



## ENG COMMITTEE

# REPORT OF THE 22<sup>nd</sup> SESSION OF THE IALA ENGINEERING AND SUSTAINABILITY (ENG) COMMITTEE

**13 – 17 April 2026**

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International Organization for Marine Aids to Navigation

**23 April 2026**

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## Report of the 22<sup>nd</sup> session of the IALA Engineering and Sustainability (ENG) Committee Executive Summary

The 22<sup>nd</sup> session of the ENG Committee was held from 13 – 23 April 2026, including the physical week at IALA HQ between 13 – 17 April, chaired by Dr Alwyn Williams and vice-chaired by Michel Cousquer. The Secretary for the meeting was Alisa Nechyporuk.

119 participants from 29 countries, and two observers, participated in ENG22. 26 participants attended for the first time, and 24 online participants.

The ENG Committee considered 55 input papers and produced 31 output papers, not including working papers, from three Working Groups.

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

Key outputs completed included:

ENG22	9.2.1.2	Draft Revised Guideline G1023 on Design of Leading Lights
ENG22	9.2.1.3	IALA Model Course – Technician Training Level 2 – Model Course Overview
ENG22	9.2.1.4	C2001-1 Ed1.0 – Oct 2012 – Level 2 – Technician Training – Introduction to Aids to Navigation
ENG22	9.2.1.5	C2001-2 Ed2.0 – Jun 2016 – Introduction to Aids to Navigation-Buoyage
ENG22	9.2.1.6	C2001-3 Ed2.0 – Jun 2016 – Buoy Handling and Safe Working Practices
ENG22	9.2.1.7	C2001-4 Ed3.0 – Dec 2018 – Buoy Moorings
ENG22	9.2.1.8	C2001-5 Ed2.0 – Jun 2016 – Buoy Cleaning
ENG22	9.2.1.9	C2001-6 Ed2.0 – Jun 2016 – Introduction to Buoy Positions
ENG22	9.2.1.10	C2001-7 Ed2.0 – Jun 2016 – Maintenance of Plastic Buoys
ENG22	9.2.1.11	C2001-8 Ed3.0 – Dec 2021 – Maintenance of Steel Buoys
ENG22	9.2.1.12	C2001-9 Ed3.0 – Dec 2021 – Power Sources on Buoys
ENG22	9.2.1.13	C2001-10 Ed2.0 – Jun 2017 – An Introduction to Shore Marks
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ENG22	9.2.1.15	C2006-1 Ed2.0 – Jun 2016 – Aids to Navigation Service Craft and Buoy Tenders
ENG22	9.2.2.4	New Draft Guideline on PPP
ENG22	9.2.3.2	Revisions for G1063 Partnership Agreements for Complementary Use of Lighthouse Property
ENG22	9.2.4.1	New Draft Guideline on Maintenance of floating AtoNs

The following liaison notes and other documents were approved:

ENG22	9.2.1.1	Liaison note from ENG to ARM on AtoN SIDs (LoCAN) project
ENG22	9.2.2.1	Liaison note to RTCM on 10402.3 amendment
ENG22	9.2.2.2	Liaison note to ARM on Racons
ENG22	9.2.2.3	Liaison note to all committees on R1017 on Resilient PNT
ENG22	9.2.3.1	Liaison Note to WWA on Proposal for the revision of IALA L1.1 2D Lighthouse Model Course Syllabus

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## Report of the 22<sup>nd</sup> session of the IALA Engineering and Sustainability (ENG) Committee

### 1. INTRODUCTION

The 22<sup>nd</sup> session of the ENG Committee was held from 13 – 23 April 2026, including the physical week at IALA HQ between 13 – 17 April, chaired by Dr Alwyn Williams and vice-chaired by Michel Cousquer. The Secretary for the meeting was Alisa Nechyporuk.



#### 1.1 Welcome from the Secretary-General

Secretary-General Francis Zachariae extended a warm welcome to all attendees at IALA headquarters. He noted a strong, forward-looking agenda. Key themes include an increased focus on PNT and the re-emergence of e-Loran, alongside new initiatives such as sustainability, heritage, guidelines, and low-cost AtoNs. He commended the high quality of input papers and the experts' continued dedication.

He reported that IALA is progressing well, with 47 Member States and 344 members, and confirmed the successful transition to the new intergovernmental organization. Updates were also provided on the new headquarters, upcoming events, and future symposium planning.

#### 1.2 Approval of the agenda

The agenda was reviewed and approved (ENG22-1.2.1) without objection. A minor addition regarding the future 2027–2030 work plan was introduced and accepted by the Committee.

This confirmed the structure for the session, ensuring sufficient time for both strategic discussions and detailed technical work across the various agenda items.

### 1.3 Apologies

No apologies were received. A list of participants who attended ENG22 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 EU General Data Protection Regulations. A list of participants, including email addresses, will be included in the report of this meeting and may also appear in other committee-related platforms. Any participant who does not wish their contact details to be shared should inform the Committee Secretary as soon as possible.*

The Committee Secretary asked the following statement:

*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. This brief included an overview of the [ENG22 Action Plan](#) that had been agreed by the ENG Committee Management Team (CMT) to be progressed during ENG22 through Task Groups (TG). Each task had a deadline for expressions of interest to participate to the specified Task Group Leader (TGL) by a certain date.

Task items that were worked on at ENG22 were displayed in the *Action Plan*, which can be found on the IALA Task register for ENG.

The deadline for submitting documents to the silent approval procedure was set to 22 April 2026 at 09:00 CEST.

### 1.5 Programme of the week

The programme for the week was introduced, outlining the structure of plenary sessions, working group activities, and timelines for presentations. The schedule ensures that detailed technical discussions take place within working groups, followed by consolidation in plenary sessions.

Participants were also informed about planned social events, including the soiree and committee dinner, which support networking and informal exchange alongside the formal meeting programme.

## 2. REVIEW OF ACTION ITEMS FROM LAST MEETING

The Committee Secretary confirmed that all Secretariat actions from ENG22 were completed (input paper ENG22-2.1.1). The Committee reviewed action items from ENG21, noting that the majority had been completed successfully. One outstanding item related to quality assurance was identified and will be addressed during the current session.

Further detailed follow-up on individual actions will be conducted within the respective working groups, ensuring continuity of work between sessions.

## 3. REVIEW OF INPUT PAPERS

The input papers for ENG22 consisted of new input papers as well as working papers from the previous session. The input paper list (ENG22-3.1.1) include the working papers from ENG21.



## 4. REPORTS FROM OTHER BODIES AND INITIATIVES

### 4.1 IALA

#### 4.1.1 IALA Council

Minsu Jeon, the Technical Director of IALA, reported that key governance and technical decisions, including the approval of several new and revised recommendations and guidelines covering digitalization, drone operations, ASM, and maritime services. Progress on organizational matters, events, and future planning was also noted.

The Council also confirmed continued development of strategic initiatives, including the Centre of Excellence concept and preparations for upcoming international events, reflecting a strong and active organizational framework.

#### 4.1.2 IALA Policy Advisory Panel (PAP)

Minsu Jeon reported on the PAP updates, focused on strengthening organizational coherence following the transition to IGO status. Key outcomes included advancing a unified digitalization strategy, clarifying responsibilities across committees, and addressing challenges related to S-200 implementation and data harmonization.

Sustainability was formalized as a structured area of work, and strategic discussions addressed long-term trends such as autonomy, resilient PNT, and evolving regulatory frameworks. These insights will guide future organizational development.

#### 4.1.3 Workshops Outputs and Actions

##### 4.1.3.1 *Sustainability in AtoN provision*

ENG Chair, Alwyn Williams, reported on the sustainability workshop, emphasizing that sustainability is a continuous, cross-cutting issue requiring coordination across all committees. As a result, a new working group 4 on Sustainability within ENG will be established to address this topic and develop future outputs, including an outward-facing document.

The sustainability workshop concluded that sustainability must be treated as a continuous, cross-cutting priority across all IALA activities rather than a standalone topic. It was agreed to establish a dedicated working group within the ENG Committee, starting from the next session, to structure and advance this work. The group will initially identify sustainability-related tasks in the current work plan and contribute to developing an outward-facing document for the 2027 Conference. The need for coordination across committees was emphasized, given the interdisciplinary nature of sustainability, and participants were invited to engage actively, including volunteering for the role of chair.

##### 4.1.3.2 *Future Radiocommunication and Radionavigation*

Hideki Noguchi, DTEC Chair, updated on the radiocommunication and radionavigation workshop, highlighting increasing GNSS vulnerabilities and the need for resilient alternatives, including terrestrial systems and emerging technologies such as LEO satellites. The importance of maintaining traditional aids as backup was also recognized.

The workshop on future radiocommunication and radionavigation highlighted increasing vulnerabilities of GNSS and the urgent need for resilient PNT solutions. Key findings included the continued relevance of terrestrial navigation systems, the operational importance of traditional visual AtoN as backup, and emerging developments such as LEO satellite-based PNT and mobile communication technologies. Discussions also pointed to potential future work, including consideration of new working structures to address evolving communication technologies and their integration into maritime navigation.

#### 4.1.4 2025-2027 Work Plan and Task Register

The current work plan and task register were presented as key tools for managing committee activities. Participants were guided on how to access and update tasks, ensuring transparency and coordination of ongoing work.

Initial discussions on the 2027–2030 work plan highlighted the need for prioritization due to a shorter planning cycle. Input from working groups will be essential in defining realistic and achievable objectives for the next period.

#### 4.1.5 Quality check procedure

Christina Schneider, IALA Document Controller and Legal Adviser, updated on the quality assurance process to reflect IALA's transition to an intergovernmental organization, emphasizing stricter requirements for document consistency, terminology, and alignment with the Convention. A revised process was introduced, proposing a longer review cycle—up to six months—to allow more thorough editorial and technical validation before submission to Council. New templates for recommendations and guidelines were also introduced, including structural changes such as the use of annexes for normative content.

New templates for recommendations and guidelines were presented, and participants were encouraged to adopt them for future work. The aim is to improve the overall quality and coherence of IALA publications.

Several questions were raised by participants. Clarification was sought on how language should be adapted under the new IGO framework and whether formal guidance would be provided; the Secretariat confirmed that updates to the style guide are planned. Participants also asked whether the revised quality assurance timeline would apply to liaison documents—this was clarified as not applicable, given their time-sensitive nature. Additional questions addressed the scope of document review, confirming that all existing recommendations and guidelines will be progressively updated, with priority given to key documents. Concerns about potential delays were acknowledged, and it was emphasized that exceptions would be made where urgent coordination with other organizations is required.

#### 4.1.6 MASS task group

Recent developments on Maritime Autonomous Surface Ships (MASS) were presented by Minsu Jeon, including the approval of a key recommendation on digitalization and service provision for autonomous operations. The work is now progressing toward the development of detailed guidelines.

Coordination with IMO developments, particularly the expected adoption of the MASS Code, was highlighted as an important aspect of ongoing work.

#### 4.1.7 WWA Updates

Vincent Denamur, IALA WWA Dean, reported a high level of activity in training and capacity building, supported by the recruitment of additional staff. This expansion will allow greater focus on both operational and strategic educational tasks.

Key initiatives include GNSS training, S-200 capacity building, and the review of model courses to align with evolving technical and educational requirements. Continued cooperation with technical committees remains essential.

### 4.2 IMO

Hideki Noguchi provided an update on IMO updates, including the expected approval of the non-mandatory MASS Code and forthcoming SOLAS amendments related to VDES. These developments are highly relevant to the Committee's work.

Further work on performance standards for advanced navigation systems, including R-mode and multi-constellation receivers, was also highlighted, with implications for ongoing ENG activities.

#### 4.3 IHO

Minsu Jeon reported that cooperation between IALA and IHO continues to strengthen, particularly in relation to the S-100 and S-200 frameworks. Joint activities, including training and workshops, support harmonization and interoperability.

A joint workshop planned for later in the year will focus on practical implementation challenges, further enhancing collaboration between the two organizations.

#### 4.4 ITU

Minsu Jeon provided an update on ITU activities, including updates to maritime communication standards and ongoing studies related to VDES, R-mode, and digital communication technologies. These developments support the evolution of resilient navigation systems.

The importance of aligning IALA work with ITU developments was emphasized, particularly in areas related to spectrum use and communication infrastructure.

#### 4.5 PIANC

Mariano Luis Marpegan from Dragados y Balizamientos S.A. (Argentina) reported on PIANC as a sister organization to IALA; PIANC provided an overview of its structure, technical commissions, and recent work on navigation infrastructure, environmental considerations, and safety. The organization continues to contribute valuable guidance relevant to maritime navigation.

Initiatives to engage young professionals and upcoming events were also highlighted, reflecting efforts to strengthen knowledge sharing and future expertise in the sector.

#### 4.6 CIE

Dr Alwyn Williams reported on updates on cooperation with CIE, including ongoing work on lighting-related technical topics and plans to formalize collaboration through a memorandum of understanding. Progress in certain technical areas has been limited but remains ongoing.

Future opportunities for strengthened cooperation were noted, particularly in relation to developments in visual perception and lighting standards relevant to AtoN.

