



IALA ENG COMMITTEE

REPORT OF THE 20th SESSION OF THE IALA ENGINEERING AND SUSTAINABILITY (ENG) COMMITTEE

07 – 17 April 2025

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17 April 2025

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International Organization for Marine Aids to Navigation

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Report of the 20th session of the IALA Engineering and Sustainability (ENG) Committee Executive Summary

The 20th session of the ENG Committee was held from 07 to 17 April 2025, including the physical week at IALA HQ between 07 to 11 April, chaired by Alwyn Williams and vice-chaired by Michel Cousquer. The Secretary for the meeting was Alisa Nechyporuk.

109 participants from 30 countries and one observer participated in ENG20. 14 participants attended online, and 23 participants attended for the first time.

The session began with an opening plenary and the physical week on Monday, 07 April, and continued until Friday, 11 April. The Chair welcomed everybody, both old and new participants, to the meeting and was pleased to see so many faces at ENG20. An approval period followed, and the virtual closing plenary was held on Thursday, 17 April.

The meeting was carried out in accordance with the *Committee Arrangements*.

Key outputs completed included:

| | | |
|-------|---------|---|
| ENG20 | 9.2.1.1 | New draft Guideline on The Measurement of Marine Lights Performance |
| ENG20 | 9.2.1.2 | New draft Guideline Harmonised IoT Protocol for Visual AtoN |
| ENG20 | 9.2.3.1 | Revised Guideline G1093 on Management of Surplus Lighthouse Property |
| ENG20 | 9.2.3.2 | Revised Recommendation R1005 on Conserving the Built Heritage of Lighthouses and other Aids to Navigation |

The following liaison notes were approved:

| | | |
|-------|---------|--|
| ENG20 | 9.2.2.1 | Liaison note to RTCM on G1187 |
| ENG20 | 9.2.2.2 | Liaison note to ARM on MASS Recommendation |
| ENG20 | 9.2.2.3 | Liaison note to DTEC on IALA Digitalisation Discussion Paper |

Overall status of the ENG Committee 2025 – 2027 Work Programme after ENG20:

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|--|---|--------|--|--|------|------|------|------|--------------------|
| | | | | | 2025 | 2025 | 2026 | 2026 | |
| S1010 Marine Aids to Navigation Planning and Service Requirements | 1.1 Obligations and Regulatory Compliance | 1.1.1 | Consider developing guidance on the certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA | <u>New Guideline</u> Develop a guideline on the certification of technical MASS equipment, information systems, and technical infrastructure within the domain of IALA. | | X | X | X | WG1 Not started |
| | 1.2 Aids to Navigation Planning | 1.2.1 | Compile new Guideline on AtoN Tender requirements and specification - Led by ARM with ENG support | <u>New Guideline</u> New Guideline on Tender requirements. | X | | | | WG1 Finished |
| | | 1.2.2* | Review relevant sections of the NAVGUIDE | Based on IHO/IALA portrayal and IALA comms workshop output. | | X | X | X | WG1 Not started |
| | | 1.2.3 | Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS) | | | X | X | X | WG1 Not started |
| | 1.4 Risk Management | 1.4.1* | Develop guidance on cyber security for Marine AtoN | <u>New Guideline</u> The Guideline will be continued led by DTEC | X | | | | WG1 Finished |
| S1020 Marine Aids to Navigation Design and Delivery | 2.1 Aids to Navigation Visual Signalling | 2.1.1* | Update G1043 Light sources used in visual AtoN | <u>New amalgamated Guideline</u> Review & update guideline 1043 on Light sources and amalgamate with Guideline on modern equipment in traditional lighthouses | | X | X | X | WG1 Not started |
| | | 2.1.2* | Update G1048 LED technologies and their use in signal lights | <u>Revised Guideline</u> | | X | X | X | WG1 Not started |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|----------|--|--------|--|---|----|----|----|----|--------------------|
| | | 2.1.3* | Develop guideline on Port Traffic Signals | <u>New Guideline</u> Develop a new guideline on Port Traffic Signals in consultation with ARM | X | X | X | X | WG1 Not started |
| | | 2.1.4* | Update R0112 Leading lights | <u>New Guideline</u> Update E-112 Leading Lights and 1023 Leading Lines into a guideline | X | X | | | WG1 On track |
| | | 2.1.5* | Update G1061 Light application illumination of structures | <u>Revise Guideline</u> Complete Guideline G1061 (2008) on Illumination of Structures | | | X | X | WG1 Not started |
| | | 2.1.6 | Update R0203(E200-3) | <u>New Guideline</u> | X | X | X | | WG1 On track |
| | 2.2 Design, Implementation and Maintenance | 2.2.2* | Update G1077 Maintenance of AtoN | <u>Revise Guideline</u> | X | | | | WG1 Finished |
| | | 2.2.3* | Update G1041 Sector Lights | <u>Revise Guideline</u> Update Guideline 1041 on Sector Lights to define 'Angle of Uncertainty' | | | X | X | WG1 Not started |
| | | 2.2.4* | Update G1037 Data collection for AtoN performance calculation | <u>Update G1037 Data collection for AtoN performance calculation 2.0</u> <u>Provides details of methods that can be used to collect information on the availability and reliability of AtoN equipment.</u> | | | X | X | WG1 On track |
| | | 2.2.5* | Develop Guidance on monitoring of function and degradation of AtoN light sources | <u>Add to G1077</u> Develop Guidance on monitoring of function and degradation of AtoN light sources | X | | | | WG1 Finished |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|----------|---------------------------------|--------|---|--|----|----|----|----|--------------------|
| | | 2.2.6* | Develop Guideline on complimentary use of AtoN. Eg. Tsunami monitoring, Met Hydro monitoring, Private communications platforms etc. Develop Guideline on meteorological and oceanographical data dissemination | New guideline on Complimentary use of AtoN | X | | | | WG1 On track |
| | | 2.2.7* | Update and Amalgamate the Guidelines 1108, 1136 and new guideline AtoN equipment and structures exposed to extreme environmental conditions into one guideline | <u>Revised Guideline</u> | | | | | WG1 Finished |
| | | 2.2.8 | Update G1165 on Sustainable Structural Design | | | | | | WG1 Not started |
| | 2.3 Floating Aids to Navigation | 2.3.1* | Develop guidance quantifying characteristics to meet nautical and operational requirements and ways to verify them | <u>New or revised guideline</u> | | | | | WG1 Finished |
| | | 2.3.2* | Creating an overview guidance on floating AtoN Produce a guideline to support inexperienced organisations or individuals if they are required to establish floating AtoN (for whatever reason) and demonstrate the various topics to consider for the lifetime of the floating AtoN. Reference to ENG17-3.0.5 ARM Liaison Note where they note the following for the draft guideline | <u>New Guideline on floating AtoN</u> | | | | | WG1 Finished |
| | | 2.3.3* | Update Recommendation E-107 Moorings for floating AtoN 2.0 Technical recommendation on moorings | <u>Update Recommendation</u> | X | X | X | | WG1 Delayed |
| | | 2.3.4 | Update G1066 Design of floating AtoN moorings 1.1 General consideration on mooring materials, and comparison of mooring loads and design | <u>Updated Guideline on Design of floating AtoN moorings</u> | X | X | X | | WG1 Delayed |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|----------|------------------------------------|--------|---|--|----|----|----|----|--------------------|
| | 2.4 Environment and Sustainability | 2.4.1* | Review and update as necessary of G1036 on Environmental Management in Aids to Navigation (the Green Guide) | <u>Revise guideline</u> on Environmental and Sustainability responsibilities | | X | | | WG1 Not started |
| | | 2.4.2* | Guideline on how to assess the through life environmental impact of AtoN and AtoN provision | <u>New Guideline</u> | | X | | | WG1 Not started |
| | 2.3 Floating Aids to Navigation | 2.5.1 | Develop guidance on floating AtoN maintenance | <u>Develop guidance on the maintenance of buoys</u> | X | X | | | WG1 On track |
| | 2.6 Heritage and Culture | 2.6.1* | Maintain the Heritage web page on the IALA website | <u>Updated Heritage web page</u> | X | X | X | X | WG3 On track |
| | | 2.6.2* | Develop Guidance on modern equipment in traditional lighthouses | <u>New Guideline</u> | X | X | | | WG3 On track |
| | | 2.6.3* | Make proposal for the Heritage Lighthouse of the Year award | Maintain the Award | X | X | X | X | WG3 On track |
| | | 2.6.4* | Write the Heritage lecture for the WWA L1.1 AtoN Manager course | <u>New module</u> on Heritage to include in the L1.1 course | X | X | X | X | WG3 On track |
| | | 2.6.5* | Review of documents pertinent to heritage reviewed | Revised documents | X | X | X | | WG3 On track |
| | | 2.6.5b | Review Guideline G1093 Ed.1 The Management of Surplus Lighthouse Property, Dec 2012 | Revised Guideline | X | | | | WG3 Finished |
| | | 2.6.6* | Update G1063 Agreement for complementary use of lighthouse property. What should the agreement contain and safety aspect of the agreement including examples of few countries | <u>Updated Guideline</u> | X | | | | WG3 On track |
| | | 2.6.7* | Review Guidelines 1074, 1075 & 1076 on Branding, Business plans and Building Conditioning for content and relevance. | Reviewed guidelines | X | | | | WG3 On track |
| | | 2.6.8 | Review of R1005 Conserving the Built Heritage of Lighthouses and other Aids to Navigation | Revised Recommendation | X | | | | WG3 Finished |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|--------------------------------------|---|--------|---|---|----|----|----|----|-----------------------|
| S1030 Radionavigation Services | 3.1 Satellite positioning and timing | 3.1.1* | New Guideline on the need and potential solutions on timing and synchronization | <u>New Guideline</u> | X | X | X | | WG2 On hold |
| | | 3.1.2* | Review and update the World Wide Radionavigation Plan (2012) | <u>New Guideline</u> | X | X | X | X | WG2 On track |
| | 3.2 Terrestrial positioning and timing | 3.2.1* | Development of R-Mode Guideline Coordination of R- Mode test beds | <u>New Guideline</u> | X | X | X | X | WG2 On track |
| | | 3.2.2* | Develop the Recommendation and Guideline on R-Mode implementation (MF & VDES) | <u>New Recommendation and Guideline</u> | X | X | X | X | WG2 On track |
| | | 3.2.3* | Develop the Recommendation for the Coordination for Group Repetition Intervals (GRI) | <u>New Recommendation</u> | | X | X | X | WG2 Not started |
| | 3.3 Augmentati on services | 3.3.1* | Augmentation systems | <u>Monitoring DGNSS developments, both SBAS and marine Radiobeacon and update IALA documents as necessary</u> | X | X | X | X | WG2 On track |
| | | 3.3.2* | High accuracy positioning systems Guidance on new systems and how they can be used | <u>New Guideline</u> | X | X | X | X | WG2 On track |
| | | 3.3.3* | Develop Guideline on how to implement SBAS within VDES(ASM-VDE)/AIS | <u>Standardize the mechanism to provide SBAS correction and integrity information through VDES</u> | X | X | X | X | WG2 Not started |
| | | 3.3.4* | Develop a recommendation on SBAS services | <u>Development of a SBAS recommendation</u> | | X | X | X | WG2 Not started |
| | 3.4 Racon and Radar positioning | 3.4.1* | Radar & Enhanced Racon positioning | <u>Development of eRacon/eRadar technology Review related IALA documents</u> | X | X | X | X | WG2 On track |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|--|--------------------------------------|--------|---|--|----|----|----|----|--------------------|
| | | 3.4.3* | Modify R0101 to recommendation and create new Guideline | Update/modify R0101 to a recommendation and create new Guideline possible working name of Guideline "Guideline on implementation and maintaining a Racon system" | X | X | X | X | WG2 On track |
| | | 3.4.4* | Modify R0146 to a recommendation | | X | X | X | X | WG2 On track |
| | | 3.4.5* | Update G1010 Racon Range Performance | | | X | X | X | WG2 Not started |
| S1050 Training and Certification | 5.1 Training and Assessment | 5.1.1* | Review and update of the WWA Lesson plans as requested by the Academy | Review and update of the WWA Lesson plans | | | | | WG1 Not started |
| | | 5.1.2 | Training in implementation of digital solutions (data analytics & maritime informatics) | <u>New Guideline and training programmes</u> Develop a guideline on skills related to the digital environment, such as data analytics and maritime informatics and associated training programs with WWA. | | | | | WG1 Not started |
| S1060 Digital Communication Technologies | 6.3 Harmonised Maritime Connectivity | 6.3.1 | Update G1008 Remote control and monitoring of AtoN | <u>Revised Guideline</u> Remote control and monitoring of AtoN. Objectives of remote control and monitoring, and technical aspects such as communication links, display, maintenance and integration with other systems | | X | X | X | WG1 Not started |
| | | 6.3.2 | Harmonised IoT Protocol for Visual AtoN | | X | | | | WG1 Finished |

| Standard | Scope | No. | Task | Comment | 20 | 21 | 22 | 23 | Coop. entity |
|----------------------------------|---|--------|---|---|----|----|----|----|---------------------------|
| S1070 Information Services | S1070.1 Data models and data encoding | 7.1.1* | S-200 PNT Product Specification | <u>Develop and review of PNT related S-200 product specification</u> | X | X | X | X | WG2 On track |
| | | 7.1.2* | Develop S-200 product specification PNT Station almanac | Development of S- 200 product specification on PNT Station almanac | | X | X | X | WG2 Not started |
| | | 7.1.3* | Develop S-200 product specification PNT grid data | <u>Development of S- 200 product specification on PNT grid data</u> | | | | | WG2 Not started |
| No Standards | No Standards | 8.1.1* | PNT technology review | Monitor other developments in radionavigation topics for information exchange and development of appropriate guidance (inc. resilient PNT, cyber security, timing aspects etc)Rapporteur reports and new documents as required. | | | | | WG2 On track |

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Report of the 20th session of the IALA

AtoN Engineering and Sustainability (ENG) Committee

1. INTRODUCTION

The 20th session of the ENG Committee was held from 07 to 17 April 2025, including the physical week in IALA HQ, between 07 to 11 April, chaired by Alwyn Williams and vice-chaired by Michel Cousquer. The Secretary for the meeting was Alisa Nechporuk.

