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# DEVELOPMENT OF A GOAL-BASED INSTRUMENT FOR MARITIME AUTONOMOUS SURFACE SHIPS (MASS)

## Comments of substance on document MSC 111/5/6

## Submitted by IACS


**SUMMARY**

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| *Executive summary:* | This document provides comments of substance on document MSC 111/5/6 containing proposals for the forms of certificates for MASS with a view to ensuring that the format and content of the certificates and records comply with the requirements stipulated in chapter 5 and other relevant chapters of the draft MASS Code. |
| *Strategic direction, if applicable:* | 2 |
| *Output:* | 2.23 |
| *Action to be taken:* | Paragraph 23 |
| *Related documents:* | MSC 110/WP.8 and MSC 111/5/6 |


## 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.6) and offers comments of substance on document MSC 111/5/6 (China).

2 Following the decisions made at MSC 110 and in order to facilitate the finalization of the non-mandatory code and its future implementation, document MSC 111/5/6 presented draft forms/models of certificates for MASS, along with the associated records in accordance with the requirements stipulated in draft chapter 5 and other relevant draft chapters of the code.

3 IACS appreciates the continuous contributions and efforts by China to the development of the draft MASS Code and submits this commenting document aimed at facilitating the discussion on the development of forms of certificates and associated records.

**Discussion and proposals**

***Forms of the MASS Certificate and the MASS ROC Certificate***

*Endorsement for annual and intermediate surveys in the MASS Certificate and the MASS ROC Certificate*

4 Paragraph 12.4 of document MSC 110/WP.8 indicates "Validity of Certificates" in line with other conventions and codes specifically identifying the relationship between the MASS Certificate and the ROC MASS Certificate. IACS proposes that SOLAS regulation I/14(h)(iii) which reads:

> "(iii) the expiry date may remain unchanged provided one or more annual, intermediate or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded"

be considered to apply to the MASS Certificate, the MASS ROC Certificate, and the corresponding endorsement to be included in the certificates. It is noted that the endorsement related to SOLAS regulations I/14(c), (d), (e), (f), (h) is already included in the MASS Certificate and the MASS ROC Certificate.

*Paragraph 3 of the MASS ROC Certificate*

5 Paragraph 7 of document MSC 111/5/6 states:

> "Taking into account the goal-based nature of the Code, both the MASS and the MASS ROC certificates should reflect that a structured approval process as defined in chapter 6 of the draft MASS Code has been followed, ensuring the ship and the ROC have obtained the required approval for the intended operation…"

6 Paragraph 3 of the MASS ROC Certificate therein is written to apply to a ship rather than an ROC, and reads:

> "A structured approval process as defined in part 2/6 of the Code has been followed, ensuring the ship obtained the required approval for the intended operation."

7 Although chapter 6 of part II of the draft Code only mentions "MASS", IACS believes that, as stated in paragraph 1 of chapter 6, the structured approval process applies to "MASS" holistically, covering the ship along with the associated ROCs. Moreover, IACS notes that "ROC" is also mentioned in paragraph 6.4 of chapter 6.

8 In this regard, for the design of certificate formats, the fact of the ship obtaining the required approval by following the structured approval process should be reflected on the MASS Certificate, while the fact of the ROC obtaining the required approval should be reflected on the MASS ROC Certificate.

9 To address this distinction, IACS proposes that paragraph 3 of the MASS ROC Certificate be modified to apply to the ROC and is proposed to read:

> "A structured approval process as defined in part II/6 of the Code has been followed, ensuring the ~~ship~~ ROC obtained the required approval for the intended operation."

*Remote operation capacity of the ROC*

10 The term "remote operation capacity" is included in the MASS ROC Certificate, and the term "capacity of remote control" is included in the Provisional MASS ROC Certificate and Record. For consistency, IACS proposes to align the two terms.

11 In addition, the two terms are found not defined or clearly described in the draft MASS Code. IACS proposes that the terms be clarified, considering it is an important particular of the ROC to be indicated in certificates.

*Form of the MASS ROC Certificate*

12 The proposed MASS ROC Certificate is designed with an ROC-to-single-MASS connection. However, it is anticipated that a specific workstation within an ROC could connect to multiple MASS under certain operational conditions, which the proposed template does not accommodate.

13 In this regard, IACS proposes that the design of the MASS ROC Certificate take into account the potential for connection between an ROC and multiple MASS.

*Forms of Provisional Certificates for MASS and MASS ROC*

Capacity of the remote control of the ROC

14 The same comment as in paragraphs 7 and 8 applies.

***Forms of the associated MASS Record and MASS ROC Record***

*Software version*

15 In the current draft MASS Code, software is referenced in the definition in paragraph 4.47 (*validation*) of chapter 4 and then tied to survey requirements under chapter 5 (sections 5.2.2.3.1 and 5.4.2.3.1), where criteria for potentially prescribing "additional surveys" are elaborated under MASS surveys and MASS ROC surveys, respectively.

16 Additionally, software is referenced in chapter 7 (Risk assessment), chapter 8 (Operational context – where under section 8.2.5 ConOps re-evaluation is recommended for software changes to a ship or an ROC), chapter 10 (Software principles), chapter 11 (Management of safe operations), chapter 12 (Alert management), chapter 17 (Remote operations) and in the Preliminary framework for ConOps (annex 2).

17 Therefore, IACS proposes that a section denoting the certified version of the software be included in the MASS Record and the MASS ROC Record, making allowances for the possibility of software updates which can impact software version numbers and associated survey requirements, verifications and third-party statements. In addition, the feasibility of software lifecycle maintenance shall be considered, and the records shall clearly indicate, based on the software version numbering, the point at which re-verification or survey is required.

Capacity of the remote control of the ROC

18 The same comment as in paragraphs 7 and 8 applies.

Clarification, instruction and modification as necessary

19 The MASS Record was developed in accordance with section 5.1.3 of the draft MASS Code, containing a description of the ConOps, survey requirements associated with the systems to which the MASS Code is applied, task allocation summary, regulatory gap analysis and a list of any ROC approved for working with the ship, with detailed elements defined or specified, as extracted from annexes 1 and 2 of the draft MASS Code.

20 The MASS ROC Record was developed in accordance with section 5.3.3 of the draft MASS Code, containing the MASS ConOps, all operational restrictions on the ROC, the infrastructure for connectivity, and its performance and quality of service, as accepted by the Administration. It is noted that there are no further references in the draft MASS Code to the detailed elements of the MASS ROC Record.

21 IACS notes that the two records contain numerous elements. In addition to the above-mentioned comments, there are other comments more related to the clarification or instruction on how to understand and fill in the various elements of the MASS Record and the MASS ROC Record, e.g. self-sustaining capacity in the MASS Record, registry information and mode of operation in the MASS ROC Record, etc.

22 In this regard, although the frames contained in these two records are derived from the MASS Code, excessive information fields are contained therein, which should not be included in the certificates. Therefore, it is proposed that the two records could be streamlined, and the information which is already detailed in the required ConOps could be eliminated with the replacement of a general reference to the ConOps.

**Action requested of the Committee**

23 The Committee is invited to consider the discussion in paragraphs 4 to 22 and the proposals in paragraphs 4, 9, 10, 11, 13, 14, 17, 18 and 22, and to take action, as appropriate.