ECDIS

Industry Recommendations for ECDIS Familiarisation

BACKGROUND

Being aware that the implementation of Electronic Chart Display and Information Systems (ECDIS) has given rise to confusion in regards to ECDIS Generic Training and Familiarisation with onboard systems, an industry group, organised and coordinated by The Nautical Institute and comprising leading international shipping industry organisations, has been meeting since 2011 to produce a range of guidance to clarify the requirements for competency in relation to ECDIS.

It should be noted that the term 'type specific' as used by some administrations is not referred to by this industry group. After discussion it was agreed that only the terms 'generic training' and 'familiarisation' are covered by IMO instruments (STCW 2010 and ISM respectively).

This particular guidance deals with the need for competency following Familiarisation with ECDIS specific to onboard equipment and its arrangements. This Familiarisation will be complementary to ECDIS Generic Training[1]. The regulatory requirements for Familiarisation with ECDIS are covered by the ISM Code (including sections 6.3 & 6.5) and the STCW Convention Regulation I/14 which require the Company to establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarisation with their duties.

FAMILIARISATION

It is recognised by all signatories to this guidance that ECDIS, as defined by the International Maritime Organization (IMO) when implemented will be one of the most important navigation and decision support tools. The complexity of ECDIS should be recognised and the ability of a watchkeeping officer to be competent and confident in the operation of ECDIS, including peripheral equipment and actual version(s) of software and charts, as part of the shipboard navigational system is essential for safety, security and protection of the marine environment.

ECDIS Familiarisation has, therefore been defined as:

Familiarisation: Following the successful demonstration of competencies contained in the ECDIS Generic Training, Familiarisation is the process required to become familiar with any onboard ECDIS (including back-up) in order to assure and demonstrate competency in relation to a specific ship's ECDIS installation, prior to taking charge of a navigation watch.

Familiarisation should cover Initial Preparation; Basic Operations; Charts; Navigational Tools and Functions; Route Planning and Route Monitoring. Familiarisation includes any pertinent information required for the safe operation of the ECDIS, including all updates and alterations. Companies should have clear procedures for using ECDIS and assisting the navigators in completion of the Familiarisation process.

1: Definition of Generic Training: Training to ensure that navigators can use and understand ECDIS in the context of navigation and can demonstrate all competencies contained in and implied by STCW 2010. Such training should ensure that the navigator learns to use ECDIS and can apply it in all aspects of navigation, including the knowledge, understanding and proficiency to transfer that skill to the particular ECDIS system(s) actually encountered on board, prior to taking over navigational duties. This level of training should deliver the competencies at least equivalent to those given in IMO Model Course 1.27.
(Source of definition: industry ECDIS Training Group. www.nautinst.org/ECDIStraining)

Annex 1

Annex I (Familiarisation Checklist) of this guidance provides a detailed description of ECDIS tasks the industry expects officers of the watch of ships using ECDIS to be able to demonstrate competency in.

These tasks should be considered a minimum requirement.

Pilots should be able to demonstrate relevant competencies contained in Model Course 1.27. However pilots should not be expected to meet Familiarisation requirements.

Recommendations:

1 Companies should ensure that they have addressed Familiarisation requirements as defined within the ISM Code, taking into account the minimum requirements for ECDIS outlined in Annex I.

2 Companies should ensure that mariners are able to demonstrate the competencies as defined within Annex I prior to taking charge of a navigational watch, and that they maintain those competencies.

3 Companies should establish clear guidance for the use of ECDIS within their Safety Management System (SMS) procedures.

4 Equipment manufacturers should provide materials to companies and training organisations to assist them with the requirements outlined in Annex 1.

5 Flag States and Port States should take the contents of this guidance into account.

Delivery Options

A 'Company' can consider a wide variety of options for achieving Familiarisation both onboard and ashore. These include but are not limited to:

- Shore based manufacturer training followed by installation-specific Familiarisation onboard;
- Independent training on specific systems followed by installation-specific Familiarisation;
- Computer Based Training (CBT), followed by installation-specific Familiarisation onboard;
- Internet / Intranet Based Training (eLearning) followed by installation-specific Familiarisation onboard;
- Onboard training by appropriately trained crew or training personnel;
- Manufacturer provided training mode on the ECDIS, followed by installation-specific Familiarisation onboard;
- Company bridge procedures and manuals.

