.mmap	From CG3	WG3
ENG12-	3.1.23	WD Draft G on R-Mode implementation using MF radio beacons and VHF transmission	From CG3	WG3
ENG12-	3.1.24	WD S240 DGNSS Station Almanac Product Specification	From CG3	WG3
ENG12-	3.1.25	WD IALA WWRNP	From CG3	WG3
ENG12-	3.1.26	Use of Modern Equipment on Heritage Lighthouses	MSA China	WG2
ENG12-	3.1.27.1	MASS Information paper to IALA technical committee JCG meeting	JPC	ALL
ENG12-	3.1.27.2	MASS Report of international meeting for MASS infrastructure	International meeting for MASS infrastructure	ALL
ENG12-	3.1.27.3	MASS PAP40-6.1.5.1 NL Paper on the Impact of MASS on VTS (C71-8.5.1)	Netherlands	ALL

ENG12-	3.1.28.1	ARM10-13.2.1 Liaison Note to ENG on AtoN provision in cold climates	ARM Committee	ALL
ENG12-	3.1.28.2	ARM10-13.2.3 Liaison note to ENG on auto-releasing EMWB	ARM Committee	ALL
ENG12-	3.1.28.3	ENAV24-12.3.7 Liaison Note to ENG on VDES R-Mode	ENAV Committee	ALL
ENG12-	3.1.28.4	From ARM documents to ENG on Draft Guideline on Tidal Current Signal System' (ARM11-13.2.4)	ARM Committee	ALL
ENG12-	3.1.28.4.1	'Draft Guideline on Hydrological and Meteorological Data' (ARM11-13.2.4.1)	ARM Committee	ALL
ENG12-	3.1.28.5	Liaison from ARM11 liaison to ENG on rhythmic characters (ARM11-13.2.3)	ARM Committee	ALL
ENG12-	3.1.28.5.1	draft Guideline G1116 (ARM11-13.2.3.1)	ARM Committee	ALL
ENG12-	3.1.28.6	Liaison note to ENG to amend Recommendation E-110 with the character for Mobile AtoN post plenary	ARM Committee	ALL
ENG12-	3.1.29	Maritime Precise Positioning and Integrity Monitoring R&D Project Status in the Republic of Korea	KRISO / MOF	WG3
ENG12-	3.1.30	USCG Input Geodetic Datum as it Relates to Positioning Aids to Navigations	USCG	ALL
ENG12-	3.1.31	NAVGUIDE 2022 publication plan for second half 2020	Australia	ALL
ENG12-	3.1.32	Inter-committee Work July 2020 (for the Committees second half 2020)	IALA Secretariat	ALL
ENG12-	3.1.33	ENG12 WG4 proposal	WG4 Chair	WG4
ENG12-	3.1.34	Introduction to Korean R-Mode testbed project (TRACE)	KRISO / MOF	WG3
ENG12-	3.1.35	Test of Differential Loran Information Broadcast Based on RBN	China MSA	WG3
ENG12-	3.1.36	Proposals on the key issues in the implementation of the VHF R-Mode	Dalian Maritime University	WG3
ENG12-	3.1.37	Input paper on Galileo MSI	GSA	WG3
ENG12-	3.1.38	ENG12-3.1.38 LN CIRM ENG On the Effect of Radars on Racons in Busy Harbours	CIRM	WG3
ENG12-	4.1.1	Final report Council 71	IALA Secretariat	ALL
ENG12-	4.1.1.1	Current drivers and trends ed1.2 (C71-8.1.1)	IALA Secretariat	ALL
ENG12-	4.1.1.2	Workshop proposal on Marine AtoN in the autonomous world (PAP39-8.4)(C71-8.2.2)	IALA Secretariat	ALL
ENG12-	4.1.2	Report of PAP40 (PAP40-8.1)	IALA Secretariat	ALL
ENG12-	4.1.2.1	Technical documents Catalogue	IALA Secretariat	ALL
ENG12-	7.1	Committee Work Programme for 2018-2022 (ENG10-7.1.1)	IALA Secretariat	ALL
ENG12-	7.2	WP ENG Task Plan 2018-22 (ENG10-7.1.2)	IALA Secretariat	ALL

ENG12-	6.5	Measurement Method for Surface Colors of Visual Aids to Navigation	China MSA	ALL
ENG12-	6.6	Use of Modern Equipment on Heritage Lighthouses	China MSA	ALL

