Technical Circular

No.: 020/2015 Date: 27th July 2015

To Whomsoever it may concern

Subject: IHO - New ECDIS Standards.

1. The International Hydrographic Organization (IHO) have recently issued a Press release dated June 2015 (Copy attached) announcing new versions of some of its ECDIS Standards. The revisions reflect lessons learned from earlier reports of unexpected chart behaviour in some ECDIS. Among other things, the number of alarms raised as a result of safety checking has been reduced and the names of fairways and anchorage areas will now appear on the ECDIS display as a "hover-over" function. The new editions enter into force on 1 August 2015 with a twelve month transition period. The Press release also has an attachment containing a table providing an overview of the IHO S-52 Changes versus Mariner's Benefits related to these changes.

2. IHO has stated that the new editions of S-52 and S-64 will enter into force on 1 August 2015. This will align with the publication of the new edition of the International Electro technical Commission (IEC) ECDIS testing specification IEC 61174. From this date, the new editions of the IHO Standards will be the normative references for the type approval of new ECDIS. There will be a 12-month transitional period when the current editions of S-52 and S-64 will remain valid. The 12-month transition period ending on 31 July 2016 is intended to provide time for ECDIS manufacturers and national authorities to move towards type approval of new ECDIS based on the revised Standards and to enable ship-owners and operators to update existing systems to conform with the new Standards in accordance with the requirements of the International Maritime Organization (IMO) circular SN.1/Circ.266, as amended, covering the maintenance of ECDIS software.

3. New performance standards and specifications apply to ECDIS from January 2009 which introduce significant changes to existing ECDIS. All ECDIS manufacturers must re-Type Approve their systems, and ECDIS installed after 1st January 2009 must be approved against the new standard. The new standards are:
   - IMO Resolution MSC.232(82) 2009 – Revised ECDIS performance standard
   - IEC Standard 61174 (2008/2009) – Operational and performance requirements, methods of testing and required results for ECDIS

- IMO Resolution MSC.191(79) 2006 – Performance standards for the presentation of navigation-related information on ship borne navigational displays
- IEC Standard 62288 (2008) – Presentation of navigation-related information on shipborne navigational displays – General requirements, methods of testing and required test results
- S-63 - IHO Data Protection Scheme Edition 1.1

The MSC.191(79) and IEC62288 standards harmonise symbology and other display-related elements across all navigational displays, and are new to ECDIS. The IHO Data Protection Scheme, although widely used for the distribution of ENC data, was not part of ECDIS type approval tests before.

4. The International Hydrographic Organization (IHO) issued a press release stating that it has produced two simple fictitious ENC datasets designed to alert mariners to the possibility that their ECDIS software may require updating so that they can carry ECDIS performance check on board the ships. For further information and potential download of datasets, guidance, background information and reporting forms please refer to the following link: ECDIS Data Presentation and Performance Check in Ships

   http://www.iho.int/srv1/index.php?option=com_content&view=article&id=585:news&catid=166:1news-links&Itemid=287&lang=en

Enclosure:

1) Press release dated June 2015.
2) SN.1/ Circular 266 Rev 1.

Press Release
June 2015

New normative references for the type approval of ECDIS

The International Hydrographic Organization (IHO) has published new versions of some of its ECDIS Standards. These have been reviewed and updated to reflect lessons learned from earlier reports of unexpected chart behaviour in some ECDIS. The updated versions of the Standards are a significant contribution by the IHO to supporting navigational safety by ensuring that all identified ambiguities and inconsistencies relating to the display of Electronic Navigational Charts (ENCs) in ECDIS have been resolved.

The IHO has published the following new editions:

- IHO Specifications for Chart Content and Display Aspects of ECDIS
  S-52 Edition 6.1 - October 2014

- IHO Presentation Library
  S-52 Annex A Edition 4.0- October 2014

- IHO Test Data Sets for ECDIS
  S-64 Edition 3.0 - December 2014

- IHO Data Protection Scheme
  S-63 Edition 1.2 - January 2015

Commenting on the updated IHO Standards, Robert Ward, President of the IHO, said: "When the various parts of the revised Standards have been implemented by ENC producers, ECDIS manufacturers and ECDIS testing authorities, it will result in an improved ECDIS experience for the mariner."

The updated IHO Standards include a number of changes that will bring significant benefits to the mariner. Discussing these changes, Thomas Mellor, Chairman of the IHO ENC Standard Maintenance Working Group responsible for S-52 - the IHO Standard for the display of ENCs in ECDIS, commented: "One of the biggest benefits of upgrading ECDIS systems to the latest S-52 Presentation Library will be a reduction in the number of audible alarms triggered by ECDIS, helping ease the issue of alarm fatigue on the bridge, whilst still maintaining safety at sea. The introduction of an alert model, based on the requirements in the IMO ECDIS Performance Standard, will also harmonize ECDIS behaviour across different manufacturers' systems."

