Information paper: [[1]](#footnote-1) ENG12-3.1.27.1

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

**X** ARM **X** ENG **□** PAP **□** Input

**X** ENAV **X** VTS **X** Information

Agenda item [[2]](#footnote-2)

Task Number 2

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　Report of International Meeting for MASS Infrastructure

# Summary

This document introduces the report and associated outcomes from the International Meeting for Maritime Autonomous Surface Ship (MASS) Infrastructure hosted by the Japan Coast Guard (12-14 February 2020, Tokyo, Japan), for the Committee’s consideration at ENG12, ARM12, ENAV26 and VTS49.

## Related documents

Related documents include: Input paper ENG12-3.1.27.2, “Report from the International Meeting for MASS Infrastructure”.

# Background

Currently, there are many studies and testbeds on MASS and the first full autonomous ship will be appeared in near future. Most of these studies and testbeds on MASS are focused on onboard systems. However, shore side infrastructures such as aids to navigations, VTSs and shore radio stations are also essential and vital in order to ensure safe and efficient MASS operation. Therefore, discussion on such shore infrastructures are necessary.

The goals for the meeting were to:

* To facilitate understanding of the present situation and technology on MASS
* To identify possible technologies for MASS infrastructure
* To develop a guidance for use of such technologies
* To develop a report and recommendations to IALA and other relevant organizations

# Discussion

Participants from Canada, Finland, Netherland, Norway, IALA and Japan, attended in the meeting. The key conclusions and recommendations from the meeting include:

* Existing visual, radio, audible and virtual AtoNs can contribute to forming a suitable platform of complementary and enhanced services for MASS and IALA should initiate studies on the usage of such existing AtoNs with a goal of developing new technologies and policies;
* VTS should retain its principle services for all vessels but enable sharing information with MASS by digitizing and possibly extending the services and IALA should consider revising the Recommendation V-145 “Inter-VTS exchange format service” to include exchanges with MASS shore control centers (SCCs) and other allied services;
* The human-machine interface of the SCC is a key component that is required for safe MASS operations and IALA should study how existing and emerging technologies can satisfy e-navigation user requirements;
* Robust radiocommunication infrastructure is indispensable for MASS and IALA should develop guidance materials for the use of VHF Data Exchange System (VDES) and other potential technologies such as 5G, while taking cyber security issues into consideration; and
* IALA should consider updating the e-Navigation testbed web-site to include information on MASS operations testbeds to support the development of new infrastructure.

# Action requested of the Committee

The Committee is requested to note the report and recommendations from the International Meeting for MASS Infrastructure.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)