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

**Comments on documents MSC 102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11,
MSC 102/5/12 and MSC 102/INF.17**

Submitted by the Russian Federation

SUMMARY

Executive summary: This document provides comments on methodological issues mentioned in documents MSC 102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12 and MSC 102/INF.17

*Strategic direction,
if applicable:* 2

Output: 2.7

Action to be taken: Paragraph 11

Related documents: MSC 102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12 and MSC 102/INF.17

Introduction

1 This document is submitted in accordance with 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 comments on documents MSC 102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12 and MSC 102/INF.17.

Background

2 The valuable research carried out by different countries within the framework of the RSE, as well as practical experience in creating legal and technical conditions for the widespread use of MASS in the Russian Federation allow us to propose an important methodological principle in relation to the development of MASS.

3 The Russian Federation supports the views in relation to the coexistence of MASS and traditional vessels, set out in documents MSC 102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12 and MSC 102/INF.17 and considers it necessary to present the vision of the methodological principle of full functional equivalence (Complete Functional Equivalence), which underlies the measures implemented in the Russian Federation for the introduction of MASS.

Comments on the principle of complete functional equivalence

4 The practical experience of MASS trials in the Russian Federation shows of a very wide range of issues that appear when using autonomous navigation (a-Navigation) means in real conditions and vary depending on the specifics of the vessel, shipping company, region, etc. Without the widespread use of MAAS in the real practice of shipping companies, it is impossible to assess the real features of the application of a-Navigation, and, therefore, to formulate further specific regulation of MASS.

5 To ensure the widespread use of MASS in real conditions, they must fully enforce the implementation of all existing management functions provided for by the current international regulation for the ship's crew. This will ensure, on the one hand, the uniformity of regulation in relation to the global fleet, and on the other hand, it will reduce the risks and fears regarding the new technology.

6 The functional approach to ship management is in line with the principles of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention). As part of the functional approach, we used a set of functions in line with the standards of competence of crew members set out in chapter II of part A of the STCW Code, "Mandatory standards in relation to the provisions of the annex to the STCW Convention".

7 On this basis a complete functional set (Complete Functional Map) with the corresponding requirements was formed: voyage planning, use of information from navigational equipment and decision support systems, determining the position of the vessel, constant monitoring of the current navigational situation, recording of actions and events during the watch, manoeuvring the vessel in accordance with COLREG 72, including in adverse and extremely difficult conditions, steering and executing relevant commands, engine control from the bridge, checking the operation of navigational and signal lights, radio communication, etc.

8 The principle of complete functional equivalence presupposes the full performance of all these functions, regardless of control methods, including through the use of automatic and remote control. To ensure this principle, a-Navigation systems are projected onto the Complete Functional Map: gaps serve as functional requirements for these systems or an explicit restriction on their use at the current moment (if it is impossible to implement the necessary requirements now). At the same time, this makes it possible to ensure a gradual process of introducing a-Navigation technologies by a shipping company, when, depending on the level of automation of ship processes, certain functions can be excluded from the set of functions performed by the crew members, with a corresponding reduction of the ship's crew.

9 Today, in order to comply with the principle of full functional equivalence, we see the need for a symbiosis of the three control methods on MASS – automatic, remote and manual, the choice of each should be determined by the shipping company, depending on the prevailing conditions, the type of vessel and the nature of its operation. For example, the a-Navigation systems currently being tested in the Russian Federation make it possible to automatically control a ship on the high seas under normal conditions in accordance with COLREG 72, radio communication with other ships is carried out using the remote control and traditional control is used in extremely difficult conditions, including the situations where the officer in charge of the watch is nowadays required to immediately notify the master of the ship in accordance with the STCW Code (part A, chapter VIII – Watchkeeping). But in any case, at each moment of time, MASS as a whole shall comply with the principle of complete functional equivalence, i.e. the full range of functions currently provided for the crew on board.

10 With the increasing maturity of the technologies and practical experience the automatic control will expand and prevail over control from humans. This can become in the future the basis for the revision of functions in STCW for all vessels, including autonomous ones.

Action requested of the Committee

11 The Committee is invited to take note of the above approach in relation to the development of MASS and the proposed principle of full functional equivalence in the operation of MASS and to comment as it may deem appropriate.
