

# MASS

## Our Position

**The introduction of Maritime Autonomous Surface Ships (MASS) has identified the need to develop a new level of technical requirement in shipping. The correct deployment of technology should enhance safety, increase environmental protection, and optimise ship design and the overall performance of shipping.**

**IACS intends to contribute to this important subject area through its involvement in various fora, reinforced by its maritime technical expertise and will consolidate its position as a trusted partner to both regulators and Industry. The Association will identify gaps and emerging areas of regulation, and will look to develop and demonstrate competence through the development of robust requirements and processes.**

## BACKGROUND

IMO, through its Maritime Safety Committee (MSC), has commenced work on a “Regulatory Scoping Exercise”. The Legal Committee (LEG), Marine Environment Protection Committee (MEPC) and Facilitation Committee (FAL) have also embarked on the debate regarding “unmanned” autonomous ships. In addition, at MSC, the IMO has also initiated a dialogue on the development of guidelines on MASS trials.

A new task for development of terminology related to automation of Maritime Autonomous Surface Ships (MASS) has been launched in ISO/TC8/WG10 on Smart Shipping. There are several other significant MASS-related areas where IACS could be invited to participate, or where it should actively seek engagement.

## IACS POSITION

### 1. IMO Work – Regulatory Scoping Exercise (RSE)

IACS understands that this is not a forum for technical discussion, but it aims to establish a similar understanding of technology among IMO members. At the initiation of the first step of the RSE (the assessment of IMO instruments on application to MASS), which commenced in February 2019, MSC 100 agreed that the work would be undertaken by Member States with the possible engagement of NGOs in supporting roles. At that point IACS confirmed its

involvement in the initial review and relevant technical discussion on SOLAS Chapter II-2, aiming to support Japan (the lead Member State).

In substance and impact, the second step of the RSE (an analysis of the most appropriate way of addressing MASS operations) is considered to be more crucial: it will commence in September 2019 following a decision made by the Intersessional MSC Working Group on MASS, whose terms of reference will be approved at MSC 101.

### 2. IMO Work – Development of Guidelines on MASS Trials

This is the “real” testing ground for the technology. IACS expects to acquire vital safety information in relation to ship control and engineering systems, together with the results of risk assessment, which will be shared by IMO members at subsequent sessions of the relevant Committees and Sub-committees.

### 3. ISO Work – TC8/WG10 and Others

Work at ISO may be more pertinent to Classification, and IACS will establish close liaison with ISO on this subject.

## SUMMARY OF WORK CARRIED OUT BY IACS ON THIS ISSUE TO DATE

Noting the importance of MASS-related issues for the shipping industry, IACS has included this agenda item in its strategic Action Plan:

- Review all IACS Resolutions and Recommendations with the intention to identify and address possible requirements which may hinder the technical development of Smart ships/Intelligent ships/MASS, and monitor regulatory development in that area (2017-2018);
- Address possible issues which may hinder the technical development of Smart ships/Intelligent ships/MASS, and contemplate a need to reform the existing IACS Resolution structure to accommodate Smart ships/Intelligent ships/MASS, and how best to complete such a reform process (2018-2019);

In parallel with IMO activities, IACS has carried out several initiatives:

### 1. Internal review of all IACS Resolutions (2017)

As a result of this review, 191 IACS Resolutions (not including CSR) were identified as requiring a human presence on board ship (this is in line with the current international regulatory regime, taking human presence on board for granted).

It should be noted that the review was aimed at identifying the barriers for fully autonomous ships as a first step. Requirements which may hinder the technical development of fully autonomous ships were mainly identified in IACS' Resolutions related to machinery, electrical systems, safety systems, hull structures, and survey procedures. Identification of the consequences of other degrees of autonomy has not yet been initiated.