### 5. PRESENTATIONS

All recordings of the presentations given at ENG22 can be found on the fileshare (login necessary). The following presentations were given:

- 5.1 Green Cape Lighthouse (Greg Hansen, Australian Maritime Safety Authority)
- 5.2 AtoN for SIDS (Ashley Hall, Royal College of Art, and Sarah Robinson, Hawkshill Consulting Limited)
- 5.3 Galileo HAS enabled maritime & IWW receiver (ISLET), Inmaculada Armengol Moreno, GMV
- 5.4 GNSS and EO Requirements for Automated Inland Waterways Navigation: Gap analysis and Pilot Tests Preparation, Andrea Sánchez Mediavilla, GMV
- 5.5 IMO SBAS DFMC & ARAIM Performance Standard, Terry Skinsley, AMSA
- 5.6 PPT on PNT for S-200, Ms. Zhuang, China MSA
- 5.7 Twinning Lighthouses, Ono Masatora, JCG

## 6. 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 (online)
WG2 – Radionavigation Services	Jeffrey van Gills / Stefan Gewies, Sun Qian
WG3 – Heritage and Culture forum	Sarah-Jane Lakshman / Wonshok Lee

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

During the 22<sup>nd</sup> session of the ENG committee, WG1 consisted of 37 members with a further 9 online and considered 13 input papers. The main work of the group was to update the task register and progress the work programme.

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

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

### 7.1 ENG-2.1.4 Update R0112 Leading lights

Task group leader: Lingyan Wang

Input papers:

ENG22-3.1.1.3	Input paper on Revised Guideline G1023 on Design of Leading Lines
ENG22-3.1.1.3.1	Revised G1023 on Design of Leading Lines
ENG22-3.1.1.3.2	Additional and useful information about the design of the leading line
ENG22-3.1.1.12	Draft R0112 on Leading Lights

Comments:

The task group worked further through the revised working version of Guideline G1023 Design of Leading Lines and finalized it. The review focused primarily on removing comments, accepting changes, and clarifying some formulae. The input paper of 'Additional and useful information about the design of the leading line' was also reviewed, and this is intended to be moved to the IALA Wiki in the future. Another input paper of 'Draft R0112 on Leading Lights' was reviewed initially and was planned to be worked on further in the intersessional period.

Key outcomes include:

1. A new section of the acquisition region is introduced in the guideline to interpret the specific considerations for this region.
2. The beam width and the illuminance requirement of the acquisition region are illustrated in addition to those for the useful segment.

3. The requirements for passing lights at different heights were discussed, and the wording was revised to improve clarity.
4. The part regarding the ratio of luminous intensity of the front and rear lights was revised to improve clarity.
5. It was decided that the formulae will not be presented in the Recommendation, and for detailed calculation, the Guideline must be referred to.

Output:

- Revised G1023 on Design of Leading Lines
- Additional and useful information about the design of the leading line (to be removed to IALA Wiki in the future)
- ENG22-3.1.1.12 Draft R0112 on Leading Lights-14.04.2026

*Action item:*

**Action Item ENG22-1** *The Secretariat is requested to submit ENG22-9.2.1.2 Draft Revised Guideline G1023 Design of Leading Lines to Council for approval.*

**Action Item ENG22-2** *Lingyan Wang and Partel Keskkyla are requested to update the Draft Recommendation R0112 on Leading Lights intersessionally, as discussed during the ENG22 committee meeting, and submit it as input to the ENG23 committee meeting.*

## 7.2 ENG-2.1.6 Update R0203 (E200-3)

Task group leader: Lingyan Wang

Input papers:

ENG22-3.1.1.2	Input paper on Draft Guideline on The Measurement of Marine Lights Performance
ENG22-3.1.1.2.1	Draft Guideline on The Measurement of Marine Lights Performance
ENG22-3.1.1.9	Use of Reference Light for Outdoor Photometric Measurements

Comments:

The task group reviewed both new content and changes from the intersessional period. Comments from this period were actioned where possible. During the ENG22 session, the task group made various comments throughout the document to be implemented during the next intersessional period.

Key outcomes include:

1. The chair of WG1 requested that a section be added on measuring discrete components of a light individually if the combined size is too large for the measurement system. Some existing information on this will be expanded, and the structure will be improved to make it easier to find.
2. The task group agreed with Korea's input paper on using a reference light in the field. Existing content on this subject will be made clearer, and additional content will be added where necessary.
3. Some metrics used in R0203 can produce significantly different results from lights that are, for practical purposes, very similar. For example, the FWHM or the maximum angle of deviation of a vertical beam.  
In some cases, these results may be misleading. It is extremely difficult to define a metric that performs well in every possible scenario, and so it is sometimes necessary to apply some alternate approach. A few examples of this will be given in the guideline.

4. The task group discussed the process and implications of measuring the intensity versus angle profile of a light while it is set to exhibit a fixed character. The guidance on this matter was revised, and some comments were made for action during the intersessional period.
5. The task group was unsure of the meaning of the specification peak intensity of a directional light in Recommendation R0203. Clarification will be sorted from the participants of the R0203 task group.
6. The task group agreed that it would be beneficial to show an example test sheet in the guideline.
7. A section will be added to provide guidance on obtaining a nominal range from the measured effective intensity. If this section becomes too large, then it could become a separate guideline.

Output:

Revised working draft Guideline on The Measurement of Marine Lights Performance 16.04.2026.docx

*Action item:*

**Action Item ENG22-3** *Lingyan Wang and Link Powell are requested to update the draft Guideline on The Measurement of Marine Lights Performance intersessionally, as discussed in the ENG22 committee meeting, and submit as input to the ENG23 committee meeting.*

### **7.3      ENG-2.2.1 Update G1037 Data collection for AtoN performance calculation**

Task group leader: Sigge Gustafsson

No work was carried out during ENG22.

### **7.4      ENG-2.2.2 Update G1077 Maintenance of AtoN**

Task group leader: Chris Scully

Complete

### **7.5      ENG-2.2.4 Update and Amalgamate the Guidelines G1108, G1136 and G1175**

Task group leader: Mariano Marpegan

Complete

### **7.6      ENG-2.3.1 Develop guidance quantifying floating AtoN characteristics**

Task group leader: Gillian Burns

Complete

### **7.7      ENG-2.2.8 Update G1165 on Sustainable Structural Design**

Task group leader: Sarah Robinson

No work was carried out during ENG22.

### **7.8      ENG-2.3.2 Creating an overview guidance on the maintenance of floating AtoN**

Task group leader: Philippe Renaudin

During the last session, all the paragraphs were completed except for the annexes.

The group reviewed the entire document to ensure that the information provided is consistent with the topic.

In addition, the group added photographs to illustrate the different parts of buoys and their mooring lines, for a better understanding.

Finally, the appendices have been completed to provide examples of maintenance works.

At the end of the ENG22 session, the document is finished.

The last work is to format the document.

*Action item(s):*

**Action Item ENG22-4** *The Secretariat is requested to forward ENG22-9.2.4.1 New Draft Guideline on Maintenance of Floating AtoN for the quality check procedure as a document to be reviewed by ENG23.*

### **7.9      ENG-2.3.3 Update Recommendation R0107 (E-107) Moorings for floating AtoN**

Task group leader: José Andrés Fombuena

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

### **7.10      ENG-2.3.4 Update G1066 Design of floating AtoN moorings**

Task group leader: José Andrés Fombuena

During the ENG22 work period, the task group:

- Revised and polished the Guideline G1066 and created a revised calculation section. Some key changes to the calculation include:
  - Calculation now is aligned with the new terminology and calculation process, focused on a single calculation solution for multiple catenary states.
  - Calculation now considers both tail length and sinker height to calculate the “catenary height”.
  - Clarification was made to the swing radius formulas; the formulas previously underestimated the swing radius.
- Improved the Excel calculation spreadsheet according to modifications.
- Adjusted the content to the new guideline style guide and added definitions on catenary, mooring line, mooring system, and anchoring device.
- All the content on the Guideline (except parts of Section 8 Static Catenary Mooring Design Process) is approved.
- The material for the IALA Wiki will be sent to the Secretariat.

Task Group’s intention was to have intersessional work to present an INPUT paper to ENG23, which will include the finished Guideline along with the Excel tool, to:

- Finish the revision and discussion of Dean’s calculation work.
- Improve the calculation sheet interface and format.
- Work on several examples of mooring calculations, which will be included with the Excel tool, such as:
  - One with the formulas done directly without any software tool, to explain the math behind them.
  - One with a Safe Water Mark, where we will focus on reliability, maximum service life, and calculation of different environmental scenarios.
  - A lateral channel buoy, where we will focus on solutions to reduce the swinging radius.
  - An isolated danger mark where we will focus on solutions for installation on complicated seafloor types.



*Action Item:*

**Action Item ENG22-5** *The Secretariat has requested to update IALA Wiki content on the Design of floating AtoN moorings, and make IALA Wiki available directly for the main menu of the website.*

**Action Item ENG22-6** *Jose Andrés Fombuena is requested to coordinate intersessional work and submit an input paper to ENG23 on the revised G1066 document.*

#### 7.11 ENG-2.2.9 AtoN for SIDS

Task group leader: Sarah Robinson

The task group brought together Committee members with an initial interest in the proposal to develop low-cost, IALA-compliant Marine Aids to Navigation for small island developing states and least developed countries, as a joint activity with ARM. The meeting included a presentation by Greg Hansen on examples of projects in the southern Pacific and led to the identification of an initial set of key themes for consideration. These themes were intended to inform the proposed project approach, an associated project risk register, and the development of initial technical standards requirements. The outcomes were summarised and forwarded to ARM for further discussion at ARM22.

*Action item:*

**Action Item ENG22-7** *The Secretariat is requested to forward the liaison note ENG22-9.2.1.1 on AtoN SIDs (LoCAN) to ARM22.*

#### 7.12 ENG-6.3.1 Update G1008 Remote control and monitoring of AtoN

Task group leader: Peter Dobson

The Task Group met throughout the ENG22 work period, returning to the task of updating guideline 1008 on Remote Monitoring and Control. The meeting was attended by 17 participants, with 4 online from 11 different countries.

The group continued to review the guideline last edited intersessionally and reviewed the input paper submitted by China MSA. Aspects of this input paper were included within the guidelines, with significant editorial changes made. Progress is on schedule, but there is still a lot to review and restructure.

The group noted that the naming used to refer to this guideline is inconsistent and should be "Remote Monitoring and Control (RMCS)".

Further work is needed to adjust the structure and develop several appendices. This will be progressed intersessionally, and an input paper will be submitted for ENG23 for further work.

##### 7.12.1 Related documents

Guideline 1008 – Draft Update on remote control and monitoring – Location: ENG22>WG1>Task 6.3.1>04 output papers.

Input papers reviewed or referenced

- ENG12-3.1.11 Construction of a standardized remote control and monitoring system of aids to navigation in China
- ENG12-3.1.5.3 Inputs for IALA G1008 rev1\_MENAS
- ENG13-3.1.2.7 The application of the Beidou remote control and monitoring system in China
- ENG14-n.n.n Development Status on Standardization of AtoN Management Systems-final
- ENG15-3.1.2.2 The communication methods of RCM and its advantages and disadvantages



- ENG18-3.2.1.4 Proposal on the Revision of Chapter 5 - Objectives of the Guideline G1008
- ENG18-3.2.1.4.1 Annex Comparison of the Advantages and Disadvantages of the AtoNs with or without RCMS
- ENG20-3.1.1.6 Proposal for The Revision of Guideline G1008 Remote Control and Monitoring of Marine Aids to Navigation
- ENG21-3.1.1.3 French strategy for monitoring AtoN
- ENG22-3.1.1.4 Proposal for Revision G1008 on Remote Control and Monitoring Marine AtoN

*Action item:*

**Action Item ENG22-8** *Committee participants are requested to provide the task group with examples and approaches for determining the decision-making process for remote monitoring requirements as an input to ENG23.*

**Action Item ENG22-9** *The Secretariat is requested to update the IALA Task Register and align the naming of the task in line with the draft guideline “remote monitoring and control” appropriately.*

**Action Item ENG22-10** *Peter Dobson is requested to arrange an intersessional meeting and submit an input paper to ENG23 on the revised draft guideline on Remote Monitoring and Control of AtoN.*

### 7.13 ENG-5.1.1 Review WWA Module Courses

Task group leader: Monica Herrero

The main objective of this task is, based on the experience gained from delivering Level 2 courses for AtoN Technicians, to update Module C2001-1 to 10, *Introduction to Aids to Navigation*, in terms of content and time in hours allocated to each of its elements. This is a minor update, also prompted by the new nomenclature for the “elements” of each module introduced by the World-Wide Academy.

Additionally, the same review has been carried out for Modules C2005-1, *Introduction to Coatings and Specifications; Surface Preparation*, and C2006-1, *AtoN Service Craft and Buoy Tenders*.