A number of significant changes to the Presentation Library reflect mariner feedback. For example, the names of Fairways and Anchorage Areas will now appear on the ENC display. A "*hover-over*" function for certain charted features has also been introduced.

A number of new symbols have been added to the Presentation Library. These new symbols help draw attention to features that need to be highlighted, including the location of automatic ENC updates and ENC features that have a temporal (time-based) attribute.

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To support the complex process of ECDIS type-approval, the IHO has worked closely with a number of prominent Notified Bodies and improved the ENC tests and test data sets. The restructuring of the data sets and the inclusion of more specific tests will ensure that the proper display of ENCs is more thoroughly checked during type-testing process in future.

The IHO has updated S-63 - the ENC data protection scheme, to include specifications for an ENC update status report, which is a provision that had not been available previously. The update status report will allow mariners and Port State Control inspectors to confirm that the ENCs installed in an ECDIS are up-to-date.

It is planned that the new editions of S-52 and S-64 will enter into force on 1 August 2015. This will align with the publication of the new edition of the International Electrotechnical Commission (IEC) ECDIS testing specification IEC 61174. From this date, the new editions of the IHO Standards will be the normative references for the type approval of new ECDIS.

There will be a 12-month transitional period when the current editions of S-52 and S-64 will remain valid. The 12-month transition period ending on 31 July 2016 is intended to provide time for ECDIS manufacturers and national authorities to move towards type approval of new ECDIS based on the revised Standards and to enable ship-owners and operators to update existing systems to conform with the new Standards in accordance with the requirements of the International Maritime Organization (IMO) circular SN.1/Circ.266, as amended, covering the maintenance of ECDIS software.

ENDS

Notes to Editors:

1. The International Hydrographic Organization is an intergovernmental consultative and technical organization that was established in 1921 to support safety of navigation and the protection of the marine environment. It currently comprises 85 Member States.
2. The IHO S-52 Presentation Library controls the presentation of ENCs in ECDIS.
3. Unexpected chart behaviour in some ECDIS (ECDIS anomalies) - Investigations in 2010 found that some ECDIS, especially early models, were affected by display anomalies and in some cases appropriate alarms and indications were not raised as expected. As a result of these issues and to alert mariners to them, three NAVAREA warnings were issued in 2010.
4. In 2012 the IHO provided an ENC Check Dataset to mariners to help identify if their particular ECDIS was able to display all the latest IMO-approved ENC features. The check was intended to alert mariners to the possibility that their ECDIS software may require upgrading and if so, what extra measures mariners might need to take in the meantime, such as employing particular equipment operating procedures.
5. The publication of the new editions of the IHO Standards was reported to the IMO Sub-Committee on Navigation, Communications and Search and Rescue on 22 December 2014.
6. The IHO has worked together with the International Electrotechnical Commission (IEC) to align the date of entry into force of the new editions of S-52 and S-64 with the date of publication of the new edition of IEC 61174 (ECDIS operational and performance requirements, methods of testing and required test results).

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IHO S-52 Changes	Mariner's Benefits
A new section "Detection and Notification of Navigational Hazard" has been added. For each ENC feature and its associated attributes this defines the priority of the alert to be raised when a navigational hazard is detected.	Ensures all ECDIS raise the required alerts in a consistent manner, reducing training needs and improving safety at sea. Reduces the number of alarms raised as a result of ECDIS safety checking.
A new section "Detection of Areas, for which Special Conditions Exist" has been added. Lists the ENC features and attributes that will raise an indication or alert in the ECDIS as defined by the mariner.	Ensures all ECDIS raise the required alerts in a consistent manner, reducing training needs and improving safety at sea. Reduces the number of alarms raised as a result of ECDIS safety checking.
Detecting the Safety Contour: The IMO ECDIS Performance Standard (PS) states that rocks, wrecks and obstruction detected inside the safety contour should result in an indication on the ECDIS. The previous edition of S-52 included rocks, wrecks and obstructions to the detection of the safety contour, resulting in alarms, as opposed to indications, being raised. They have been moved to "Detection and Notification of Navigational Hazards".	Reduces the number of alarms on ECDIS, whilst ensuring that the mariner remains aware of dangers as rocks, wrecks and obstructions will still be detected if they meet the "Detection and Notification of Navigational Hazards" criteria.
Added a new symbol `Indication Highlight' - designed for warning and caution conditions that require an indication highlight on the ENC.	Clear and unambiguous presentation of features that require an indication highlight.
New standardized symbols have been added to identify where automatic ENC updates have been applied.	Ensures the mariner is aware of updates that have been applied automatically to their ENCs.
New symbol to indicate where in the ENC features with temporal attributes are located.	Will allow mariners to quickly identify where features that have temporal attributes are located, such as seasonal buoys, traffic separation schemes etc.
A means for the mariner to insert a date or date range within the ECDIS to display date dependent features.	Will allow the mariner the ability to plan and check routes, viewing the conditions they will encounter on a given date or time period in the future.
Ability to turn isolated dangers in shallow water on/off.	In certain circumstances mariners must navigate across the safety contour, this change allows the mariner the flexibility to navigate in shoal areas with or without the isolated danger symbol displaying on the ENC.
Mandatory selector for the display of the shallow water pattern.	Important feature in ECDIS as it becomes increasingly difficult to detect the changes in the ENC depth shades during night navigation.
Added guidance on the implementation of the optional "*hover-over*" function available for a	If provided, the hover-over function speeds up the process of ENC enquiry by the mariner. The