Full Familiarisation needs to be specific to the installation and may require a mix of the above methods and consideration should be given to allow adequate time for this activity, whether done ashore or onboard or both. Regardless of the method(s) used, it is essential that all watchkeeping officers must be competent in the use of the onboard ECDIS prior to taking charge of a navigational watch, and remain so thereafter.

It is recognised that manufacturer provided tools for structured onboard Familiarisation will enhance and possibly add value to onboard ECDIS.

Assessment and Documentation

The IMO ISM Code requires the 'Company' to establish *"Instructions which are essential to be provided prior to sailing [that] should be identified, documented and given"*.

Companies must therefore make clear in their Safety Management System (SMS) their requirements for ensuring the demonstration of competency for these familiarisation issues prior to officers taking charge of a navigational watch.

Further information pertaining to ECDIS and ECDIS training can be found at:
www.nautinst.org/ECDIStraining

Supported by:

Annex 1: ECDIS Familiarisation Checklist

1   Initial Preparation

		Comments	Y/N
1.1	Establish if the vessel is approved to use ECDIS for navigation		
1.2	Establish whether there are Company Navigational Procedures concerning the use of the equipment and ensure that these are followed		
1.3	Establish whether any passwords are needed for the management of the system and, if so, obtain the details from the Master (if appropriate - see end note)		
1.4	Establish whether there is an onboard approved Familiarisation training package for the equipment, whether as computer based training, an inbuilt training mode or as a book or digital image of a book (eg. PDF file). Use this before completing the checklist items here		
1.5	Identify the primary ECDIS equipment and the facilities for back-up. If the back-up is a second ECDIS of a different type to that of the primary installation, then Sections 2 to 6 of this Familiarisation checklist must be repeated for both systems		
1.6	Understand ship procedures in event that the ECDIS and its back-up fail		
1.7	Determine where the user manuals for ECDIS and its back-up are located – an electronic version of these may be available on each unit		
1.8	Determine where Base and Update CDs are stored on the ship (if appropriate)		
1.9	Determine the procedures to obtain additional chart permits (if appropriate)		
1.10	Determine and understand the position-fix systems that feed the ECDIS. Determine the method of switching between sources, such as primary and secondary position-fix systems		
1.11	Determine what other systems feed into the ECDIS, such as radar (acquired targets, Radar picture overlay), AIS, water speed logs, echo sounders, etc. For each, establish the reference framework, eg. ground-, water- or ship-stabilised (relative)		

		Comments	Y/N
1.12	Determine where to find maintenance records related to the ECDIS and service reports, non conformity reports & inspection, validation reports (if appropriate)		
1.13	Determine the power supply modes and their specifications such as UPS duration		

2   Basic Operation

		Comments	Y/N
2.1	Determine how to switch the ECDIS on and off		
2.2	Establish the function(s), position and general operation of the physical controls and switches, including cursor control, and the access and selection of menu items		
2.3	Understand how to access the main menu and select menu options		
2.4	Determine the methods for setting day/night viewing modes, brightness, contrast and colour correction (if available)		
2.5	Determine how to switch between traditional and simplified symbology		
2.6	Determine how to put equipment in route-monitoring mode and route-planning mode		
2.7	Determine the methods for scrolling and zooming charts, including determining the current scale of displayed charts and setting the display to a particular scale		
2.8	Determine how to select the Display Base and Standard Display		
2.9	Determine how to display other information from ENCs, including the display of All Other Information		
2.10	Determine how to check that information concerning own ship, such as dimensions are correct		
2.11	Determine how to select the safety contour and safety depth		
2.12	Determine how to select two- or four-colour contour mode		
2.13	Determine how to select deep and shallow area display options		

		Comments	Y/N
2.14	Determine how to set all other parameters concerning the safety domain		
2.15	Establish how alarms and other alerts are given by the ECDIS and understand the procedure needed to acknowledge them		

3   Charts

		Comments	Y/N
3.1	Determine how to access the chart directory and to identify whether charts are ENCs, RNCs or unofficial		
3.2	Determine how to select a chart for display on the screen		
3.3	Determine how to load new chart licence keys (if appropriate)		
3.4	Determine how to load base data (if appropriate)		
3.5	Determine how to check the update status of loaded charts		
3.6	Determine how to update charts using the normal cumulative update procedures (if appropriate)		
3.7	If applicable, determine how to apply non-cumulative or electronically-transmitted updates		
3.8	Determine how to apply manual updates (if appropriate)		