The session began with an opening plenary and the physical week on Monday, 07 April, and continued until Friday, 11 April. The Chair welcomed everybody, both old and new participants, to the meeting. An approval period followed, and the virtual closing plenary was held on Thursday, 17 April.

109 participants from 30 countries and one observer participated in ENG20. 14 participants attended online, and 23 participants attended for the first time.



1.1 Welcome from the Secretary-General

Secretary-General Francis Zachariae warmly welcomed participants to Headquarters, including those joining online. He congratulated Alwyn Williams on his reappointment as Chair and Michel Cousquer on his reappointment as Vice-Chair of this important committee.

He reported on the General Assembly held in Singapore last month, with over 350 participants. Key outcomes included the approval of governance documents, the election of the President, Vice President, Secretary-General, and Council, and the welcome of Albania, Belgium, Croatia, and Romania as new Council members. The IGO is now fully operational.

The relocation project is progressing well, thanks to the generous financial support of the French government. The timeline involves a contract signature in late spring, construction beginning immediately after summer, and HQ completion by September/October 2026. The Plenary building is expected to be finished in late 2027. Council and Committee meetings will likely be held away from HQ between June and September/October 2026, with invitations extended to members to host these meetings.

Planning has begun for the next Conference/GA in Mumbai in Q3 2027, with dates to be announced soon. The next Symposium is scheduled for early 2029, followed by the May/June 2030 Conference.

The Secretary-General expressed interest in the diverse range of input papers from China, Korea, Finland, Japan/NLB, individuals or very large groups of individuals, and all the other papers with great interest. The digital age presents IALA with a new challenge: coordinating cross-committee work while ensuring effective information sharing and avoiding duplication. This is a key responsibility for the new Policy Advisory Panel and all.

Digitalisation plays a significant role, but it is good to see that traditional AtoNs, including Lighthouses, are also well represented. No matter what, it is reassuring to see such strong progress across these digital initiatives, including S-100/200, AIS GNSS, IMT, etc. The digitalization of waterways aligns well with the pressing topic of Green Corridors, which was a major focus during Singapore Maritime Week some weeks ago.

He extended his best wishes for the meeting, thanking participants for their contributions in the spirit of the IALA family and expressing anticipation for further discussions throughout the week.

1.2 Approval of the Agenda

The agenda was reviewed and approved (ENG20-1.2.1).

1.3 Apologies

Apologies from Jörg Unterderweide were received. A list of participants who attended ENG20 can be found on the IALA Dashboard for ENG and in Annex B.

1.4 Working Arrangements

The following statement on the IALA General Data Protection Policy was made by the Committee Secretary:

IALA complies with the General Data Protection Regulations of the European Union. IALA will include a list of participants with their contact information in the report of this meeting. Any participant who wishes to remove their contact details from the participant's list should advise the Committee Secretary as soon as possible.

The following question was asked by the Committee Secretary:

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.

No patents were noted.

The Committee Secretary provided all participants with a briefing on the *Committee Working Arrangements* document and tools available to them.

1.5 Programme for the week

The deadline for submitting documents to the silent approval procedure was set to 16 April 2025, 20:00 UTC.

2. REVIEW OF ACTION ITEMS FROM ENG19

The Committee Secretary confirmed that all Secretariat actions from ENG19 were completed (input paper ENG20-2.1.1).

3. REVIEW OF INPUT PAPERS

3.1 Review of input papers to ENG20

Late input papers were received and are highlighted in the list of input papers (ENG20-3.0.1) in blue.

4. REPORTS FROM OTHER BODIES

4.1 IALA

4.1.1 IALA Council

Minsu Jeon, IALA Technical Director, reported on the IALA General Assembly held in Singapore from 18th to 20th February 2025. He mentioned two input papers, DTEC4-3.1.1 on the first General Assembly and DTEC4-3.1.1.1 on Credentials, participation, and numbering in IALA committees and subsidiary bodies as an IGO.

Key outcomes included adopting the declaration on IALA, Brazil's election as President, India's election as Vice-President and Francis Zachariae's election as Secretary-General. The assembly approved governance documents such as general and financial regulations. It retained the existing committee structure with ARM, ENG, VTS and DTEC as the four committees and confirmed the policy and legal advisory panels as subsidiary bodies. The General Assembly also decided that all standards, recommendations, guidelines, manuals, model courses, and other relevant documents from the former IALA will remain in effect under the new organization until they are reviewed or replaced.

Minsu Jeon reported on two Council meetings since the last ENG19 committee meeting, referring to the input papers ENG20-4.1, ENG20-4.1.1, ENG20-4.1.1.1, and ENG20-4.1.1.2.

The 3rd Transition Council meeting occurred from 10 to 13 December last year at the IALA HQ and was the final Transition Council meeting before IALA became an IGO. Discussions focused on governance, financial stability, technical progress and strategic initiatives. The Council approved a workshop proposal on maritime communication technologies (IMT) in Germany and selected Lingao Lighthouse, China, as the 2025 Heritage Lighthouse of the Year. The council approved most of the liaison notes, but the input paper on the development of the procedures and requirements for the recognition of the augmentation systems within WWRNS through NCSR was not approved because of the limited time given to the council approval.

The new Council's first session, held on the last day of the General Assembly on 21 February 2025 in Singapore, focused on strategy and operational direction. The Council approved the 2025 – 2027 Work programme, committee working arrangements, and the appointment of committee chairs and vice-chairs.

Minsu Jeon congratulated Alwyn Williams and Michel Cousquer for their appointments as Chair and Vice-Chair of the ENG committee.

4.1.1.1 Documents approved by Council

Minsu Jeon, the Technical Director of IALA, reported that several key documents and guidelines were also approved:

The Council approved most technical documents, including:

- Revised G1077 on Developing a maintenance strategy for Aids to Navigation.
- Revised G1158 on VDES R-Mode.

- Revised G1175 on Operation and Management AtoN in extreme environmental conditions.
- New draft Guideline on overview of a floating AtoN.
- **Error! Bookmark not defined.** New draft Guideline on Medium Frequency R-Mode signal structure and navigation message.

4.1.2 IALA Policy Advisory Panel (PAP)

Minsu Jeon reported on the 56th session of the PAP held from 4 - 6 February this year. The session focused on strengthening committee cooperation, advancing digitalization and addressing key policies and technical developments. Discussions included IALA's growing involvement in the Green Corridor initiative for sustainable maritime navigation, ongoing work on the Maritime Connectivity Platform and S-100 framework and advancements in digitalization and interoperability.

Technical discussions covered AIS documentation, digitalization of waterways and improvements to S-200 products. Upcoming events were noted including the Sustainability Workshop in Dublin, Ireland, in October 2025, the IMT Workshop in Germany in September 2025 and a workshop on future radio navigation and communication systems to be held in 2026. The PAP also reviewed committee processes, enhancements to the online task tool and coordination on policy matters.

Additionally, the PAP decided on the direction for developing MASS recommendations and guidelines. Work on the holistic MASS guideline is paused until the recommendation is fully developed. Submitted MASS documents are to be uploaded to a specific file share folder for future use.

4.1.2.1 Sustainability WS

Alwyn Williams, Chair of the ENG committee, reported that the ENG Committee is leading the organisation of the upcoming Sustainability Workshop, held under the HAT initiative on Engineering Gender Identity. The Steering Committee has met regularly and finalised a strong agenda. Confirmed keynote speakers include representatives from the European Environment Agency and Ireland's Climate and Arts Research Unit, contributing to IPCC climate change discussions.

The program is shaping up well, with registration now open and more details available online and at the reception via a flyer. He noted that spaces are limited, so early registration is encouraged. Additional program updates will be posted soon on the IALA website. Lastly, a few speaker slots remain open—committee members may be approached for participation.

4.1.2.2. Future Radiocommunication and radionavigation

The information about the Workshop on the Future of Radiocommunication and Radionavigation Systems will be provided in due course.

4.1.3 2023-2027 Work Plan and Task Register

The Vice-Chair of the ENG committee, Michel Cousquer, noted that they now use an online system to follow the task plan and the task register; the link can be found on the Action Plan webpage of the ENG dashboard.

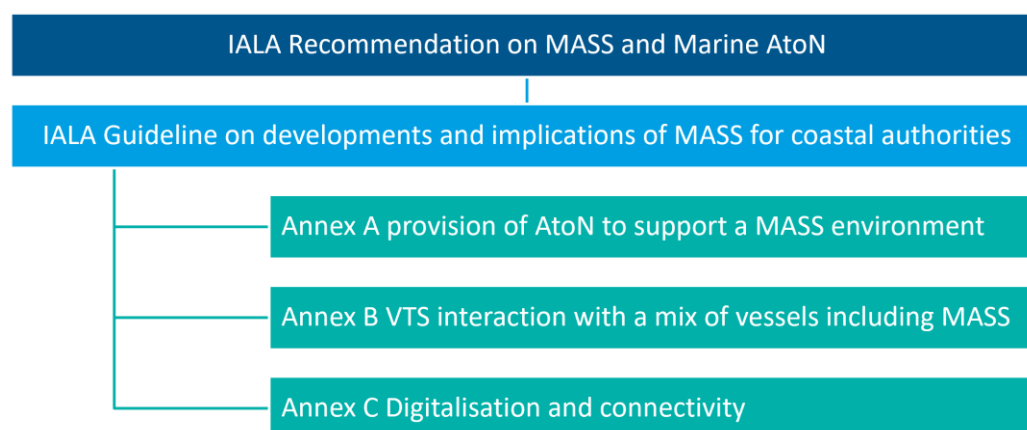
The Technical Secretary of the ENG committee briefed all participants on the IALA Task Registry working arrangements and available tools.

4.2 Update on MASS task group

Minsu Jeon reported that the MASS (Maritime Autonomous Surface) task is a cross-cutting initiative, with contributions from all IALA committees based on their respective expertise. The IALA MASS Task Force, operating under the PAP, has been actively developing material on workmanship and training, already producing a substantial number of papers.

However, liaison notes from the ENG highlighted coordination challenges—particularly around timing and scope. In response, during the 56th PAP session, it was decided to prioritise the finalisation of MASS recommendations before developing a single, consolidated guideline. Other committees will pause their guideline efforts until recommendations are complete.

The ARM committee has volunteered to lead the drafting of the recommendations, with an initial draft already in progress. This structured approach aims to streamline efforts and ensure consistency across all committee contributions.



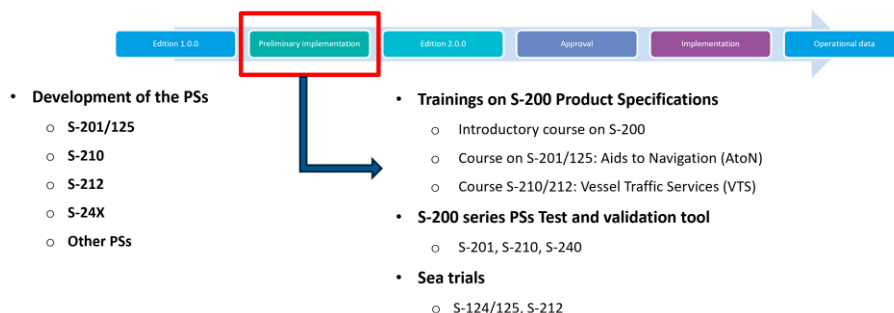
4.3 IMO

The Technical Director, Minsu Jeon, provided a report on the 109th session of the IMO MSC, which was held from 2-6 December 2024 at IMO Headquarters in London. The discussions focused on autonomous ships, regulation, digitalization and navigation, and maritime safety improvements. As the key outcomes and IALA's contributions, a major topic was the development of the MASS code to the committee, updating the roadmap and ensuring the safe integration of MASS.

IALA co-sponsored the documents MSC 109-19-3, supporting the development of the S-100 active data distribution and connectivity. MSC 109 agreed to finalize guidance on this by 2026, with a potential SOLAS amendment to follow. As safety and risk management of the S-100 active data distribution and connectivity, IALA agreed to finalize guidance by 2026 with a potential SOLAS amendment to follow.

4.4 IHO

Minsu Jeon reported on recent activities with the IHO. IALA continues to cooperate with IHO on the portrayal of navigation features, terms and definitions, the IHO registry and S-124, S-125, S-201 and S-200 testbeds and trials. IALA participates in the Hydrographic Services and Standards Committee, the IHO Data Quality Working Group and the IHO S-100 Working Group. IALA contributes to the development of S-200 product specifications in collaboration with international organizations and IHO committees. It is also involved in creating testing and validation tools and providing training. In March 2025, IALA conducted S-200 training and a testbed in Korea, led by the ARM Committee, as part of its ongoing work on IHO matters.



4.5 ITU

Minsu Jeon provided an update on the IALA Report from the 20th Joint IMO/ITU Expert Group Meeting in October 2024. The key topic of discussion was:

- Draft IMO position on WRC-27 agenda items initiated.
- AIS Recommendation (ITU-R M.1371-5) revision discussed, including ship type table and VDES capability.
- AIS signal blockage issue raised, draft liaison to ITU prepared.
- NAVDAT manual and roadmap reviewed.
- IMT-2030 standardization work presented by IALA.

The ITU-R WP5B meeting, which took place from 19 to 28 November 2024, made significant progress on multiple issues, including the revision of Recommendation ITU-R M.2092-1, which is on track for completion by the end of the year. The new digital voice recommendation received positive feedback, though further work is needed.

Additionally, study questions on VHF data exchange system coexistence with R-mode and digital voice introduction in maritime VHF channels have been approved and will continue to be addressed. Ongoing reports on VDES R-mode and digital voice are also being developed. Lastly, the issue of manufacturer ID availability is nearing resolution, and discussions on IMT-2030 and e-navigation are progressing, with further input invited.

IALA is invited to review and contribute to:

- AIS and VDES recommendation revisions
- New digital voice communication recommendation
- R-Mode impact study
- NAVDAT and identity management developments
- Continued engagement in WRC-27 preparations and IMT-2030 discussions

4.6 RTCM

Alwyn Williams, Chair of the ENG committee, apologies for the absence of Stig Erik.

