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TECHNICAL COMMITTEE No 80: Maritime navigation and radiocommunication equipment and systems

WORKING GROUP No 13: Presentation of navigation related information

Working Paper for the meeting

held at the Bundesamt Für Seeschifffahrt und Hydrographie (BSH) in Hamburg, Germany

from 18th to 20th February 2003.

Title: Input Paper to IMO with Recommended Performance Standards for the Presentation of Navigation Related Information

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SUB-COMMITTEE ON SAFETY OF
NAVIGATION
49th session
Agenda item 4

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Requirements for the display and use of AIS information on shipborne navigational displays

Draft Performance Standards for the Presentation of Navigation Related Information

Submitted by the International Electrotechnical Commission (IEC)

SUMMARY

Executive summary: Proposal on a new performance standard for the Presentation of Navigation Related Information

Action to be taken: Paragraph 8

Related documents: Report of the forty-eighth session of the Sub-Committee on Safety of Navigation (NAV 48/19) paragraphs 4.23 through, 4.26

reference the other paper here

1. The Sub-Committee on Safety of Navigation at its forty-seventh session invited IEC to set up a Working Group to develop a standard for the presentation of navigational information, being of the opinion that this standard should harmonize the following:

- .1 display and interaction objects;
- .2 multifunction displays;
- .3 co-location, merging, processing, fusion of graphical information; and
- .4 indication of quantity, status, integrity and accuracy of information.

2. At the forty-eighth session, IEC indicated that it would welcome any guidance from the Sub-Committee on related operational/technical issues. The IEC was aware of the potential overload of information to mariners, and saw a need for a composite navigation presentation that integrated information derived from two or more systems such as Radar and AIS, or ECDIS and AIS. The Sub-Committee invited the IEC to present its findings on this matter to the next session.

3. IEC is pleased to report that the work of Working Group 13 (The presentation of navigation related information) in Technical Committee 80 (Maritime navigation and radiocommunication equipment and systems) is well underway. The Working Group is supported with representatives from 11 national standards committees; Australia, Canada, Finland, France, Germany, Japan, Norway, Russian Federation, Sweden, United Kingdom and United States. Experts from other IEC Working Groups responsible for ECDIS, radar and plotting aids, AIS and INS together with experts from the IHO/IEC Harmonization Group for Marine Information Objects (HGMIO), the IHO Colors and Symbols Maintenance Working Group (C&SMWG), IALA and IFSMA are participating. Additional Mariner input has been provided to the Working Group from the Nautical Institute.

4. The Working Group has significantly advanced the work on the draft standard IEC 62288 which will provide requirements, methods of testing and required test results for the presentation of navigation related information on the displays of ECDIS, shipborne radar and plotting aids and the multifunction displays used in IBS and INS. The Working Group has met on six occasions.

5. Considering the advice and invitations of the Sub-Committee, the IEC wishes to present the following observations:

.1 Performance standards for shipborne navigational aids have been adopted by the Organization at different times and in the context of different states of technology. This has resulted in different requirements for similar functions, different terms for identical objects and the use of the same terms for different objects.

.2 The number of navigational aids and their associated displays installed on a ship has increased over time. Navigational aids routinely display information from multiple sources in addition to the minimum information required by the relevant performance standards. This has resulted in “composite” presentations that are not harmonised by the existing performance standards, such as ECDIS with radar and plotting, and radar with chart, and AIS.

6. Based on these observations, the IEC has prepared a draft Recommendation on Performance Standards for the Presentation of Navigation Related Information at Annex. These performance standards harmonise the requirements for the composite presentation of navigational information on the displays for navigational aids.

7. It is the opinion of the IEC that the implementation of these standards for presentation of navigation information will result in a significant, positive impact on safety of navigation. It will mitigate the need to move from one display to another to gain all necessary information for a specific navigational task. It should also reduce the quantity of required display equipment.

Action requested of the Sub-Committee

8. The Sub-Committee is invited to consider the draft performance standard and decide as appropriate.

**DRAFT RECOMMENDATION ON PERFORMANCE STANDARDS
FOR THE PRESENTATION OF
NAVIGATION RELATED INFORMATION**

1 PURPOSE

These performance standards harmonise the requirements for the presentation of navigational information on the bridge of a ship.

These performance standards are in addition to the requirements of the individual performance standards adopted by the Organization for relevant navigational aids, and the presentation of information by relevant equipment for which performance standards have not been adopted.

2 SCOPE

These performance standards specify the consistent usage of terms and their definitions, abbreviations, colours and symbols, and other presentation characteristics of applicable display equipment.

These performance standards also specify the minimum requirements for the graphical presentation of additional navigation related information when combined with information required by individual performance standards adopted by the Organization.

These performance standards also enable the use of display equipment in addition to, or in place of, display equipment required by individual performance standards by addressing composite presentations of information relevant to specific navigational tasks.

3 APPLICATION

These performance standards are applicable to any display equipment associated with the individual performance standards adopted by the Organization for relevant navigational aids including those addressed by SOLAS, and other electronic navigational aids, where appropriate.

4 OPERATIONAL REQUIREMENTS

4.1 General

In addition to the general requirements set out in assembly resolution A.694(17)*, display equipment should meet the requirements of these performance standards, as applicable.

4.2 Presentation of information

The presentation of navigational information, including the terms, colours and symbols, should conform to the harmonised requirements published by IEC.**

Display equipment should support the presentation requirements specified by the relevant individual performance standards adopted by the Organization, for example, electronic chart display and information systems (ECDIS) and radar.

* See also IEC Publication 60945

** See IEC Publication 62288

Display equipment may additionally support composite presentations appropriate to specific navigational tasks by simultaneously presenting selected information from one or more navigational aid and/or other sources (e.g. automatic identification systems (AIS) and maritime safety information (MSI)). When a single display is used to present information from more than one navigational aid, the information source should be provided.

The presentation should preserve the integrity of the original information and should be consistent, irrespective of the information source. Conflicting or confusing combinations of information should be avoided.

4.3 Alarms and indications

Alarms and indications, including warnings, should comply with the requirements specified in the individual performance standards adopted by the Organization.

When a single display is used to present information from multiple navigational aids, the presentation of alarms and indications should be consistent. A simple operator action should acknowledge the alarms from multiple navigational aids caused by the same initial event.

5 PHYSICAL REQUIREMENTS

5.1 Size

For required presentations, display equipment should be of sufficient size to support the requirements of the relevant individual performance standards adopted by the Organization.

For composite presentations containing chart information, the effective physical screen surface area should be at least 270 x 270 mm.

5.2 Readability

Display equipment should support readability under all normal ambient light conditions and when viewed from operator positions likely to be experienced on the bridge of a ship.

5.3 Availability

When display equipment provides the required presentation for more than one navigational aid mandated by the carriage requirements of SOLAS, the number of displays fitted on the bridge should support the simultaneous presentation of all applicable required information. In addition, the number of displays and the relevant interconnections should ensure that the failure of a single display does not result in the loss of any required information.