4   Navigation Tools and Functions

		Comments	Y/N
4.1	Determine how to display the legend of general information e.g. units for depths & heights, datums etc..		
4.2	Determine how to select information about an object (Pick report)		
4.3	Determine how Zone of Confidence (CATZOC) information can be displayed		
4.4	Determine how to access the Presentation Library		
4.5	Determine what Marine Information Overlays (MIOs) are available and how to access them. (Radar and AIS covered in Section 6 below)		
4.6	Determine the single operator action needed to remove MIOs from the display		

		Comments	Y/N
4.7	Determine the single operator action needed to set the Standard Display setting		
4.8	Determine how to view, add, edit and delete Mariners' Notes		
4.9	Determine how to access all navigational elements and parameters, such as past track, vectors, position lines, etc.		
4.10	Establish the facilities provided for the measurement of range and bearing (eg EBLs and VRMs) and determine their use		
4.11	Determine the method(s) used for inserting Parallel Index lines		
4.12	Determine what other navigational tools are available and how to access them		
4.13	Determine how to change to using the ECDIS back-up system		
4.14	Determine the procedure for identifying and reacting to sensor/GNSS failure.		
4.15	Determine how to switch Chart Text (text for charted objects) on and off.		

5 Route Planning (If appropriate to watchkeeping responsibilities)

		Comments	Y/N
5.1	Determine how to load existing routes and enable for editing		
5.2	Determine how to initiate a new route plan		
5.3	Determine how to initiate and plan alternate routes		
5.4	Determine how to save route plan		
5.5	Determine how to add, delete and adjust graphically the position of waypoints		
5.6	Determine how to add, edit and delete critical points		
5.7	Determine how to display time varying objects relevant for the timing of the planned voyage		
5.8	Establish all the features available for planning routes, such as use of straight and curved segments, wheel over positions, turn radii, and inserting pilotage aids		

		Comments	Y/N
5.9	Determine the ship's procedures for displaying MSI, T&P Notices and other relevant notes into the voyage plan		
5.10	Determine how to use the facilities for checking the planned route		
5.11	Determine how to load the planned route and alternatives into the back-up system		
5.12	If available, determine how to use RCDS mode where ENCs are not available and as appropriate.		

6 Route Monitoring

		Comments	Y/N
6.1	Determine how to load a pre-planned route		
6.2	Determine how to select the primary or an alternate route and how to distinguish between them on the display		
6.3	Determine the single operator action that selects the charted display of own ship's position		
6.4	Determine the available display orientation modes and how to switch between them (eg, North Up, Head Up, Course Up)		
6.5	Determine the available display motion modes and how to select them and change the parameters, such as the position of own ship on the display when Relative Motion is selected		
6.6	If Radar or AIS targets can be displayed on the ECDIS, determine what target vector modes are available and how to switch between and differentiate them		
6.7	Determine how to create time labels along the ship's track		
6.8	Establish familiarity with the Route Monitoring display, including the display of position, heading, course, speed and time		
6.9	Determine how to set the length of own ship's vector and intermediate time marks		
6.10	Determine how to display Radar and AIS MIOs, if available		
6.11	Determine how to use the ECDIS as the input to a track-keeping autopilot. This will also need reference to the autopilot handbook		

		Comments	Y/N
6.12	Determine how to input LOP to form the reference for an estimated position		
6.13	Determine how to configure the ECDIS to use this reference (6.12) for subsequent EPs		
6.14	Determine how to switch to DR mode and to identify when the ECDIS is in DR mode		
6.15	Determine how to use the review facilities of the voyage recorder (if appropriate and not essential knowledge prior to sailing)		

Notes:

Companies are responsible for ensuring watchkeepers adequately demonstrate knowledge of all identified issues to comply with the Familiarisaton requirements of the ISM Code.

Some tasks have been marked "if appropriate" as they might not pertain to "navigation at operational level" but rather "navigation at management level" as defined by STCW 2010.

Tasks identified in this Annex were originally developed for, and more information can be found in, the book 'ECDIS and POSITIONING', written by Dr Andy Norris FNI and published by The Nautical Institute.
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This checklist is annexed to 'Industry Recommendations for ECDIS Familiarisation'
www.nautinst.org/ECDIStraining

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