4.7 PIANC

Mariano Luis Marpegan from Emepa S.a. (Argentina) reported about PIANC. He noted that PIANC is a regional organization similar in structure and purpose to IALA, with around 50 professionals engaged in related fields. A unique aspect of PIANC is the concept of the National Ascension—a designated representative organization for each region. For instance, Argentina serves as the National Ascension for South America, acting as a hub to gather and connect expertise, capabilities, and regional insights.

This role involves collecting data, networking professionals, and contributing to documentation relevant to local conditions. While budget constraints are not the primary issue, geological and regional differences play a significant role in shaping priorities and challenges.

Argentina, for example, hosts a regional congress with around 100 participants to exchange knowledge and build momentum for ongoing documentation efforts. Through this structure, PIANC facilitates cross-regional information sharing and supports tailored approaches to local needs.

4.8 CIE

Alwyn Williams reported that the Council agreed, and IALA is now represented on the CIE Confederal Research Forum. This forum focuses on reviewing the human eye model used for determining colour perception, which is critical for signal and surface colour standards in our field. While there has been no meeting of the Research Forum since joining, the membership has been confirmed.

Additionally, involvement continues in a Joint Technical Committee examining the maintenance factor (analogous to IALA's service condition factor). Although progress is ongoing, it remains relatively slow at this stage.

Looking ahead, the mid-term CIE conference in Vienna this July will provide a valuable opportunity to engage with Division 2 (Light Measurement) and Division 4 (Lighting and Transportation)—both directly relevant to IALA's work. Finally, CIE division directors have been notified of IALA's change in IGO status, though no response has been received to date.

4.9 WWA Update

Vincent Denamur, Dean of the IALA WWA, continued with the update on World-Wide Academy. He mentioned that the Academy aims to ensure that all coastal States can fulfil the obligations related to Marine Aids to Navigation placed upon them in SOLAS Chapter V and that all coastal States can claim conformance with the relevant IALA Standards.

Vincent highlighted key outputs from WWA Capacity Building:

- Identification of training needs in AtoN and VTS domains.
- Contribution to the development of model courses.
- Development of the appropriate materials.
- Monitoring and assisting with the accreditation and certification scheme (R0149, G1100 and G1014).
- Assistance and support for ATOs.
- Delivery of AtoN manager course (as needed), Master course, IALA risk management toolbox course.
- Alumni database management.

The WWA is committed to continuous learning and professional development for AtoN professionals. Through alumni activities and strategic initiatives, we actively support the development of IALA Model Courses, working closely with IALA technical committees to ensure high-quality training.

Vincent highlighted that WWA facilitates continuous training for the development of Marine Aids to Navigation professionals through alumni activities and other initiatives, and key aims are:

- Promote regional approach: efficiency, dialogue among neighbouring countries.
- Cooperation with sister organisations: «Deliver as One» approach (IMO, IHO, OIC, etc...) but also regional organisations.
- Digitalisation: S-100/S-200.

- Level 1.3. Risk management: still an increasingly important aspect.
- Level 1.2. Master of AtoN: growing demand as a mark of maturity.
- The Academy will move upmarket by spreading the offer of training, new forms of action, and the highest level of service.
- Spanish-speaking countries: good achievements (regional seminars, translation, training in Latin America).

Building on the work led by ARM, which included a comprehensive review of the AIS documentation, the WWA took the opportunity to begin drafting a model course on AIS data management for ARM review and approval. This paper was also submitted to ENG20 for reviewing.

5. PRESENTATIONS

All recordings of the presentations given during the WG sessions of ENG20 can be found in the [Repository](#). The following presentations were given at ENG20:

- 5.1 GNSS EO requirements for Automated inland waterways navigation, Héctor Llorca
- 5.2 Proposal for the integration of PNT-related S-200 series product specifications, Younghoon Han
- 5.3 Analysis of the options for retransmission of SBAS data through VDES, Jose-Luis Martin
- 5.4 GIS "Russia: from Sea to Sea." Russian Lighthouses", Kseniia Ipatova
- 5.5 Lighthouse Twinning, Gillian Burns and Yu Nemoto
- 5.6 Irish Lights International Conference on Lighthouse Tourism & Maritime Heritage, Chris Scully
- 5.7 The Wonders and Challenges of Lighthouse Ancillary Buildings, Peter Hill

6. REVIEW OF INPUT PAPERS

The input papers for ENG20 included new input papers and working papers from the previous session. The input paper list (ENG20-3.0.1) includes the working papers from ENG19.

The input papers were numbered according to the agenda and allocated to the relevant Working Group. The late input papers were referred to the participants' attention and highlighted in blue in the list of input papers.

7. ESTABLISH WORKING GROUPS

The Chair outlined the procedure to be followed by working groups, after which three working groups were established and their tasks outlined. The Working Group chairs and vice-chairs were introduced. Full lists of working group participants can be found in Annex F.

| Working Group (WG) | Working Group Chair / Vice-Chair |
|----------------------------------|---|
| WG1 – Visual & Physical AtoN | Malcolm Nicholson / Lingyan Wang, Aw Eng Soon |
| WG2 – Radionavigation Services | Jeffrey van Gills / Stefan Gewies, Sun Qian |
| WG3 – Heritage and culture forum | Peter Hill / Sarah-Jane Lakshman, Wonshok Lee |

8. WORKING GROUP 1 – VISUAL & PHYSICAL ATON (WG1)

During the 20th session of the ENG committee, WG1 consisted of 29 members and considered 15 input papers, and a liaison note. The main task of the group was to update the task register and progress the tasks. The group reviewed the Liaison note ENG20-3.1.2.11 Regarding the Draft Recommendation on Digitalization of AtoN and

contributed to a response. An input paper was received from the IALA WWA regarding an update of G1165. This was discussed during ENG20, and a new task has been added to the work program to cover the revision of this guideline.

The Chair and Vice-Chairs of the Working Group thanked all participants, both in person and online, for their hard work during the session and noted the ongoing success of the hybrid working environment.

Throughout the physical session of the week, several focused task group sessions were held. The task groups focused on the following tasks as per the work program:

- Task 2.1.4 Update R0112 Leading lights.
- Task 2.1.6 Update R0203(E200-3).
- Task 2.2.1 Update G1037 Data collection for AtoN performance calculation.
- Task 2.2.2 Update G1077 Maintenance of AtoN.
- Task 2.2.4 Update and Amalgamate the Guidelines G1108, G1136 and G1175.
- Task 2.2.8 Update G1165 on Sustainable Structural Design.
- Task 2.3.1 Develop guidance quantifying floating AtoN characteristics.
- Task 2.3.2 Creating an overview guidance on maintenance of floating AtoN.
- Task 2.3.3 Update Recommendation R0107 (E-107) Moorings for floating AtoN.
- Task 2.3.4 Update G1066 Design of floating AtoN moorings.
- Task 6.3.1 Update G1008 Remote control and monitoring of AtoN.
- Task 6.3.2 New Guideline on Harmonisation of IoT Protocol for Visual AtoN.

8.1 Task 2.1.4 Update R0112 Leading lights

Task group leader: Lingyan Wang

The task group worked through a revised working version of Guideline G1023 Design of Leading Lines. The two specific items left over from the intersessional work were discussed.

Key outcomes include:

1. The group validated G-1148 Table 2 applicability for leading lines.
2. The group occurred with removing a factor of 10 increase for the Recommended Intensity calculation for leading lines, as it was originally added to provide a “better” signal with no sound technical basis. Removal lowers the minimum intensity, yielding a larger decision space for the designer.
3. The group reviewed the current method of evaluating intensity ratios at the middle and end of the useful segments. To provide greater benefit to the user, will incorporate factors to consider in balancing intensity ratios and a sample intensity ratio example as an appendix.
4. The group validated vertical difference angles and clarified terminology, with Figure 7 needing to be revised for clarity.
5. The task group is requested to remove the sections of the current guideline related to the use of the leading lines spreadsheet and develop them into a tutorial.

Output:

ENG20-9.2.4.6 Revised G1023 on Design of Leading Lines

Action item(s):

Sarah Robinson is requested to update the draft guideline on Leading Lights intersessionally, as discussed in the ENG20 committee meeting, and submit it as input to the ENG21 committee meeting.

Travis Rasmussen is requested to develop a design process map to help users understand the overall process.

Jorgen Royal Petersen is requested to attempt to draw digital drawings utilized in the existing guideline so they can be updated.

Travis Rasmussen is requested to add practical considerations to the intensity ratio section and develop a sample appendix.

Travis Rasmussen is requested to refine the daymark sizing calculation methods and the practical considerations for deciding which method to utilise.

8.2 Task 2.1.6 Update R0203(E200-3)

Task group leader: Lingyan Wang

The task group reviewed the guideline for measuring marine lights' performance, which was drafted by China MSA and GRAD.

The task group reviewed China MSA's editorial changes to the presently rescinded E200-3 to allow it to be republished as an interim guideline supporting R0203.

Key outcomes include:

1. The interim guideline has been submitted to the Committee for silent approval.
2. The main body of the guideline on The Measurement of Marine Lights Performance has been reviewed. This section contains an explanation and further details of the items in R0203. Many improvements were made throughout, and several will be implemented in intersessional work. These mainly include improving the text and producing additional diagrams to improve clarity. After this, work will be focused on the appendix. This will include basic and more advanced information to support the main body.

Output:

ENG20-9.2.1.1 New draft Guideline on The Measurement of Marine Lights Performance

Action item(s):

The Secretariat is requested to forward the new draft Guideline on the Measurement of Marine Lights Performance (ENG20-9.2.1.1) to the Council for approval.

Lingyan Wang and Link Powell are requested to update the draft guideline on measurement intersessionally and submit it as input to the ENG21 committee meeting.

8.3 Task 2.2.1 Update G1037 Data collection for AtoN performance calculation

Task group leader: Sigge Gustafsson

Key outcomes include:

This task has been extended by one session to allow for completion. No work was carried out during ENG20.

8.4 Task 2.2.2 Update G1077 Maintenance of AtoN

Task group leader: Chris Scully

Key outcomes include:

This task was completed during ENG19.

8.5 Task 2.2.4 Update and Amalgamate the Guidelines G1108, G1136 and G1175

Task group leader: Mariano Marpegan

Key outcomes include:

This task was completed during ENG19.

8.6 Task 2.2.8 Update G1165 on Sustainable Structural Design

Task group leader: Sarah Robinson

This new task was identified at ENG19. Information was gathered during ENG20, and the main body of work will be carried out during ENG21.

Action item(s):

Greg Hansen is requested to arrange intersessional work and submit an input paper to ENG21 on the revision of G1165 Sustainable Structural Design.

8.7 Task 2.3.1 Develop guidance quantifying floating AtoN characteristics

Task group leader: Gillian Burns

Key outcomes include:

This task was completed during ENG19.

8.8 Task 2.3.2 Creating an overview guidance on maintenance of floating AtoN

Task group leader: Philippe Renaudin

Key outcomes include:

This new task was identified at ENG18. Information was gathered, and the main work was carried out during ENG20. The Task Group met each day during the ENG20 work period to discuss how to elaborate a new Guideline for maintaining floating AtoN. The working group sought to identify existing guides related to maintenance and buoys. This is to ensure there is no redundancy and logical links between them. Secondly, a plan was elaborated. It is divided into two main parts: The first is about the maintenance purposes for floating aids. The second part described each part of a floating AtoN, from top marks to sinker. For the second part of the plan, each component of a buoys and mooring lines includes the following sub-paragraphs:

- Risks and Issues.
- Inspection Regime.
- Maintenance.

The group succeeded in completing most of the paragraphs.

Action item(s):

Philippe Renaudin is requested to coordinate online intersessional work and provide an input paper to ENG21 on floating aid maintenance.

8.9 Task 2.3.3 Update Recommendation R0107 (E-107) Moorings for floating AtoN

Task group leader: Pierre-Luc Delange

Key outcomes include:

This task will be started once task ENG-2.3.4 has been completed.

8.10 Task 2.3.4 Update G1066 Design of floating AtoN moorings

Task group leader: Pierre-Luc Delange

Key outcomes include:

The Task Group worked individually during the intersessional period and had a pre-ENG20 meeting. During the intersessional work:

- The guideline was partially re-ordered following the new INDEX (up to section 6).
- A proposal for a sinker formula was developed.
- Some further improvements were made to the INDEX.
- Some of the needed graphic resources were created.
- The idea of using colour-coded sections on the drawings of the guideline was drafted.

Task group during the ENG20 work period:

- Revised the re-ordered Guideline to section 6 and improved language, structure and clarity.
- Terminology on anchoring systems and positional accuracy was discussed at length. Decisions were made regarding this topic and implemented on the guidelines.
- Decided to discard the idea of introducing operational and survival conditions.
- References to the new G1186 Guideline were added.
- Incorporated an image showing the three states on the same mooring set and included some pictures.
- An additional sinker general formula is proposed; part of the team will focus on this matter to get to an agreement on how to develop it. Some details are already defined:
 - Get a formula considering vertical load and slack chain on the ground effects.
 - Use friction angles to account for the interaction between the elements and the seafloor.
- The need for more images has arisen to create them intersessionally.
- Started the draft of a flowchart showing the design process for a mooring. We are trying to develop this using the “states” terminology we worked on. The length of the transitional state will be the starting point, and the designer can potentially decide to shorten or extend the mooring line during the process.
- Started working on sections 6.5, 6.6, 7.4.1, 7.4.2 and 7.5, reorganizing the information, integrating some of the content from the old guideline, and adding visual resources (photos of the components).

The task group intend to do intersessional work to progress on:

- Finish the flowchart, start working on the calculations section, and at least define the sinker formula.
- Add clarity and coherence reviews to the rest of the document.
- Continue creating the needed visual resources.
- Start working on the hybrid mooring section.

Action item(s):

Jose Andrés Fombuena is requested to coordinate intersessional work and submit an input paper to ENG21 on the revised G1066 document.

8.11 Task 6.3.1 Update G1008 Remote control and monitoring of AtoN

Task group leader: Jonas Lindberg

The update of G1008 is scheduled to be completed later committee session.