limited number of ENC features.	new guidance ensures that the hover-over function does not result in the ENC presentation becoming obscured.
Display of complete tidal stream panel in ECDIS pick report.	Provides the mariner with tidal data in a form that is similar to the paper chart equivalent
Changes to S-52 display provisions: Anchorage area – display of name in ENC; Fairway - display of name in ENC; Nautical publication – new visible presentation for the meta feature nautical publication.	Allows the mariner to navigate to an anchorage without the need to repeatedly interrogate each area on the ENC by: 1. Presenting the name of fairway on the ENC for quick identification of location; 2. Presenting a graphical indication on the ENC to give mariners the ability to easily select the nautical publication feature using the pick report.
Standardization of the ECDIS pick report.	Ensures all ECDIS present pick report information in a consistent manner, reducing training needs and improving safety at sea.
The viewing groups may be used by the mariner to customise the ENC information presented on the ECDIS display. The names of these viewing groups have been standardized.	Ensures all ECDIS use viewing group nomenclature in a consistent manner, reducing training needs and improving safety at sea.

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SN.1/Circ.266/Rev.1
7 December 2010

MAINTENANCE OF ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEM (ECDIS) SOFTWARE

1 The Sub-Committee on Safety of Navigation (NAV), at its fifty-sixth session (26 to 30 July 2010), reviewed the text of SN.1/Circ.266 and agreed that the text of the original circular should be amended as this was an important issue for ensuring the safety of navigation.

2 The Maritime Safety Committee, at its eighty-eighth session (24 November to 3 December 2010), concurred with the Sub-Committee's views, approved the revised Guidance on the maintenance of Electronic Chart Display and Information System (ECDIS) software, as set out in the annex, and encouraged their use by the relevant authorities.

3 Member Governments are invited to bring the attached revised SN circular to the attention of all concerned for information and in particular to ensure that mariners always have the latest safety-related information available to them.

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ANNEX

1 Resolution MSC.282(86), adopted on 5 June 2009, introduced a mandatory carriage requirement for Electronic Chart and Display Systems (ECDIS) to be phased in, according to size and class of ship, between 1 July 2012 and 1 July 2018. ECDIS Performance Standards have been adopted by IMO and in turn refer to the International Hydrographic Organization (IHO) Standards that govern the transfer and presentation of the chart information used in ECDIS.

2 ECDIS in operation comprises hardware, software and data. It is important for the safety of navigation that the application software within the ECDIS works fully in accordance with the Performance Standards and is capable of displaying all the relevant digital information contained within the Electronic Navigational Chart (ENC).

3 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.

4 For example, in January 2007, Supplement No.1 to the IHO ENC Product Specification[1] was introduced in order to include, within the ENC, the then recently introduced IMO requirements for Particularly Sensitive Sea Areas (PSSA), Archipelagic Sea Lanes (ASL) and to cater for any future Safety of Navigation requirements.

5 Any ECDIS which is not upgraded to be compatible with the latest version of the Product Specification or the S-52 Presentation Library[2] may be unable to correctly display the latest charted features. Additionally, the appropriate alarms and indications may not be activated even though the features have been included in the ENC. Similarly any ECDIS which is not updated to be fully compliant with the latest version of the S-63 Data Protection Standard may fail to decrypt or to properly authenticate some ENCs, leading to failure to load or install.

6 In 2010, the status of IHO standards affecting ECDIS Equipment is:

IHO ECDIS Standards	Current Edition
Electronic Navigational Chart (ENC)	S-57 Edition 3.1
Presentation Library for ECDIS	S-52 PresLib Edition 3.4
ENC Data Protection Scheme	S-63 Edition 1.1
Raster Navigational Chart (RNC) *(Only if ECDIS software supports RCDS mode)*	S-61 Edition 1.0

An up-to-date list of all the relevant IHO standards relating to ECDIS equipment is maintained within the "About ENCs" section of the IHO website (www.iho.int).

[1] S-57 Appendix B.1, ENC Product Specification, ed. 3.1.

[2] S-52 Appendix 2, Annex A, Presentation Library, ed. 3.4.

7 The need for safe navigation requires that manufacturers should provide a mechanism to ensure software maintenance arrangements are adequate. This may be achieved through the provision of software version information using a website. Such information should include the IHO Standards which have been implemented.

8 Administrations should inform shipowners and operators that proper ECDIS software maintenance is an important issue and that adequate measures need to be implemented by masters, shipowners and operators in accordance with the International Safety Management (ISM) Code.