The task group considered the input paper ENG22-3.1.1.8 and reviewed and amended the following model courses:

- ENG22-9.2.1.4 IALA Model Course – Technician Training Level 2 – Model Course Overview
- ENG22-9.2.1.5 C2001-1 Ed1.0 - Oct 2012 - Level 2 – Technician Training - Introduction to Aids to Navigation
- ENG22-9.2.1.6 C2001-2 Ed2.0 - Jun 2016 - Introduction to Aids to Navigation-Buoyage
- ENG22-9.2.1.7 C2001-3 Ed2.0 - Jun 2016 - Buoy Handling and Safe Working Practices
- ENG22-9.2.1.8 C2001-4 Ed3.0 - Dec 2018 - Buoy Moorings
- ENG22-9.2.1.9 C2001-5 Ed2.0 - Jun 2016 - Buoy Cleaning
- ENG22-9.2.1.10 C2001-6 Ed2.0 - Jun 2016 - Introduction to Buoy Positions
- ENG22-9.2.1.11 C2001-7 Ed2.0 - Jun 2016 - Maintenance of Plastic Buoys
- ENG22-9.2.1.12 C2001-8 Ed3.0 – Dec 2021 – Maintenance of Steel Buoys
- ENG22-9.2.1.13 C2001-9 Ed3.0 - Dec 2021 - Power Sources on Buoys
- ENG22-9.2.1.14 C2001-10 Ed2.0 - Jun 2017 - An Introduction to Shore Marks

- ENG22-9.2.1.15 C2005-1 Ed2.0 - Jun 2017 - Introduction to Coatings and Specifications; Surface Preparation
- ENG22-9.2.1.16 C2006-1 Ed2.0 - Jun 2016 - Aids to Navigation Service Craft and Buoy Tenders

*Action item:*

**Action Item ENG22-11** *The Secretariat is requested to forward ENG22-9.2.1.3, ENG22-9.2.1.4, ENG22-9.2.1.5, ENG22-9.2.1.6, ENG22-9.2.1.7, ENG22-9.2.1.8, ENG22-9.2.1.9, ENG22-9.2.1.10, ENG22-9.2.1.11, ENG22-9.2.1.12, ENG22-9.2.1.13, ENG22-9.2.1.14, ENG22-9.2.1.15, updated IALA Model Course Level 2 Technician Training Overview, to the Council for approval.*

#### 7.14 ENG-6.3.2 New Guideline on Harmonisation of IoT Protocol for Visual AtoN

**Task group leader:** Jonas Lindberg

Complete

#### 7.15 Review of IALA Work Programme 2023-2027 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.

## 8. WORKING GROUP 2 – RADIONAVIGATION SERVICES (WG2)

During the 22nd session of the ENG committee, the WG2 – Radionavigation services worked on several tasks regarding Positioning, Navigation, and Timing. During the meeting, there were 31 people joining physically and 8 online.

**Referencing Document(s):** ENG WG2 Work Program

The work plan was introduced, reviewed, and adopted by the WG.

During the meeting, the WG added one new task:

1. Task 3.2.4 eLoran Harmonization

During the meeting, one task name was slightly changed to cover the work better:

1. Task 3.3.2 Guideline on GNSS satellite-based Precise Point Positioning (PPP) for Maritime service

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

Over the week, several presentations were given and discussed:

- Galileo HAS enabled maritime & IWW receiver (ISLET) by Inmaculada Armengol Moreno, GMV
- GNSS and EO Requirements for Automated Inland Waterways Navigation: Gap analysis and Pilot Tests Preparation by Andrea Sánchez Mediavilla, GMV
- IMO SBAS DFMC & ARAIM Performance Standard by Terry Skinsley, AMSA
- Proposal for S-241 PNT Station Almanac Data Model by Zhuang Yingdian, China MSA
- Proposal of VDES shore station upgrade to enable SBAS data retransmission by José Luis Martín, ESSP

Throughout the week's physical session, several focused WG sessions were held. The WG focused on the following tasks:

- Reviewed several documents
- Developed further documents on high-accuracy positioning systems
- Developed further documents on Racons
- Developed further documents on S-200
- Developed further documents on Resilient PNT
- Discussion on possible governance of eLoran by IALA

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, a number of focused WG sessions were held. The WG focused on the following tasks:

- Task 3.1.3 on Amendment G1180
- Task 3.2.1 on R-Mode development
- Task 3.2.2 on Develop the Recommendation and Guideline on R-Mode implementation (MF & VDES);
- Task 3.2.4 on eLoran Harmonization (new task)
- Task 3.3.1 on Augmentation systems
- Task 3.3.2 on Guideline on GNSS satellite-based Precise Point Positioning (PPP) for Maritime service (name changed)
- Task 3.3.3 on Retransmission of SBAS data via VDES
- Task 3.3.4 on Develop a Recommendation on SBAS Service
- Task 3.3.5 on Guideline on Terrestrial-Based Precise Point Positioning (PPP) for Maritime Service
- Task 3.4.3 on Modify R0101 to recommendation and create a new Guideline
- Task 3.4.5 on Update G1010 Racon Range Performance
- Task 3.4.6 on Implementing and Maintaining a Racon System/Service
- Task 7.1.2 on Development S-200 product specification PNT Station almanac
- Task 8.1.1 on PNT technology review.

## 8.1 ENG-3.1.3 on Amendment of G1180

Task group leader: Kaisu Heikonen

Input papers:

3.1.2.10	Proposed updates to G1180
3.1.2.10.1	G1180 Ed1.0 Resilient PNT update

Comments:

The task group reviewed the working paper that had been prepared before the meeting to consolidate all the comments and proposed changes received through the input papers and the following additional sources:

- Working paper forwarded from ENG 21
- Outcomes of the IALA Workshop on Future Radionavigation and Radiocommunication Systems
- Late contributions received directly by e-mail

All the above contributions have been uploaded to the IALA FileShare [Task Group folder](#):

(Committees > ENG > ENG22 > WG2 – Radionavigation Services > 3.1.3 Amendment G1180 > Earlier versions).

The working group reviewed the amendments of the Recommendation R1017 on Resilient PNT, which were conducted during the IALA Workshop on future radionavigation and radiocommunication systems in February 2026. The working paper was developed further during ENG22. It is planned to finish the work at ENG23. The current version of the working paper shall be reviewed by the ARM, VTS, and DTEC committees as requested during the workshop. Therefore, a liaison note was drafted, which asks ARM, VTS, and DTEC committees for a review of the R1017 Ed2.0 working paper.

Key outcomes include:

1. The task group agreed to continue drafting intersessionally and assigned specific tasks to group members based on their expressed interests.
2. The task group will hold two online intersessional meetings:
  - 25 June 2026, 11:00 – 12:30 UTC
  - 10 September 2026, 11:00 – 12:30 UTC

Output:

- ENG22-12.5.1.1 WP\_to\_ENG23\_Draft G1180 Ed1.1 Resilient PNT
- ENG22-9.2.2.3 Liaison note to all committees on Recommendation on Resilient PNT
- ENG22-9.2.2.3.1 WP R1017 Ed 2.0 Resilient Position, Navigation, and Timing

*Action item:*

**Action Item ENG22-12** *Committee participants are requested to send an email to the task group leader, Kaisu Heikonen ([kaisu.heikonen@ftia.fi](mailto:kaisu.heikonen@ftia.fi)), by 24 April 2026, in order to be included in the task group email distribution list.*

**Action Item ENG22-13** *The Secretariat is requested to forward the working paper ENG22-12.5.1.1 WP on Draft G1180 Ed1.1 Resilient PNT to ENG23.*

**Action Item ENG22-14** *The Secretariat is requested to forward ENG22-9.2.2.3 Liaison note on the Recommendation on Resilient PNT and ENG22-9.2.2.3.1 Annex WP R1017 Ed 2.0 Resilient Position Navigation and Timing to the ARM, VTS, and DTEC committees.*

## 8.2 ENG-3.2.1 on R-Mode development

Task group leader: Stefan Gewies

Comments:

RTCM was asked by a liaison note to ENG21 for additional information from the MF R-Mode test beds to support the development of an amendment to the RTCM 10402.3 standard. This information is expected to be available at the ENG23 meeting. This might be too late to support RTCM in finishing work on the standard in 2026. The working group identified the need to inform RTCM that IALA will provide the requested information by the end of 2026.

Output:

ENG22-9.2.2.1 Liaison Note to RTCM regarding the 10402.3 amendment

*Action item:*

**Action Item ENG22-15** *The Secretariat is requested to forward ENG22-9.2.2.1 Liaison note to RTCM regarding the 10402.3 amendment to the Council for approval.*

### 8.3 ENG-3.2.2 on Developing a Recommendation and Guideline on R-Mode implementation (MF and VDES)

Task group leader: Stefan Gewies

Input papers:

WP from ENG21	ENG21-9.2.4.1 WP Draft G on Implementation of MF and VDES R-Mode system and service.docx
3.1.2.11	Information paper on R-mode
3.1.2.11.1	Annex – Amendments to resolution A.1046(27)

Comments:

The task group leader expressed the need to finish this Guideline to support the parallel ongoing work of IMO in the NCSR sub-committee on the R-Mode performance standard and the amendment of IMO resolution A.1046(27). The working group reviewed the existing structure of the Guideline and prioritized the work on the chapters. Work was distributed to generate the content. The working group agreed to do intersessional work by a drafting group.

Key outcomes include:

1. Updated WP Guideline on Implementation of MF and VDES R-Mode system and service.

Output:

ENG22-12.5.1.2 WP Guideline on Implementation of MF and VDES R-Mode system and service

*Action item:*

**Action Item ENG22-16** *Committee participants are requested to send an email to the task group leader, Stefan Gewies ([Stefan.Gewies@dlr.de](mailto:Stefan.Gewies@dlr.de)), if they want to be included in the task group email distribution list.*

### 8.4 ENG-3.2.4 on eLoran Harmonization (new task)

Task group leader: Kevin Sheridan

Input papers:

ENG22-3.1.2.9	eLoran Baseline Specification Gap Analysis and Roadmap
ENG22-4.1.3.2.1	Report on the Workshop on Radionavigation and Radiocommunication

Comments:

The Working group discussed the input document submitted by the Republic of Korea, France, and the United Kingdom, which identifies areas in which international harmonization is needed to support the development and widespread adoption of interoperable eLoran services. The group also took into account the report of the Workshop on Radionavigation and Radiocommunication held in Edinburgh.

The input paper outlines a roadmap of standardization activities, including developing an eLoran system specification and liaising with other international bodies representing domains in which eLoran is likely to be used. The WG was in agreement with the proposed work outlined in the paper and agreed that IALA could play a key coordinating role, subject to Council approval.

During the discussion, Kevin Sheridan volunteered to become the task group leader of this task. WG members from RoK (Younghoon Han), France (Antoine Rigole and Xavier Hernoë), Germany (Stefan Gewies), and the Netherlands (Jeffrey van Gils) indicated that they would participate. Following a further meeting initiated by Omar Frits Eriksson, IALA's Deputy Secretary-General, China has also indicated willingness to participate in this task, with contact details provided to the task leader.

Key outcomes include:

1. The group sees a role for IALA in the coordination and harmonization of eLoran.
2. The group agreed in principle with the roadmap described in the input paper.

Output:

1. Creation of a new task and a discussion document on eLoran

*Action item:*

**Action Item ENG22-17** *Committee participants are requested to send an email to the task group leader, Kevin Sheridan ([Kevin.Sheridan@gla-rad.org](mailto:Kevin.Sheridan@gla-rad.org)), if they want to be included in the task group email distribution list.*

**Action Item ENG22-18** *The Secretariat is requested to forward the working paper ENG22-12.5.1.3 WP on eLoran discussion document to ENG23.*

**Action Item ENG22-19** *The Chair of ENG committee is requested to discuss the possible role of IALA for eLoran in the PAP committee.*

**Action Item ENG22-20** *The Secretariat is requested, after the discussion in the PAP committee, to inform the Council about the role IALA could have in the eLoran community.*

## 8.5 ENG-3.3.1 on Augmentation systems

Task group leader: José-Luis Martin

Comments:

A presentation given by the Australian Maritime Safety Authority (Mr Terry Skinsley) reported on the progress of the work performed by the IMO Correspondence Group related to the performance standard for an SBAS DFMC & ARAIM shipborne radionavigation receiver, which was requested by IMO (gap analysis and functional objectives as the basis of the future performance standard). The content has been included in the input paper that will be submitted to IMO NSCR13 (scheduled in June) regarding the performance standard.

*Action item:*

**Action Item ENG22-21** *Australian Maritime Safety Authority is invited to report the conclusions and outcomes from NSCR13, as well as to inform about the next steps regarding the development of the performance standard for an SBAS DFMC & ARAIM shipborne radionavigation receiver by IMO CG in the next ENG23.*

## 8.6 ENG- 3.3.2 Guideline on GNSS satellite-based Precise Point Positioning (PPP) Maritime service (name changed)

Task group leader: Sun Qian

Input papers:

ENG22-3.1.2.3	Input Paper on Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service
ENG22-3.1.2.3.1	Draft of Guideline GNSS satellite-based Precise Point Positioning (PPP) MARITIME service

#### Comments:

The Task Group finished the development of the Guideline on Maritime PPP. The work was initially proposed at ENG 17 and formally commenced at ENG 18. During the intersessional period and subsequent meetings, contributions were consolidated, and the document was progressively refined. Discussions during the meeting confirmed that the scope, structure, and technical content are now sufficiently mature. The Guideline addresses high-accuracy maritime positioning services, with particular attention to PPP-based techniques and their role within the maritime PNT architecture. The document also reflects discussions on system architecture, performance expectations (e.g., high accuracy and convergence time), and the relationship between satellite-based and terrestrial augmentation solutions. The Task Group agreed that the document is ready to proceed to the next stage, including approval, editing, and publication processes.