8.12 Task 6.3.2 New Guideline on Harmonisation of IoT Protocol for Visual AtoN

Task group leader: Jonas Lindberg

The Task Group, which consisted of about 11 people, met throughout the ENG20 work period to review the draft guideline.

During these sessions, a significant amount of work was completed in reviewing and editing the document, including aspects relating to RCMS systems from the task group members. Various checks and content were reviewed relative to other guidelines, such as the IALA guidelines G1182 and G1038, and cross-referenced.

Action item(s):

The Secretariat is requested to forward the new draft Guideline on the Harmonised IoT Protocol for Visual AtoNs (ENG20-9.2.1.2) to the Council for approval.

8.13 Task on Review of IALA Work Programme 2025-2027 and ENG WG1 Task Register

The IALA Work programme was reviewed in conjunction with the ENG WG1 detailed task register.

The Task Register was updated, noting that it is a living document on the website and will be reviewed at each meeting.

9 WORKING GROUP 2 – RADIONAVIGATION SERVICES (WG2)

During the 20th session of the ENG committee, the WG2 – Radionavigation services worked on several tasks regarding Positioning, Navigation and Timing

Referencing Document(s): ENG WG2 Work Program

The work plan was introduced and reviewed, and after the deletion of a task, it was adopted by the workgroup.

The workgroup discovered that switching from the old task register to the online task register may have caused some tasks to be overlooked. The Chair of the working group checked if tasks are missing in the task register and will add them if they are still needed.

During the session, the WG deleted task “3.3.3 PNT Technology Review” because it was duplicated in the task register, and the history text was placed under task “3.3.1 Augmentation systems.”

The Chair and Vice-Chairs of the Working Group thanked all participants in person and online for their hard work during the session. The WG focused on:

- Reviewed several documents.
- Developed further documents on High-Accuracy positioning systems.
- Contribute to the AIS WWA Model course.

Working documents have been placed in a folder marked as such within each task’s sub-folder on the IALA file share.

Throughout the physical session of the week, the WG focused on the following tasks:

- Task 3.2.1 on R-Mode development.
- Task 3.3.1 on Augmentation systems.
- Task 3.3.2 on High-accuracy positioning systems.
- Task 3.3.3. on Retransmission of SBAS data via VDES.
- Task 3.4.1 on Radar & Enhanced Racon positioning.

- Task 7.1.1 on S-200 PNT Product Specification.
- Task 8.1.1 on PNT technology review.

9.1 Task 3.2.1 R-Mode development

Task group leader: Stefan Gewies

Input papers:

| | |
|----|---|
| WP | ENG16_WP Draft G on Implementation of MF and VDES R-Mode system and service |
|----|---|

Comments:

The task group started working on the tasks identified during the ENG19 committee meeting. A liaison note to RTCM was developed, seeking support for the latest work of IALA members related to the R-Mode navigation message (IALA Guideline 1187) and asking for information on RTCM plans to support differential corrections for Galileo, BDS, IRNSS, and QZSS.

The task group discussed the opportunity to develop an approval standard for the Multi-System Shipborne Radionavigation Receiver at IEC or RTCM. Participants emphasised the importance of having such a standard available in the future to enable simultaneous use of several GNSS and terrestrial systems.

Drafting the Guidelines for implementing the MF and VDES R-Mode system and service was continued. The task group members agreed to provide additional information about the system architecture of R-Mode systems in China, the Republic of Korea, and the Baltic Sea and the R-Mode performance prediction for ASM R-Mode (China), MF R-Mode (Republic of Korea), and VDE-TER R-Mode (Germany) until ENG21.

Key outcomes include:

1. Liaison note to RTCM.
2. Updated Draft Guideline on Implementation of MF and VDES R-Mode system and service.

Output:

- ENG20-9.2.2.1 Liaison Note to RTCM regarding the 10402.n standard
- ENG20-9.2.4.4 Draft Guideline on Implementation of MF and VDES R-Mode system and service

Action item(s):

The **Secretariat** is requested to forward the Liaison Note to RTCM (ENG20-9.2.2.1) to the Council for approval.

The **Secretariat** is requested to forward the WP draft guideline on implementing MF and VDES R-Mode system and service (ENG-9.2.4.4) as a working paper to ENG21 for further development.

9.2 Task 3.3.1 Augmentation Systems

Task group leader: José-Luis Martin

Input papers:

| | |
|---------------|---|
| ENG20-3.1.2.4 | Analysis on the options for retransmission of SBAS data through VDES |
| ENG20-3.1.2.7 | Proposal for Developing a Guideline for Exchanging GNSS Interference Data |

Comments:

The working group reviewed both input papers and discussed the document “ENG20-3.1.2.4 Analysis on the options for retransmission of SBAS data through VDES” after the presentation “Analysis on the options for

retransmission of SBAS data through VDES” given by José-Luis Martin. José-Luis invited the ENG WG2 members to join this task, with the first intersessional meeting planned for June with additional contributions from DTEC WG3 members. During the discussion, a new task proposal was generated and added to the Task Register (ENG 3.3.3 Retransmission of SBAS data via VDES). The Task group leader of this new task will be José-Luis Martin.

Output:

- New task proposal ENG 3.3.3 Retransmission of SBAS data via VDES

9.3 Task 3.3.2 High accuracy positioning systems

Input papers:

| | |
|-----------------|--|
| ENG20-3.1.2.5 | Input for Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service |
| ENG20-3.1.2.6 | Input on Draft Guideline on GNSS Satellite-based PPP Maritime Service |
| ENG20-3.1.2.6.1 | Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service |

Comments:

The Committee noted the input paper ENG20-3.1.2.5 “Input for Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service”, ENG20-3.1.2.6 “Input on Draft Guideline on GNSS Satellite-based PPP Maritime Service” and ENG20-3.1.2.6.1 “Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service”.

The group worked further on the draft guideline for GNSS Satellite Based Precise Point Positioning (PPP) Maritime Service, which should be continued over the next session. It is planned that the draft guideline should be further developed intersessional to provide input to ENG21.

It is planned that the work will progress in correspondence between interested members, and some members expressed their concerns about considering the non-mandatory MASS program. Committee members who are interested in contributing to this guideline are invited to email the task leader, Sun Qian, at gbcouple@163.com.

The working document is mature enough that it is foreseen that at the next committee meeting, the draft could be shared with other committees for last amendments.

Output:

- ENG20-9.2.4.1 Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service

Action item(s):

Committee participants interested in supporting the development of the Guideline on GNSS Satellite Based Precise Point Positioning (PPP) Maritime Service are invited to contact the task group leader, Qian Sun (gbcouple@163.com).

The **Secretariat** is requested to forward the draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service (ENG-9.2.4.1) as a working paper to ENG21 for further development.

9.4 Task 3.4.1 Radar & Enhanced Racon positioning-Mode development

Input papers:

| | |
|-----------------|---|
| ENG20-3.1.2.8 | Proposal on Modification of R-101 |
| ENG20-3.1.2.8.1 | Annex R-101 Marine Radar Beacons Racons |

| | |
|------------------|---|
| ENG20-3.1.2.12 | LN from ARM to ENG on R0101 and R0146 |
| ENG20-3.1.2.12.1 | Annex R0146 Strategy for Maintaining Racon Service Capability |

Comments:

The Committee noted the input paper ENG20-3.1.2.8 “Proposal on Modification of R-101”, ENG20-3.1.2.8.1 “Annex R-101 Marine Radar Beacons Racons”, ENG20-3.1.2.12 “LN from ARM to ENG on R0101 and R0146” and ENG20-3.1.2.12.1 “Annex R0146 Strategy for Maintaining Racon Service Capability”.

The task group worked on both documents through e-mail correspondence and modified R0101 on “Marine Radar Beacons (Racons)” and R0146-Strategy-for-Maintaining-Racon-Service-Capability. Both recommendations reference the new guideline G11xx, but no official number has been appointed yet, and a title for this new Guideline has not yet been chosen.

A task will be added to the task register to develop this guideline.

Output:

1. ENG20-9.2.4.2 R0101-Ed3.0-Marine Radar Beacons (Racons)
2. ENG20-9.2.4.3 R0146-Ed2.0-Strategy-for-Maintaining-Racon-Service-Capability

Action item(s):

The **Secretariat** is requested to forward the R0101-Ed3.0-Marine Radar Beacons (Racons) (ENG-9.2.4.2) and R0146-Ed2.0-Strategy-for-Maintaining-Racon-Service-Capability (ENG20-9.2.4.3) as working papers to ENG21 for further development.

9.5 Task 7.1.1 S-200 PNT Product Specification (previous task 3.5)

Input papers:

| | |
|---------------|---|
| ENG20-3.1.2.9 | Proposal for the integration of PNT-related S-200 series product specifications |
|---------------|---|

Comments:

The Committee noted the input paper ENG20-3.1.2.9 “Proposal for the integration of PNT related S-200 series product specifications”

The task group leader gave a presentation on the input paper for the integration of PNT-related S-200 series product specifications. All working group participants agreed with the proposed integration of PNT-related S-200 product specifications. The proposals were further worked out during the committee meeting.

Key outcomes include:

Two new tasks were proposed during the meeting:

1. Develop S-200 product specification on the PNT Station almanac:
DGNSS, eLoran, dLoran, R-Mode, etc.
2. Develop S-200 product specification on PNT grid data:
eLoran ASF, R-Mode ASF, etc.

Output:

- ENG20-9.2.4.5 Working doc for S-200 PNT

Action item(s):

The **Chair of WG2** and the **task group leader** are requested to contact the IHO S-200 domain coordinator on how to proceed.

The **Secretariat** is requested to forward the output paper on S-200 PNT (ENG-9.2.4.5) as a working paper to ENG21 for further development.

9.6 Task 8.1.1 PNT technology review

Task group leader: Chair WG2

Input papers:

| | |
|------------------|---|
| ENG17- 3.1.2.11 | IALA coordination of Loran GRI |
| ENG20-3.1.2.1 | GNSS EO requirements for Automated inland waterways navigation |
| ENG20-3.1.2.2 | Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline |
| ENG20-3.1.2.2.1 | Draft IALA Guideline on Digitalization of Waterways |
| ENG20-3.1.2.3 | Liaison note to ARM, VTS, ENG, and PAP on IALA documentation relating to AIS |
| ENG20-3.1.2.10 | Liaison note to All Committees on the AIS Model course |
| ENG20-3.1.2.10.1 | Overview AIS model course |
| ENG20-3.1.2.11 | LN to all Committees Regarding the Draft Recommendation on Digitalization of AtoN |
| ENG20-3.1.2.11.1 | Draft Recommendation on Digitalization of AtoN and Services for Vessels of Levels of Autonomy |

Comments:

The workgroup was pointed to an old input paper ENG17- 3.1.2.11, “IALA coordination of Loran GRI” that was not discussed at ENG17. The workgroup discussed the input paper and concluded that a new task should be created for writing a Guideline on the coordination of this kind of systems (eLoran, DGNSS, VDES R-mode, etc.).

The Committee noted the input paper ENG20-3.1.2.1 “GNSS EO requirements for Automated Inland Waterways Navigation”

Héctor Llorca gave a presentation on the status of the AVIS project, supporting the input document ENG20-3.1.2.1, “GNSS EO requirements for Automated inland waterways navigation.” The working group discussed the input paper and the presentation, which gave a good overview of the project.

The Committee noted the input papers ENG20-3.1.2.2 “Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline” and ENG20-3.1.2.2.1 “Draft IALA Guideline on Digitalization of waterways”. It concluded that this topic was already handled in ENG19, resulting in an output to DTEC committee “ENG19-9.2.2.8 Liaison note ENG to DTEC committee on digitalisation of waterways guideline”. The workgroup decided not to send another liaison note to other committees because this was already done during ENG19.

The Committee noted the input paper ENG20-3.1.2.3, “Liaison note to ARM, VTS, ENG, PAP on IALA documentation relating to AIS”, and concluded that this topic was already handled in ENG19. This resulted in an output to the ARM committee, “ENG19-9.2.2.5 Liaison to ARM on AIS Documentation.” The workgroup decided not to send another liaison note to other committees because this was already done during ENG19.

The Workgroup noted the input papers ENG20-3.1.2.10 “Liaison note to All Committees on the AIS Model course” and ENG20-3.1.2.10.1 “Overview AIS model course”. Jaime Alvarez (IALA WWA) presented the documents, which

were discussed. Jaime will make remarks while preparing the AIS Model course. The group focused on the course's service quality, seeking comments related to PNT in conjunction with AIS.

The Committee noted the input papers ENG20-3.1.2.11 “LN to all Committees Regarding the Draft Recommendation on Digitalization of AtoN” and ENG20-3.1.2.11.1 “Draft Recommendation on Digitalization of AtoN and Services for Vessels of Levels of Autonomy”. The ENG committee thanks the ARM committee for informing the committee.

Output:

- ENG20-9.2.2.2 Liaison note on MASS Recommendation
- ENG20-9.2.2.3 Liaison note to DTEC on IALA Digitalisation Discussion Paper

Action item(s):

The **Secretariat** is requested to forward the Liaison note on MASS Recommendation (ENG20-9.2.2.2) to the ARM.

The **Secretariat** is requested to forward the Liaison note on IALA Digitalisation Discussion Paper (ENG20-9.2.2.3) to DTEC.

9.7 Task on Review of IALA Work Programme 2025-2027 and ENG WG2 Task Register

The IALA work programme was reviewed with the ENG WG2 detailed task register.

During the session, two new tasks were proposed and added to the task register:

- Task 3.3.3 – “Retransmission of SBAS data via VDES” with task leader José-Luis Martin;
- Task 7.1.1 – “S-200 PNT Product Specification” with task leader Younghoon Han.

The Task Register was updated, noting that it is a living document on the website and will be reviewed at each meeting.

Action item(s):

The Chair of WG2 is requested to update the Task register:

1. check the task register in the report of ENG17 with the task register and will import missing tasks if still needed.
2. add a task for the development of a new Guideline for Racons.
3. add a task for the development of S-200 product specification on the PNT Station almanac.
4. add a task for the development of S-200 product specification on PNT grid data.
5. add a task for developing a Guideline on procedures for assigning and maintaining PNT station data.
6. add a task for the development of an R-Mode recommendation.
7. add a task for the development of an SBAS recommendation.

