

Uniform Shipping Laws Code 2008

**Section 12: Radio Equipment
(CTH, NSW, NT, QLD, SA, TAS, VIC & WA)**

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SECTION 12

Radio Equipment

This Section has been prepared, taking into account the requirements of the following, where applicable:

- (1) International Telecommunication Convention
- (2) International Telecommunication Union Radio Regulations
- (3) 1988 amendments to the Safety of Life at Sea Convention 1974 (SOLAS 74)
- (4) *Navigation Act 1912*
- (5) *Radiocommunications Act 1992*

CONTENTS

1. This Section is divided into Parts as follows:

Part 1	Preliminary (Clauses 2-3)
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Part 3	Restricted Operations (Clauses 6-12)
Appendices	Technical requirements of Radio Installations
Appendix A	MF/HF Radiotelephone installation
Appendix B	VHF Radiotelephone installation
Appendix C	Source of Electrical Energy
Appendix D	Antenna Systems
Appendix E	General Requirements

PART 1 - PRELIMINARY

2. This Section shall be read in conjunction with the Introduction, Definitions and General Requirements Section.

3. In this Section the undermentioned terms shall have the meanings set against them respectively.

At Sea	In respect of radio watchkeeping, means the period occupied in a voyage between the berth at one port of call and the berth at the next port of call.
Digital Selective Calling (DSC)	A system used to automate the transmission of distress, urgency or safety traffic via MF, HF or VHF radio.
EPIRB	Emergency Position Indicating Radio Beacon.
Frequency Bands	The frequency bands referred to in this Section are: Medium Frequency (MF), 300-3000 kHz High Frequency (HF), 3-30 MHz Very High Frequency (VHF), 30-300 MHz
Limited Coast Station (LCS) ¹	A land station in the maritime mobile service established by or on behalf of a public utility, the fishing industry or other commercial enterprise for the exchange of communications.
Maritime Communications Station (MCS) ¹	A land station in the maritime mobile service established for the exchange of public correspondence and the provision of distress, urgency and safety radio services.
Radio Installation	All radio communication and ancillary equipment required by this Section.
Radio Surveyor	A person appointed by the Authority to be a radio surveyor.
Radiotelephone Distress and Safety frequency	Includes the frequencies of 2182, 4125, 6215, 8291, 12290 and 16420 kHz.
Radiotelephone Operator	A person holding an appropriate certificate complying with the provisions of the Radio Regulations.
Radiotelephony	A system of radio communication set up for the transmission of speech over a radio link or circuit.
Radio Regulations	The Radio Regulations annexed to the most recent International Telecommunication Convention which may be in force at any time.
Radio Watch	Listening on the appropriate Distress and Safety frequency for the type of installation on the vessel.
Silence Periods	Periods of 3 minutes beginning at each hour and at 30 minutes after each hour of each day, reckoned according to Coordinated Universal Time.
VHF Radiotelephone Distress and calling Frequency	The frequency of 156.800 MHz (VHF channel 16).

PART 2 - UNRESTRICTED OPERATIONS

4. Application

4.1 This part applies to

- Class 1A and 1B vessels, and;
- Class 2A, 2B, 3A and 3B vessels of 300 tons gross tonnage and over.

¹ For the purposes of this part, a Maritime Communications Station or Limited Coast Station is a station which maintains a continuous manned loudspeaker watch on the VHF marine distress and calling frequency of 156.8 MHz (channel 16).

5. Provision of radio installation

- 5.1 Vessels referred to in 4.1 shall comply with the provisions of Marine Orders Part 26, issue 3 or Marine Orders Part 27, issue 1 as appropriate.
- 5.2 The Authority may consider applications for exemptions from compliance with any of the provisions of this Part, providing that such exemptions are not inconsistent with the requirements of the 1988 amendments to the International Safety of life at Sea Convention 1974.

PART 3 - RESTRICTED OPERATIONS

6. Application

- 6.1 This part applies to:
Class 1C vessels
Class 2A, 2B, 3A and 3B vessels of less than 300 tons gross tonnage
Class 2C vessels
Class 3C vessels
- 6.2 Class 1D, 1E, 2D, 2E, 3D, and 3E vessels shall be equipped with a radio installation as required by the Authority.

