New standards come into effect

Since the original performance standards for Electronic Chart Display and Information Systems (ECDIS) were published in 1998, experience in implementing these regulations has revealed a number of weaknesses and problem areas. These issues have been addressed in periodic revisions and amendments to the standards. The latest major revision came into force in August 2015 and will become the normative reference for the type approval of new ECDIS products. The previous editions would remain valid for 12 months beyond the date of entry into force of the new editions. Based on IMO’s decision of March 2016, this deadline is however being extended with another 12 months. Thus, by August 2017, newly installed ECDIS equipment should comply with the new IEC standards, as well as all already installed ECDIS products should be upgraded to comply with the new IHO standards*. There is no provision for »grandfathering« existing ECDIS products already type-approved to the old standard.

*Subject to the exact decisions of the individual flag states

The primary operative documents implementing the new standards are:

- IEC 61174 Edition 4 – »ECDIS operational and performance requirements, methods of testing and required test results«
- IHO S-52 Edition 6.1 - »Specifications for chart content and display aspects of ECDIS«
- IHO S-52 Annex A Edition 4.0 – »IHO ECDIS presentation library«
- IHO S-64 Edition 3.0 – »IHO Test Data Sets for ECDIS«

Other relevant documents that affect the new standards include:

- IMO Resolution MSC.232(82) – »ECDIS performance standard«
- IEC 61162-450 - »Digital interfaces for navigational equipment within a ship«
- IEC 62288 Edition 2 – »Presentation of navigation-related information on shipborne navigational displays«
- IEC 62388 Edition 2 – »Shipborne radar – performance requirements, methods of testing and required test results«
- IHO S-58 – Recommended ENC validation checks
- IHO S-63 Edition 1.2 – »IHO data protection scheme«
By August 2017 all installed ECDIS products should be upgraded to comply with the new IHO standards.
Why are the new standards needed?

The new IEC and IHO standards are based on feedback from users and are intended to fix issues that have arisen.

Consider, for instance, the following scenarios:

1. ENC Update Status Report. During an inspection the Master is asked to show a report of which cells were updated in the ECDIS and when. Under the old standard, it is not possible to pull a full report or overview of updates. The Master must look up this information cell by cell. This is tedious and time-consuming, and may be prone to errors.

2. Virus Protection. The Second Mate inserts a USB dongle into the ECDIS in order to update the chart portfolio, automatically initiating the update process by an auto-run script. Unfortunately, the USB drive has been infected with a virus from the PC where the chart update was managed. The virus has now been lodged in the ECDIS, creating a potentially disastrous safety risk.

3. Standardization. A shipping company has a number of different ECDIS products from different manufacturers across the fleet. Their displays and operating procedures are very different. Whenever bridge officers transfer from ship to ship they must undergo type-specific refresh培训. This is expensive, time consuming and a potential danger to safe navigation.

4. Alarm Fatigue. Bridge watchkeepers are disturbed by constant audible alarms from the ECDIS when the ship is underway. This is very distracting, and eventually the bridge team may simply ignore the alarms altogether.

The new ECDIS standards provide:

- Improved functionality
- Safer navigation
- Enhanced cyber security
- More standardization of displays, vocabulary and operation
- Reduced training needs
- Smoother integration with the Voyage Data Recorder (VDR), Bridge Alert Management (BAM) and Bridge Navigational Watch Alarm System (BNWAS)
The new IEC and IHO standards provide improved functionality and safety as well as standardized information presentation and interfaces.
Summary of changes in IEC 61174

Functionality
• Availability of ENC updates so chart inventory can be audited internally or by a ship inspector.
• No auto-run from a USB stick, ensuring virus protection.
• Ability to set a default user setting in a single step.
• New requirement for anchor watch.
• Declaration of highest latitude on which ECDIS can operate. If higher than 85°, the ECDIS must comply with the new polar requirements.
• Ability for ECDIS operator to turn off alarms for CPA/TCPA for AIS and AIS lost target.

Information Presentation
• Icons and symbols on the charts must be in compliance with the new presentation standard IEC62288 and the new IHO S-52 and S-63 standards.
• Revision of permanent indicators such as “Non-ENC data, “Non-ECDIS presentation” displayed on the screen.
• Mandatory terminology and abbreviations applied in the ECDIS in order to educate users and minimize confusion when operating different ECDIS brands.

Communication
• Interface output to Bridge Alert Management (BAM) with escalation of alert levels (caution, warning, alarm, emergency alarm).
• Interface to VDR in IEC 61162-450 format, which must also be recorded in the VDR. This ensures the VDR records not only the information displayed on the monitor, but also the source of the chart data and the version.
• Interface output to BNWAS to confirm the watchkeeper is active.
• Optional interface input from NAVTEX/Safety Net/MSI to receive safety messages of a temporary nature.
Summary of changes in IHO S-52

- Language in presentation library simplified and clarified.
- Elimination of multiple options to perform the same task.
- New sections added for notification of navigational hazards, detection of areas for special conditions and detection of safety contours.
- Clear guidance on what objects and attributes will trigger an alert or indication in the ECDIS, reducing extraneous alarms.
- IMO-specified viewing groups not mandatory.
- Simplification of diagrams and terms.
- Display of text added to selected features. For instance, anchorage areas and fairways names can now be shown on the chart display.
- Numerous changes to the ENC symbol catalogue, with more standardization.
- Deletion of many “mariner objects” in Part II of the Presentation Library.

Summary of changes in IHO S-64

The new edition of S-64 brings test procedures into alignment with the performance standards and test procedures of IEC 61174 Ed. 4 and the amendments to IHO S-52. It describes the setup, data, expected results and any images required in an accessible form for testing ECDIS. It includes a comprehensive set of tests to ensure all required combinations of features and attributes are dealt with correctly by the ECDIS under test.

Compliance

All Danelec Marine ECDIS products can be upgraded to be in full compliance with the new standards, including IEC 61162-450. For more information, visit www.ecdis.com
SOLID

PRODUCT DESIGN

• **Dependable operation | Equipment that is built to be at sea**
  Danelec products are based on an application-specific design to ensure extreme reliability. Fewer components mean fewer points of failure, resulting in the highest MTBF in the industry.

• **Future proof | Never obsolete, always supported**
  We guarantee serviceability of our products during their lifetime for a minimum of 10 years. Since our products are developed in-house, we have full control over all components.

SAFE

SERVICE & SUPPORT

• **Immediate support anywhere | There is always a service tech near your ship**
  Our extensive global network of service centers carry spare parts and provide service repairs 24/7 with 500+ factory-certified techs in 50+ countries.

• **World class service | Consistent, efficient and transparent**
  Danelec eService platform™ automates and streamlines traditional manual processes, bringing unprecedented levels of consistency and efficiency to shipboard service.

SIMPLE

OPERATION & MAINTENANCE

• **Information at your fingertips | Capture shipboard data and put it to use**
  Our range of remote management solutions enable instant and cost-optimized access from shore to ship, so that you can harness the power of big data for informed decisions and more efficient asset management.

• **Maximize uptime | Rest assured your ship sails on schedule**
  Our exclusive SWAP technology™ enables fast and easy replacement of equipment in case of failure, without reinstalling software and reconfiguring the system.