10 WORKING GROUP 3 – HERITAGE AND CULTURE FORUM (WG3)

ENG WG3 – 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’.

During the 20th session of the ENG committee, WG3 – Heritage & Culture advanced most of its tasks, including heritage-related Guidance documents, the Heritage web pages and the nomination process for Heritage Lighthouse of the Year.

The Chair, Peter Hill, and Vice-Chairs, Sarah-Jane Lakshman and Professor Wonshok Lee, of the Working Group, thanked all 21 participants in person and online for their hard work during the session. They noted the ongoing success of the hybrid working environment and commended those joining online for their participation at often inconvenient times of the night.

Throughout the physical session of the week, a number of small task group sessions were held. The WG focused on the following tasks:

- Review of G1063 Ed.1 Agreements for Complementary Use of Lighthouses
- Review of G1074 Ed.1 Branding and Marketing of Historic Lighthouses
- Review of G1075 Ed.1 A Business Plan for the Complementary Use of a Heritage Lighthouse
- Review of G1093 Ed.1 The Management of Surplus Lighthouse Property
- Review of the Heritage Lighthouse of the Year nomination and selection process
- Development of Technical / Guidance document on ‘good practice in modernizing heritage lighthouses whilst minimizing negative heritage impact’
- Review of the IALA Heritage webpage
- Review of input paper 3.1.3.1 Proposal for developing guidelines for lighthouse twinning

Action item(s):

Sarah-Jane Lakshman is requested to fulfil the role of Chair to ENG WW3, and Trinity House is requested to support them in this.

Professor Wonshok Lee is requested to fulfil the role of Vice-Chair of ENG WG3, and Hongik University is requested to support them in this.

The **IALA Secretariat** is requested to note that the Chair of WG3 is Sarah-Jane Lakshman, and the Vice-Chair is Professor Wonshok Lee.

WG3 were pleased to receive the following general presentations, which were attended by 33 persons in person or online. All were well received and generated some interesting discussion.

- 1.1 GIS “Russia: from Sea to Sea. “Russian Lighthouses” *Kseniia Ipatova, Dept of Navigation & Oceans, Russia*
- 1.2 Twinning Lighthouse Project *Gillian Burns, Northern Lighthouse Board, UK and Kinji Takeuchi, Japan Coast Guard*
- 1.3 Irish Lights International Conference on Lighthouse Tourism & Maritime Heritage *Chris Scully, Irish Lights*
- 1.4 The Wonders and Challenges of Lighthouse Ancillary Buildings *Peter Hill, Trinity House, UK*

10.1 Task 2.6.1 on Maintaining the Heritage webpage on the IALA website

Task group leaders: Professor Wonshok LEE (Hongik University) and Gillian BURNS (Northern Lighthouse Board)

Comments: The content and purpose of the online database of heritage lighthouses were discussed. At present, it is directly connected with IALA HLY nominations. All lighthouses nominated for that accolade feature are on the webpage, and the text from the nomination form is largely replicated there. This project is a work in progress, and all nominations will continue to be uploaded to the existing online database.

Key outcomes include:

1. It was agreed that WG3 would work towards decoupling the heritage lighthouse database from the IALA HLY accolade. Instead, a new pro form would be developed requiring only basic data on the heritage lighthouse and four photos.
2. Once established, IALA Member nations would be encouraged to complete and submit these for as many of their heritage lighthouses as they wished, and all would be added to the online database of IALA heritage lighthouses.
3. Professor Wonshok Lee accepted the request to support Gillian Burns with website updates.
4. Gillian Burns has enquired with the Secretariat about acquiring analytics on visits or hits the Heritage website receives.

Action item(s):

William Dunning is requested to produce a first draft of a pro forma for use in submissions by Member States to register a lighthouse as an 'IALA Heritage Lighthouse' and be added to the IALA online database of IALA Heritage Lighthouses and **Trinity House (UK)** is requested to support them in this.

Gillian Burns is requested to continue maintaining the IALA heritage webpage with assistance from Professor Wonshok Lee, and **NLB and Hongik University** are requested to support them in this.

10.2 Task 2.6.2 Production of Technical or Guidance document on 'good practice in modernising heritage lighthouses whilst minimising negative heritage impact'

Task group leader: Sarah-Jane LAKSHMAN, Trinity House

Comments: Sarah-Jane presented to the group a draft of this document, which is currently in its current state. Advice was sought from the ENG Chair, who determined that the draft document would be best placed as an IALA guideline. A small task group worked on this document throughout the week, updated the draft into the IALA guideline format, and provided suggestions for inclusion.

Key outcomes include:

1. The draft guidelines were broadened to include considerations for:
 - The retention of equipment made redundant following modernisation work.
 - Considerations for utilising new equipment compatible with heritage systems.
 - Considerations for utilising energy-efficient equipment.
 - Consideration of engagement with stakeholders and experts.
2. Sarah-Jane will seek feedback on the draft guidelines from WG2 to ensure that the considerations are appropriate.

Action item(s):

Sarah-Jane Lakshman is requested to continue coordinating WG3 work in the production of a Technical or Guidance document on 'good practice in modernizing heritage lighthouses whilst minimizing negative heritage impact' and submit an input paper to ENG WG 1 and WG 2 for ENG21. **Trinity House** is requested to support them in this.

10.3 Task 2.6.3 Manage the process for the IALA HLY accolade

Task group leader: Peter HILL, Trinity House

Comments: At present, all previously nominated lighthouses are considered each year for IALA Heritage Lighthouse of the Year. The success of the accolade has meant that there are now a great many to consider, and this is becoming unmanageable

Key outcomes include:

1. WG3 determined that from IALA HLY 2026 onwards, only nominations received in the preceding 12 months would be considered each year for the accolade. Only 1 nomination per IALA member nation will be considered. However, it was agreed that fresh nominations for a previously nominated lighthouse would still be welcome.

Action item(s):

Peter Hill (Trinity House, UK) is requested to provide the text to update the relevant heritage webpage and the nomination form to clarify how IALA HLY will be determined. **Sarah-Jane Lakshman (Trinity House, UK)** is requested to provide text to the IALA Secretariat for distribution to member nations encouraging nominations for IALA HLY 2026 and highlighting the criteria.

The **Secretariat** is requested to assist the editing team with editing the IALA Heritage website and distributing the call for nominations as needed.

10.4 Task 2.6.4 Write the Heritage Module for the WWA L1.1 AtoN Manager Course

Task group leader: Ke Raxuan, Navigation Institute of JiMei University

Comments: Ke Raxuan was unable to participate in ENG20, and no progress was achieved in this session.

Action item(s):

Ke RAXUAN is requested to continue coordinating WG3's work in creating the Heritage Module for the WWA L1.1 AtoN Manager Course until it is completed within the Task Period, and the **Navigation Institute of JiMei University** is requested to support them in this.

WG3 participants must submit relevant examples of managing heritage lighthouses to Ke Raxuan intersessionally before ENG21.

10.5 Task 2.6.5a Review Guideline G1080 ED.1 The Selection and Display of Heritage Artefacts

Task group leader: Jiwon SIM, Korea Institute of Aids to Navigation

Comments: Jiwon provided an update on the revision process of G1080 and confirmed that an updated draft will be provided for review at ENG21. Revisions were submitted by WG3 participants, which included:

- A new section to assist AtoN Authorities in selecting items that could be classified as artefacts, including selection criteria.
- A new section with considerations for artefacts in storage.
- A new section with considerations for keeping an artefact register.

Key outcomes include:

1. Peter Hill suggested using Trinity House's Artefact Policy to assist in building these new and existing sections or including it as an Annex to the guideline.
2. These revisions and the Policy document have been provided to the task leader to finalise the review.

Action item(s):

Jiwon SIM is requested to continue coordinating WG3 work on reviewing IALA Guidance document G1080 Ed.1 to completion by Autumn 2025 (ENG21), and the **Korea Institute of Aids to Navigation** is requested to support them in this.

10.6 Task 2.6.5b Review Guideline G1093 Ed.1 The Management of Surplus Lighthouse Property

Task group leader: Naehyuk Yoo, Korea Institute of Aids to Navigation

Comments: Naehyuk provided a draft of the revised guideline, and a small task group worked to review this draft.

Key outcomes include:

- The guideline G1093 has been revised and retitled *Management of Transfer of Surplus Lighthouse Property* to reflect a focused scope on the transfer of ownership of surplus lighthouse property. This update responds to growing needs among some AtoN authorities who, due to automation, reduced operational demand and budget constraints, are increasingly required to transfer assets they no longer use.
- The previous chapters addressing reuse strategies were removed to avoid overlap with IALA G1063 and G1075, which cover evaluation and complementary use. The revised guideline now offers practical recommendations for managing the transfer process, including considerations related to heritage protection, AtoN continuity, environmental safety, and legal safeguards.

Action item(s):

The **Secretariat** is requested to submit the Revised Guideline G1093 on Management of Transfer of Surplus Lighthouse Property (ENG20-9.2.3.1) to the Council for approval.

10.7 Task 2.6.6 Review Guideline G1063 Ed.1 Agreements for Complementary use of Lighthouses

Task group leader: Juan LIU, China Maritime Safety Administration (MSA)

Comments: The following Input Paper and Annex was presented by Juan LIU and discussed;

ENG20-3.1.3.2 Proposal for updating G1063 on Agreements for Complementary Use of Lighthouses

ENG19-3.1.3.2.1 Annex Draft revised G1063 on Agreements for Complementary Use of Lighthouses

The Task Group met four times during the ENG20 working period, where the content of the redrafted document was reviewed and comments added for consideration by the author.

During the last session, the author joined online, where each of the comments was explained, promoting discussion and consensus on the next stages of the work.

The meetings were in person, with the last being hybrid and attended by 3 participants from 3 different countries (1 online, 2 in person).

Key outcomes include:

The group appreciates Juan LIU's work in revising G1063 and thanks the Task Leader for the Annex Draft. A task group reviewed the input paper and annexes.

1. Annex Draft G1063 on Agreement for Complementary use of Lighthouse (with comments from Wonshok Lee and Gillian Burns), emailed to LuiJuan for consideration.
2. The Author aims to approve/ clear the 'track changes' and 'comments' on the document to present a clean version for final review and send it for approval at ENG21.

Action item(s):

Juan Liu is requested to continue coordinating WG3's work on reviewing IALA Guidance document G1063 Ed.1 until its completion in Autumn 2025 (ENG21), and **China Maritime Safety Administration (MSA)** is requested to support them in this.

Naehyuk Yoo is requested to provide an updated Annex H to the Author intersessionally for inclusion before ENG21.

10.8 Task 2.6.7a Review Guideline G1074 Ed.1 Branding and Marketing of Historic Lighthouses

Task group leader: ZhenYu GUO, China Maritime Safety Administration (MSA)

Comments: WG3 were presented with an updated draft of revised G1074, and a small task group worked to review the draft.

Key outcomes included:

1. The task group suggested a new outline for sections of the guideline designed to guide marketing considerations for IALA Heritage lighthouses. The task group collated comments and feedback and sent them to the Task Leader for review.

Action item(s):

Zhenyu GUO is requested to continue coordinating WG3 work in reviewing IALA Guidance documents G1074 Ed.1 and G1075 Ed.1, and China Maritime Safety Administration (MSA) is requested to support them in this.

WG3 participants must submit any relevant examples of third-party partnerships for complementary use to Zhenyu GUO intersessionally prior to ENG21.

10.9 Task 2.6.7b Revise Guideline G1075 Ed.1 A Business Plan for the complementary use of a Historic Lighthouse

Task group leader: Zhenyu GUO, China Maritime Safety Administration (MSA)

Comments:

ZhenYu GUO has continued progressing with this guideline as Task Leader, and a small task group was established to review the draft guideline.

Key outcomes include:

2. Task group participants noted that the revised draft guideline successfully outlined the main steps to creating a roadmap for developing a business plan.
3. Task group participants recommended that sections of the introduction be rewritten to define the scope and that a SWOT analysis section be introduced.

WG3 thanks ZhenYu GUO for all the hard work undertaken to update G1075.

Action item(s):

Zhenyu Guo is requested to continue coordinating WG3 work in reviewing IALA Guidance documents G1074 Ed.1 and G1075 Ed.1, and China Maritime Safety Administration (MSA) is requested to support them.

Naehyuk Yoo is requested to provide a Business Plan for the Complementary Use of Lighthouse marine cultural space in Korea for the Author to be considered for inclusion in the Annex as an example of best practice.

10.10 Revision to IALA Recommendation R1005 (currently entitled “Conserving the built heritage of lighthouses and other aids to navigation”)

Task leader: Peter HILL, Trinity House

Comments: The content and title R1005 was discussed. It was felt that it did not reflect current terminology or practice, especially in regard to the promotion of lighthouse heritage and culture. A revised version was worked on and agreed upon by WG3 with the new title “Conserving and Promoting Heritage Marine Aids to Navigation”. ‘Heritage Marine Aids to Navigation’ is defined in the IALA dictionary as “Any Marine Aid to Navigation (including a Historic Lighthouse) that is of cultural significance that *goes beyond its current function and time*. A Heritage Marine Aid to Navigation may or may not have national statutory protection, and the term includes ancillary structures of the marine aid to navigation.”.

Key outcomes include:

1. The revised Recommendation was submitted for silent approval.

Action item(s):

*The **Secretariat** is requested to submit Revised recommendation R1005 on Conserving the Built Heritage of Lighthouses and other Aids to Navigation (ENG20-9.2.3.2) to the Council for approval.*

10.11 Proposal for Developing New Guideline in Lighthouse Twinning

Japan Coast Guard and Northern Lighthouse Board submitted an input paper discussing lighthouse twinning – a concept where countries pair their lighthouses together in formal recognition of shared or similar history, geographical location, or influence in design, construction, or culture (to name but a few).

Japan Coastguard and Northern Lighthouse Board recently signed an agreement to twin two of their lighthouses, which the two organizations deemed to be a positive experience that will benefit visitors' on-site education.