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
ENG12	14.1	ENG12 Report	Secretariat	To Council
ENG12	13.1.1	Revised Guideline 1135 on Effective Intensity Revision	ENG12	To Council
ENG12	13.2.2	Liaison Note to ARM on Third Party AtoN Provider Quality Control	ENG12	To ARM
ENG12	13.3.1	Draft Recommendation on Terrestrial Radionavigation Services	ENG12	To Council
ENG12	13.3.2	Liaison Note to ENAV on Technical Specification of VDES R-Mode	ENG12	To ENAV
ENG12	13.3.3	S-240 DGNSS Station Almanac Product Specification	ENG12	To Council
ENG12	13.3.4	Liaison Note to CIRM on the Effect of Radars on Racons in Busy Harbours	ENG12	To Council
ENG12	13.3.5	Liaison Note to ARM on the Effect of Radars on Racons in Busy Harbours and IALA policy on use of AIS and Racons	ENG12	To ARM
ENG12	13.3.6	Liaison Note to IMC Committee on Invitation to Racon Manufacturers	ENG12	To IMC
ENG12	13.3.7	Liaison Note to ETSI TGMARINE on Radar Standards	ENG12	To Council
ENG12	13.3.8	Liaison Note to ARM on Enhanced Radar Positioning System	ENG12	To ARM
ENG12	13.3.9	Liaison Note to CIRM on Enhanced Radar Positioning System	ENG12	To Council
ENG12	13.3.10	Draft Recommendation on Provision of GNSS Augmentation Service for maritime applications	ENG12	To Council
ENG12	13.3.11	IALA response to RTCM Liaison Note on SC-104 & SC-134 activities	ENG12	To Council

Working papers will remain within the Committee for further review during ENG13.

Meeting	Agenda Item	Output Paper Title	Source	Action
ENG12	13.0.1	Standard S1020	ENG12	To Council
ENG13	13.0.2	Standard S1030	ENG12	To Council
ENG12	13.1.2	WP Draft E-200-3 Recommendation on Definitions of Marine Signal Lights Performance	WG1	To ENG13
ENG12	13.1.3	WP Revised G1134 surface colours used as visual signals on AtoN	WG1	To ENG13
ENG12	13.2.1	WP Draft guideline on Third Party AtoN Provider Quality Control	WG2	To ENG13
ENG12	13.2.3	WP Draft Guideline on Extreme Environmental Conditions	WG2	To ENG13
ENG12	13.2.4	WP draft Guideline on the Properties of a good Marine Solar Panel	WG2	To ENG13
ENG12	13.2.5	WP draft Guideline on Radar Reflectors	WG2	To ENG13
ENG12	13.2.6	WP Brainstorming for Floating AtoN	WG2	To ENG13
ENG12	13.2.7	WP review of Guideline 1008 on telemetry	WG2	To ENG13

ENG12	13.3.12	WP Draft Guideline on Resilient PNT	WG3	To ENG13
ENG12	13.3.13	WP Draft Guideline on R-Mode Implementation Using MF Radio Beacon and VHF Transmissions Post Workshop	WG3	To ENG13
ENG12	13.3.14	IALA Guideline on future of marine radiobeacon DGPS DGNSS Master ENG12 post meeting 3	WG3	To ENG13

Action Items for Secretariat

1. The **IALA Secretariat** is requested to forward the ENG Committee Task Plan for 2018-2022, ENG12-7.2 to ENG13. 17
2. **IALA Secretariat** is requested to forward the revised Guideline G1135 to the IALA Council for approval. 18
3. The **IALA Secretariat** is requested to forward the draft guideline on Third Party AtoN Provider Quality Control (ENG12-13.2.1) to ENG13. 19
4. The **IALA Secretariat** is requested to forward the Liaison Note on Third Party AtoN Provider Quality Control (ENG12-13.2.2) and draft guideline (ENG12-13.2.1) to the ARM Committee for review and request their feedback to ENG13 and intersessional working group through the secretariat. 19
5. The **IALA Secretariat** is requested to forward the draft Guideline on Extreme Environmental Conditions (ENG12-13.2.3) document to ENG13. 20
6. The **IALA Secretariat** is requested to forward the draft Guideline on the Properties of a good Marine Solar Panel (ENG12-13.2.4) to ENG13. 20
7. The **IALA Secretariat** is requested to forward the draft Guideline on Radar Reflectors (ENG12-13.2.5) to ENG13. 20
8. The **IALA Secretariat** is requested to forward working paper ENG12-13.2.6 on Brainstorming for Floating AtoN (ENG10-14.2.17) to ENG13. 21
9. The **IALA Secretariat** is requested to forward the review of Guideline 1008 on telemetry (ENG12-13.2.7) to ENG13. 21
10. The **IALA Secretariat** is requested to forward ENG12-13.3.1, Draft Recommendation on Terrestrial Radionavigation Services to Council for approval. 21
11. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.2 "Technical Specification of VDES R-Mode" to the ENAV Committee. 22
12. The **IALA Secretariat** is requested to upload the S-240 DGNSS Station Almanac Product Specification version 1.0.0 (ENG12-13.3.3) to the IALA website for further testing. 22
13. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.4 for CIRM "On the Effect of Radars on Racons in Busy Harbours" to Council for approval. 23
14. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.5 "On the Effect of Radars on Racons in Busy Harbours and IALA policy on use of AIS and Racons" to the ARM committee. 23
15. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.6 "Invitation to Racon Manufacturers" to the IMC Committee attaching the papers ENAV10-13.11 and ENAV21-13.10. 23
16. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.7 for ETSI TGMARINE "On Radar Standards" to Council for approval. If approved, the secretariat is requested to send the liaison note to ETSI TGMARINE via Andrea.Lorelli@etsi.org with copy to pete.hizzey@wanadoo.fr. 23
17. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.8 "Enhanced Radar Positioning System" to the ARM Committee attaching the paper ENG12-13.3.4 "Enhanced Radar Positioning Systems for Resilient Positioning." 23
18. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.9 for CIRM "Enhanced Radar Positioning System" to Council for Approval attaching the paper "Enhanced Radar Positioning Systems for Resilient Positioning." 23
19. The **IALA Secretariat** is requested to forward ENG12-13.3.10, Draft Recommendation on Provision of GNSS Augmentation Service for maritime applications" to Council for approval. 23