Key outcomes include:

- The full text of the Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service has been finalized and approved by the working group.
- Technical content, structure, terminology, and performance indicators are fully aligned with relevant international maritime standards and industry best practices.
- The guideline clearly defines satellite-based PPP service architecture, application scope, performance requirements, and implementation guidance for maritime users.
- All comments from previous ENG sessions and intersessional reviews have been properly addressed and incorporated.

Output:

ENG22-9.2.2.4 Final Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service

#### Action item:

**Action Item ENG22-22** *The Secretariat is requested to forward ENG22-9.2.2.4 Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service to the Council for approval.*

### 8.7 ENG-3.3.3. on Retransmission of SBAS data via VDES

Task group leader: José-Luis Martin

Input papers:

3.1.2.6	Proposal of VDES shore station upgrade to enable SBAS data retransmission
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#### Comments:

A presentation was done to explain the technical content included in the input paper. This material complements the technical content produced and reviewed in DTEC4 and DTEC5. It was reviewed and accepted by DTEC WG3 and initially proposed to be part of the G1117 VDES Overview guideline. Subsequently, it was updated but finally rejected and recommended to be included in another guideline covering PNT topics. Thus, this technical content will be part of a Guideline detailing the retransmission of SBAS data via VDES (as per the scope of the task 3.3.3).



The task leader reported the plan to provide a draft table of contents of this Guideline in the ENG23 committee meeting for review, refinement, and acceptance by the WG2.

## 8.8 ENG-3.3.4 Develop a Recommendation on SBAS Service

Task group leader: José-Luis Martin

Comments: Task leader plans to provide a draft version of this recommendation in ENG23 to be reviewed and refined by the ENG WG2.

*Action item:*

**Action Item ENG22-23** *Committee members are invited to support this task. Interested people are invited to contact José-Luis Martin ([jose-luis.martin@essp-sas.eu](mailto:jose-luis.martin@essp-sas.eu)) directly.*

## 8.9 ENG- 3.3.5 on Guideline on Terrestrial Based Precise Point Positioning (PPP) for Maritime Service (name changed)

Task group leader: Sun Qian

Input papers:

3.1.2.7	Working Draft of Guideline on Ground-based GNSS Precise Positioning for Maritime Service
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Comments:

This task was proposed based on the input paper from ENG 21 and was formally established at this ENG22 session. The task focuses on developing a guideline for terrestrial-based precise point positioning services for maritime applications, including port operations, coastal navigation, offshore operations, and surveying. Considering the large technical scope, system architecture differences, communication channel characteristics, and performance requirements involved, the task group agreed that the work would be carried out jointly during the intersessional period. The task group will collect technical materials, draft the outline, develop chapter content, and conduct technical discussions via email and an intersessional virtual meeting.

The task group discussed the name of the task and agreed on the current working title as Guideline on Terrestrial-Based Precise Positioning for Maritime Service. The name has to be improved in ENG23.

Key outcomes include:

- New task ENG-3.3.5 Guideline on Terrestrial-Based Precise XXX Positioning for Maritime Service formally established.
- Task scope, objectives, and outline structure preliminarily confirmed by the working group.
- Task group members agreed to conduct intersessional research, drafting, and discussion.
- Intersessional working mechanism (email communication + virtual meeting) was confirmed.

Output:

ENG22-12.5.1.4 Initial Outline and Draft Structure for Guideline on Terrestrial-Based Precise XXX Positioning for Maritime Service

*Action item:*

**Action Item ENG22-24** *Committee members who are interested in contributing to this guideline are invited to share their contact information and willingness to join by email to the task leader, Sun Qian ([qbcouple@163.com](mailto:qbcouple@163.com)).*



**Action Item ENG22-25** *Task group members will conduct intersessional research and draft writing via email, and the task leader will coordinate and assign sections. The task group will hold one intersessional virtual meeting before the next session to review the outline and initial draft.*

#### 8.10 ENG-3.4.3 on Modify R0101 to recommendation and create a new Guideline

Task group leader: Paul Mueller

Comments:

This task currently has three aspects. The first aspect is the update of R0101 Marine Radio Beacons (Racons) into the current form and template. This has been completed, and the document has been approved by Council.

The second aspect is writing a new Guideline G11xx Use and Applications of Racons. The Guideline progressed during this session.

The third aspect is responding to the GLA R&D input paper ENG22-3.1.2.12 Impacts of Offshore Wind Farms on Racon Performance. A draft Liaison note in response was written. Since the input paper was also sent to ARM, a Liaison note was written to ARM requesting approval for forwarding the ENG response to GLA R&D. The GLA R&D Liaison note will be held as a working paper until a response from ARM is received.

Output:

- ENG22-9.2.2.2 Liaison Note ARM Racons
- ENG22-9.2.2.2.1 ENAV20-13.11 On Racons in Busy Harbours 24 February 2017
- ENG22-9.2.2.2.2 158 PPT Modern Racons for Modern Radars
- ENG22-9.2.2.2.3 158 Paper Modern Racons for Modern Radars

**Action Item ENG22-26** *The Secretariat is requested to forward ENG22-9.2.2.2 Liaison note on Racons with annexes to ARM for further review.*

#### 8.11 ENG-7.1.1 on PNT Product Specification

Task group leader: Younghoon Han

Input papers:

ENG22-3.1.2.9	eLoran Baseline Specification Gap Analysis and Roadmap
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Comments:

The Task Group discussed the eLoran product specification aspects included in input paper 3.1.2.9 submitted to the Committee and identified several areas requiring further enhancement, including the eLoran GRI and the version information for ASF maps.

Committee members are invited to conduct further review of the eLoran-related product specification information prior to the next ENG23 meeting.

*Action item:*

**Action Item ENG22-27** *Committee participants are requested to review eLoran-related product specification information prior to the next ENG23 meeting. The working document (eLoran PS data.xlsx) has been uploaded to the IALA FileShare Task Group folder ([7.1.1 TG S-200 PNT Product Specification \(HY\) - Fichiers - IALA Nextcloud](#)).*

## 8.12 ENG-7.1.2 on Development S-200 product specification PNT Station almanac

Task group leader: Younghoon Han

Input papers:

ENG22-3.1.2.4	Data Model of S-241 Positioning, Navigation and Timing (PNT) Station Almanac Product Specification
ENG22-3.1.2.13	Draft data model design of the S-241 PNT station almanac

Comments:

The Task Group discussed two input papers related to the S-241 data model submitted by China MSA and the Republic of Korea. A common agreement was reached; however, further refinement of detailed aspects will be conducted intersessionally (by email), and the outcomes will be reported at the next ENG meeting.

China MSA will be responsible for drafting the S-241 document based on the agreed data model, while the Republic of Korea will undertake validation using the S-200 testbed.

In addition, the Task Group discussed the draft of a new R-Mode station almanac data proposed by the Republic of Korea for inclusion in S-241. Committee members are invited to review this proposal prior to the next meeting. In particular, China MSA is requested to review the ASM-TER R-Mode transmitting station almanac and provide additional information.

Key outcomes include:

1. S-241 PNT Stations Almanac data model was proposed
2. R-Mode Station Almanac data for S-241 were proposed

Output:

ENG22-12.5.1.5 Draft S-241 data model

*Action item:*

**Action Item ENG22-28** Committee participants are requested to review ENG22-12.5.1.5 R-Mode station almanac data prior to next ENG23.

**Action Item ENG22-29** The Secretariat is requested to forward the working document ENG22-12.5.1.5 Draft S-241 data model to ENG23.

## 8.13 ENG-8.1.1 on PNT technology review

Task group leader: Jeffrey van Gils

Input papers:

ENG22-3.1.1.10	Input paper on New Guideline on Modernizing heritage lighthouses, minimizing negative impact
ENG22-3.1.1.10.1	New Guideline Modernizing heritage lighthouses, minimizing negative impact
ENG22-3.1.2.8	Overview of the RIN Maritime GNSS Interference Report (2026)

Comments:

The input documents were discussed in the working group.

The group discussed/took notice of the input paper:

1. The document on the “New Guideline Modernizing heritage lighthouses, minimizing negative impact”. But the working group does not have enough time to give feedback to WG3 during the meeting.
2. The RIN Maritime GNSS Interference Report (2026) was noticed and studied for the use of the information for the different tasks of the group.

*Action item:*

**Action Item ENG22-30** *Committee participants are requested to study the “New Guideline Modernizing heritage lighthouses, minimizing negative impact” and submit their additions to the ENG23 committee meeting.*

**Action Item ENG22-31** *The Chair of WG2 is requested to contact the Chair of DTEC WG2 on the matter of PNT over IMT2020/IMT2030.*

#### 8.14 Review of IALA Work Programme 2025-2027 and ENG WG2 Task Register

The IALA work programme was reviewed in conjunction with the ENG WG2 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. One task, “3.2.4 on eLoran Harmonization,” was added, and one task name was slightly changed so it covers the context of the tasks better. The task is “3.3.2 on Guideline on GNSS satellite-based Precise Point Positioning (PPP) Maritime service”.

The Chair of WG2 is requested to update the Task Register.

### 9. WORKING GROUP 3 – HERITAGE AND CULTURE FORUM (WG3)

During the 22<sup>nd</sup> session of the ENG committee, WG3 – Heritage & Culture worked on several tasks regarding heritage-related guidance documents, the Heritage webpages, as well as discussions on tasks for the next task period.

**Referencing Document(s):** ENG WG3 Work Program

The Work Plan was introduced, reviewed, and adopted by the Working Group.

The Chair and Vice-Chair of the Working Group thanked all participants, both 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 and early morning.

Throughout the physical session of the week, a number of WG3 sessions were held. The WG3 focused on the following tasks:

- Review of G1063 Ed.1 Agreements for Complementary Use of Lighthouses
- Review of G1075 Ed.1 A Business Plan for the Complementary Use of a Heritage Lighthouse
- Review of G1080 Ed.1 Selection and Display of Heritage Artefacts
- Develop a guidance document on ‘good practice in modernizing heritage lighthouses whilst minimizing negative heritage impact’
- Review of the IALA Heritage webpages
- Review of input paper ENG22-3.1.3.3 Heritage Lighthouse of the Year 2026 Selection Rules and Nomination
- Review of input paper ENG22-3.1.3.4 Proposal for IALA Heritage and Culture Webpage
- Review of input paper ENG22-3.1.1.5 Proposals on Lighthouse model course in L1.1 training course

- Review input paper ENG22-3.1.3.1 Secretariat note on G1063
- Review of input paper ENG22-3.1.3.1.1 Draft G1063 with track changes
- Review of input paper ENG22-3.1.1.10 Input Paper on New Guideline on Modernizing heritage lighthouses: minimizing negative impact
- Review of input paper ENG22-3.1.1.10.1 New Guideline Modernizing heritage lighthouses: minimizing negative impact

### 9.1 ENG-2.6.1 on Maintaining the heritage webpage on the IALA website

Task group leader: Gillian BURNS (Northern Lighthouse Board)

Input paper:

ENG22-3.1.3.4	Proposal for IALA Heritage and Culture Webpage
Ref	Email dated 26/02/26 Heritage Website Map Function

Comments:

The task group consisted of 2 participants (Joe Hothersall NLB and Gillian Burns NLB).

The new map function of the Heritage website was checked and tested, with the findings as follows:

- The position format is in decimal degrees (DD.DDD).
- The positions were manually found using Google Maps, as the Latitude/ Longitude isn't on the nomination form.
- The 'country' and 'year' filters work on the map to give options when searching.
- Further development may include a 'view on map button' when browsing the lighthouse pages,
- It will take some time to update all nominations and should be completed by ENG23 (currently 29 out of 75 have been added).

Liu Juan (China MSA) presented a proposal for a new section of the Heritage and Culture website. It was proposed that this section could be utilized to share AtoN heritage and cultural news, articles on historical materials (e.g., lighthouse keeper accounts), and videos and photos of AtoN heritage and cultural events. The working group thanks LiuJuan for her excellent presentation, and it was noted that the IALA heritage and culture website is a great tool to promote awareness of AtoN heritage (in line with R1005).

Participants noted that website capacity for the storage of large photo/video files is currently unknown to the working group. Participants also raised concerns that processing content submitted for this section may be too large a task for the working group.

It was remarked that an alternative option would be a new section that hosts weblinks to IALA members' own websites. This would remove the necessity for the working group to process news stories and audio/visual files.

The group agreed that further investigation of this is required. Discussion on this proposal is invited at subsequent ENG sessions.

Key outcomes include:

1. Demonstration of the map functionality.
2. WG3 participants are requested to review the map functionality and provide any comments or possible improvements to functionality to the WG3 Chair.

3. Question about whether the nomination form should be updated to include Lat/ Long position fields or if WG is content for the Google Maps method to be used (as the map functionality is based on Google Maps).

Output:

All position updates should be completed by ENG23, ready for the HLY 2027 nominations.