Vincent Guigueno (French Maritime Administration) detailed that France is currently working on twinning a lighthouse with Japan and has offered to provide updates on this experience.

10.11.1 Prospect of IALA-endorsed lighthouse twinning

It was suggested that WG3 consider endorsing a lighthouse twinning program. Discussion circulated on whether WG3 (on behalf of IALA) would provide an IALA-endorsed stamp of approval on lighthouse twinning applications submitted by countries, which would require a guideline, or if WG3 would only promote twinning agreements signed between Member States, including a new page on the IALA Heritage website.

Peter HILL (Trinity House) pointed out that the model by which Heritage Lighthouse of the Year operates (without a guideline but with criteria) could be replicated for this purpose.

WG3 agreed that no guideline was necessary for this at this stage and that (once the system was established) Member States could submit lighthouse twinning agreements to WG3 for promotion and recognition on the IALA Heritage website. The possibility of adding a new tab to the IALA Heritage website will be investigated.

Action item(s):

***Antonio OLIVEIRA** is requested to draft criteria for lighthouse twinning for review at ENG21, and **Direção De Faróis (Lighthouse Directorate)** will support them in this.*

10.12 IALA Heritage Lighthouse of the Year 2025

Guo Zhenyu (China MSA) presented to WG3 the celebrations scheduled for July 2025 to honour the new IALA Heritage Lighthouse of the Year—Lingao Lighthouse. Celebrations will take place over two days and will include a gala dinner, tours of maritime sites, seminars on the protection of heritage lighthouses, and related topics. An impressive marketing campaign is underway featuring plush lighthouse toys and promotional videos. WG3 was extremely impressed and commended the work carried out by China MSA in promoting their lighthouse heritage in association with the IALA HLY accolade.

KATON, having previously agreed to continue providing an award to the accolade-holder, presented three possible designs for the 2025 award and asked for input from WG3. Design 1, a framed award with a pearl base, was chosen as the preferred award.

WG3 is extremely grateful to KATON, MOF, and Hongik University for their fantastic work in providing the Heritage Lighthouse of the Year recipients with these beautiful awards.

10.13 Other business

Noting the new IALA premises being planned, it was suggested that there may be scope to exhibit AtoN artefacts from lighthouse authorities worldwide.

Action item(s):

Secretariat is requested to consider the potential for an exhibition space in the new office to accommodate artefacts from lighthouse authorities, and to invite loan offers of these artefacts.

10.14 Review of IALA Work Programme 2025-2027 and ENG WG3 Task Register

The IALA work programme was reviewed with the ENG WG3 detailed task register.

The Task Register was updated, noting that it is a living document on the website and will be reviewed at each meeting.

Key outcomes following review of the WG3 Task Register:

- Minor updates to task names were made to ensure clarity on the online register.
- Review of R1005 added as a task.

11 SUMMARY OF OUTPUT AND WORKING PAPERS

The Working Group Chairs reported on the work carried out by their Working Groups.

Outputs from ENG20 were approved by the Committee using the approval procedure. The output documents and working papers are listed in Annex D.

12 REVIEW OF SESSION REPORT

The draft report of the meeting (ENG20-13.1) was approved by the Committee at the Closing Plenary.

13 DATE AND VENUE OF NEXT MEETINGS

ENG21 is planned to be held between 13 – 17 October 2025 in Dublin, Ireland.

Other IALA events will be publicised on the IALA website.

14 ANY OTHER BUSINESS

15 CLOSING OF THE MEETING

The Chair thanked all the Committee participants again for their engagement and hard work. He hoped that all the participants would return to ENG21.

Finally, the Chair asked if there were any final comments that participants wished to make; there were none.

16 LIST OF ANNEXES

A. Agenda

A copy of the agenda is at Annex A.

B. Participants list

A list of participants is at Annex B.

C. Input Papers

A list of input papers is at Annex C.

D. Output and Working papers

A list of output and working papers is at Annex D.

E. Action Items

A list of action items is at Annex E.

F. Working Group Participants Lists

Lists of working group participants is at Annex F



20th Session of the AtoN Engineering and Sustainability Committee (ENG20)

AGENDA

Opening Plenary

Start 08:00 UTC (10:00 CEST), 7th April 2025

2. Introduction

| | |
|---|---------------------|
| Welcome address from the Secretary-General/ Deputy Secretary-General | Omar Frits Eriksson |
| Approval of the agenda | Alwyn Williams |
| Apologies and Introductions | Alwyn Williams |
| Working arrangements | Alisa Nechyporuk |
| Programme for the week | Alisa Nechyporuk |

3. Review of action items from last meeting

Alwyn Williams

4. Review of input papers

Alwyn Williams

Review of input papers to ENG20

Alisa Nechyporuk

5. Reports from other bodies

IALA

| | |
|--|-----------------|
| 5.1.1. IALA Council | Minsu Jeon |
| 5.1.1.1. Documents approved by Council | Minsu Jeon |
| 5.1.2. Policy Advisory Panel (PAP) | Minsu Jeon |
| 5.1.2.1. Sustainability WS | Alwyn Williams |
| 5.1.2.2. Future Radiocommunication and radionavigation | Hideki Noguchi |
| 5.1.3. 2025-2027 Work Plan and Task Register | Michel Cousquer |
| Update on MASS task group | Minsu Jeon |
| IMO | Hideki Noguchi |
| IHO | Minsu Jeon |
| ITU | Minsu Jeon |
| RTCM | Stig Erik |
| PIANC | Minsu Jeon |
| CIE | Alwyn Williams |
| WWA Update | Vincent Denamur |

6. Advertising Presentations
 - 6.1 GNSS EO requirements for Automated inland waterways navigation, Héctor Llorca
 - 6.2 Proposal for the integration of PNT-related S-200 series product specifications, Younghoon Han
 - 6.3 Analysis of the options for retransmission of SBAS data through VDES, Jose-Luis Martin
 - 6.4 GIS "Russia: from Sea to Sea." Russian Lighthouses", Kseniia Ipatova
 - 6.5 Lighthouse Twinning, Gillian Burns and Yu Nemoto
 - 6.6 Irish Lights International Conference on Lighthouse Tourism & Maritime Heritage, Chris Scully
 - 6.7 The Wonders and Challenges of Lighthouse Ancillary Buildings, Peter Hill
7. Overview of planned work for ENG20

| | |
|-----------------------------------|-------------------|
| WG 1 – Visual & Physical AtoN | Malcolm Nicholson |
| WG 2 – Radionavigation Services | Jeffrey van Gils |
| WG 3 – Heritage and culture forum | Peter Hill |
8. Establish Working Groups and Task Groups

End of Opening Plenary

Approx. 11:00 UTC (13:00 CEST)

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Working Groups to Progress Work Plan

12:00 UTC (14:00 CEST), 7th April to 15:00 UTC (17:00 CEST), 10th April

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Closing Plenary of Physical Week

Start 07:00 UTC (09:00 CEST), 11th April

9. Report from Working Groups and Secretariat

| | |
|-----------------------------------|-------------------|
| WG 1 – Visual & Physical AtoN | Malcolm Nicholson |
| WG 2 – Radionavigation Services | Jeffrey van Gils |
| WG 3 – Heritage and Culture forum | Peter Hill |
| Session Report | Alisa Nechyporuk |
10. Summary of Output Papers for Review

| | |
|----------------------|------------------|
| Process for Comments | Alisa Nechyporuk |
|----------------------|------------------|
11. Close of Physical Session

| | |
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| | Alwyn Williams |
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Closing Plenary of Session

Session recommences 11:00 UTC, 17th April on Microsoft Teams

- | | | |
|-----|--------------------------------|------------------|
| 12. | Opening of Online Session | Alwyn Williams |
| 13. | Review of Documents Approved | Michel Cousquer |
| 14. | Draft report overview | Alisa Nechyporuk |
| 15. | Date and venue of next meeting | Alwyn Williams |
| 16. | Close of Session | Alwyn Williams |

End of Closing Plenary and Session

Approx. 12:30 UTC, 17th April

ANNEX B LIST OF PARTICIPANTS

| N | Last name | First name | Organization | Country | Member type |
|----|---------------|--------------|--|-----------|----------------------------|
| 1 | Marpegan | Mariano Luis | Emepa S.a. | Argentina | Affiliate (IGO) |
| 2 | Hansen | Greg | Australian Maritime Safety Authority | Australia | Member State (IGO) |
| 3 | Mirza Ismaeel | Shaheen | Menas - Middle East Navigation Aids Services | Bahrain | Affiliate (IGO) |
| 4 | Mbene Koah | Alain Serge | Port Authority Of Kribi | Cameroon | Affiliate (IGO) |
| 5 | Cassidy | David | Go Deep Aids To Navigation | Canada | Affiliate Industrial (IGO) |
| 6 | Steinke | Dean | Dsa Ocean | Canada | Affiliate (IGO) |
| 7 | Figueroa | Jorge | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 8 | Isla | Aarón | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 9 | Lassnibatt | Michael | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 10 | León | Valeria | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 11 | Otaiza | Rodrigo | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 12 | Ovando | Matt | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 13 | Silva | Aldo | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 14 | Yoma | Iván | Armada de Chile – DIRECTEMAR | Chile | Member State (IGO) |
| 15 | Chen | Yishu | China Maritime Safety Administration | China | Member State (IGO) |
| 16 | Huai | Shuaiheng | China Maritime Safety Administration | China | Member State (IGO) |
| 17 | Li | Hui | China Maritime Safety Administration | China | Member State (IGO) |
| 18 | Liu | Chunhai | China Maritime Safety Administration | China | Member State (IGO) |
| 19 | Liu | Juan | China Maritime Safety Administration | China | Member State (IGO) |

| | | | | | |
|----|----------------|---------|--|---------|----------------------------|
| 20 | Liu | Ke | China Maritime Safety Administration | China | Member State (IGO) |
| 21 | Sun | Qian | China Maritime Safety Administration | China | Member State (IGO) |
| 22 | Sun | Yiqin | China Maritime Safety Administration | China | Member State (IGO) |
| 23 | Wang | Lingyan | China Maritime Safety Administration | China | Member State (IGO) |
| 24 | Wang | Xiaoye | Ministry of Transport of the People's Republic of China | China | Member State (IGO) |
| 25 | Xu | Ruqing | Ministry of Transport of the People's Republic of China | China | Member State (IGO) |
| 26 | Bjerre | Allan | Danish Emergency Management Agency Under The Ministry Of Resilience And Preparedness. | Denmark | Member State (IGO) |
| 27 | Royal Petersen | Joergen | Danish Emergency Management Agency Under The Ministry Of Resilience And Preparedness. | Denmark | Member State (IGO) |
| 28 | Keskküla | Pärtel | Estonian Transport Administration | Estonia | Associate (IGO) |
| 29 | Palgi | Tiit | Estonian Transport Administration | Estonia | Associate (IGO) |
| 30 | Heikonen | Kaisu | Finnish Transport Infrastructure Agency | Finland | Member State (IGO) |
| 31 | Lasma | Sami | Finnish Transport Infrastructure Agency | Finland | Member State (IGO) |
| 32 | Lindberg | Jonas | Spx Aids To Navigation Oy | Finland | Affiliate Industrial (IGO) |
| 33 | Nicholson | Malcolm | Spx Aids To Navigation | Finland | Affiliate Industrial (IGO) |
| 34 | Duret | Anne | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | France | Member State (IGO) |
| 35 | Rigole | Antoine | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | France | Member State (IGO) |
| 36 | Rieu-stephan | Emma | Cerema | France | Affiliate (IGO) |
| 37 | Lefranc | Mathias | Cerema | France | Affiliate (IGO) |

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|----|---------------------|------------|--|---------|----------------------------|
| 38 | Cousquer | Michel | Cerema | France | Affiliate (IGO) |
| 39 | Renaudin | Philippe | Cerema | France | Affiliate (IGO) |
| 40 | Autret | Ronan | Cerema | France | Affiliate (IGO) |
| 41 | Benouda | Samir | Mobilis | France | Affiliate Industrial (IGO) |
| 42 | Guigueno | Vincent | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | France | Member State (IGO) |
| 43 | Hernoe | Xavier | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | France | Member State (IGO) |
| 44 | Ehlers | Tobias | Federal Maritime & Hydrographic Agency | Germany | Member State (IGO) |
| 45 | Gewies | Stefan | German Aerospace Centre - Institute Of Communications And Navigation | Germany | Affiliate (IGO) |
| 46 | Karbach | Daniel | Federal Waterways And Shipping Agency | Germany | Member State (IGO) |
| 47 | Perschnick | Bertram | Julius Marine Gmbh | Germany | Affiliate Industrial (IGO) |
| 48 | Raulefs | Ronald | German Aerospace Centre - Institute Of Communications And Navigation | Germany | Affiliate (IGO) |
| 49 | Schneider | Peter | German Federal Waterways and Shipping Administration | Germany | Member State (IGO) |
| 50 | Schütteler | Michael | Federal Waterways And Shipping Agency | Germany | Member State (IGO) |
| 51 | von Lilienfeld-Toal | Lars | German Federal Waterways and Shipping Administration | Germany | Member State (IGO) |
| 52 | Gudadhe | Madukar | Directorate General Of Lighthouses And Lightships | India | Member State (IGO) |
| 53 | Saravanan | Sundaravel | Directorate General Of Lighthouses And Lightships | India | Member State (IGO) |
| 54 | Scully | Chris | Department of Transport | Ireland | Member State (IGO) |
| 55 | Greco | Mario | Italian Navy - Direzione Fari E Segnalamenti | Italy | Associate (IGO) |

