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| **Title** | **Operate a marine radio in the MF, HF and VHF bands** | | |
| **Level** | **3** | **Credits** | **2** |

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| **Purpose** | This unit standard is for operators of marine radio in the medium frequency (MF), high frequency (HF), and very high frequency (VHF) bands.<br><br>People credited with this unit standard are able to: demonstrate knowledge of the general principles of single side band (SSB) radio operation and radio wave propagation; identify the international distress, urgency, safety and inter-ship frequencies within the MF and HF radio band; demonstrate knowledge of SSB marine radio operation; and operate a marine radio in the maritime mobile service. |

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| **Classification** | Maritime > Navigation and Seamanship |

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| **Available grade** | Achieved |

## Guidance Information

1 Legislation relevant to this unit standard includes:
Health and Safety at Work Act 2015.
Maritime Transport Act 1994 and subsequent amendments.
Radiocommunications Act 1989 and Radiocommunications Regulations 2001.

2 References
International Maritime Organisation. *International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual*. London: IMO, 2008. Available at www.imo.org.
International Maritime Organisation. *International Code of Signals.* IMO 994E, 2005. Available at www.imo.org.
Maritime New Zealand. *Radio Handbook. Your Guide to Maritime Communications (Fourth Edition)*. ISBN 0-478-18816-1. Wellington: Maritime New Zealand, 2016. Available at www.maritimenz.govt.nz.
Maritime Rules and Advisory Circulars. Available at http://www.maritimenz.govt.nz.

3 The content of this unit standard, together with unit standard 19491, covers the knowledge and skills for the Maritime Restricted Radiotelephone Operator's Certificate (MRROC), administered by Radio Spectrum Management at http://www.rsm.govt.nz.
A radio apparatus licence is issued by Radio Spectrum Management.

4 Assessment information
a Competencies in this unit standard must be demonstrated in simulated distress situations not by live transmission.

b All activities and evidence must be in accordance with manufacturer's specifications, Radiocommunications Act 1989 and Radiocommunications Regulations 2001, and the Radio Handbook.

5 Recommended skills and knowledge for entry:
Unit 19491, *Demonstrate knowledge of using a VHF marine radio and an EPIRB*, or demonstrate equivalent knowledge and skills is a required pre requisite.

## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of the general principles of single side band (SSB) radio operation and radio wave propagation.

**Performance criteria**

1.1 The general principles of single side band radio operation are explained.

Range radio frequency range expressed in kilo hertz (kHz) and mega-hertz (MHz); medium frequency (MF), high frequency (HF), single side band (SSB).

1.2 The general principles of radio wave propagation and refraction are explained.

Range the ionosphere and the effect of ionisation, choice of frequency for prevailing conditions and desired range.

### Outcome 2

Identify the international distress, urgency, safety and inter-ship frequencies within the MF and HF radio band.

**Performance criteria**

2.1 The international distress, urgency and safety frequencies monitored by Taupo Maritime Radio are identified.

2.2 The frequencies to be used for the transmission of the radiotelephone alarm signal in the MF and HF radio band are identified.

2.3 The MF and HF working frequencies are identified.

### Outcome 3

Demonstrate knowledge of SSB marine radio operation.

**Performance criteria**

3.1 The purpose and times of silence periods are explained.

3.2 The procedure for operating marine equipment to make a routine call is explained.

Range frequency selection, manual and automatic aerial tuning functions, the danger of radio frequency burn from aerials.

3.3 The common causes of poor transmission are explained.

Range the effect of no carrier wave, poor microphone technique.

3.4 The use and audible recognition of the alarm signal are explained.

3.5 The availability of marine weather information by single side band radio is described.

Range may include but is not limited to – Taupo Maritime Radio bulletin times and frequencies, marine weather bulletins from other coast stations, weatherfax, radiofax schedules.

**Outcome 4**

Operate a marine radio in the maritime mobile service.

**Performance criteria**

4.1 A marine radio is selected for use appropriate to the desired transmission and reception range.

Range one of – VHF, HF, MF.

4.2 A suitable frequency or channel is selected for use.

4.3 Radio is correctly operated.

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| **Planned review date** | 31 December 2025 |

**Status information and last date for assessment for superseded versions**

| Process | Version | Date | Last Date for Assessment |
|---|---|---|---|
| Registration | 1 | 30 July 2002 | 31 December 2012 |
| Review | 2 | 22 October 2010 | 31 December 2016 |
| Review | 3 | 15 October 2015 | 31 December 2022 |
| Review | 4 | 26 November 2020 | N/A |

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| **Consent and Moderation Requirements (CMR) reference** | 0054 |

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

**Comments on this unit standard**

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.