



**Australian Government**

**MARO5002A Transmit and receive  
information by the Global Maritime  
Distress and Safety System**

**Release 1**

# **MARO5002A Transmit and receive information by the Global Maritime Distress and Safety System**

## **Modification History**

Release 1

This is the first release of this unit.

This unit replaces and is equivalent to TDMME807C Transmit and receive information by GMDSS subsystems and equipment.

## **Unit Descriptor**

This unit involves the skills and knowledge required to transmit and receive information by global maritime distress and safety system (GMDSS) subsystems and equipment.

## **Application of the Unit**

This unit applies to those in charge of or performing radio duties on a ship required to participate in the GMDSS.

## **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 Operate GMDSS subsystems and equipment to send and receive messages**
  - 1.1 ***GMDSS communication equipment*** is operated to send and receive various types of signals according to manufacturer instructions, established GMDSS procedures and regulatory requirements
  - 1.2 GMDSS procedures appropriate for the sea area concerned are correctly applied according to regulatory requirements
  - 1.3 ***Regulations*** and procedures applicable to vessel stations equipped with GMDSS communication equipment and digital selective calling facilities are applied during radio communication
  - 1.4 Work health and safety (WHS)/occupational health and safety (OHS) procedures and hazard control strategies are applied when operating radio equipment according to vessel ISM Code safety management system
  
- 2 Maintain radio equipment**
  - 2.1 ***Routine maintenance checks*** are conducted on GMDSS equipment according to manufacturer specifications and organisational procedures
  - 2.2 Out-of-specification performance and faults are investigated using fault finding techniques
  - 2.3 Identified faults and defective equipment and component parts are rectified or replaced according to manufacturer specifications and organisational procedures
  
- 3 Provide radio services during emergencies**
  - 3.1 ***Emergencies*** are correctly identified according to organisational procedures
  - 3.2 Organisational procedures are conformed with when taking initial action on becoming aware of an emergency or abnormal situation
  - 3.3 Communications are established with others using GMDSS communication equipment to facilitate the emergency response process
  - 3.4 Contact is maintained at all times with others to keep them briefed on the emergency response process
  - 3.5 Radio procedures as defined in the international and national radio regulations and safety of life at sea (SOLAS) convention are applied during the emergency

**4 Maintain records**

- 4.1 *Records* are completed and maintained as required according to regulatory and organisational requirements
- 4.2 Relevant records are sent to appropriate bodies and copies are filed according to regulatory and organisational requirements
- 4.3 Documents are stored according to regulatory and organisational requirements

## Required Skills and Knowledge

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

### Required Skills:

- Apply WHS/OHS procedures when operating GMDSS subsystems and equipment
- Communicate effectively with others when using GMDSS subsystems and equipment
- Conduct operational checks on GMDSS subsystems and equipment
- Keep records of radio communications
- Operate GMDSS subsystems and equipment according to manufacturer instructions
- Read and interpret instructions for the use of GMDSS subsystems and equipment
- Recognise typical faults with GMDSS subsystems and equipment, and take appropriate action
- Use the phonetic alphabet

### Required Knowledge:

- Basic principles and features of marine radio communications including correct use of frequencies, frequency bands and modes of emission; frequencies for routine call and reply; distress, urgency and safety communication; definition of coverage and sea areas for digital selective calling (DSC); radio calling, replying and relaying procedures; purpose of silence periods when operating radio equipment; limitations on the performance of different types of marine radio equipment; purpose for and procedures for the monitoring of calling and working frequencies; methods of communicating vessel position
- Different types of marine radio equipment, their features, applications, operating characteristics and operating procedures
- Hazards associated with radio transmission and the repair and maintenance of radio equipment and related hazard control measures
- International and national radio regulations applicable to mobile marine communication
- Maintenance strategies and requirements for GMDSS equipment as defined in SOLAS and Radio Regulations
- Means to prevent the transmission of false distress alerts
- 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 of radio propagation including basic propagation mechanisms at LF, MF, HF and VHF; maximum user frequency (MUF); optimum working frequency (OWF); frequency bands; classes of emission; duplex, simplex paired frequencies and ITU channels
- Procedures for:
  - keeping records of radio communication

- transmitting and decoding the phonetic alphabet excluding the figure code
- using various GMDSS systems and services including Inmarsat services (B, C, M and E); Enhanced Group Calling system (EGC); DSC facilities and usage; EGC receiver; MSI services; NAVTEXT system; SafetyNET system
- Prohibitions on connecting non-GMDSS equipment
- Radio communication problems and appropriate actions and solutions
- Radio equipment faults, defects and related fault finding techniques
- Requirements of ship reporting systems
- Types, applications and features of basic antenna systems used in marine radio communications
- Use of radio medical services

## 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 currency of relevant legislative and regulatory knowledge
- attention to appropriate level of detail in recordkeeping.

### **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 transmitting and receiving information by GMDSS subsystems and equipment 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 transmitting and receiving information by GMDSS subsystems and equipment
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

**Guidance information for assessment**

Holistic assessment with other units relevant to the industry 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.

GMDSS communication equipment must include:

- Antennas
- Batteries
- Digital selective calling (DSC) equipment
- ECG receiver
- Electrical and radio cable connections
- Electrical fuses
- Emergency position indicating radio beacon (EPIRB)
- Medium frequency/high frequency (MF/HF) equipment
- Navtext receiver
- Search and rescue transmitter (SART)
- Very high frequency (VHF) equipment

Regulations must include:

- IMO STCW 95 Code concerning radio communication
- Australian Maritime Safety Authority (AMSA) Marine Orders
- SOLAS Convention
- ITU Regulations

Routine maintenance checks may include:

- Battery level checks
- Equipment testing

Emergencies may include:

- Abandon ship
- Assisting vessels in distress
- Fire on board ship
- Partial or full breakdown of radio installations
- Rescuing persons from the water

Records may include:

- Radio communication log
- Records of radio communication

## Unit Sector(s)

Not applicable.

## **Competency Field**

Watchkeeping