*Action item:*

**Action Item ENG22-32** *The Secretariat is requested to continue to support the Heritage website.*

**Action Item ENG22-33** *The ENG Committee is requested to review the Heritage website map function and provide any feedback to the WG3 Chair.*

**Action Item ENG22-34** *Task Group Participants are requested to review the Heritage website map function and provide any feedback to the WG Chair.*

**Action Item ENG22-35** *Liu Juan is requested to investigate the feasibility of hosting a new section on the heritage and culture webpages and is invited to present her findings for further discussion at future ENG sessions.*

## 9.2 ENG-2.6.2 Production of a technical or Guidance document on ‘good practice in modernizing heritage lighthouses whilst minimizing negative heritage impact’

Task group leader: Sarah-Jane Lakshman (Trinity House)

Input papers:

ENG22-3.1.1.10	Input Paper on New Guideline on Modernizing heritage lighthouses: minimizing negative impact
ENG22-3.1.1.10.1	New Guideline Modernizing heritage lighthouses: minimizing negative impact

Comments:

The draft guideline was submitted for comments from Working Groups 1 and 2 and presented to WG3. A task group was formed to continue finetuning of the document.

Key outcomes include:

1. Draft guideline was updated to the new guideline template.
2. Content revisions were provided by WG1 members and a small WG3 task group throughout the week. These revisions included:
  - Addition of a new annex – a template to assist internal assessment of heritage impact and decision-making when considering modernization projects.
  - Considerations for remote AtoN locations.
  - Updates to the annexes supplied by AMSA.
  - Minor corrections and formatting.

*Action item:*

**Action Item ENG22-36** *Sarah-Jane Lakshman is requested to continue coordinating the production of a guidance document on good practice in modernizing heritage lighthouses whilst minimizing heritage impact and finalize the draft guideline for ENG23. Trinity House is requested to support them in this.*

**Action Item ENG22-37** Task group participants are requested to participate in an intersessional review of the Guidance document on good practice in modernizing heritage lighthouses whilst minimizing heritage impact.

### 9.3 ENG-2.6.3 Manage the process for the IALA HLY accolade

Task group leader: Sarah-Jane Lakshman (Trinity House).

Input paper:

ENG22-3.1.3.3	Heritage Lighthouse of the Year 2026 Selection Rules and Nomination
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Comments:

Following approval of the updated IALA Heritage Lighthouse of the Year (HLY) selection rules and nomination process, WG3 is glad to confirm that HLY now accepts nominations from both IALA Member States and Associate Members. The working group also made note of the back-to-back deliberation sessions of HLY for 2027 and 2028, and highlighted that promotion of the short nomination window for the 2028 accolade will be necessary to avoid lack of entries.

Naehyuk Yoo (KATON) presented four design options for the working group to consider for the HLY 2026 plaque to celebrate Chile's Evangelistas Lighthouse. The beautiful designs reflected Chilean culture and international collaboration. The working group once again thanked the Republic of Korea for its generosity in providing a plaque to honor the accolade-holder for HLY.

Key outcomes include:

1. The relevant IALA heritage webpages were updated to reflect the new nomination rules.
2. Design for HLY accolade was chosen.

*Action item:*

**Action Item ENG22-38** Sarah-Jane Lakshman is requested to continue management of the IALA HLY accolade, and Trinity House is requested to support her in this.

### 9.4 ENG-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)

Input paper:

ENG22-3.1.1.5	Proposals on the Lighthouse model course in L1.1 training
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Comments:

The Task Leader presented an updated syllabus to WG3 for discussion, and it was agreed that the updated syllabus would be a good addition to the existing syllabus, along with case studies based on different heritage and cultural requirements and experience. A small task group was formed to continue development of this task. WG3 Chair sought advice from WWA and ENG Chair regarding next steps, and it was decided that a liaison note to WWA with details of the proposed updated syllabus would be the best route at this stage. Following review by WWA, the task group will commence the drafting of lecture/course materials.

Key outcomes include:

1. Liaison note about proposed changes to the syllabus was drafted.

Output:

#### ENG22-9.2.3.1 Liaison Note to WWA on Proposal for the revision of IALA L1.1 2D Lighthouse Model Course Syllabus

##### *Action item:*

**Action Item ENG22-39** *The IALA Secretariat is requested to submit the proposed revision of the heritage module syllabus ENG22-9.2.3.1 Liaison note Proposal for the revision of the L1.1 2D Lighthouse model course syllabus to the World-Wide Academy for review.*

**Action Item ENG22-40** *Ke RAXUAN is requested to continue coordinating WG3 work in creating the Heritage Module for the WWA L1.1 AtoN Manager Course through to completion, and the Navigation Institute of JiMei University is requested to support them in this.*

**Action Item ENG22-41** *Task group participants are requested to participate in the intersessional review.*

#### 9.5 ENG-2.6.5a Review Guideline G1080 ED.1 The Selection and Display of Heritage Artifacts

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

The task group reviewed the continued relevance of G1080 and identified the need for revision to reflect current approaches to heritage conservation and use, particularly for AtoN. Relevant frameworks and principles from UNESCO and ICOM, as well as alignment with applicable UN SDGs, were considered. The guideline has been restructured to better emphasize sustainable heritage management, public engagement, and adaptability to diverse regional contexts. The revised structure aims to improve clarity, usability, and alignment with contemporary international heritage practices. The task group will continue its work intersessionally with a view to delivering an updated draft, with a view to completing at ENG23.

Output: Working Paper – G1080 The Selection and Display of Heritage Artifacts.

##### *Action item:*

**Action Item ENG22-42** *The Secretariat is requested to forward the working paper ENG22-12.5.1.6 WP G1080-The Selection and Display of Heritage Artifacts to ENG23.*

**Action Item ENG22-43** *Task group participants are requested to participate in intersessional review.*

**Action Item ENG22-44** *Naehyuk YOO is requested to continue coordinating WG3 work in reviewing IALA Guidance document G1080 Ed.1 through to completion, and the Korea Institute of Aids to Navigation is requested to support them in this.*

#### 9.6 ENG-2.6.6 Review Guideline G1063 Ed.1 Agreements for Complementary Use of Lighthouses

Task group leader: Juan Liu (China MSA)

Input papers:

3.1.3.1	IALA document quality assurance: draft G1063 on Agreements for Complementary Use of Lighthouse Property
3.1.3.1.1	Draft G1063 with track changes
3.1.3.6	Remarks on draft G1063 Agreements for Complimentary Use



Comments:

The working group discussed with the IALA Legal team, the Secretariat, and the ENG Chair about issues highlighted regarding risk, compliance, and the inclusion of legal contracts.

Key outcomes include:

1. The working group agreed that, in accordance with the requirements of the Legal team, the publication of contract cases shall be subject to the written consent of the Member States, and compliance issues shall be considered; at the same time, a clear statement shall be included in the guideline: the content does not constitute legal advice, and IALA shall be exempted from all legal liabilities.
2. G1063 was updated to the new guideline template.
3. Several legal contracts were removed from the annex, and written consent was provided by Trinity House, China MSA, and KATON to include their contract/license/agreement templates previously submitted for use.

Output: ENG22-9.2.3.2 Revisions for G1063 Partnership Agreements for Complementary Use of Lighthouse Property

*Action item:*

**Action Item ENG22-45** *The Secretariat is requested to submit the ENG22-9.2.3.2 Draft Revised Guideline G1063 Partnership agreements for complementary use of lighthouse property to the Council for silent approval.*

## 9.7 ENG-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 MSA)

Comments:

This guideline has undergone three rounds of discussions by the small task group during its review and revision. During the ENG18 and ENG20 meetings, task group members António Oliveira and William Dunning put forward suggestions, and the task leader Guo ZhenYu revised the guideline accordingly during the intersessional period. Its objective is to provide guidance for lighthouse authorities and operators in developing business plans for heritage lighthouses, either for individual lighthouse or as part of organizational asset management plans, in conjunction with complementary uses.

At the ENG22 meeting, the guideline underwent its final task group review, resulting in the final revised version.

Key outcomes include:

1. The G1075 Guideline was renamed "G1075 on A Business Plan for the Complementary Use of a Heritage Lighthouse".
2. The scope of the guideline has been redefined, and its content may also serve as a project plan.
3. The revision of this guideline includes the categorization and reorganization of content for enhanced clarity, as well as the addition of *ANNEX A A Business Plan for the Complementary Use of Heritage Lighthouses (Blank Fillable Template)* and *Appendix 1 Compliance and Permit Checklist*.

The latest draft of the G1075 was circulated with participants. Intersessional comments are requested from WG3 participants for further discussion and finalisation at ENG23.

*Action item:*

**Action Item ENG22-46** *Zhenyu Guo is requested to continue coordinating WG3 work in reviewing IALA Guidance document G1075 Ed.1, and China Maritime Safety Administration (MSA) is requested to support them in this.*

**Action Item ENG22-47** *Task group participants are requested to participate in intersessional review.*



## 9.8 IALA Heritage Lighthouse designation and certification

Antonio Oliveira (Direção de Faróis) presented to the group the concept of a ‘Process of Designation and Certification of IALA Heritage Lighthouses’. This is a potential process whereby heritage lighthouses from Member States and Associate Members are given formal recognition of their ‘IALA Heritage Lighthouse’ status.

Currently, lighthouses nominated for IALA Heritage Lighthouse of the Year are included on the IALA heritage webpages as ‘IALA Heritage Lighthouses’. In recent years, the HLY accolade has garnered much attention, and the benefits associated with being named ‘HLY’ have been explored by WG3 across various ENG sessions.

It was posited that heritage lighthouses would benefit from being formally recognized as an ‘IALA Heritage Lighthouse’ - albeit at a lesser extent than the lighthouse selected as IALA HLY. Having a ‘stamp’ of IALA could:

- Assist funding or grant applications for projects targeted at AtoN heritage management, and
- Increase awareness of heritage lighthouses.

Antonio presented initial ideas on what form the designation framework could take. It was agreed by the group that this is a concept very worth exploring due to the benefits discussed above; however, they recognized that there is planning needed to solidify the process before any further steps are taken.

*Action item:*

**Action Item ENG22-48** *Antonio Oliveira and Oleg Gaidai are requested to draft an input paper for review for ENG23 further exploring the designation and certification of IALA heritage lighthouses.*

## 9.9 IALA Lighthouse Twinning

Masatora Ono (Japan Coast Guard) presented an update on Japan’s twinned lighthouse initiative – 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 Coast Guard and Northern Lighthouse Board signed an agreement twinning two of their lighthouses, with another ‘twinning’ between France and Japan currently underway. It has been deemed a success by all organizations involved and will benefit the on-site education of visitors.

### 9.9.1 Prospect of IALA-endorsed lighthouse twinning

It was put forward that WG3 consider the proposal of IALA ‘endorsing’ twinned lighthouses endorsing a lighthouse twinning program. In previous ENG sessions, it was noted that the model by which Heritage Lighthouse of the Year operates (without a guideline, but with a criterion) could be replicated for this purpose.

Masatora Ono informed WG3 that an input paper would be developed and submitted to ENG23 to invite further discussion and planning.

*Action item:*

**Action Item ENG22-49** *Masatora Ono and Antonio Oliveira are requested to draft an input paper for review for ENG23, further exploring the lighthouse twinning proposal.*

**Action Item ENG22-50** *Task group participants are requested to provide feedback prior to ENG23 to assist in the to ENG23 to assist preparation of the input paper.*

## 9.10 IALA heritage framework

Antonio Oliveria (Direção de Faróis) put forward that WG3 consider a new heritage framework that would serve to complement the existing R1005 and Incheon Declaration – key documents for WG3. This discussion is at a very early stage of development, and further exploration of the parameters of this framework and its final form is required.

*Action item:*

**Action Item ENG22-51** Antonio Oliveira and Oleg Gaidai are requested to draft an input paper for review for ENG23, further exploring the introduction of a complementary heritage framework.

**Action Item ENG22-52** Task group participants are requested to provide initial thoughts and feedback on the heritage framework prior to ENG23 to assist in the preparation of the input paper.

### 9.11 Presentations

WG3 was pleased to receive the following presentations, which were all well-received and generated some interesting discussion.

- Twinned Lighthouses (Masatora Ono, Japan Coast Guard).
- Green Cape Lighthouse (Greg Hansen, AMSA).
- World AtoN Day 2026 (YongChan Bae, Ministry of Oceans and Fisheries).

WG3 would like to thank all the presenters for their time and effort in preparing these presentations.

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

The IALA work programme was reviewed in conjunction 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 WG3 Task Register:

- All tasks were marked as having progressed during the session.
- Task Leader for Task ENG-2.6.5a Review Guideline G1080 was amended to Naehyuk Yoo (KATON).

### 9.13 Review of ENG WG3 Tasks for next task period

WG3 considered what tasks will be completed by the end of the 2025-2027 work period, and what new work has been identified for possible inclusion in the next work period. This discussion will continue during ENG23, where tasks for the next task period will be confirmed.

## 10. WORLD AIDS TO NAVIGATION DAY CELEBRATION IN KOREA (MOF)

Information was provided by Naehyuk Yoo (KATON) regarding the upcoming World Aids to Navigation Day celebration to be hosted in Busan, Republic of Korea. The event will bring together international stakeholders to highlight the importance of marine aids to navigation, promote collaboration, and showcase technological advancements in the field.

## 11. SUMMARY OF OUTPUT AND WORKING PAPERS

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

Outputs from ENG22 were approved by the Committee using the approval procedure. The output documents and working papers are listed in Annex D.

The process for reviewing and commenting on output papers was outlined. Participants were encouraged to provide feedback within the defined timelines, using the established platforms and procedures. It was emphasized that timely and constructive comments are essential to ensure high-quality final documents and smooth progression toward approval.