7. Provision of Radio Installation

- 7.1 Each vessel shall be equipped with a VHF radio installation and a source of electrical energy that comply with the requirements of Appendix B and Appendix C to this Section.
- 7.2 In addition to the VHF equipment required by 7.1, each vessel of Class A, B or C to which this part applies shall be equipped with an MF/HF radio installation and a source of electrical energy that comply with the requirements of Appendices A and C of this Section when operating beyond 20 nautical miles of a Maritime Communications Station or Limited Coast Station.
- 7.3 Each vessel shall be equipped with an approved EPIRB which meets the requirements detailed in Ministerial Standard 241, as published by the Spectrum Management Agency (SMA).
- 7.4 Each vessel equipped with an approved EPIRB shall mount the EPIRB in a readily accessible position, preferably near to where the vessel is normally navigated.

8. Exemptions

- 8.1 The Authority may consider applications for exemptions from compliance with any of the provisions of this Part.
- 8.2 The Authority may grant total exemption to vessels accompanied by another vessel equipped with a radio installation specifically approved by the Authority.

9. Documents

- 9.1 There shall be carried on board each vessel a copy of the latest edition of the '*Handbook for Radiotelephone Ship Station Operators (Restricted Certificate Standard)*' published by the SMA.
- 9.2 The deck log shall include details as to dates, times, frequencies and call signs with respect to;
- (a) all distress and urgency traffic in full, including actions taken by the Master in response to the message(s),
 - (b) any incidents connected with radio communications which appear to be of importance to the safety of life at sea, and
 - (c) communications relating to tests required by 12.

10. Qualifications of Operators

- 10.1 The radio station in each vessel must be operated by a person holding a Restricted Operator's Certificate of Proficiency in Radiotelephony (ROCP) or any certificate recognised by the SMA as appropriate for operation of the installation concerned.

11. Radio Watch

- 11.1 Except as provided otherwise in this clause a radio watch shall be maintained at all times while the vessel is at sea.

- 11.2 Where MF/HF equipment is fitted in accordance with the provisions of 7.2, the watch referred to in 11.1 shall be maintained with the nearest Maritime Communications Station on the most appropriate MF/HF radiotelephone distress and safety frequency or frequencies, having due regard to prevailing radio conditions and the position of the vessel at the time.
- 11.3 The watch referred to in 11.1 and 11.2 may, except at the silence periods, be suspended, under the following circumstances;
- 11.3.1 whilst exchanging communications with a Maritime Communications Station, Limited Coast Station or other ship stations; or
- 11.3.2 when conditions are such that in the opinion of the Master such watch would interfere with the safe navigation or safe working of the vessel.
- 11.4 A radio watch shall be maintained on the VHF distress and safety frequency 156.8 MHz whilst a vessel is at sea unless
- (a) the equipment is being used on another frequency for the business or safe navigation of the vessel,
 - (b) a watch is being maintained on another frequency prescribed by a local pilotage, or
 - (c) harbour authority,
- or the maintenance of the watch would interfere with the safe navigation of the vessel.

12. Tests

- 12.1 The Master of a vessel equipped with a radio installation in accordance with this Section shall test that radio installation once daily when at sea by communicating the vessel's position to a Maritime Communications Station or Limited Coast Station and shall record the results in the log book referred to in 9.1.1.

APPENDIX A

MF/HF RADIOTELEPHONE INSTALLATION

A.1. Specification

- A.1.1 Radiotelephone equipment provided shall, in addition to meeting the requirements of A.2 and A.3, comply with the requirements of ECR 211B, dated October 1992, published by the Spectrum Management Agency.

Note: Equipment provided in accordance with A.2.1(c) and A.3.1(c) shall comply fully with the performance standards set out in Resolution A.806(19)¹, parts B, C and D, published by the International Maritime Organisation (IMO).

