

MARITIME SAFETY COMMITTEE  
89th session  
Agenda item 24

MSC 89/24/2  
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## ANY OTHER BUSINESS

### Operating anomalies identified within ECDIS

#### Submitted by the International Hydrographic Organization (IHO)

##### SUMMARY

*Executive summary:* This document reports on the outcome of a workshop organized by the IHO to discuss the issues raised during MSC 88 regarding "Operating anomalies in ECDIS"

*Strategic direction:* 5.2

*High-level action:* 5.2.4

*Planned output:* 5.2.4.1

*Action to be taken:* Paragraph 16

*Related documents:* SOLAS chapter V, SN.1/Circ.266/Rev.1, MSC.1/Circ.1221, MSC.1/Circ.1389, MSC.1/Circ.1391, MSC 88/25/6 and MSC 88/26, paragraphs 25.19 to 25.22

#### Introduction

1 In document MSC 88/25/6 Japan, Norway, the United Kingdom, the International Chamber of Shipping (ICS) and the International Federation of Shipmasters' Association (IFSMA) brought to the attention of the Committee certain issues that had been identified within ECDIS.

2 The IHO in a verbal statement to the Committee, as reported in document MSC 88/26, paragraph 25.20, indicated its intention to call a meeting of interested parties in early 2011 to discuss the issues raised and to attempt to identify both short-term remedies and longer-term actions to address such issues when they are reported.

3 The Committee endorsed the proposal from Japan, Norway, the United Kingdom, ICS and IFSMA and approved MSC.1/Circ.1391 on Operating Anomalies identified within ECDIS.

#### Meeting of interested parties

4 The IHO hosted a workshop at the International Hydrographic Bureau in Monaco on 15 and 16 February 2011. The workshop was attended by 37 leading representatives drawn from stakeholder groups including IHO and IMO Member States; intergovernmental

organizations, non-governmental international organizations, data service providers, ECDIS manufacturers; and type-approval authorities. The purpose of the workshop was to identify possible short-term and longer-term organizational improvements that could be implemented to address and where appropriate avoid any previously unforeseen, but almost inevitable, technical implementation issues with ECDIS, as and when they might occur in the future.

5 It was noted that whilst the workshop was focussed on understanding and resolving the issues identified in document MSC 88/25/6 it should not be forgotten that ECDIS was already installed and operating in a considerable number of ships and was largely performing as expected, thereby assisting the improvement of safety of life at sea and the protection of the marine environment.

6 The various known issues were discussed and examined from the perspectives of mariners, equipment manufacturers, data service providers, maritime administrations, type-approval authorities, and hydrographic offices.

7 The discussions at the workshop reflected four principle themes:

- the requirement for software in ECDIS equipment already fitted in ships to be periodically upgraded, when appropriate;
- improving mariner awareness of the need to upgrade ECDIS software;
- improving the consistency of data encoding in ENCs; and
- the need for a coordinated reporting, assessment and feedback mechanism for ECDIS-related equipment performance issues.

### **ECDIS Software Upgrading**

8 The workshop noted that there are a number of IMO references relating to the operation of software dependent equipment, such as ECDIS, including:

- SN.1/Circ.266/Rev.1 that draws attention to the latest IHO standards affecting ECDIS and informs mariners that "*ECDIS that is not updated for the latest version of IHO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4*";
- MSC.1/Circ.1389 on "Guidance on procedures for updating shipborne navigation and communication equipment" that also refers to SN.1/Circ.266/Rev.1;
- MSC.1/Circ.1221 on the Validity of Type Approval Certification for Marine Products that says in paragraph 3 that a product manufactured during the period of validity of the relevant Type Approval Certificate need not be reviewed or replaced due the expiration of such Type Approval Certificate; and
- SOLAS regulation V/16 that requires arrangements to be in place to ensure that the performance of equipment is maintained.

9 The workshop also noted that in the case of ECDIS, certain IHO and other controlling standards such as IEC 61174, of necessity, need to be brought up to date from time to time to reflect new requirements adopted by the IMO.

10 Taking all the above references into account, together with an holistic consideration of the reports of the issues identified with ECDIS so far, there was a clear understanding at the workshop that there is a need for the Committee to clarify how software dependent equipment such as ECDIS should be treated. In particular, clarification is desirable with regard to the maintenance and updating of the operating system software and the application data rendering software so as to comply with any change in associated standards introduced after the date of type approval and fitting of the equipment in ships.

11 The workshop was informed that in order to help minimize the occurrence, in new ECDIS systems, of irregular equipment behaviour, such as reported in document MSC 88/25/6, the technical working groups of the IHO are now preparing additional test data and guidance to assist equipment manufacturers and type-approval authorities to identify such behaviour.

### **Mariner Awareness of the Impact of Using Out of Date IHO Standards**

12 In support of SN.1/Circ.266/Rev.1 and as a direct way of drawing mariners' attention to the need to keep software dependent systems up to date, the workshop supported the concept of the IHO developing a simple user validation test that when loaded into an ECDIS by the mariner would display an image of a fictitious chart incorporating the features enabled by the latest revision of the applicable IHO standards. The resultant ECDIS display could then be compared directly with a printed example, thereby enabling the mariner to verify that the ECDIS software in use was referencing the latest version of the relevant IHO and other applicable standards. Such a test would draw attention to chart objects and capabilities that were either not being displayed at all or were not being displayed optimally because the latest standards had not been implemented in the operating software. A proposal for a new IHO technical work programme item is expected to be submitted to the IHO Hydrographic Services and Standards Committee (HSSC) later this year for the development of such a test data set.

### **ENC Data Encoding Consistency**

13 The workshop agreed that there was a need to improve the production consistency of ENCs from some Hydrographic Offices by removing any ambiguities or room for discretion in IHO Standards wherever possible and by encouraging Hydrographic Offices to adhere to the IHO WEND (Worldwide ENC Database) principles and the ENC Product Specification standard.

### **Reporting/Collating/Feedback Mechanism**

14 The workshop further noted that the IHO had effective mechanisms in place to address any technical charting issues that were under its direct control but agreed that there was a need to consider establishing a centralized reporting/collating/feedback mechanism or clearing-house through which any apparent inconsistencies in ECDIS performance or standards, especially those that rely on inter-dependent relationships, such as between IHO standards, IMO instruments and IEC 61174 – the ECDIS test specifications, could be reported and subsequently coordinated and addressed to the relevant authorities. There was no clear view on exactly how such a mechanism might be established or the business rules under which it might operate. An IHO Member State represented at the workshop volunteered to liaise with relevant maritime and other ECDIS stakeholders to consider this issue further and subsequently develop a proposal for further consideration by the Committee.

### **Training**

15 A recurring topic throughout the workshop discussions was the fundamentally important role of appropriate training to ensure that mariners are made aware of both the benefits and the limitations of ECDIS and in particular, how to recognize and accommodate those limitations in the proper use of ECDIS.

**Action requested of the Committee**

- 16 The Committee is invited to:
- .1 note the outcome of the ECDIS stakeholders' workshop hosted by the IHO;
  - .2 continue to encourage flag States to collect and disseminate relevant information on ECDIS anomalies in accordance with MSC.1/Circ.1391;
  - .3 invite Member Governments to consider proposing an unplanned output in the biennial agenda of the NAV Sub-Committee which would clarify the policy on working-life validity of software driven electronic navigation equipment; and
  - .4 take any further action it considers appropriate.
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