



Australian Government

MARC020 Transmit and receive information by marine radio

Release: 1

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Modification History

Release 1. This unit first released with MAR Maritime Training Package Version 2.0.

Application

This unit involves the skills and knowledge required to transmit and receive information by marine radio on board a commercial vessel including using marine very high frequency (VHF) and high frequency (HF) radio according to regulations.

It also involves carrying out user maintenance and fault-finding procedures on radio equipment and power supplies; and operating an emergency position indicating radio beacon (EPIRB), a search and rescue radar transponder (SART), automatic identification system - search and rescue transmitter (AIS-SART), and automatic identification system man overboard (AIS-MOB) device, and digital selective calling man overboard (DSC-MOB) device.

This unit applies to Coxswains and Masters of commercial vessels who use marine radio equipment to transmit and receive information to and from shore and vessel-based operators. They work relatively independently under broad operational requirements, with limited accountability and responsibility for themselves and others in achieving the prescribed outcomes.

The unit is consistent with the relevant maritime regulations and certification requirements as specified in the Radiocommunications Act 1992.

Pre-requisite Unit

Not applicable.

Competency Field

C – Equipment Operations

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

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

1 Operate VHF and HF radio equipment

1.1 Appropriate VHF and HF radio equipment is selected for operation within limits of specifications

to transmit and receive messages	1.2	Radio equipment is operated to transmit and receive various types of signal according to manufacturer instructions, established radio operation procedures and regulatory requirements
	1.3	Regulations and procedures applicable to vessel stations equipped with radio voice communication (radiotelephony) and digital selective calling (DSC) facilities are applied during radio communication
	1.4	Work health and safety/occupational health and safety (WHS/OHS) procedures and hazard control strategies are applied when operating radio equipment according to vessel safety management system
	1.5	Radio communication problems are documented and promptly reported according to established procedures
2 Maintain and fault-find radio equipment	2.1	Routine maintenance checks are carried out on radio voice communications (radiotelephony) equipment according to manufacturer instructions and specifications, and organisational procedures
	2.2	Out-of-specification performance and faults in radio equipment are correctly identified and investigated using prescribed fault-finding techniques according to established user maintenance procedures and manufacturer instructions
3 Access search and rescue radio facilities	3.1	Request is made to the appropriate organisation for the provision of the required search and rescue services
	3.2	Information required by the Modernised Australian Ship Tracking and Reporting System (MASTREP) is supplied and received in the required format
4 Deploy and operate an EPIRB, SART and AIS-SART	4.1	Routine checks are carried out on EPIRBs, SARTs and AIS-SARTs to confirm their operational capability according to manufacturer instructions and specifications
	4.2	Appropriate action is taken to rectify or replace EPIRBs, SARTs or AIS-SARTS that are found to be malfunctioning or are inoperable according to manufacturer instructions and organisational procedures
	4.3	EPIRBs, SARTs and AIS-SARTs are deployed as required according to manufacturer instructions and established search and rescue procedures
5 Operate a man	5.1	Routine checks are carried out on AIS-MOB and DSC-MOB

**overboard (MOB)
device as a locating
device in an
emergency**

- devices to confirm their operational capability according to manufacturer instructions and specifications
- 5.2 AIS-MOB and DSC-MOB devices are operated according to manufacturer instructions and regulatory requirements

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.

Radio voice communications (radiotelephony) is carried out accurately and consistently in both normal and emergency situations using shipboard VHF and HF radio equipment, EPIRBs and SARTs in compliance with the relevant sections of the Radio Regulations adopted by the World Radiocommunication Conference (as amended), including Chapters VII and IX.

- Organisations include one or more of the following:
- coast stations
 - company bases
 - fishing organisations and cooperatives
 - limited coast stations
 - Maritime Communication Stations
 - private shore stations, including boating clubs
 - state/territory police forces
- Radio services include one or more of the following:
- MASTREP
 - medical advice services
 - public correspondence
 - scheduled broadcasts (skeds)
 - search and rescue

Unit Mapping Information

This unit replaces and is equivalent to TDMME507B Transmit and receive information by marine radio or telephone.

