

MARITIME SAFETY COMMITTEE  
90th session  
Agenda item 10

MSC 90/10/2  
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## SAFETY OF NAVIGATION

### Operating anomalies identified within ECDIS

#### Submitted by the International Chamber of Shipping (ICS)

#### SUMMARY

*Executive summary:* This document comments on MSC 90/10/1 by the International Hydrographic Organization (IHO); it raises concern over the existence of operating anomalies identified within ECDIS and seeks clarification on the extent, severity and impact of these anomalies

*Strategic direction:* 5.2

*High-level action:* 5.2.4

*Planned output:* No related provisions

*Action to be taken:* Paragraph 20

*Related documents:* MSC 88/25/6, MSC 88/26; MSC 89/24/3 and MSC 90/10/1

#### Introduction

1 This document comments on MSC 90/10/1 (IHO) and is submitted in accordance with the provisions of paragraph 6.12.5 of MSC-MEPC.1/Circ.4 on "Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies".

2 MSC 90/10/1 discusses ongoing progress to remove "*Operating anomalies identified within ECDIS*". ICS welcomes the extensive work undertaken by IHO and other interested parties to bring this matter to the attention of the Committee as well as the significant effort made to resolve this issue.

3 Noting that the introduction of mandatory carriage requirements for ECDIS commences in July 2012, ICS is concerned that operating anomalies have been discovered in ECDIS and that the extent, implication and resolution of at least some of the anomalies remain unresolved. While it is unsatisfactory that ECDIS of any age may not be capable of displaying particular information or symbols correctly or in some cases may not display certain symbols at all, it is of particular concern that ECDIS meeting the present revised Performance Standard (MSC.232(82)) and updated with the latest software is unable to correctly display all required information and symbols.

### Severity and extent of ECDIS anomalies

4 Paragraph 3 of MSC 90/10/1 advises that there are currently 18 anomalies which range in importance "**but include the possibility of significant charted features, for example, wrecks not displaying appropriately on some manufacturer's models of ECDIS**".

ICS is particularly concerned that there are cases where the **only** mitigating action to overcome a known anomaly is to refer to paper charts for additional information.

5 ICS finds the above information to be very significant. It is quite possible for a ship to have fitted ECDIS before the start of the mandatory requirement and to have trained its navigating officers in ECDIS to the satisfaction of its administration and, therefore, to have an approved ECDIS installation. Such a ship would potentially be entitled to have removed all paper charts and to be navigating in a "paperless" condition. In this scenario, therefore, a fully compliant ECDIS-equipped ship could find itself with an unreliable ECDIS, whose manufacturer when contacted for help suggested the solution would be to revert to paper charts. If the ship was not made aware of the situation and had not been aware of the need to contact the manufacturer, the implications would be very significant indeed.

6 Many of the identified anomalies may appear less dramatic than the example outlined, but may be no less serious. An ECDIS might not be correctly displaying hazards to safe navigation and ships may not even be aware of any problem with their particular ECDIS. Only when the consequences of the non-display of certain information become apparent might the existence of the anomaly be identified, for example, colliding with a wreck "*not displaying appropriately*" may be the first indication to a ship that an anomaly exists.

### IHO ENC/ECDIS Data and Presentation and Performance check

7 ICS strongly advocates much more widespread use of the IHO test/performance check to ensure a more representative set of results is achieved. ICS notes that almost 400 responses have been received by IHO to date; it is understood, however, that over 4,000 ECDIS installations have been completed by one manufacturer alone. It is, therefore, of concern that the test might not have been carried out on a representative number of ECDIS-fitted ships. Paragraph 7 of MSC 90/10/1 advises that "the results received by the IHO so far cover 15 of the approximately 25 (as known by the IHO) manufacturers". It is of concern that a significant number of unknown factors are reflected in the information available and, in particular, the unknown number of manufacturer's systems that may have anomalies and the number of ECDIS in use that have not been tested.