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|----|----------|----------------|---|--------------|----------------------------|
| 56 | Yamamoto | Akira | Furuno Electric Co Ltd | Japan | Affiliate Industrial (IGO) |
| 57 | Takeuchi | Kinji | Japan Coast Guard | Japan | Member State (IGO) |
| 58 | Kawagoe | Koichi | Japan Coast Guard | Japan | Member State (IGO) |
| 59 | Ono | Masatora | Embassy of Japan in France | Japan | Member State (IGO) |
| 60 | Card | Michael | Zeni Lite Buoy Co Ltd | Japan | Affiliate Industrial (IGO) |
| 61 | Ikeda | Tamotsu | Jana (Japan Aids To Navigation Association) | Japan | Affiliate (IGO) |
| 62 | Awai | Tsuguo | Japan Coast Guard | Japan | Member State (IGO) |
| 63 | Nemoto | Yu | Japan Coast Guard | Japan | Member State (IGO) |
| 64 | Seo | ChaeWon | Korea Institute Of Aids To Navigation(katon) | Korea, South | Affiliate (IGO) |
| 65 | Sim | Jiwon | Korea Institute Of Aids To Navigation(katon) | Korea, South | Affiliate (IGO) |
| 66 | Yoo | Naehyuk | Korea Institute Of Aids To Navigation(katon) | Korea, South | Affiliate (IGO) |
| 67 | Sim | Jiwon | Korea Institute Of Aids To Navigation(katon) | Korea, South | Affiliate (IGO) |
| 68 | Ke | Ranxuan | Jimei University | Korea, South | Affiliate (IGO) |
| 69 | Han | Younghoon | Kriso – Korea Research Institute Of Ships And Ocean Engineering | Korea, South | Affiliate (IGO) |
| 70 | Lim | Youngmin | MOF – Ministry Of Oceans And Fisheries | Korea, South | Member State (IGO) |
| 71 | Bae | Mike | MOF – Ministry Of Oceans And Fisheries | Korea, South | Member State (IGO) |
| 72 | Lee | WonShok | Hongik University | Korea, South | Observer |
| 73 | Chan | Aventinus Adam | Light Dues Board Peninsular Malaysia | Malaysia | Member State (IGO) |
| 74 | Miji | Cornel Joseph | Ministry Of Transport Malaysia | Malaysia | Member State (IGO) |
| 75 | Za'aba | Khairin Azmi | Light Dues Board Peninsular Malaysia | Malaysia | Member State (IGO) |

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|----|-----------------|----------------|--|-------------|----------------------------|
| 76 | Abdelaziz | Elouardi | Ministère Des Transports, De L'aviation Civile Et De La Marine Marchande | Morocco | Associate (IGO) |
| 77 | Munguambe | Simião António | Instituto De Transporte Marítimo, Ip - Itransmar, Ip | Mozambique | Associate (IGO) |
| 78 | Van Gils | Jeffrey | Ministry Of Infrastructure And Water Management | Netherlands | Member State (IGO) |
| 79 | Vendrig | Alex | Orga Bv | Netherlands | Affiliate Industrial (IGO) |
| 80 | Larsen | Leif Arne | Norwegian Coastal Administration | Norway | Member State (IGO) |
| 81 | Leleniewska | Joanna | Maritime Office In Gdynia | Poland | Associate (IGO) |
| 82 | Cardoso | Sergio | Direção De Faróis (lighthouse Directorate) | Portugal | Member State (IGO) |
| 83 | Oliveira | António | Direção De Faróis (lighthouse Directorate) | Portugal | Member State (IGO) |
| 84 | Valério Coco | Luis Carlos | Direção De Faróis (lighthouse Directorate) | Portugal | Member State (IGO) |
| 85 | Leonov | Andrey | Department Of Navigation And Oceanography | Russia | Associate (IGO) |
| 86 | Ipatova | Kseniia | Department Of Navigation And Oceanography | Russia | Associate (IGO) |
| 87 | Belozerova | Maria | Department Of Navigation And Oceanography | Russia | Associate (IGO) |
| 88 | Gaidai | Oleg | Department Of Navigation And Oceanography | Russia | Associate (IGO) |
| 89 | Aw | Eng Soon | Maritime And Port Authority Of Singapore | Singapore | Member State (IGO) |
| 90 | Mueller | Paul | Orion Maritime Systems Pte Ltd | Singapore | Affiliate Industrial (IGO) |
| 91 | Alarcón | Joaquín | Puertos Del Estado/puerto De Barcelona | Spain | Member State (IGO) |
| 92 | Andrés Fombuena | José | Mediterraneo Señales Marítimas S.L. | Spain | Affiliate Industrial (IGO) |
| 93 | Armengol Moreno | Inmaculada | Gmv | Spain | Affiliate Industrial (IGO) |
| 94 | Baño | Marina | Mediterraneo Señales Marítimas S.L. | Spain | Affiliate Industrial (IGO) |

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| 95 | Herrero | Mónica | Mediterraneo Señales Maritimas S.I. | Spain | Affiliate Industrial (IGO) |
| 96 | Llorca Llorca | Héctor | Gmv Aerospace And Defence S.a.u | Spain | Affiliate Industrial (IGO) |
| 97 | Lopez Cabeceira | Marcos | Gmv Aerospace And Defence S.a.u | Spain | Affiliate Industrial (IGO) |
| 98 | Martin Sánchez | Jose Luis | Essp-sas | Spain | Affiliate (IGO) |
| 99 | Rodriguez | Miguel | European Union Agency for Space Programme (EUSPA) | Spain | Affiliate (IGO) |
| 100 | Menard | Johnny | Swedish Maritime Administration | Sweden | Member State (IGO) |
| 101 | Burns | Gillian | Northern Lighthouse Board | United Kingdom | Member State (IGO) |
| 102 | Dobson | Peter | Trinity House | United Kingdom | Member State (IGO) |
| 103 | Dunning | William | Trinity House | United Kingdom | Member State (IGO) |
| 104 | Hill | Peter | Trinity House | United Kingdom | Member State (IGO) |
| 105 | Lakshman | Sarah Jane | Trinity House | United Kingdom | Member State (IGO) |
| 106 | Powell | Link | General Lighthouse Authorities of the UK and Ireland | United Kingdom | Member State (IGO) |
| 107 | Williams | Alwyn | General Lighthouse Authorities of the UK and Ireland | United Kingdom | Member State (IGO) |
| 108 | Costello | Lorrie | Us Coast Guard | United States | Associate (IGO) |
| 109 | Rasmussen | Travis | Us Coast Guard | United States | Associate (IGO) |

All papers are posted on the Committee section of the IALA website. Items in blue = late or updated paper.

| Meeting | Agenda Item | Output Paper Title | Source | Action |
|---------|-------------|---|--------------|--------|
| ENG20 | 1.2.1 | Provisional agenda v1.0 | Secretariat | All |
| ENG20 | 1.5.1 | Programme for the week | Secretariat | All |
| ENG20 | 2.1 | Final report of ENG19 | Secretariat | All |
| ENG20 | 2.1.1 | ENG19 Action Items | Secretariat | All |
| ENG20 | 3.0 | Input paper Committee meeting template | Secretariat | All |
| ENG20 | 3.0.1 | List of input papers | Secretariat | All |
| ENG20 | 3.1.0.1 | Input paper on the IMT Workshop | Secretariat | All |
| ENG20 | 3.1.1.1 | Input paper on Development of new guideline on floating AtoN maintenance Action Plan | Greg Hansen | WG1 |
| ENG20 | 3.1.1.2 | Input paper on Draft Guideline on Harmonised IoT Protocol For Visual AtoN | Peter Dobson | WG1 |
| ENG20 | 3.1.1.2.1 | Annex Guideline Harmonised IoT Protocol For Visual AtoN | Peter Dobson | WG1 |
| ENG20 | 3.1.1.3 | Liaison Note to ENG on Buoy Tender Activities | ARM19 | WG1 |
| ENG20 | 3.1.1.3.1 | Draft Guideline Buoy on Tender Activities | ARM19 | WG1 |
| ENG20 | 3.1.1.4 | Liaison note on the review of R0130 on Categorisation and Availability Objectives for Short Range AtoN | ARM19 | WG1 |
| ENG20 | 3.1.1.5 | Input paper on Draft Guideline on The Measurement of Marine Lights Performance | China MSA | WG1 |
| ENG20 | 3.1.1.5.1 | Draft Guideline on The Measurement of Marine Lights Performance v1.0 | China MSA | WG1 |
| ENG20 | 3.1.1.5.2 | Draft Guideline on The Measurement of Marine Lights Performance v2.0 | China MSA | WG1 |
| ENG20 | 3.1.1.6 | Proposal for The Revision of Guideline G1008 Remote Control and Monitoring of Marine Aids to Navigation | China MSA | WG1 |

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|-------|-----------|--|--|----------|
| ENG20 | 3.1.1.7 | Best practice for G1165 Resilient and Sustainable AtoN Structure Design | China MSA | WG1 |
| ENG20 | 3.1.1.8 | Proposal for revision of IALA R0113 and G1172 on marking of a bridge and R0110 on rhythmic characters of lights on AtoNs | WWA | WG1 |
| ENG20 | 3.1.1.9 | Review of Leading Lights and Lines documentation - Intersessional working (Task 2.1.4) | Task Group 2.1.4 | WG1 |
| ENG20 | 3.1.1.9.1 | Design intensity and intensity ratio formulas | Task Group 2.1.4 | WG1 |
| ENG20 | 3.1.1.10 | Liaison note on IALA Digitalisation Discussion Paper | DTEC4 | WG1, WG2 |
| ENG20 | 3.1.2.1 | GNSS EO requirements for Automated inland waterways navigation | GMV, WSV, TRESCO, BM, HAC, RSOE, EUSPA, EC | WG2 |
| ENG20 | 3.1.2.2 | Liaison note DTEC to all committees (and PAP) on digitalisation of waterways guideline | DTEC3 | WG2 |
| ENG20 | 3.1.2.2.1 | Draft IALA Guideline on Digitalization of waterways | DTEC3 | WG2 |
| ENG20 | 3.1.2.3 | Liaison note to ARM, VTS, ENG, PAP on IALA documentation relating to AIS | DTEC3 | WG2 |
| ENG20 | 3.1.2.4 | Analysis of the options for retransmission of SBAS data through VDES | EUSPA, ESSP | WG2 |
| ENG20 | 3.1.2.5 | Input for Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service | EUSPA | WG2 |
| ENG20 | 3.1.2.6 | Input on Draft Guideline on GNSS Satellite-based PPP Maritime Service | China MSA | WG2 |
| ENG20 | 3.1.2.6.1 | Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service | China MSA | WG2 |
| ENG20 | 3.1.2.7 | Proposal for Developing a Guideline for Exchanging GNSS Interference Data for Navigational Safety | Fintraffic VTS, Kongsberg, DRL | WG2 |
| ENG20 | 3.1.2.8 | Proposal on Modification of R-101 | China MSA | WG2 |
| ENG20 | 3.1.2.8.1 | Annex R-101 Marine Radar Beacons Racons | China MSA | WG2 |
| ENG20 | 3.1.2.9 | Proposal for the integration of PNT-related S-200 series product specifications | KRISO | WG2 |

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| ENG20 | 3.1.2.10 | Liaison note to All Committees on the AIS Model course | ARM20 | WG2 |
| ENG20 | 3.1.2.10.1 | Overview AIS model course | ARM20 | WG2 |
| ENG20 | 3.1.2.11 | LN to all Committees Regarding the Draft Recommendation on Digitalization of AtoN | ARM20 | WG2 |
| ENG20 | 3.1.2.11.1 | Draft Recommendation on Digitalization of AtoN and Services for Vessels of Levels of Autonomy | ARM20 | WG2 |
| ENG20 | 3.1.2.12 | LN from ARM to ENG on R0101 and R0146 | ARM20 | WG2 |
| ENG20 | 3.1.2.12.1 | R0146 Strategy for Maintaining Racon Service Capability | ARM20 | WG2 |
| ENG20 | 3.1.3.1 | Proposal for developing new Guideline on Lighthouse Twinning | Japan Coast Guard, Northern Lighthouse Board | WG3 |
| ENG20 | 3.1.3.2 | Proposal for updating G1063 on Agreements for Complementary use of Lighthouses | China MSA | WG3 |
| ENG20 | 3.1.3.2.1 | Annex Draft revised G1063 on Agreements for Complementary use of Lighthouses | China MSA | WG3 |
| ENG20 | 4.1 | Report of the 1st General Assembly of IALA | Secretariat | All |
| ENG20 | 4.1.1 | Credentials, participation, numbering etc. in IALA committees and subsidiary bodies as an IGO | Secretariat | All |
| ENG20 | 4.1.1.1 | Report of the 3rd transition council | Secretariat | All |
| ENG20 | 4.1.1.1.1 | Report on Transition Council 03 | Secretariat | All |
| ENG20 | 4.1.1.2 | Report of the 1 st session of the Council | Secretariat | All |
| ENG20 | 4.1.2 | Report of PAP56 (PAP56-7.1) | Secretariat | All |
| ENG20 | 4.1.3 | Committees Work programme 2025-2027 | Secretariat | All |
| ENG20 | 4.1.3.1 | Annex Work Programme 2025-2027 | Secretariat | All |

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| ENG20 | 4.3.1 | IALA Report on MSC109 | Secretariat | All |
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| Meeting | Agenda Item | Working Paper Title | Source | Action |
|---------|-------------|--|--------|----------|
| ENG19 | 9.2.1.10 | G1037 Ed2.1 Data Collection for Aids to Navigation Performance Calculation December 2009 | WG1 | to ENG20 |

Output documents are submitted to a body other than the Committee initiating the document for further review/action or as information.

| Meeting | Output paper number | Output papers | Source | Action |
|---------|---------------------|---|--------|---------|
| ENG20 | 9.2.1.1 | New draft Guideline on The Measurement of Marine Lights Performance | WG1 | Council |
| ENG20 | 9.2.1.2 | New draft Guideline Harmonised IoT Protocol for Visual AtoN | WG1 | Council |
| ENG20 | 9.2.2.1 | Liaison note to RTCM on G1187 | WG2 | Council |
| ENG20 | 9.2.2.2 | Liaison note to ARM on MASS Recommendation | WG2 | ARM |
| ENG20 | 9.2.2.3 | Liaison note to DTEC on IALA Digitalisation Discussion Paper | WG2 | DTEC |
| ENG20 | 9.2.3.1 | Revised Guideline G1093 on Management of Surplus Lighthouse Property | WG3 | Council |
| ENG20 | 9.2.3.2 | Revised Recommendation R1005 on Conserving the Built Heritage of Lighthouses and other Aids to Navigation | WG3 | Council |

