

Input paper for the following Committee(s):      check as appropriate      Purpose of paper:

☐ ARM                      ☐ ENG                      ☐ PAP                      **X** Input

☐ ENAV                      **X** VTS                      ☐ Information

Agenda item <sup>1</sup>                                      8.1

Technical Domain / Task Number <sup>2</sup>      1.1.3

Author(s) / Submitter(s)                      Intersessional Group on MASS

## IMPLICATIONS OF MASS FROM A VTS PERSPECTIVE

### 1 BACKGROUND

The Committee commenced *Task 1.2.5 – Develop guidance on the Implications of Maritime Autonomous Surface Ships (MASS) from a VTS Perspective* at VT50. As part of the new Work Programme the task is now numbered 1.1.3 Key elements of the task include:

- **Discussion Paper** - Preparing a Discussion Paper to assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS, focussing on:
  - The ‘operational requirements’ for managing ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange; and
  - Clearly and concisely identifying:
    - Trends and opportunities presented by MASS.
    - Issues / challenges / expectations for the management of ship traffic in a VTS area.
    - Options, policies, and strategies for VTS to embrace / influence MASS.
    - Implications for the regulatory and legal framework for VTS.
    - Implications for IALA Standards relating to VTS.
- **Guidance** – Preparing guidance to assist VTS providers contribute to the safety and efficiency of vessel movements in the VTS area with the advent of MASS.

At VT51 and VT52 the Committee concluded that work on Guidance document be paused, pending preparation of the Discussion Paper, and recognizing:

- The road map for the development of a goal-based instrument for MASS (IMO Maritime Safety Committee (MSC 106).
- The consideration of ‘Case Studies’.
- Existing guidance available for MASS trials such as:
  - The IMO Interim Guidelines for MASS Trials (MSC.1/Circ.1604).
  - EU Operational Guidelines for Safe, Secure and Sustainable Trials of MASS.
  - MASS UK Industry Conduct Principles and Code of Practice.

At VT53 the task group was requested to continue its work on the discussion paper and developing the proposed guidance to assist VTS providers contribute to the safety and efficiency of vessel movements in the VTS area with the advent of MASS for the Committees consideration at VT54.

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<sup>1</sup> Leave open if uncertain

## 2 DISCUSSION

TG1.2.5 met 5 times since VTS53. Participants included:

Surname	First Name	Affiliation	Country
Garcia	Lorena	Prefectura Naval Argentina	Argentina
Trainor	Neil	Australian Maritime Safety Authority	Australia
Liu	Jinkai	China Maritime Safety Administration	China
Yuanming	Hu	China Maritime Safety Administration	China
Hansen	Dorte	Defence Command Denmark Naval Staff	Denmark
Rostopshin	Dmitry	Wartsila	Finland
Kallio	Esa	Fintraffic Vessel Traffic Services Ltd	Finland
Menabene	Gian Luca	Italian Coast Guard	Italy
van Omme	Hilbert	Dutch Pilots' Corporation	Netherlands
Guiking	Colin	MARIN	Netherlands
van Dorsser	Harmen	Port of Rotterdam Authority	Netherlands
Eade	Peter	VISSIM	Norway
Bin Ahmad	Kamal	Maritime and Port Authority of Singapore	Singapore
Diaz	Raquel	SASEMAR	Spain
Trent	Michael	International Harbour Masters Association	USA

Key outcomes from the intersessional work include:

### 1. Review of MASS related outcomes from:

- IALA MASS Task Force meeting (6 March) with regards to the development of an overarching IALA MASS Recommendation and Guideline. (*VTS54-8.1.1.1 MTF05-8.1 Draft Guideline MASS implications for Shore Authorities*).
- IMO Maritime Safety Committee (MSC106 (2-11 November 2022) and MSC 107 (31 May-9 June 2023)), including:
  - The development of the Goal-Based Code for MASS (*VTS54-8.1.1.2 MSC 107-5 - Report of the Correspondence Group (Marshall Islands)*)
  - The IMO Roadmap for Developing a Goal-Based Code for MASS (*VTS54-8.1.1.3 Road Map for Developing a Goal-based Code for MASS (MSC 107)*).

### 2. Discussion Paper - Implications of MASS from a VTS Perspective

The task group is of the view that the Discussion Paper has provided a valuable contribution to assisting the Committee achieve a common understanding of MASS and its implications on the provision of VTS.

Minor amendments have been suggested to reflect the outcomes from MSC and the IALA MASS Task Force.

A copy of the revised Discussion Paper is at *VTS54-8.1.1.4 Discussion Paper - Implications of MASS from a VTS Perspective*.

Recognizing the developments associated with the MASS Code since VTS53, the task group suggests that consideration should be given to:

- The purpose, structure, and content of the Discussion Paper, noting:
  - The preparation of the draft MASS Code (*VTS54-8.1.1.2 MSC 107-5 - Report of the Correspondence Group (Marshall Islands)*), and
  - The road map for developing a goal-based code for maritime autonomous surface ships (*VTS54-8.1.1.3 Road Map for Developing a Goal-based Code for MASS (MSC 107)*).
- The relationship between the MASS Discussion Paper and the “Future VTS” Discussion Paper (*VTS52-13.2.1.4 WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS Perspective (as at VTS52)*).

### 3. Draft Guideline on Implications of MASS from a VTS Perspective

The Task Group prepared a first draft of a Guideline on the Implications of Maritime Autonomous Surface Ships from a VTS perspective for the Committees consideration at VTS54.