20. The **IALA Secretariat** is requested to forward liaison note ENG12-13.3.11 for RTCM “IALA response to RTCM Liaison Note on SC-104 & SC-134 activities” to Council for Approval. 24
21. The **IALA Secretariat** is requested to arrange for the presentation of the artwork virtually to representatives from Brazil at the December 2020 Council meeting. 25
22. The **IALA Secretariat** is requested to publish submitted articles about the IALA Heritage Lighthouse of the Year 2020 in the bulletin. 25
23. The **IALA Secretariat** is requested to encourage IALA National Members to submit nominations for IALA Heritage Lighthouse of the Year 2021. 26
24. The **IALA Secretariat** is requested to expedite the production of the database element of the website once comments on the latest draft had been provided by Peter Hill. 26
25. The **IALA Secretariat** is requested to forward the summary of the ENG13 Committee report (ENG12-14.1) to Council to note. 28

Action Items for Participants

26. **Jonas Lindberg** is requested to work on the partially combined Guidelines on LED technologies and their use in signal lights and submit an input paper to ENG13. 17
27. **That Committee Participants** are requested to submit input documents to ENG13 regarding the definitions that determine the performance of lights. 17
28. **Malcolm Nicholson** is requested to populate the IALA Guideline template with the relative title headings from IALA E-200-5 and submit an Input Paper to ENG13. 18
29. **That Committee Participants** are requested to submit input papers on their methods of monitoring the function and degradation of AtoN light sources to ENG13. 18
30. **Jørgen Royal Petersen and Frank Hermann** to update Guideline G1134 with information on weathering and colour fading intersessionally, and submit as input to ENG13. 18
31. **Wang Lingyan and Frank Hermann** to update Chapter 2 of Guideline G1134 with details of the measurement method and devices intersessionally, and submit as input to ENG13. 18
32. **That Committee Participants** are requested to provide any examples of contracting out maintenance and renewal activities including pre-qualification of Contractors and monitoring of their performance to ENG13. 19
33. **That Committee Participants** are requested to share their experiences and examples from their specific areas and to provide input paper for ENG13. 20
34. **That Committee Participants** are invited to consider whether they or any of their colleagues have expertise in timing and synchronization aspects required to support ENG Task 3.2.7. Please let the WG3 Chairman (Dr Alan Grant - alan.grant@gla-rad.org) know of suitable experts who can support this topic. 22
35. **Yonghun Cho (MOF, Korea)** is requested to oversee and resource the design and construction of the artwork to be presented to IALA Heritage Lighthouse of the Year accolade holder 2021 using the design established in 2020. 26
36. **That Committee Participants** are encouraged to submit nominations for IALA Heritage Lighthouse of the Year 2021 and/or to encourage colleagues within their organisations to do so. 26
37. **That Committee Participants** are requested to note WG4’s intention to progress into the next work period (2022-2026) the development of the IALA Heritage webpages and database, the continued development of IALA Heritage Lighthouse of the Year scheme, the development of a Heritage Module for the IALA Level 1.1 course and a full review of guidance documents, manuals and other documents associated with WG4. 27



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Association Internationale de Signalisation Maritime