



Australian Government

MARH5003A Use an electronic chart display and information system to navigate safely

Release 1

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Modification History

Release 1

This is the first release of this unit.

Unit Descriptor

This unit involves the skills and knowledge required to maintain safe navigation of a commercial vessel greater than 500 gross tonnage using an electronic chart display and information system (ECDIS).

Application of the Unit

This unit has application for a Watchkeeper Deck, Master < 500 GT and Master (Unlimited).

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

- 1 **Set up an ECDIS**
 - 1.1 *ECDIS* is initialised and programmed with own vessel data
 - 1.2 Operational performance and accuracy of ECDIS is confirmed
 - 1.3 **Settings** and values are adjusted to suit conditions for passage planning and navigation
 - 1.4 Means of providing **additional information** is correctly interfaced with ECDIS
- 2 **Use an ECDIS for passage planning and navigation**
 - 2.1 ECDIS is used to assist in passage planning and the conduct of navigation
 - 2.2 **Information** on ECDIS is monitored to ensure safe navigation
 - 2.3 Information obtained from ECDIS is interpreted and analysed taking into account limitations of equipment, all connected sensors and prevailing circumstances and conditions
 - 2.4 Position of vessel is confirmed by alternative means
 - 2.5 Safety of navigation is maintained through adjustments made to vessel course and speed
 - 2.6 **System and position alarms** are responded to, to maintain safety of navigation
 - 2.7 **Situational awareness** is maintained while using ECDIS
- 3 **Maintain data**
 - 3.1 **Data** produced by ECDIS that should be retained to conform with organisational procedures and regulatory requirements is identified
 - 3.2 Data is stored electronically or in hard copy as required by organisational procedures and regulatory requirements
 - 3.3 Security and access requirements for data are adhered to in accordance with organisational procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required Skills:

- Adjust settings and values to suit present conditions
- Conduct tests for malfunctions including functional self testing and interpret the test results
- Confirm vessel position by alternative means
- Maintain situational awareness while using ECDIS
- Operate ECDIS when interfaced with AIS and interpret AIS data
- Operate, interpret and analyse information:
 - when radar and ARPA is connected to ECDIS
 - obtained from ECDIS
- Operate, interpret and analyse information
- Plan a passage on a display using ECDIS
- Safely monitor and adjust information
- Set-up initial display and maintain display
- Use functions that are integrated with other navigation systems in various installations
- Use settings efficiently to ensure conformance to operational procedures

Required Knowledge:

- Correcting and updating charts by manual, semi automatic and automatic systems
- Dangers of over-reliance
- Differences between vector and raster charts
- Differences between ECDIS, ECS and RCDS
- Functions of ECDIS required by performance standards in force
- Principles, capability and limitations of ECDIS operations
- Requirements for voyage recording
- Significance of chart alarms and indicator warnings
- Use of ECDIS in emergency situations
- Work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, the required skills and knowledge, the range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- ensuring integrity of back-up systems
- ensuring integrity of data.

Context of and specific resources for assessment

Performance is demonstrated consistently over time and in a suitable range of contexts.

Resources for assessment include access to:

- industry-approved marine operations site where using an ECDIS may be conducted
- approved ECDIS simulator where training can be conducted
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities
- range of relevant exercises, case studies and/or other simulated practical and knowledge assessments
- appropriate range of relevant operational situations in the workplace.

In both real and simulated environments, access is required to:

- relevant and appropriate materials and equipment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

Method of assessment

Practical assessment must occur in an:

- appropriately simulated workplace environment and/or
- appropriate range of situations in the workplace.

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate to this unit:

- direct observation of the candidate using an ECDIS
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

Guidance information for

Holistic assessment with other units relevant to the industry

assessment

sector, workplace and job role is recommended.

In all cases where practical assessment is used it should be combined with targeted questioning to assess Required Knowledge.

Assessment processes and techniques must be appropriate to the language and literacy requirements of the work being performed and the capacity of the candidate.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below.

ECDIS must include:	• Adequate and up-to-date back-up paper charts • Adequate and up-to-date electronic charts • Back-up systems • Electronic position fixing system • Gyro and log • Raster charts • Uninterruptable power supply • Vector electronic chart systems
Settings may include:	• Alarm parameters for anti-grounding • Back-up arrangements • Chart update status • Completeness of chart data • Proximity to contacts and special areas
Additional information must include:	• AIS input • Radar/ARPA input
Information may include:	• Chart data displayed • Contacts • Mode and orientation • Own position • Radar overlay functions • Radar tracking • Route monitoring • Sea area display • User-created information layers
System and position alarms must include:	• Approach to waypoint, critical point, navigation danger and other ships • Chart alarms • Depth and contour alarms • Mode losses • Primary failure
Situational awareness may include:	• Chart data and scale selection • Contact detection and management • Integrity of sensors • Safe water and proximity of hazards • Set and drift • Suitability of route

Data may include:

- ENC source, date and edition
- Chart correction information
- Vessel voyage details

Unit Sector(s)

Not applicable.

Competency Field

Navigation