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 MARC020 Transmit and receive information by marine radio

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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, performance criteria and range of conditions on at least one occasion and include:

- accessing search and rescue radio facilities
- adapting to changes in radio equipment and related procedures
- applying WHS/OHS procedures and precautions when using and checking radio equipment
- carrying out radio voice communications (radiotelephony) accurately and consistently in both normal and emergency situations using shipboard VHF and HF radio equipment, EPIRBs and SARTs in compliance with the relevant sections of the Radio Regulations adopted by the World Radiocommunication Conference (as amended), including Chapters VII and IX
- communicating effectively with others during radio communication
- completing work systematically with the required attention to detail
- conducting operational checks on radio equipment
- identifying and evaluating radio communication problems and determining appropriate courses of action
- maintaining records of radio communication
- operating radio equipment according to manufacturer instructions
- operating very high frequency (VHF) and high frequency (HF) radio equipment to transmit and receive messages
- reading and interpreting marine radio regulations, rules and instructions
- reading and interpreting radio equipment instructions
- recognising and adapting appropriately to cultural differences in the workplace, including modes of behaviour and interactions between crew and others
- recognising typical faults and problems with radio equipment and taking appropriate action
- using the phonetic alphabet
- working collaboratively with other shipboard personnel and passengers.

Knowledge Evidence

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

As a minimum, assessment of knowledge must be conducted through appropriate written/oral examination and include knowledge of:

- Australian marine search and rescue system
- different types of marine radio equipment, their features, applications, operating characteristics, operating procedures and limitations
- EPIRB frequencies:
 - 406 MHz
 - 121.5/MHz (homing)
- hazards associated with radio transmission and the repair and maintenance of radio equipment and related hazard control measures
- marine VHF repeater stations
- methods of communicating vessel position
- operational checks, including:
 - checking radio performance
 - testing fuses
 - measuring capacity of batteries and the specific gravity of the electrolyte
 - measuring on and off load voltage
- principles and procedures for marine radio communication
- procedures for:
 - deploying and operating EPIRBs and SARTs
 - keeping radio communication records
 - transmitting and decoding the phonetic alphabet excluding the figure code
- purpose of and procedures for, monitoring calling and working frequencies
- radio calling, replying and relaying procedures
- radio communication log
- radio equipment manufacturer specifications and instructions
- records of radio communication
- relevant sections of maritime regulations related to radio operation
- typical radio communication problems and appropriate action and solutions
- typical radio equipment faults, defects and related fault-finding techniques and remedial procedures
- WHS/OHS regulations appropriate to the operation and maintenance of radio equipment.

Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must satisfy the National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) standards.

Assessment must occur in operational situations on board an operational commercial or training vessel or where this is not available, in simulated radio communication activities and exercises, covering a range of normal and emergency radio communication situations that are typically experienced on a vessel.

For certification requirements specified in the Radiocommunications Act 1992 assessment must comply with the assessment requirements of the relevant maritime regulations.

The candidate must demonstrate accurate and consistent use and maintenance of radio equipment to send and receive messages and signals under normal and emergency situations according to international and national radio regulations.

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.

Resources for assessment must include access to:

- tools, equipment, materials and personal protective equipment currently used in industry including:
 - medium frequency/high frequency radio transceiver (MF/HF)
 - very high frequency (VHF) radio transceiver
 - digital selective calling (DSC) equipment
 - aerials
 - batteries
 - electrical and radio cable connections
 - electrical fuses
- radio voice communications (radiotelephony) transceiver equipment
- search and rescue locating equipment:
 - emergency position indicating radio beacon (EPIRB)
 - search and rescue radar transponder (SART)
 - AIS search and rescue Transmitter (AIS-SART)
 - AIS-Man Overboard (AIS-MOB) device
 - DSC-Man Overboard (DSC-MOB) device
- documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals including
 - job procedures, work instructions and guidelines relating to the use of radio communication equipment
 - Marine Radio Operators Handbook
 - Marine Radio Operators VHF Handbook
 - Radiocommunications Act (1992)
 - Radio Regulations adopted by the World Radiocommunication Conference (as amended)
- a range of relevant exercises, case studies and/or simulations.

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