A.2 Transmitter

- A.2.1 The transmitter shall be capable of operation with:
- (a) Class H3E emission on the carrier frequency of 2182 kHz, and:
 - (b) Class J3E emission on the carrier frequencies of 2201 kHz, 4125 kHz, 4134 kHz, 6215 kHz, 6206 kHz, 8291 kHz, 8176 kHz, and optionally;
 - (c) Class F1B or J2B emission (Digital Selective Calling) on one or more of the assigned (centre) frequencies of 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz and 16804.5 kHz.
- A.2.2 The authority may also require the transmitter to provide for class J3E emission on the carrier frequencies of 12290 kHz, 12365 kHz and 16420 kHz if considered appropriate to the service in which the vessel is engaged.
- A.2.3 Where additional transmission frequencies are fitted beyond those required under A.2.1 and A.2.2, the correct functioning of these frequencies shall be verified as if they were required under A.2.2.

¹ A.806(19) Performance standards for shipborne MF/HF radio installations capable of voice communication, narrow-band direct-printing and digital selective calling.

A.3 Receiver

- A.3.1 The receiver shall be capable of operation with:
- (a) Class H3E and J3E emission on the carrier frequency of 2182 kHz, and;
 - (b) Class J3E emission on the carrier frequencies of 2201 kHz, 4125 kHz, 4426 kHz, 6215 kHz, 6507 kHz, 8291 kHz, 8176 kHz and optionally;
 - (c) Class F1B or J2B emission (Digital Selective Calling) on one or more of the assigned (centre) frequencies of 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz and 16804.5 kHz.
- A.3.2 The authority may also require the receiver to provide for operation with class J3E emission on the carrier frequencies of 12290 kHz, 12365 kHz and 16420 kHz if considered appropriate to the service in which the vessel is engaged.
- A.3.3 Where additional reception frequencies are fitted beyond those required under A.3.1 and A.3.2, the correct functioning of these frequencies shall be verified as if they were required under A.3.2.

APPENDIX B

VHF RADIOTELEPHONE INSTALLATION

B.1. Specification

- B.1.1 The equipment shall comply with the requirements for VHF FM Radiotelephone equipment as detailed in *Ministerial Standard 274*, published by the Spectrum Management Agency.

B.2 Transmitter and Receiver

- B.2.1 VHF equipment shall be capable of transmitting and receiving on the following VHF maritime mobile band frequencies:
- (a) the international distress and calling frequency 156.8 MHz (Channel 16),
 - (b) the supplementary safety frequency 156.375 MHz (Channel 67),
 - (c) the intership navigation safety frequency 156.650 MHz (Channel 13) and
 - (d) the air/sea search and rescue coordinating frequency 156.300 MHz (Channel 6).
- B.2.2 All equipment shall also be capable of transmitting and receiving on such other frequencies as are appropriate to the service in which the vessel is engaged.

APPENDIX C

SOURCE OF ELECTRICAL ENERGY

C.1 Source of energy

- C.1.1 There shall be a main source of electrical energy capable of operating the radio installation in the vessel.
- C.1.2 There shall be a reserve source of electrical energy capable of operating the radio installation in the vessel. It shall only be used for the operation of:
- (a) the VHF radio installation;
 - (b) the MF/HF radio installation (if fitted), and;
 - (c) the emergency light referred to in E.5 of this Section

- C.1.3 The reserve source of electrical energy shall be located in the upper part of the ship, outside of the engine room, and shall consist of a re-chargeable battery or set of re-chargeable batteries.

C.2 Capacity

- C.2.1 The battery or set of batteries referred to in C.1.3 shall be of such capacity and be so maintained at all times while the vessel is at sea as to be able to supply continuously for a period of six hours a total current equal to the sum of:

- (a) the current consumed by the emergency light referred to in E.5.1.3 of this Section, and;
- (b) one half of the current required to operate the VHF radiotelephone transmitter for the transmission of speech, with the transmitter operating at its full rated radio frequency output power, and;
- (c) the current required to operate the VHF radiotelephone receiver, and,
- (d) if the vessel carries an MF/HF installation, one half of the current required to operate the MF/HF radiotelephone transmitter for the transmission of speech, with the transmitter operating at its full rated radio frequency output power, and;
- (e) the current required to operate the MF/HF radiotelephone receiver.