## 12. REVIEW OF SESSION REPORT

The draft report of the meeting (ENG22-13.1) was approved by the Committee at the Closing Plenary.

## 13. DATE AND VENUE OF NEXT MEETINGS

ENG22 is planned to be held between 12 – 16 October 2026 at IALA Headquarters, Saint Germain-en-Laye, France.

Other IALA events will be published on the IALA website.

## 14. ANY OTHER BUSINESS

## 15. CLOSING OF THE MEETING

The Chair thanked all Committee participants again for their engagement and hard work. He hoped that all the participants would return again to ENG22.

She also hoped that everyone could take the IALA survey that is sent out after every Committee meeting in order to receive feedback for continuous improvements.

Secretary-General, Francis Zachariae, thanked all participants for their work, especially as he is aware that all have their jobs back at home to work on, also.

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



## 22<sup>nd</sup> Session of the AtoN Engineering and Sustainability Committee (ENG22)

The physical week of the 22<sup>nd</sup> session of the ENG Committee will take place from 13 to 17 April 2026 at IALA HQ in Saint-Germain-en-Laye, France. Please note that the Opening Plenary will be held in a hybrid format on Monday, 13 April, starting at 08:00 UTC (10:00 CEST). The Closing Plenary will be held online on Thursday, 23 April 2026, starting at 10:00 UTC (12:00 CEST).

### AGENDA

#### Opening Plenary

Start 08:00 UTC (10:00 CEST), 13<sup>th</sup> April

- |          |   |                     |
|----------|---|---------------------|
| 1.       | Introduction                                      |                     |
| 1.1.     | Welcome address from the Deputy Secretary-General | Omar Frits Eriksson |
| 1.2.     | Approval of the agenda                            | Alwyn Williams      |
| 1.3.     | Apologies and Introductions                       | Alwyn Williams      |
| 1.4.     | Working arrangements                              | Alisa Nechyporuk    |
| 1.5.     | Programme for the week                            | Alisa Nechyporuk    |
| 2.       | Review of action items from last meeting          | Alwyn Williams      |
| 3.       | Review of input papers                            |                     |
| 3.1.     | Review of input papers to ENG22                   | Alisa Nechyporuk    |
| 4.       | Reports from other bodies                         |                     |
| 4.1.     | IALA  |                     |
| 4.1.1.   | IALA Council                                      | Minsu Jeon          |
| 4.1.1.1. | Documents approved by Council                     | Minsu Jeon          |
| 4.1.2.   | Policy Advisory Panel (PAP)                       | Minsu Jeon          |
| 4.1.3.   | Workshops Outputs and Actions                     |                     |
| 4.1.3.1. | Sustainability in AtoN provision                  | Alwyn Williams      |
| 4.1.3.2. | Future Radiocommunication and Radionavigation     | Hideki Noguchi      |
| 4.1.4.   | 2025-2027 Work Plan and Task Register             | Michel Cousquer     |
| 4.1.5.   | 2027-2030 ENG Work Plan                           | Alwyn Williams      |
| 4.1.6.   | Quality check procedure                           | Christina Schneider |
| 4.1.7.   | MASS task group                                   | Minsu Jeon          |
| 4.1.8.   | World-Wide Academy                                | Vincent Denamur     |
| 4.2.     | IMO   | Hideki Noguchi      |
| 4.3.     | IHO   | Minsu Jeon          |

- |      |   |                       |
|------|---|-----------------------|
| 4.4. | ITU   | Minsu Jeon            |
| 4.5. | PIANC   | Mariano Luis Marpegan |
| 4.6. | CIE   | Alwyn Williams        |
| 5.   | Advertising Presentations   | Alisa Nechyporuk      |
| 5.8  | 3D tour on Tolbukhin Lighthouse (Kseniia Ipatova, Department of Navigation and Oceanography) – WG3  |                       |
| 5.9  | Green Cape Lighthouse (Greg Hansen, Australian Maritime Safety Authority)                           |                       |
| 5.10 | AtoN for SIDS (Ashley Hall, Royal College of Art, and Sarah Robinson, Hawkshill Consulting Limited) |                       |
| 6.   | Overview of planned work for ENG22  |                       |
| 6.1. | WG 1 – Visual & Physical AtoN   | Malcolm Nicholson     |
| 6.2. | WG 2 – Radionavigation Services   | Jeffrey van Gils      |
| 6.3. | WG 3 – Heritage and culture forum   | Sarah-Jane Lakshman   |
| 7.   | 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), 13<sup>th</sup> April to 15:00 UTC (17:00 CEST), 17<sup>th</sup> April

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## Closing Plenary of Physical Week

Start 07:00 UTC (09:00 CEST), 17<sup>th</sup> April

- |      |   |                     |
|------|---|---------------------|
| 8.   | Report from Working Groups and Secretariat              |                     |
| 8.1. | WG 1 – Visual & Physical AtoN                           | Malcolm Nicholson   |
| 8.2. | WG 2 – Radionavigation Services                         | Jeffrey van Gils    |
| 8.3. | WG 3 – Heritage and Culture forum                       | Sarah-Jane Lakshman |
| 9.   | Output Papers for Review                                |                     |
| 9.1. | Summary of Output Papers                                | Alisa Nechyporuk    |
| 9.2. | Process for Comments                                    | Alisa Nechyporuk    |
| 10.  | World Aids to Navigation Day Celebration in Korea (MOF) | Naehyuk Yoo         |
| 11.  | Close of Physical Session                               | Alwyn Williams      |

## End of Closing Plenary of Physical Week

Approx. 10:00 UTC (12:00 CEST), 17<sup>th</sup> April

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## Closing Plenary of Session

**Session recommences 10:00 UTC (12:00 CEST), 23<sup>rd</sup> April on Microsoft Teams**

- |     |                                |                  |
|-----|--------------------------------|------------------|
| 12. | Opening of Online Session      | Alwyn Williams   |
| 13. | Review of Documents Approved   | Alwyn Williams   |
| 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. 11:00 UTC (13:00 CEST), 23<sup>rd</sup> April**

## ANNEX B LIST OF PARTICIPANTS

First name	Last name	Organisation	Member type	Member Country
Augusto José	Maria Amaya	Naval Hydrographic Service - Ministry of Defense	Argentina	Member State
Mariano Luis	Marpegan	Dragados y Balizamientos S.A.	Argentina	Affiliate
Greg	Hansen	Australian Maritime Safety Authority	Australia	Member State
Malcolm	Nicholson	SPX AtoN	Australia	Affiliate Industrial
Mahdi	Al Mosawi	Middle East Navigation Aids Services - MENAS	Bahrain	Affiliate
Shaheen	Mirza	Middle East Navigation Aids Services - MENAS	Bahrain	Affiliate
Gabriel	Da Cruz	Marinha do Brasil-Diretoria de Hidrografia e Navegação	Brazil	Member State
Serge Patrick	Essomba	Autorité Portuaire Nationale	Cameroon	Affiliate
Marie Christelle	Foe Ambani	Autorité Portuaire Nationale	Cameroon	Affiliate
Serouis Haoua	Gotinga	Ministère des Finances du Cameroun	Cameroon	Associate
Alain Serge	Mbene Koah	Port Authority of Kribi	Cameroon	Affiliate
Dieudonné	Jombe Seppo	Port Autonome de Douala	Cameroon	Associate
Lydie	Endale Dipita	Port Authority of Kribi	Cameroon	Affiliate
Sidi	Mougnal	Ministère des Relations Extérieures du Cameroun	Cameroon	Associate
Ernest	Mpocko	Autorité Portuaire Nationale	Cameroon	Affiliate
Joseph	Nguene Nteppe	Port Autonome de Douala	Cameroon	Associate
Josué	Nkoulou	Port Authority of Kribi	Cameroon	Affiliate
Willie	Tsanga Mba	Autorité Portuaire Nationale	Cameroon	Affiliate
Gérance	Zambo	Ministère des Relations Extérieures du Cameroun	Cameroon	Associate
David	Cassidy	Tidal Marine	Canada	Affiliate Industrial
Niall	Fitzpatrick	Canadian Coast Guard	Canada	Member State
Dean	Steinke	DSA Ocean	Canada	Affiliate
Jordan	Ahumada	Minister of Foreign Affairs of Chile	Chile	Member State
Enrique	Araya	Minister of Foreign Affairs of Chile	Chile	Member State
Francisco	Cerda	Minister of Foreign Affairs of Chile	Chile	Member State
Carla	Córdova	Minister of Foreign Affairs of Chile	Chile	Member State
Héctor	Fuentes	Minister of Foreign Affairs of Chile	Chile	Member State
Luis	Gallardo	Minister of Foreign Affairs of Chile	Chile	Member State
Valeria	León	Minister of Foreign Affairs of Chile	Chile	Member State
Nicolás	Morales	Minister of Foreign Affairs of Chile	Chile	Member State
Jordan	Pérez	Minister of Foreign Affairs of Chile	Chile	Member State
Víctor	Pizarro	Minister of Foreign Affairs of Chile	Chile	Member State
Iván	Yoma	Minister of Foreign Affairs of Chile	Chile	Member State
Juan	Liu	Maritime Safety Administration	China	Member State
Ke	Liu	Maritime Safety Administration	China	Member State
Ranxuan	Ke	Jimei University	China	Affiliate
Qian	Sun	Maritime Safety Administration	China	Member State

First name	Last name	Organisation	Member type	Member Country
Lingyan	Wang	Maritime Safety Administration	China	Member State
Xiaoye	Wang	Maritime Safety Administration	China	Member State
Yingchao	Xu	Ministry of Transport of the People's Republic of China (MOT)	China	Member State
Chaozhong	Yang	Ministry of Transport of the People's Republic of China (MOT)	China	Member State
Huiwen	Zhou	Ministry of Transport of the People's Republic of China (MOT)	China	Member State
Songbo	Zhu	Maritime Safety Administration	China	Member State
Xueyan	Zhou	Ministry of Transport of the People's Republic of China (MOT)	China	Member State
Yingdian	Zhuang	Ministry of Transport of the People's Republic of China (MOT)	China	Member State
Allan	Bjerre	Danish Emergency Management Agency under the Ministry of Resilience and Preparedness.	Denmark	Member State
Joergen	Royal Petersen	Danish Emergency Management Agency under the Ministry of Resilience and Preparedness.	Denmark	Member State
Pärtel	Keskküla	Estonian Transport Administration	Estonia	Member State
Tiit	Palgi	Estonian Transport Administration	Estonia	Member State
Kaisu	Heikonen	Finnish Transport Infrastructure Agency	Finland	Member State
Sami	Lasma	Finnish Transport Infrastructure Agency	Finland	Member State
Jonas	Lindberg	SPX Aids to Navigation Oy	Finland	Affiliate Industrial
Fernando	Andrade	Direction générale des affaires maritimes, de la pêche et de l'aquaculture – Secrétariat d'état chargé de la Mer	France	Member State
Léa	Charpentier	GISMAN	France	Affiliate Industrial
Michel	Cousquer	Cerema	France	Affiliate
Camille	Desruelles	MOBILIS - FRANCE	France	Affiliate Industrial
Anne	Duret	Direction générale des affaires maritimes, de la pêche et de l'aquaculture – Secrétariat d'état chargé de la Mer	France	Member State
Xavier	Hernoe	Direction générale des affaires maritimes, de la pêche et de l'aquaculture	France	Member State
Max	Juniet	MOBILIS - FRANCE	France	Affiliate Industrial
Mathias	Lefranc	Cerema	France	Affiliate
Emma	Rieu-stephan	Cerema	France	Affiliate
Philippe	Renaudin	Cerema	France	Affiliate
Antoine	Rigole	Direction générale des affaires maritimes, de la pêche et de l'aquaculture – Secrétariat d'état chargé de la Mer	France	Member State