The draft was prepared in a manner that:

- Describes the relationship between this task, existing IALA guidance and the new / revised guidance related to MASS also being prepared by the VTS and ENAV Committees as part of the 2023/28 work program.
- Considers the functional requirements described in the draft MASS Code and how these are addressing some of the 'Overarching Assumptions' identified in the Discussion paper.
- Provides a framework for considering the implications for VTS and functional requirements to address these.

Specifically, the draft Guideline focuses on functional aspects to obtain safe and efficient ship movements with a mix of conventional ships, autonomous ships, and control centres (remote and/or local) insofar as they may not be adequately or fully addressed in other IALA recommendations and guidelines with regards to.

- Managing ship traffic comprising both MASS and conventional ships.
- Digital interaction with ships, RCCs and fully autonomous systems:
  - Receiving and Processing Reports and Information.
  - Provision of advice, warning, and instruction.
- Managing Interaction with multiple RCCs.
- Operational and procedural changes associated with the above.

Key assumptions adopted in preparing the draft guidance include:

1. MASS will be subject to existing IMO instruments, as amended, such as SOLAS. In addition, MASS will be subject to the MASS Code, which will address MASS issues not adequately or fully addressed in the applied base instruments.
2. MASS will be required to broadcast status as to who/what is in command at any time (Master/RCC/automated onboard command systems).
3. MASS will be required to participate in VTS in the same manner as conventional ships. That is, the same regulatory requirements to provide reports or information required by VTS and obligations with regards to the issue of advice, warnings and instructions as deemed necessary.
4. Standards for digital information and data exchange (technology/medium, data elements, format, syntax, etc) will be referenced in other IALA guidance being developed by the VTS Committee during the 2023-2027 work program, such as:
  - *Task 1.1.3* - Develop guidance on VTS digital communications (operational aspects).
  - *Task 2.5.2* - Develop technical service specifications for digital data exchange between VTS and other entities - primarily ships.
  - *Task 2.8.1* - Develop a Product Specification S-212 under the S-100 framework for VTS.
  - *Task 2.8.2* - Review and update Recommendation R0145 (V-145) on the Inter-VTS Exchange Format (IVEF) Service (Output to be a revised Recommendation and associated Guideline including a technical service and/or product specification S-210).
5. The guidance should complement and contribute to the overarching IALA guideline on the Developments and implications of maritime autonomous surface ships for coastal authorities being prepared by the DTEC Committee / MASS Task Force.

Note - It is anticipated that assumptions 1-4 above may be addressed in the MASS Code as adopted and amended IMO conventions and instruments and therefor may not need to be required to be reflected in the final IALA guidance document.

Noting significant parallel work is being progressed by other groups within the Committee with MASS related tasks (such as Tasks 1.1.3, 2.5.2, 2.8.1 and 2.8.2) the group was of the view that consideration should be given to establishing a mechanism for liaison between these groups, or joint sessions as required, during VTS54.

### 3 ACTION REQUESTED OF THE COMMITTEE

The Committee is requested to:

**1. Note the outcomes from the Task Groups intersessional work, including:**

- a) The revised Discussion Paper on the Implications of MASS from a VTS Perspective (*VTS54-8.1.1.4 Discussion Paper - Implications of MASS from a VTS Perspective*).
- b) The draft Guideline to assist VTS providers interact with vessel traffic, regardless of whether certain functions are remotely controlled or autonomously operated and respond to developing situations within a VTS area (*VTS54-8.1.15 Draft Guideline on Provision of VTS to Autonomous and Conventional Ships*).

**2. Give consideration to:**

- a) Facilitating liaison between Committee groups working on MASS related tasks (such as Tasks 1.1.3, 2.5.2, 2.8.1 and 2.8.2) during VTS54.
- b) The purpose, structure, and content of the Discussion Paper on the Implications of MASS from a VTS Perspective, noting the outcomes from MSC regarding the functional requirements being described in the draft MASS Code and how these are addressing some of the 'Overarching Assumptions' identified in the Discussion paper.
- c) The relationship between:
  - The Discussion Paper on the Implications of MASS from a VTS Perspective (*VTS54-8.1.1.4 Discussion Paper - Implications of MASS from a VTS Perspective*); and
  - The "Future VTS" Discussion Paper (*VTS53-12.2.5.1 Attachment - Discussion paper - Implications of MASS from a VTS Perspective*).
- d) The relationship between:
  - The draft guideline on Provision of VTS to Autonomous and Conventional Ships (*VTS54-8.1.15 Draft Guideline on Provision of VTS to Autonomous and Conventional Ships*); and
  - The draft overarching IALA guideline on developments and implications of maritime autonomous surface ships for coastal authorities (*VTS54-8.1.1.1 MTF05-8.1 Draft Guideline MASS implications for Shore Authorities*).

#### Attachments

- 1. VTS54-8.1.1.1 MTF05-8.1 Draft Guideline MASS implications for Shore Authorities.
- 2. VTS54-8.1.1.2 MSC 107-5 - Report of the Correspondence Group (Marshall Islands)).
- 3. VTS54-8.1.1.3 Road Map for Developing a Goal-based Code for MASS (MSC 107)).
- 4. VTS54-8.1.1.4 Discussion Paper - Implications of MASS from a VTS Perspective.
- 5. VTS54-8.1.1.5 Draft Guideline on Provision of VTS to Autonomous and Conventional Ships.