

MARITIME SAFETY COMMITTEE
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**REGULATORY SCOPING EXERCISE FOR THE USE OF
MARITIME AUTONOMOUS SURFACE SHIPS (MASS)**

**Comments on documents MSC 102/5/1, MSC 102/5/7, MSC 102/5/27,
MSC 102/5/32 and MSC 102/5/18**

Submitted by IACS

SUMMARY

Executive summary: This document provides IACS comments on such issues as "common potential gaps", "appropriate ways" and "degrees of autonomy" appearing in documents MSC 102/5/1, MSC 102/5/7, MSC 102/5/27, MSC 102/5/32, and "MASS terminology" in document MSC 102/5/18

Strategic direction, if applicable: 2

Output: 2.7

Action to be taken: Paragraph 17

Related documents: MSC 102/5/1, MSC 102/5/7, MSC 102/5/18, MSC 102/5/27 and MSC 102/5/32

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.2) and offers comments on documents MSC 102/5/1, MSC 102/5/7, MSC 102/5/18, MSC 102/5/27 and MSC 102/5/32.

Background

2 The Committee at its 100th session approved the framework for the regulatory scoping exercise (RSE), including the plan of work and procedures. The RSE was divided into two steps. As a first step, the RSE was to identify the applicability of provisions in IMO instruments with regard to MASS operation and whether the provisions, as currently drafted, prevent or do not prevent MASS operations, and require or do not require actions. Once the first step was completed, a second step was to be conducted to analyse and determine the most appropriate way of addressing MASS operations.

3 The intersessional meeting of the Working Group on MASS agreed on the completion of the first step of the RSE for all instruments considered and on the commencement of the second step of the RSE.

4 IACS appreciates the enthusiasm and the hard work of all those who were engaged in the first and second steps of the RSE. IACS believes that the positive results of the second step of the RSE will substantially contribute to the future work on MASS.

Discussion

Comments on "common potential gaps", "appropriate ways" and "degrees of autonomy"

"Common potential gaps"

5 From the submissions to MSC 102, IACS notes that the volunteering Member States have identified many common themes and gaps for individual IMO instruments and their parts, although different assumptions were used. There are also different opinions on choosing the "most appropriate way" of addressing MASS operations for individual themes and gaps.

6 In that respect, IACS refers to the analysis in document MSC 102/5/7 (Germany), specifically to paragraph 15 thereof, containing considerations necessary for future decision, as follows:

"15 For future decisions and possible action it is of utmost importance that the Organization develops a common and goal-based understanding on these main issues, common potential gaps and themes identified during the RSE."

7 In that connection, IACS agrees with the appropriateness and relevance of the proposal which follows in paragraph 17 of that document:

"17 Not intending to delay the finalization of the RSE at MSC 102, Germany, however, suggests, that the Committee embarks on the task to develop a common, and goal-based, understanding on the main issues, common potential gaps and themes identified during the RSE."

"Appropriate ways"

8 Also, IACS believes that the development of a consolidated list of the "most appropriate ways" of addressing MASS operations, based on the RSE results of the review of IMO instruments, would aid achievement of the most suitable regulatory solution. Undoubtedly, addressing the common themes/gaps which were identified as relevant to the regulations of the SOLAS Convention might be the most complicated task. According to the submitted results of the RSE review of SOLAS chapters and other instruments under SOLAS, the category of "most appropriate ways" for each chapter contains options from I to IV. IACS opines that the fact of existence of many common themes and gaps points towards finding a solution by means of development of a new instrument.

9 It follows from the above that for MASS operation, individual SOLAS chapters should not be addressed separately, since it will involve many regulations which would be difficult to effectively coordinate, leading to a time-consuming process. It should also be kept in mind that for a long period the large majority of the world's fleet will still be comprised of conventional ships. Therefore, IACS would caution against developing amendments to existing regulations on a large scale only to accommodate MASS operation; it could cause confusion and raise potential barriers for the application of existing regulations to conventional ships.

10 IACS recommends that SOLAS, as a convention, should consider MASS operation in a holistic way. Similarly to the approach deployed for special purpose ships, a dedicated chapter for addressing the concept and definitions of MASS should be put in place in the SOLAS Convention, supported by a new MASS Code for elaborating on the regulations originating therefrom.

"Degrees of autonomy"

11 In addition to the above considerations, IACS notes that through the RSE process various volunteering Member States have developed their own assumptions and interpretations to help in their work. Paragraph 7 of document MSC 102/5/32 calls for these degrees of autonomy to be re-evaluated, taking into account the lessons learnt during the RSE. Also, paragraph 4 of document MSC 102/5/27 proposes a focus on autonomous "functions" and "tasks" as one of two possible developmental paths. In order to offer a clear pathway for developing technical requirements, the definitions of the four degrees of autonomy of MASS would benefit from a clarification from the point of view of systems functions. With those benefits in mind, IACS suggests that the degrees of autonomy to be re-evaluated, placing a focus on the functions or tasks being carried out autonomously. To put it in other terms, IACS would recommend the development of requirements per function where autonomous systems replace a human or a remote operator replaces a person on board.

Comments on document MSC 102/5/18 on MASS terminology

12 IACS has sympathy with ISO's intention to draft MASS terminology to remove significant differences in the understanding among different stakeholders. After carefully reviewing document MSC 102/5/18, IACS finds that the standard, while attempting to define "automatic" and "autonomous", as well as offering notes with a view to addressing any potential confusion regarding the differences between the two terms, does not offer a clear definition.

13 Specifically, regarding the definition of the term "autonomous" in the abbreviation "MASS", IACS would like to refer to the IMO definition of "MASS" used in RSE, which states:

"MASS is defined as a ship which, to a varying degree, can operate independent of human interaction."

14 Considering the above, IACS is of the view that a definition of "autonomy" in "MASS" should start from defining how the four phases of task implementation (i.e. situational awareness, analysis of alternatives, decision making and action implementation) are delegated to humans or to technological devices.

15 Further, the proposed acronym for the term "Remote Control Centre – RCC" may be problematic because there is already the same acronym "RCC" for the "Rescue Coordination Centre" in SAR Convention 1979 and, among others, the IAMSAR Manual. Since both Centres could be involved in emergencies, it is recommended to avoid using the same acronym for different terms.

16 In conclusion, at this stage IACS cannot support the terminology presented by ISO in document MSC 102/5/18.

Action requested of the Committee

17 The Committee is invited to consider the above comments and take action, as appropriate.