First name	Last name	Organisation	Member type	Member Country
Stefan	Gewies	German Aerospace Centre - Institute of Communications and Navigation	Germany	Affiliate
Daniel	Karbach	Federal Waterways and Shipping Agency	Germany	Member State
Ronald	Raulefs	German Aerospace Centre - Institute of Communications and Navigation	Germany	Affiliate
Lars	Von Lilienfeld-toal	Federal Waterways and Shipping Agency	Germany	Member State
Peter	Schneider	Federal Waterways and Shipping Agency	Germany	Member State
Chris	Scully	Department for Transport	Ireland	Member State
Mario	Greco	Italian Navy	Italy	Member State
Mayumi	Arita	Japan Coast Guard	Japan	Member State
Michael	Card	Zeni Lite Buoy Co Ltd	Japan	Affiliate Industrial
Takahiko	Konishi	Japan Coast Guard	Japan	Member State
Hideki	Noguchi	Japan Ship Technology Research Association (JSTRA)	Japan	Affiliate
Masatora	Ono	Japan Coast Guard	Japan	Member State
Akira	Yamamoto	Furuno Electric Co Ltd	Japan	Affiliate Industrial
Yong Chan	Bae	Ministry of Oceans and Fisheries	Korea, South	Member State
Younghoon	Han	KRISO – Korea Research Institute of Ships and Ocean Engineering	Korea, South	Affiliate
Seungcheol	Lee	Ministry of Oceans and Fisheries	Korea, South	Member State
Sanghyun	Park	KRISO – Korea Research Institute of Ships and Ocean Engineering	Korea, South	Affiliate
Sulgee	Park	KRISO – Korea Research Institute of Ships and Ocean Engineering	Korea, South	Affiliate
Naehyuk	Yoo	Korea Institute of Aids to Navigation(KATON)	Korea, South	Affiliate
Sang Hoon	Youm	Yonsei university	Korea, South	Observer
Sujong	Kim	Korea Institute of Aids to Navigation(KATON)	Korea, South	Affiliate
Elouardi	Abdelaziz	TANGIER CITY PORT (SGPTV)	Morocco	Affiliate
Jeffrey	Van Gils	Ministry of Infrastructure and Water Management	Netherlands	Member State
Leif Arne	Larsen	Norwegian Coastal Administration	Norway	Member State
Jaroslav	Cydejko	Maritime Office in Gdynia	Poland	Associate
Sergio	Cardoso	Direção de Faróis (Lighthouse Directorate)	Portugal	Member State
António	Oliveira	Direção de Faróis (Lighthouse Directorate)	Portugal	Member State
Oleg	Gaidai	Department of Navigation and Oceanography	Russia	Member State
Andrey	Leonov	Department of Navigation and Oceanography	Russia	Member State
Abdul Khalid	Mohd Akbar	Maritime and Port Authority	Singapore	Member State
Eng Soon	Aw	Maritime and Port Authority	Singapore	Member State
Paul	Mueller	Orion Maritime Systems Pte Ltd	Singapore	Affiliate Industrial

First name	Last name	Organisation	Member type	Member Country
José	Andrés Fombuena	Mediterraneo Señales Maritimas S.L.	Spain	Affiliate Industrial
Inmaculada	Armengol Moreno	GMV AD	Spain	Affiliate Industrial
Marina	Baño	Mediterraneo Señales Maritimas S.L.	Spain	Affiliate Industrial
Mónica	Herrero	Mediterraneo Señales Maritimas S.L.	Spain	Affiliate Industrial
Héctor	Llorca Llorca	GMV AD	Spain	Affiliate Industrial
Jose Luis	Martin Sánchez	ESSP-SAS	Spain	Affiliate
Andrea	Sanchez Mediavilla	GMV AD	Spain	Affiliate Industrial
Eduardo	Diaz	European Union Agency for Space Programme (EUSPA)	Spain	Affiliate
Johnny	Menard	Swedish Maritime Administration	Sweden	Member State
Ahmet	Öztekin	Directorate General of Coastal Safety Türkiye	Türkiye	Member State
Gillian	Burns	Department for Transport	United Kingdom	Member State
Diarmaid	Corbett	Department for Transport	United Kingdom	Member State
Darren	Day	Trinity House	United Kingdom	Member State
Peter	Dobson	Trinity House	United Kingdom	Member State
William	Dunning	Department for Transport	United Kingdom	Member State
Ashley	Hall	Royal College of Art	United Kingdom	Observer
Joseph	Hothersall	Northern Lighthouse Board	United Kingdom	Member State
Sarah Jane	Lakshman	Trinity House	United Kingdom	Member State
Link	Powell	General Lighthouse Authorities of the UK and Ireland	United Kingdom	Member State
Matt	Randell	Tideland Signal Manufacturing LLC / Orga BV	United Kingdom	Affiliate Industrial
Sarah	Robinson	Hawkshill Consulting Limited	United Kingdom	Affiliate
Jan	Safar	General Lighthouse Authorities of the UK & Ireland	United Kingdom	Member State
Kevin	Sheridan	General Lighthouse Authorities of the UK & Ireland	United Kingdom	Member State
Alwyn	Williams	Department for Transport	United Kingdom	Member State
Brian	Howard	US Coast Guard	United State	Associate

## ANNEX C LIST OF INPUT PAPERS

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

Meeting	Paper Number	Input Paper Title	Source	Allocation
ENG22	1.2.1	Provisional agenda	Secretariat	All
ENG22	1.5.1	Programme for the week	Secretariat	All
ENG22	2.1	Final report of ENG21	Secretariat	All
ENG22	2.1.1	ENG20 Action Items	Secretariat	All
ENG22	3.0	Input paper Committee meeting template	Secretariat	All
ENG22	3.0.1	List of input papers	Secretariat	All
ENG22	3.1.1.1	Update to G1036 to include guidance on GHG calculations	William Dunning, GRAD TH	WG1
ENG22	3.1.1.2	Input paper on Draft Guideline on The Measurement of Marine Lights Performance	China MSA	WG1
ENG22	3.1.1.2.1	Draft Guideline on The Measurement of Marine Lights Performance	China MSA	WG1
ENG22	3.1.1.3	Input paper on Revised Guideline G1023 on Design of Leading Lines	China MSA	WG1
ENG22	3.1.1.3.1	Revised Guideline G1023 on Design of Leading Lines	China MSA	WG1
ENG22	3.1.1.3.2	Additional and useful information about the design of the leading line	China MSA	WG1
ENG22	3.1.1.4	Proposal for Revision G1008 on Remote Control and Monitoring of Marine AtoN	China MSA	WG1
ENG22	3.1.1.5	Proposals on the Lighthouse model course in the L1.1 training course	China MSA	WG1, WG3
ENG22	3.1.1.6	Input paper on Guano Management	William Dunning, GRAD TH	WG1
ENG22	3.1.1.7	Input paper on Revised Guideline G1008	Peter Dobson, TH	WG1
ENG22	3.1.1.7.1	Revised Guideline G1008	Peter Dobson, TH	WG1
ENG22	3.1.1.8	Proposed updates to IALA WWA Model Courses L2 C2001-8	Mariano Luis Marpegan (DyB), Monica Herrero (MSM)	WG1

Meeting	Paper Number	Input Paper Title	Source	Allocation
ENG22	3.1.1.8.1	Annex Model Course C2001-8 L2 Module 1.13 Maintenance of Steel Buoys	Mariano Luis Marpegan (DyB), Monica Herrero (MSM)	WG1
ENG22	3.1.1.9	Use of Reference Light for Outdoor Photometric Measurements	Naehyuk Yoo, Chungjin Lee (KATON)	WG1
ENG22	3.1.1.10	Input paper on New Guideline on Modernising heritage lighthouses, minimising negative impact	Sarah-Jane Lakshman, TH	WG1, WG2
ENG22	3.1.1.10.1	New Guideline Modernising heritage lighthouses, minimising negative impact	Sarah-Jane Lakshman, TH	WG1, WG2
ENG22	3.1.1.11	AtoN for SIDs Project	Sarah Robinson (Hawkshill Consulting Ltd, WWA Advisor)	WG1
ENG22	3.1.1.12	Draft R0112 on Leading Lights	Secretariat	WG1
ENG22	3.1.2.1	ISLET objective, activities and expected added value	GMV, EUSPA, EU	WG2
ENG22	3.1.2.2	GNSS and EO Requirements for Automated Inland Waterways Navigation Gap Analysis and Pilot Tests Preparation	GMV, EUSPA, EU, WSV, TRESCO, BM, HAC, RSOE	WG2
ENG22	3.1.2.3	Input paper on Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service	China MSA	WG2
ENG22	3.1.2.3.1	Draft Guideline on GNSS satellite-based Precise Point Positioning (PPP) Maritime service	China MSA	WG2
ENG22	3.1.2.4	Data Model of S-241 Positioning, Navigation and Timing (PNT) Station Almanac Product Specification	China MSA	WG2
ENG22	3.1.2.5	Maritime Alternative PNT Solution (MAPS)	Kongsberg Discovery	WG2
ENG22	3.1.2.6	Proposal of VDES shore station upgrade to enable SBAS data retransmission	ESSP	WG2
ENG22	3.1.2.7	Draft Guideline on Maritime Ground-based GNSS Precise Positioning Services	KRISO, MOF	WG2

Meeting	Paper Number	Input Paper Title	Source	Allocation
ENG22	3.1.2.8	Overview of the RIN Maritime GNSS Interference Report (2026)	Secretariat	WG2
ENG22	3.1.2.9	eLoran Baseline Specification Gap Analysis and Roadmap	GLA R&D, KRISO, Chungbuk National University, MOF, French Navy Headquarters, DGAMPA	WG2
ENG22	3.1.2.10	Input paper on Proposed updates to G1180	Estonian Transport Administration, Finnish Transport Infrastructure Agency	WG2
ENG22	3.1.2.10.1	G1180 Ed1.0 Resilient PNT update	Estonian Transport Administration, Finnish Transport Infrastructure Agency	WG2
ENG22	3.1.2.11	Information paper on R-mode	Hideki Noguchi, JSTRA	WG2
ENG22	3.1.2.11.1	Annex – Amendments to resolution A.1046(27)	Hideki Noguchi, JSTRA	WG2
ENG22	3.1.2.12	The IMPACT of offshore wind FARMS on Racon Performance	Chris Hargreaves (GLA R&D)	WG2
ENG22	3.1.2.13	Draft data model design of the S-241 PNT station almanac	KRISO, MOF	WG2
ENG22	3.1.3.1	IALA document quality assurance: draft G1063 on Agreements for Complementary Use of Lighthouse Property	Secretariat	WG3
ENG22	3.1.3.1.1	Draft G1063 with track changes	Secretariat	WG3
ENG22	3.1.3.2	World Marine Aids to Navigation Day Celebrations	MOF, KATON	WG3
ENG22	3.1.3.3	Heritage Lighthouse of the Year 2026: Selection Rules and Nomination	Secretariat	WG3

Meeting	Paper Number	Input Paper Title	Source	Allocation
ENG22	3.1.3.4	Proposal for IALA Heritage and Culture webpage	China MSA	WG3
ENG22	4.1.1.1	Report of the 3rd session of the IALA Council	Secretariat	All
ENG22	4.1.2.1	Report of PAP59	Secretariat	All
ENG22	4.1.2.2	Report of PAP60	Secretariat	All
ENG22	4.1.3.1.1	Progressing on Sustainability Matters within IALA and Advance Notice of New Sustainability Working Group in the ENG Committee	Alwyn Williams, ENG Chair	All
ENG22	4.1.3.1.2	Report on the Workshop on Sustainability in AtoN provision	Secretariat	All
ENG22	4.1.3.1.3	LN from VTS to ENG on Sustainability	VTS59	All
ENG22	4.1.3.2.1	Report on the Workshop on Radionavigation and Radiocommunication	Secretariat	All
ENG22	4.4.1	IALA Report Joint IMO-ITU Expert group 6th to 10th October 2025	IALA	All
ENG22	4.4.2	IALA Report on ITU-R WP5B meeting 18 to 27 November 2025	IALA	All
ENG22	4.4.3	Liaison note from ITU-R WP 5B	IALA	All

### Working papers from ENG21

Meeting	WP No.	Working Paper Title	Source	Action
ENG21	9.2.4.1	Draft Guideline on Implementation of MF and VDES R-Mode system and service	WG2	to ENG22
ENG21	9.2.4.2	Draft Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Service	WG2	to ENG22
ENG21	9.2.4.3	Draft G1180 Ed1.1 Resilient PNT	WG2	to ENG22
ENG21	9.2.4.4	Draft Guideline on the Use and Application of Racons	WG2	to ENG22
ENG21	9.2.4.5	S-241 Draft Product Specification	WG2	to ENG22
ENG21	9.2.4.6	Revised G1023 on Design of Leading Lines	WG1	to ENG22
ENG21	9.2.4.7	Draft Guideline on The Measurement of Marine Lights Performance	WG1	to ENG22

## ANNEX D LIST OF OUTPUT DOCUMENTS AND WORKING PAPERS

**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 Paper Title	Source	Action
ENG22	9.2.1.1	Liaison note from ENG to ARM on AtoN SIDs (LoCAN) project	WG1	ARM
ENG22	9.2.1.2	Draft Revised Guideline G1023 on Design of Leading Lights	WG1	Council
ENG22	9.2.1.3	IALA Model Course – Technician Training Level 2 – Model Course Overview	WG1	Council
ENG22	9.2.1.4	C2001-1 Ed1.0 – Oct 2012 – Level 2 – Technician Training – Introduction to Aids to Navigation	WG1	Council
ENG22	9.2.1.5	C2001-2 Ed2.0 – Jun 2016 – Introduction to Aids to Navigation-Buoyage	WG1	Council
ENG22	9.2.1.6	C2001-3 Ed2.0 – Jun 2016 – Buoy Handling and Safe Working Practices	WG1	Council
ENG22	9.2.1.7	C2001-4 Ed3.0 – Dec 2018 – Buoy Moorings	WG1	Council
ENG22	9.2.1.8	C2001-5 Ed2.0 – Jun 2016 – Buoy Cleaning	WG1	Council
ENG22	9.2.1.9	C2001-6 Ed2.0 – Jun 2016 – Introduction to Buoy Positions	WG1	Council
ENG22	9.2.1.10	C2001-7 Ed2.0 – Jun 2016 – Maintenance of Plastic Buoys	WG1	Council
ENG22	9.2.1.11	C2001-8 Ed3.0 – Dec 2021 – Maintenance of Steel Buoys	WG1	Council
ENG22	9.2.1.12	C2001-9 Ed3.0 – Dec 2021 – Power Sources on Buoys	WG1	Council
ENG22	9.2.1.13	C2001-10 Ed2.0 – Jun 2017 – An Introduction to Shore Marks	WG1	Council
ENG22	9.2.1.14	C2005-1 Ed2.0 – Jun 2017 – Introduction to Coatings and Specifications; Surface Preparation	WG1	Council
ENG22	9.2.1.15	C2006-1 Ed2.0 – Jun 2016 – Aids to Navigation Service Craft and Buoy Tenders	WG1	Council
ENG22	9.2.2.1	Liaison note to RTCM on 10402.3 amendment	WG2	RTCM
ENG22	9.2.2.2	Liaison note to ARM on Racons	WG2	ARM
ENG22	9.2.2.2.1	Racons in Busy Harbours 24 February 2017	WG2	ARM
ENG22	9.2.2.2.2	Modern Racons for Modern Radars	WG2	ARM
ENG22	9.2.2.2.3	Paper Modern Racons for Modern Radars	WG2	ARM
ENG22	9.2.2.3	Liaison note to all committees on R1017 on Resilient PNT	WG2	ARM VTS DTEC