C.3 Charging of Batteries

- C.3.1 Means shall be provided on the vessel for charging the batteries referred to in C.1.3.
- C.3.2 Each battery shall be capable of being fully charged by the means referred to in C.3.1 within a period of 16 hours.
- C.3.3 Means shall be provided for testing the charge condition of the batteries by:
 - (a) a voltmeter, fitted in view of the radio operating position, and;
 - (b) a hydrometer, carried on board the vessel.
- C.3.4 Where, in the opinion of the Authority, electrical generating devices in the vessel may cause damage to radio equipment through voltage fluctuations, the main source of energy shall consist of two battery banks situated in or adjacent to the wheelhouse.
- C.3.5 The means of charging and discharging each battery bank shall be through an interlocking isolating switch, which separates the battery on charge from the radio installation.
- C.3.6 Where the battery voltage differs from the radio voltage and a voltage converter is fitted, it is a requirement that the installation supply voltage is maintained in the event of voltage converter failure.

C.4 General

- C.4.1 The Master of a vessel equipped with a radio installation in accordance with this Section shall cause a sufficient supply of electrical energy to be available for testing the radio installation on the vessel at all reasonable times whilst in port.

APPENDIX D

ANTENNA SYSTEMS

D.1. Antenna

- D.1.1 All radio installations fitted to the vessel shall be provided with an efficient antenna system.
- D.1.2 Each antenna and antenna tuner shall be so placed and constructed that it;
 - (a) is adequately protected from mechanical damage;
 - (b) precludes danger to personnel as a result of accidental contact;
 - (c) does not interfere with the safe navigation or working of the vessel;
 - (d) is adequately protected from the adverse effects of salt water; and
 - (e) meets with the approval of the Authority.

D.2. Earth

- D.2.1 If the vessel is fitted with an MF/HF radio installation, an efficient radio frequency earth together with a suitable connection to the radio installation shall be provided and fitted as considered necessary by the Authority.

APPENDIX E
GENERAL REQUIREMENTS

E.1. Maintenance

E.1.1 All radio installations shall be so maintained that, while the vessel is at sea, the installation is at all times capable of fulfilling the requirements of this Section.

E.2. Interference

E.2.1 All radio installations shall be installed in such a position and manner, and other electrical equipment on the vessel shall be equipped with such devices that, while the vessel is at sea, effective reception of radio signals is not hindered by interference caused by electrical or other equipment on the vessel in accordance with BS1597:1985, "*Interference Generated by Marine Installations*".

E.3. Location

E.3.1 The radio installation shall, to the satisfaction of the Surveyor;

- (a) be installed in the vessel in a satisfactory manner and in as high a position as is practicable; and;
- (b) be protected against the harmful effects of moisture and extremes of temperature.

E.3.2 The radio installation shall, to the satisfaction of an officer appointed by the Authority for that purpose, be installed in such a place that it will not affect any of the vessel's compasses or other navigational equipment.

E.4. New Installations

E.4.1 Before commencing to install a radio installation in a vessel the owner or proposed owner thereof shall give early notice in writing to the Authority of the proposed radio installation, its siting and associated wiring.

E.5. Miscellaneous Provisions

E.5.1 A vessel shall have the following equipment fitted, in a manner approved by the Surveyor, in the immediate vicinity of the radio installation;

- (a) a reliable clock visible to the operator; marked with the radiotelephone silence periods, and;
- (b) a suitable card which explains in simple terms the use of the equipment to an unskilled person for use in an emergency; and
- (c) an emergency electric light capable of illuminating the installation controls, the clock referred to in E.5.1(a) and the card referred to in E.5.1(b), and capable of being controlled both from the installation and every entrance to the space in which the installation is fitted.

E.5.2 If the installation is not fitted in the place from which the vessel is normally navigated a loud speaker shall be installed in such place which has a gain control which, when adjusted to its minimum position, permits an output from the loud speaker of sufficient volume for the maintenance of an effective listening watch.

E.5.3 Protection shall be provided from accidental access to all parts and wiring of the installations which at any time are at an instantaneous voltage (other than radio frequency voltage) of greater than 40 volts under normal conditions of operation.

E.6. Spare Components

E.6.1 Spare components commensurate with the radio installation shall be carried on board and shall include;

- (a) four of each type of fuse used in the installation, and;
- (b) one globe for the electric light referred to in E.5.1.(c).

(Amendment dated 23 August 1996)