### 2. Pilot project for selected IACS Resolutions (2018)

An IACS pilot project to modify the following IACS Resolutions was undertaken with the intention to make them relevant for fully autonomous (self-navigating) ships:

UR S8	<i>Bow doors and inner doors</i>
UR F32	<i>Fire detecting system for unattended machinery spaces</i>
UR Z18	<i>Periodical survey of machinery</i>

### UR M75 *Ventilation of emergency generator rooms*

The purpose of the project was to reveal as many barriers as possible, and to facilitate a discussion on the priority and relevance of requirements for various levels of autonomy. Hence, the pilot project was conducted in order to acquire knowledge on the extent of such barriers, not to publish new IACS Resolutions for autonomous ships.

### 3. Basic Principles for drafting New and revised IACS Resolutions (2018)

As a result of the IACS review, the following general principles for drafting IACS Resolutions were agreed:

- IACS will strive to avoid introducing new obstacles for MASS in new IACS Resolutions.
- IACS will consider whether obstacles for MASS can be reduced when it amends existing IACS Resolutions.
- IACS will, when drafting new Resolutions, or amending existing ones, consider the inclusion of a statement to propose special consideration if more than usual automation is suggested.
- IACS will carefully consider the need for new or amended IACS Resolutions that allow more extensive automation provisions.

### 4. Establishment of IACS Task Force on MASS (January 2019)

Task Force/MASS was established in January 2019 to provide technical support and advice to the IACS Safety Panel and GPG, with regard to the IMO RSE on MASS.

In particular, Task Force/MASS is tasked to:

- consider each action item of the Plan of Work and Procedures for the RSE (MSC 100/WP.8, APPENDIX 3) agreed by MSC 100; and
- develop draft IACS deliverables or comments/positions for subsequent review and agreement by the IACS Safety Panel, both for the submission of IACS comments to the RSE leading Member State or for the uploading of IACS' comments on the IMO MASS web platform in GISIS; and for stating the IACS position at the Intersessional MSC Working Group on MASS.

## 5. References to IACS' Leadership or Participation in external Meetings/Activities:

- IACS' participation in Tripartite 2017 (November 2017), on making a presentation on "Intelligent ships: Concepts, rules and prospects".
- IACS/Industry Technical Meeting before MSC 99 (May 2018), where IACS contributed to a brief/discussion with stakeholders regarding common terminology for levels of autonomy for ships.
- IACS' participation in the IMO Working Group on Maritime Autonomous Surface Ships (MASS), established by MSC 99 (May 2018).
- IACS' participation in the IMO Correspondence Group on a regulatory scoping exercise (RSE) for the use of Maritime Autonomous Surface Ships (MASS), established by MSC 99 (May – September 2018).
- IACS' participation in Tripartite 2018 (October 2018), on making a presentation on "Autonomous Ships".
- IACS' participation in the IMO Working Group on Maritime Autonomous Surface Ships (MASS), established by MSC 100 (December 2018).
- IACS' participation (as a supporting NGO participant) in an initial review of SOLAS Chapter II-2 within the first step of IMO RSE on MASS (February 2019 – September 2019).

## ANTICIPATED FUTURE WORK

- IACS, as a key technical advisor to IMO, will use its knowledge and expertise and engage closely with IMO and Industry in establishing as safe a future as possible for shipping:
  - In this regard, IACS intends to continue its participation in the IMO Working Group at MSC 101 (June 2019) and MSC 102 (May 2020), and the scheduled Intersessional MSC Working Group on MASS (September 2019).
  - IACS plans to monitor the development of Guidelines on MASS trials initiated by MSC 100, and to provide comment as necessary.
  - IACS intends to continue its active participation in IMO RSE on MASS (February 2019 – February 2020).
  - IACS plans to monitor ISO/TC8/WG10's work programme on the development of new ISO standards related to MASS terminology and concepts for ship autonomy, as announced by ISO at MSC 100, and to provide comment as necessary.
- However, in anticipation of the outcome of the IMO RSE on MASS (February 2019 – February 2020) and its influence on the current regulatory framework in IMO, and pending developments at IMO level which may take place after final consideration of the results of the first and second steps of the IMO RSE at MSC 102 (May 2020), IACS will put on hold further MASS initiatives relating to IACS Resolutions.

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