ENG22	9.2.2.3.1	Annex Recommendation R1017 on Resilient PNT	WG2	ARM VTS DTEC
ENG22	9.2.2.4	New Draft Guideline on PPP	WG2	Council
ENG22	9.2.3.1	Liaison Note to WWA on Proposal for the revision of IALA L1.1 2D Lighthouse Model Course Syllabus	WG3	IALA WWA
ENG22	9.2.3.2	Revisions for G1063 Partnership Agreements for Complementary Use of Lighthouse Property	WG3	Council

**Documents to be reviewed:** under Quality check procedure before final review during ENG23 and submission to Council.

Meeting	Agenda Item	Working Paper Title	Source	Action
ENG22	9.2.4.1	New Draft Guideline on Maintenance of floating AtoNs	WG1	to ENG23

**Working papers** will remain within the Committee for further review during ENG23.

Meeting	Agenda Item	Working Paper Title	Source	Action
ENG22	12.5.1.1	WP on Draft G1180 Ed1.1 Resilient PNT	WG2	to ENG23
ENG22	12.5.1.2	WP Guideline on Implementation of MF and VDES R-Mode system and service	WG2	to ENG23
ENG22	12.5.1.3	WP on eLoran discussion	WG2	to ENG23
ENG22	12.5.1.4	Guideline terrestrial based PP Maritime Service	WG2	to ENG23
ENG22	12.5.1.5	Draft S-241 data model	WG2	to ENG23
ENG22	12.5.1.6	G1080 on the Selection and Display of Heritage Artifacts	WG3	to ENG23

## ANNEX E ACTION ITEMS

<b>Action Item ENG22-1</b>	The Secretariat is requested to submit ENG22-9.2.1.2 Draft Revised Guideline G1023 Design of Leading Lines to Council for approval. ....	13
<b>Action Item ENG22-2</b>	Lingyan Wang and Partel Keskkyla are requested to update the Draft Recommendation R0112 on Leading Lights intersessionally, as discussed during the ENG22 committee meeting, and submit it as input to the ENG23 committee meeting. ....	13
<b>Action Item ENG22-3</b>	Lingyan Wang and Link Powell are requested to update the draft Guideline on The Measurement of Marine Lights Performance intersessionally, as discussed in the ENG22 committee meeting, and submit as input to the ENG23 committee meeting. ....	14
<b>Action Item ENG22-4</b>	The Secretariat is requested to forward ENG22-9.2.4.1 New Draft Guideline on Maintenance of Floating AtoN for the quality check procedure as a document to be reviewed by ENG23. ....	15
<b>Action Item ENG22-5</b>	The Secretariat has requested to update IALA Wiki content on the Design of floating AtoN moorings, and make IALA Wiki available directly for the main menu of the website. ....	16
<b>Action Item ENG22-6</b>	Jose Andrés Fombuena is requested to coordinate intersessional work and submit an input paper to ENG23 on the revised G1066 document. ....	16
<b>Action Item ENG22-7</b>	The Secretariat is requested to forward the liaison note ENG22-9.2.1.1 on AtoN SIDs (LoCAN) to ARM22. ....	16
<b>Action Item ENG22-8</b>	Committee participants are requested to provide the task group with examples and approaches for determining the decision-making process for remote monitoring requirements as an input to ENG23. ....	17
<b>Action Item ENG22-9</b>	The Secretariat is requested to update the IALA Task Register and align the naming of the task in line with the draft guideline “remote monitoring and control” appropriately. ....	17
<b>Action Item ENG22-10</b>	Peter Dobson is requested to arrange an intersessional meeting and submit an input paper to ENG23 on the revised draft guideline on Remote Monitoring and Control of AtoN. ....	17
<b>Action Item ENG22-11</b>	The Secretariat is requested to forward ENG22-9.2.1.3, ENG22-9.2.1.4, ENG22-9.2.1.5, ENG22-9.2.1.6, ENG22-9.2.1.7, ENG22-9.2.1.8, ENG22-9.2.1.9, ENG22-9.2.1.10, ENG22-9.2.1.11, ENG22-9.2.1.12, ENG22-9.2.1.13, ENG22-9.2.1.14, ENG22-9.2.1.15, updated IALA Model Course Level 2 Technician Training Overview, to the Council for approval. ....	18
<b>Action Item ENG22-12</b>	Committee participants are requested to send an email to the task group leader, Kaisu Heikonen (kaisu.heikonen@ftia.fi), by 24 April 2026, in order to be included in the task group email distribution list. ....	20
<b>Action Item ENG22-13</b>	The Secretariat is requested to forward the working paper ENG22-12.5.1.1 WP on Draft G1180 Ed1.1 Resilient PNT to ENG23. ....	20
<b>Action Item ENG22-14</b>	The Secretariat is requested to forward ENG22-9.2.2.3 Liaison note on the Recommendation on Resilient PNT and ENG22-9.2.2.3.1 Annex WP R1017 Ed 2.0 Resilient Position Navigation and Timing to the ARM, VTS, and DTEC committees. ....	20
<b>Action Item ENG22-15</b>	The Secretariat is requested to forward ENG22-9.2.2.1 Liaison note to RTCM regarding the 10402.3 amendment to the Council for approval. ....	21
<b>Action Item ENG22-16</b>	Committee participants are requested to send an email to the task group leader, Stefan Gewies (Stefan.Gewies@dlr.de), if they want to be included in the task group email distribution list. ....	21

<b>Action Item ENG22-17</b> Committee participants are requested to send an email to the task group leader, Kevin Sheridan (Kevin.Sheridan@gla-rad.org), if they want to be included in the task group email distribution list.....	22
<b>Action Item ENG22-18</b> The Secretariat is requested to forward the working paper ENG22-12.5.1.3 WP on eLoran discussion document to ENG23.....	22
<b>Action Item ENG22-19</b> The Chair of ENG committee is requested to discuss the possible role of IALA for eLoran in the PAP committee.....	22
<b>Action Item ENG22-20</b> The Secretariat is requested, after the discussion in the PAP committee, to inform the Council about the role IALA could have in the eLoran community. ....	22
<b>Action Item ENG22-21</b> Australian Maritime Safety Authority is invited to report the conclusions and outcomes from NCSR13, as well as to inform about the next steps regarding the development of the performance standard for an SBAS DFMC & ARAIM shipborne radionavigation receiver by IMO CG in the next ENG23.....	22
<b>Action Item ENG22-22</b> The Secretariat is requested to forward ENG22-9.2.2.4 Guideline on GNSS Satellite-based Precise Point Positioning (PPP) Maritime Service to the Council for approval. ....	23
<b>Action Item ENG22-23</b> Committee members are invited to support this task. Interested people are invited to contact José-Luis Martin (jose-luis.martin@essp-sas.eu) directly.....	24
<b>Action Item ENG22-24</b> Committee members who are interested in contributing to this guideline are invited to share their contact information and willingness to join by email to the task leader, Sun Qian (qbcouple@163.com).....	24
<b>Action Item ENG22-25</b> Task group members will conduct intersessional research and draft writing via email, and the task leader will coordinate and assign sections. The task group will hold one intersessional virtual meeting before the next session to review the outline and initial draft. ....	25
<b>Action Item ENG22-26</b> The Secretariat is requested to forward ENG22-9.2.2.2 Liaison note on Racons with annexes to ARM for further review.....	25
<b>Action Item ENG22-27</b> Committee participants are requested to review eLoran-related product specification information prior to the next ENG23 meeting. The working document (eLoran PS data.xlsx) has been uploaded to the IALA FileShare Task Group folder ( <a href="https://nextcloud.iala-aism.org/s/PBi2n5koMYyBBfK">https://nextcloud.iala-aism.org/s/PBi2n5koMYyBBfK</a> ). ....	25
<b>Action Item ENG22-28</b> Committee participants are requested to review ENG22-12.5.1.5 R-Mode station almanac data prior to next ENG23. ....	26
<b>Action Item ENG22-29</b> The Secretariat is requested to forward the working document ENG22-12.5.1.5 Draft S-241 data model to ENG23. ....	26
<b>Action Item ENG22-30</b> Committee participants are requested to study the “New Guideline Modernizing heritage lighthouses, minimizing negative impact” and submit their additions to the ENG23 committee meeting.....	27
<b>Action Item ENG22-31</b> The Chair of WG2 is requested to contact the Chair of DTEC WG2 on the matter of PNT over IMT2020/IMT2030.....	27
<b>Action Item ENG22-32</b> The Secretariat is requested to continue to support the Heritage website. ....	29
<b>Action Item ENG22-33</b> The ENG Committee is requested to review the Heritage website map function and provide any feedback to the WG3 Chair. ....	29
<b>Action Item ENG22-34</b> Task Group Participants are requested to review the Heritage website map function and provide any feedback to the WG Chair.....	29

<b>Action Item ENG22-35</b> Liu Juan is requested to investigate the feasibility of hosting a new section on the heritage and culture webpages and is invited to present her findings for further discussion at future ENG sessions.....	29
<b>Action Item ENG22-36</b> Sarah-Jane Lakshman is requested to continue coordinating the production of a guidance document on good practice in modernizing heritage lighthouses whilst minimizing heritage impact and finalize the draft guideline for ENG23. Trinity House is requested to support them in this...	29
<b>Action Item ENG22-37</b> Task group participants are requested to participate in an intersessional review of the Guidance document on good practice in modernizing heritage lighthouses whilst minimizing heritage impact.....	30
<b>Action Item ENG22-38</b> Sarah-Jane Lakshman is requested to continue management of the IALA HLY accolade, and Trinity House is requested to support her in this.....	30
<b>Action Item ENG22-39</b> The IALA Secretariat is requested to submit the proposed revision of the heritage module syllabus ENG22-9.2.3.1 Liaison note Proposal for the revision of the L1.1 2D Lighthouse model course syllabus to the World-Wide Academy for review.....	31
<b>Action Item ENG22-40</b> Ke RAXUAN is requested to continue coordinating WG3 work in creating the Heritage Module for the WWA L1.1 AtoN Manager Course through to completion, and the Navigation Institute of JiMei University is requested to support them in this.....	31
<b>Action Item ENG22-41</b> Task group participants are requested to participate in the intersessional review. ....	31
<b>Action Item ENG22-42</b> The Secretariat is requested to forward the working paper ENG22-12.5.1.6 WP G1080-The Selection and Display of Heritage Artifacts to ENG23. ....	31
<b>Action Item ENG22-43</b> Task group participants are requested to participate in intersessional review..	31
<b>Action Item ENG22-44</b> Naehyuk YOO is requested to continue coordinating WG3 work in reviewing IALA Guidance document G1080 Ed.1 through to completion, and the Korea Institute of Aids to Navigation is requested to support them in this. ....	31
<b>Action Item ENG22-45</b> The Secretariat is requested to submit the ENG22-9.2.3.2 Draft Revised Guideline G1063 Partnership agreements for complementary use of lighthouse property to the Council for silent approval.....	32
<b>Action Item ENG22-46</b> Zhenyu Guo is requested to continue coordinating WG3 work in reviewing IALA Guidance document G1075 Ed.1, and China Maritime Safety Administration (MSA) is requested to support them in this.....	32
<b>Action Item ENG22-47</b> Task group participants are requested to participate in intersessional review..	32
<b>Action Item ENG22-48</b> Antonio Oliveira and Oleg Gaidai are requested to draft an input paper for review for ENG23 further exploring the designation and certification of IALA heritage lighthouses. ....	33
<b>Action Item ENG22-49</b> Masatora Ono and Antonio Oliveira are requested to draft an input paper for review for ENG23, further exploring the lighthouse twinning proposal.....	33
<b>Action Item ENG22-50</b> Task group participants are requested to provide feedback prior to ENG23 to assist in the to ENG23 to assist preparation of the input paper. ....	33
<b>Action Item ENG22-51</b> Antonio Oliveira and Oleg Gaidai are requested to draft an input paper for review for ENG23, further exploring the introduction of a complementary heritage framework.....	34
<b>Action Item ENG22-52</b> Task group participants are requested to provide initial thoughts and feedback on the heritage framework prior to ENG23 to assist in the preparation of the input paper.....	34

## ANNEX F WORKING GROUP PARTICIPANTS LISTS

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