Working papers will remain within the Committee for further review during ENG21.

| Meeting | Agenda Item | Working Paper Title | Source | Action |
|---------|-------------|---|--------|----------|
| ENG20 | 9.2.4.1 | Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service | WG2 | to ENG21 |
| ENG20 | 9.2.4.2 | R0101-Ed3.0-Marine Radar Beacons (Racons) | WG2 | to ENG21 |
| ENG20 | 9.2.4.3 | R0146-Ed2.0-Strategy-for-Maintaining-Racon-Service-Capability | WG2 | to ENG21 |
| ENG20 | 9.2.4.4 | Draft Guideline on Implementation of MF and VDES R-Mode system and service | WG2 | to ENG21 |
| ENG20 | 9.2.4.5 | Working document on S-200 PNT | WG2 | to ENG21 |
| ENG20 | 9.2.4.6 | Revised G1023 on Design of Leading | WG1 | to ENG21 |

Action Items for the IALA Secretariat

1. **The Secretariat** is requested to forward the new draft Guideline on the Measurement of Marine Lights Performance (ENG20-9.2.1.1) to the Council for approval.
2. **The Secretariat** is requested to forward the new draft Guideline on the Harmonised IoT Protocol for Visual AtoNs (ENG20-9.2.1.2) to the Council for approval.
3. **The Secretariat** is requested to forward the Liaison Note to RTCM (ENG20-9.2.2.1) to the Council for approval.
4. **The Secretariat** is requested to forward the WP draft Guideline on implementing MF and VDES R-Mode system and service (ENG-9.2.4.4) as a working paper to ENG21 for further development.
5. **The Secretariat** is requested to forward the draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service (ENG-9.2.4.1) as a working paper to ENG21 for further development.
6. **The Secretariat** is requested to forward the R0101-Ed3.0-Marine Radar Beacons (Racons) (ENG-9.2.4.2) and R0146-Ed2.0-Strategy-for-Maintaining-Racon-Service-Capability (ENG20-9.2.4.3) as working papers to ENG21 for further development.
7. **The Secretariat** is requested to forward the output paper on S-200 PNT (ENG-9.2.4.5) as a working paper to ENG21 for further development.
8. **The Secretariat** is requested to forward the Liaison note on MASS Recommendation (ENG20-9.2.2.2) to the ARM.
9. **The Secretariat** is requested to forward the Liaison note on IALA Digitalisation Discussion Paper (ENG20-9.2.2.3) to DTEC.
10. **The Secretariat** is requested to note that the Chair of WG3 is Sarah-Jane Lakshman, and the Vice-Chair is Professor Wonshok Lee.
11. **The Secretariat** is requested to assist the editing team with editing the IALA Heritage website and distributing the call for nominations as needed.
12. **The Secretariat** is requested to submit the Revised Guideline G1093 on Management of Transfer of Surplus Lighthouse Property (ENG20-9.2.3.1) to the Council for approval.
13. **The Secretariat** is requested to submit Revised recommendation R1005 on Conserving the Built Heritage of Lighthouses and other Aids to Navigation (ENG20-9.2.3.2) to the Council for approval.
14. **The Secretariat** is requested to consider the potential for an exhibition space in the new office to accommodate artefacts from lighthouse authorities and to invite loan offers of these artefacts.

Action Items for Participants

15. **Sarah Robinson** is requested to update the draft guideline on Leading Lights intersessionally, as discussed in the ENG20 committee meeting, and submit it as input to the ENG21 committee meeting.
16. **Travis Rasmussen** is requested to develop a design process map to help users understand the overall process.
17. **Jorgen Royal Petersen** is requested to attempt to draw digital drawings utilized in the existing guideline so they can be updated.

18. **Travis Rasmussen** is requested to add practical considerations to the intensity ratio section and develop a sample appendix.
19. **Travis Rasmussen** is requested to refine the daymark sizing calculation methods and the practical considerations for deciding which method to utilise.
20. **Lingyan Wang** and **Link Powell** are requested to update the draft guideline on measurement intersessionally and submit it as input to the ENG21 committee meeting.
21. **Greg Hansen** is requested to arrange intersessional work and submit an input paper to ENG21 on the revision of G1165 Sustainable Structural Design.
22. **Philippe Renaudin** is requested to coordinate online intersessional work and provide an input paper to ENG21 on floating aid maintenance.
23. **Jose Andrés Fombuena** is requested to coordinate intersessional work and submit an input paper to ENG21 on the revised G1066 document.
24. **Committee participants** interested in supporting the development of the Guideline on GNSS Satellite Based Precise Point Positioning (PPP) Maritime Service are invited to contact the task group leader, Qian Sun (qbcouple@163.com).
25. The **Chair of WG2** and the **task group leader** are requested to contact the IHO S-200 domain coordinator on how to proceed.
26. **William Dunning** is requested to produce a first draft of a pro forma for use in submissions by Member States to register a lighthouse as an 'IALA Heritage Lighthouse' and be added to the IALA online database of IALA Heritage Lighthouses and **Trinity House (UK)** is requested to support them in this.
27. **Gillian Burns** is requested to continue maintaining the IALA heritage webpage with assistance from Professor Wonshok Lee, and **NLB** and **Hongik University** are requested to support them in this.
28. **Sarah-Jane Lakshman** is requested to fulfil the role of Chair to ENG WW3, and Trinity House is requested to support them in this.
29. **Professor Wonshok Lee** is requested to fulfil the role of Vice-Chair of ENG WG3, and Hongik University is requested to support them in this.
30. **Sarah-Jane Lakshman** is requested to continue coordinating WG3 work in the production of a Technical or Guidance document on 'good practice in modernizing heritage lighthouses whilst minimizing negative heritage impact' and submit an input paper to ENG WG 1 and WG 2 for ENG21. **Trinity House** is requested to support them in this.
31. **Peter Hill (Trinity House, UK)** is requested to provide the text to update the relevant heritage webpage and the nomination form to clarify how IALA HLY will be determined.
32. **Sarah-Jane Lakshman (Trinity House, UK)** is requested to provide text to the IALA Secretariat for distribution to member nations encouraging nominations for IALA HLY 2026 and highlighting the criteria.
33. **Ke RAXUAN** is requested to continue coordinating WG3's work in creating the Heritage Module for the WWA L1.1 AtoN Manager Course until it is completed within the Task Period, and the **Navigation Institute of JiMei University** is requested to support them in this.
34. **WG3 participants** must submit relevant examples of managing heritage lighthouses to Ke Raxuan intersessionally before ENG21.

35. **Jiwon SIM** is requested to continue coordinating WG3 work on reviewing IALA Guidance document G1080 Ed.1 to completion by Autumn 2025 (ENG21), and the **Korea Institute of Aids to Navigation** is requested to support them in this.
36. **Juan Liu** is requested to continue coordinating WG3's work on reviewing IALA Guidance document G1063 Ed.1 until its completion in Autumn 2025 (ENG21), and **China Maritime Safety Administration (MSA)** is requested to support them in this.
37. **Naehyuk Yoo** is requested to provide an updated Annex H to the Author intersessionally for inclusion before ENG21.
38. **Zhenyu GUO** is requested to continue coordinating WG3 work in reviewing IALA Guidance documents G1074 Ed.1 and G1075 Ed.1, and **China Maritime Safety Administration (MSA)** is requested to support them in this.
39. **WG3 participants** must submit any relevant examples of third-party partnerships for complementary use to **Zhenyu GUO** intersessionally prior to ENG21.
40. **Zhenyu Guo** is requested to continue coordinating WG3 work in reviewing IALA Guidance documents G1074 Ed.1 and G1075 Ed.1, and **China Maritime Safety Administration (MSA)** is requested to support them.
41. **Naehyuk Yoo** is requested to provide a Business Plan for the Complementary Use of Lighthouse marine cultural space in Korea for the Author to be considered for inclusion in the Annex as an example of best practice.
42. **Antonio OLIVEIRA** is requested to draft criteria for lighthouse twinning for review at ENG21, and **Direção De Faróis (Lighthouse Directorate)** will support them in this.

Working Group 1**Visual & Physical AtoN**

Chair – Malcolm Nicholson, SPX Aids to Navigation

Vice-Chair – Lingyan Wang, China Maritime Safety Administration

– Aw Eng Soon, Maritime and Port Authority of Singapore

| Last name | First name | Organisation | Task Number |
|---------------------|------------------|--|---------------------|
| Hansen | Greg | Australian Maritime Safety Authority | 2.5.1 |
| Aw | Eng Soon | Maritime And Port Authority Of Singapore | 2.5.1 |
| Liu | Ke | China Maritime Safety Administration | 2.5.1 |
| Mirza Ismaeel | Shaheen h. | Menas - Middle East Navigation Aids Services | 2.5.1 |
| Miji | Cornel Joseph | Ministry Of Transport Malaysia | 2.5.1 |
| Zaába | Khairin Azmi Bin | Light Dues Board Peninsular Malaysia | 2.5.1 |
| Dobson | Peter | Trinity House | 6.3.2 |
| Lindberg | Jonas | Spx Aids To Navigation | 6.3.2 |
| Chen | Yishu | China Maritime Safety Administration | 6.3.2 |
| Cardoso | Sergio | Direção De Faróis (lighthouse Directorate) | 6.3.2 |
| Sun | Yiqin | China Maritime Safety Administration | 6.3.2 |
| von Lilienfeld-Toal | Lars | German Federal Waterways and Shipping Administration | 6.3.2 |
| Lasma | Sami | Finnish Transport Infrastructure Agency | 6.3.2 |
| Rieu-Stephan | Emma | Cerema | 6.3.2 |
| Robinson | Sarah | WWA | 2.1.4, 2.1.6, 2.2.8 |
| Rasmussen | Travis | US Coast Guard | 2.1.4, 2.1.6 |
| Royal Petersen | Joergen | Danish Emergency Management Agency Under The Ministry Of Resilience And Preparedness | 2.1.4, 2.1.6 |
| Wang | Lingyan | China Maritime Safety Administration | 2.1.4, 2.1.6 |
| Powell | Link | General Lighthouse Authorities of the UK and Ireland | 2.1.6 |

| Last name | First name | Organisation | Task Number |
|-----------------|--------------|--|--------------|
| Xu | Ruqing | Ministry of Transport of the People's Republic of China | 2.1.4, 2.1.6 |
| Keskküla | Pärtel | Estonian Transport Administration | 2.1.4 |
| Lefranc | Mathias | Cerema | 2.1.6 |
| Duret | Anne | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | 2.1.4, 2.1.6 |
| Seo | ChaeWon | Korea Institute Of Aids To Navigation (katon) | 2.1.4, 2.1.6 |
| Andrés Fombuena | José | Mediterraneo Señales Maritimas S.l. | 2.3.1 |
| Baño | Marina | Mediterraneo Señales Maritimas S.l. | 2.1.4, 2.1.6 |
| Marpegan | Mariano Luis | Emepa S.a. | 2.2.4 |
| Burns | Gillian | Northern Lighthouse Board | 2.3.1 |
| Renaudin | Philippe | Cerema | 2.3.2 |
| Scully | Chris | Department of Transport | 2.2.2 |

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Vice-Chair – Stefan Gewies, German Aerospace Center - Institute of Communications and Navigation

– Sun Qian, China Waterborne Transport Research Institute, Ministry of Transport of the People's Republic of China

| Last name | First name | Organisation | Task Number |
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| Hansen | Greg | Australian Maritime Safety Authority | 3.4.1 |
| Liu | Chunhai | China Maritime Safety Administration | 3.4.1 |
| Wang | Xiaoye | Ministry of Transport of the People's Republic of China | 3.2.1, 3.1.2 |
| Palgi | Tiit | Estonian Transport Administration | 3.3.2 |
| Rigole | Antoine | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | 3.3.2 |
| Hernoe | Xavier | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | |
| Karbach | Daniel | Federal Waterways And Shipping Agency | |
| Ehlers | Tobias | Federal Maritime & Hydrographic Agency | |
| Yamamoto | Akira | Furuno Electric Co Ltd | |
| Han | Younghoon | Kriso – Korea Research Institute Of Ships And Ocean Engineering | 3.5.1 |
| Lim | Youngmin | MOF – Ministry Of Oceans And Fisheries | |
| Valério Coco | Luis Carlos | Direção De Faróis (lighthouse Directorate) | |
| Mueller | Paul | Orion Maritime Systems Pte Ltd | 3.4.1 |
| Llorca Llorca | Héctor | Gmv Aerospace And Defence S.a.u | 3.0.1, 3.1.1, 3.3.2, 3.3.3, 8.1.1 |
| Lopez Cabeceira | Marcos | Gmv Aerospace And Defence S.a.u | 3.0.1, 3.3.2, 3.3.3, 8.1.1 |
| Martin Sánchez | Jose Luis | Essp-sas | 3.3.1 |
| Menard | Johnny | Swedish Maritime Administration | |

Working Group 3**Heritage and culture forum**

Chair – Peter Hill, Trinity House

Vice-Chair – Sarah-Jane Lakshman, Trinity House

– WonShok Lee, Hongik University

| Last name | First name | Organisation | Task Number |
|------------|------------|--|-----------------------|
| Hill | Peter | Trinity House | 2.6.3, 2.6.8 |
| Lakshman | Sarah-Jane | Trinity House | 2.6.2 |
| Lee | WonShok | Hongik University | 2.6.1 |
| Burns | Gillian | Northern Lighthouse Board | 2.6.1 |
| Dunning | William | Trinity House | 2.6.1 |
| Ke | Ranxuan | Jimei University | 2.6.4 |
| Sim | Jiwon | Korea Institute Of Aids To Navigation(katon) | 2.6.5a |
| Yoo | Naehyuk | Korea Institute Of Aids To Navigation(katon) | 2.6.5b, 2.6.6, 2.6.7b |
| Liu | Juan | China Maritime Safety Administration | 2.6.6 |
| Guo | ZhenYu | China Maritime Safety Administration | 2.6.7a, 2.6.7b |
| Guigueno | Vincent | Direction Générale Des Affaires Maritimes, De La Pêche Et De L'aquaculture – Secrétariat D'état Chargé De La Mer | |
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