### Updating ECDIS

8 MSC 90/10/1 advises that check data results have indicated that, when a manufacturer has updated or improved its software, this does not appear to be widely implemented in ECDIS equipment already in use at sea through an appropriate upgrading or software maintenance regime. It is also noted that there is no easy way for ship operators to know when a manufacturer has released a new version of their ECDIS software that resolves identified software issues. ICS agrees that ECDIS is a computer system reliant on software for its safe operation. As such, it is important that the software is kept up to date and that ship owners/operators are advised through an agreed and reliable system when software updates are available and that an agreed delivery system for software updates to ships is established and is available.

9 Paragraph 13 of MSC 90/10/1 advises that there is no specific regulatory requirement for ship operators to update ECDIS systems that are already at sea and being operated under an original valid type approval certification. Equally, there is no easy way for ship operators to know when a manufacturer has released a new version of their ECDIS software that resolves identified software issues. The situation is aggravated by the fact that, under current arrangements, ECDIS manufacturers often have difficulty in maintaining contact with ships in which their equipment is fitted. Although ICS notes and agrees with these IHO observations, it is also considered important that, when developing revised performance standards, the need to maintain the functionality of equipment that meets existing performance standards such as resolution A.817(19) is fully considered.

10 ICS also notes that, notwithstanding the development of a new performance standard, new symbols, improved software or similar developments, the chart data that ships rely on for the safety of navigation is frequently based on survey data that is in some cases significantly out of date. It should be noted that some electronic charts are based on information and data from hydrographic surveys conducted over 100 years ago. In these cases, charted features frequently do not match satellite derived positions, this is a potential risk to the safety of navigation. Despite cautionary notes on charts derived from older data advising of the need for caution when navigating, ICS expresses concern that the continued use of such charts and lack of modern survey data in the era of electronic navigation is unsatisfactory.

### **Proposal**

11 It is proposed that the Committee considers further promulgation of the IHO test data set. It may be appropriate to consider the reason for the current limited return of completed test data results to ensure that all appropriate ECDIS sets are tested and that all known manufacturers' ECDIS models are included.

12 It is proposed that all appropriate agencies and organizations are encouraged to help identify the extent and severity of ECDIS anomalies as a matter of urgency and that the impact of the outstanding anomalies on the safety of navigation is established.

13 It is proposed that further guidance is required to ensure that ships are made aware of the anomalies and that ECDIS manufacturers should make information widely available regarding the risk reduction action that is required.

14 It is proposed that the STW Sub-Committee is invited to consider including advice regarding ECDIS anomalies in the draft revised Model Course 1.27.

15 It remains unclear how many, if any, ECDIS in service or available will today pass all of the IHO assessment tests and are, therefore, free of known anomalies. It is proposed that the Committee carefully considers whether this issue has an implication on the dates agreed for the implementation of the mandatory carriage requirements for ECDIS.

16 It is noted that ECDIS is an early example of computer-based navigation equipment and that such equipment and systems are reliant for their safe operation on software and periodic software updates that are susceptible to "anomalies". It is proposed that the Committee considers establishing a standing mechanism to remove all known anomalies, identify anomalies in future, quantify the risk of such anomalies and promulgate appropriate advice to the shipping industry.

17 It is proposed that the Committee gives additional consideration to the use of RASTER charts on ECDIS. RASTER charts used on ECDIS are not prone to the operational anomalies that can affect ENCs. Approval for the use of RASTER charts should apply until a robust mechanism is in place to identify further anomalies and confirms that mitigating measures fully address safety and environmental protection requirements.

18 Considering the imminent mandatory carriage requirement for ECDIS, the need for all electronic charts to be based on accurate and up-to-date hydrographic surveys is highlighted as being an essential element of safe navigation. Noting that some Contracting Governments continue not to meet their responsibilities regarding chapter V, regulation 9 (Hydrographic Services) despite the promulgation of MSC/Circ.1118 and MSC/Circ.1373, ICS considers that additional consideration of this matter is essential. It is proposed that the Committee further considers measures to address this important matter.

19 It is proposed that this matter is brought to the urgent attention of the NAV Sub-Committee.

**Action requested of the Committee**

20 The Committee is invited to consider the proposals contained in paragraphs 11 to 19 and to take action, as appropriate.

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