



Australian Government

MARH023 Use of electronic chart display and information system (ECDIS) to maintain the safety of navigation

Release: 2

MARH023 Use of electronic chart display and information system (ECDIS) to maintain the safety of navigation

Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor statement changes in Performance Evidence
- Minor ECS statement changes in Knowledge Evidence.

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Application

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

This unit applies to people working in the maritime industry in the capacity of:

- Master Unlimited
- Master up to 100 metres Near Coastal
- Master up to 500 gross tonnage (GT)
- Watchkeeper Deck.

Licensing/Regulatory Information

This unit is equivalent to and delivers the objectives of the following Standards of Training, Certification and Watchkeeping (STCW) provisions:

- STCW Reg II/1 & II/2, Code Section A-II/1 and A-II/2, Tables A-II/1 and A-II/2.

Legislative and regulatory requirements are applicable to this unit.

- Regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Near Coastal Qualifications:

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as a Master up to 100 metres Near Coastal as specified in Marine Order 505.

Blue Waters Qualifications:

- This unit is one of the requirements to obtain AMSA certification as a Master of a

commercial vessel up to 500 gross tonnage (GT), Master Unlimited or Watchkeeper Deck. and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

Training providers seeking to offer this unit of competency must gain AMSA approval before the unit is offered.

Seafarers seeking certification should check with AMSA.

Pre-requisite Unit

Not applicable.

Competency Field

H – Navigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Set up an ECDIS

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

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 and other bridge equipment
- 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

3 Maintain data

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to MARH009 Use an electronic chart display and information system to navigate safely.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARH023 Use of electronic chart display and information system (ECDIS) to maintain the safety of navigation

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- adjusting settings and values to suit present conditions, including:
 - alarm parameters for anti-grounding
 - back-up arrangements
 - chart update status
 - completeness of chart data
 - proximity to contacts and special areas
- applying relevant legislation, regulations and guidelines
- communicating in a clear concise manner, at all times
- conducting tests for malfunctions, including functional self-testing and interpreting the test results
- confirming vessel position by alternative means
- ensuring integrity of back-up systems
- ensuring integrity of data
- maintaining situational awareness while using electronic chart display and information system (ECDIS), including:
 - chart data and scale selection
 - contact detection and management
 - integrity of sensors
 - safe water and proximity of hazards
 - set and drift
 - suitability of route
- monitoring and adjusting information on ECDIS including:

- chart data displayed
- contacts
- mode and orientation
- own position
- radar overlay functions
- radar tracking
- route monitoring
- sea area display
- user-created information layers
- operating ECDIS when interfaced with automatic identification system (AIS) and interpreting AIS data
- planning a passage on a display using ECDIS
- setting up initial display and maintaining display
- setting up, operating, interpreting and analysing information, including:
 - adequate and up-to-date electronic charts
 - back-up systems
 - electronic position fixing system
 - gyro and log
 - raster charts
 - uninterruptable power supply (UPS)
 - vector electronic chart systems
 - when radar overlay is in use
- storing data electronically, including:
 - chart correction information
 - electronic navigational chart (ENC) source, date and edition
 - vessel voyage details
- using ECDIS targets, charts and systems
- using functions that are integrated with other navigation systems in various installations
- using settings efficiently to ensure conformance to operational procedures.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- AIS input
- dangers of over-reliance
- differences between ECDIS, electronic charting system (ECS), electronic navigation & electronic charts and raster chart display system (RCDS)
- differences between vector and raster charts
- elements of ECDIS, including:
 - basic navigation

- chart data
- chart organisation
- chart quality and accuracy
- correct and incorrect use
- heading and drift vectors
- position source
- purpose of ECDIS
- value to navigation
- vessel position
- workstation start, stop and layout
- ECDIS route planning and monitoring, including:
 - additional navigational information
 - checking plan for safety
 - route planning by table and chart
 - route schedule
 - track limits
 - user charts in route planning
 - vessel manoeuvring characteristics
- ECDIS targets, charts and systems, including:
 - AIS functions
 - archiving ECDIS data and data logging
 - automatic radar plotting aid (ARPA)/radar overlay
 - installing chart corrections
 - procuring and installing chart data
 - system reset and back-up
- ECDIS responsibility and assessment, including:
 - effective navigation with ECDIS
 - responsibilities under relevant legislation, regulations and guidelines
- functions of ECDIS required by performance standards in force
- principles, capability and limitations of ECDIS operations
- process used to correct and update charts by manual, semi-automatic and automatic systems
- radar/ ARPA input
- requirements for voyage recording
- significance of chart alarms and indicator warnings
- system and position alarms, including:
 - approach to waypoint, critical point, navigation danger and other ships
 - chart alarms
 - depth and contour alarms
 - mode losses
 - primary failure

- use of ECDIS in emergency situations
- watchkeeping with ECDIS, including:
 - changing the settings
 - chart information
 - chart scaling
 - information layers
 - ports and data feeds
 - sensors
- work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

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

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- simulator exercises for:
 - coastal waters
 - coastal and restricted waters
 - coastal waters and restricted waters
 - open sea
 - restricted waters
- simulator exercises for:
 - coastal waters and restricted waters (navigation alarms and route scheduling)
 - coastal waters (chart display settings)
 - coastal and restricted waters (underway ECDIS navigation assessment)
 - open sea (basic integrated navigation)
 - restricted waters (advanced integrated navigation with ECDIS)

- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

Links

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