

Australian Transport Advisory Council

Uniform Shipping Laws Code

Section 12: Radio Equipment

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COMMONWEALTH OF AUSTRALIA
ORDER UNDER SECTION 427 OF NAVIGATION ACT 1912

I, PAUL BARCROFT ECCLES, delegate of the Minister for Transport and Communications, pursuant to section 427 of the Navigation Act 1912, hereby declare that the provisions annexed to this order are the provisions of Section 12 of the Uniform Shipping Laws Code as in existence on the date of this Order.

Dated this 4th day of September 1989.

A handwritten signature in black ink, appearing to read 'P. B. Eccles', written over a horizontal line.

P. B. ECCLES
FIRST ASSISTANT SECRETARY
MARITIME OPERATIONS DIVISION

This Section has been prepared in consultation with the Commonwealth Department of Transport and Communications, taking into account the requirements of the following, where applicable:

- (1) International Telecommunication Convention
- (2) International Telecommunication Union Radio Regulations
- (3) Safety of Life at Sea Convention 1974 (SOLAS 74)
- (4) *Navigation Act 1912*
- (5) *Radiocommunications Act 1983*

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1. This Section is divided into Parts as follows:

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Part 2	Radiotelegraphy (Clauses 5-6)
Part 3	Radiotelephony 1 (Clauses 7-8)
Part 4	Radiotelephony 2 (Clauses 9-22)
Part 5	Appendices

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
Coast Station (abbrev: CS)	a land station in the maritime mobile service open for public correspondence
Frequency Bands	The frequency bands referred to in this Section are: Medium Frequency (MF), 300-3000 kHz High Frequency (HF), 3000-30,000 kHz (3-30 MHz) Very High Frequency (VHF), 30,000-300,000 kHz (30-300 MHz)
Limited Coast Station (abbrev: LCS)	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
Radio Installation	all radiocommunication and ancillary equipment required by this Section
Radio Surveyor	a person appointed by the Authority to be a radio surveyor
Radiotelegraphy	a system of radiocommunication for the transmission of written matter by the use of a signal code
MF Radiotelephone Distress Frequency	the frequency of 2182 kHz.
Radiotelephone Operator	a person holding an appropriate certificate complying with the provisions of the Radio Regulations
Radiotelephony	a system of radiocommunication set up for the transmission of speech or, in some cases, other sounds

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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 Frequency for the type of installation on the vessel
Silence Periods	for vessels to which Part 3 or Part 4 applies, periods of 3 minutes beginning at each hour and at 30 minutes after each hour of each day, reckoned according to Coordinated Universal Time.
Supplementary HF Radiotelephone Distress and Calling Frequency/ies	the frequency/ies of 4125 kHz and/or 6215.5 kHz
VHF Radiotelephone Distress and Calling Frequency	the frequency of 156.8 MHz.

4. In this Section:

4.1 Class H3E emission means single sideband amplitude modulated radiotelephony, having a carrier emitted at a level not more than 6 decibels below the peak envelope power.

4.2 Class J3E emission means single sideband amplitude modulated suppressed carrier radiotelephony having a carrier restricted to a power level 40 decibels or more below the peak envelope power.

PART 2—RADIOTELEGRAPHY

5. Application

5.1 This Part applies to Class 1A vessels, and Class 2A vessels of 1600 tons and over.

6. Provision of Radio Installation

6.1 Vessels referred to in 5.1 shall comply with the provisions of Marine Orders Part 26.

6.2 Class 2A vessels of 300 tons and over but less than 1600 tons may comply with this Part.

PART 3—RADIOTELEPHONY 1

7. Application

7.1 This Part applies to Class 2A vessels less than 1600 tons.

8. Provision of Radio Installation

8.1 Vessels referred to in 7.1 shall comply with relevant provisions of Marine Orders Part 26.

PART 4—RADIOTELEPHONY 2

9. Application

9.1 This Part applies to:

Class 1B, 1C and 1D vessels;

Class 2B, 2C and such vessels of Class 2D as the Authority determines; and

Class 3A, 3B and such vessels of Classes 3C and 3D as the Authority determines.

10. Provision of Radio Installation

10.1 Each vessel subject to this Part shall be equipped with a radiotelephone installation comprising a transmitter together with a separate or combined receiver, a radiation system and a main and reserve source of electrical energy that comply with the detailed requirements of the Appendices indicated in the following table:

<i>Type of vessel</i>	<i>Appendix</i>
3A	A
1B, 1C and 1D	
2B, 2C and 2D*	A
3B, 3C* and 3D*	
When operating <i>not</i> exclusively within 20 miles of a CS or LCS which maintains continuous watch on a frequency of 156.8 MHz.	
1B, 1C and 1D	
2B, 2C and 2D*	B (Optionally A)
3B, 3C* and 3D*	
When operating exclusively within 20 miles of a CS or LCS which maintains continuous watch on a frequency of 156.8 MHz.	

* Applicable to such vessels as the Authority determines for classes 2D, 3C, 3D. (See Clause 9.)

10.2 In addition, Class 3A vessels shall be fitted with an Alarm Signal Generating Device complying with the specification published by the Commonwealth Department of Transport and Communications as DOC 239.

11. Type of Radio Installation

11.1 The installations that are provided pursuant to 10 shall comply with the requirements of the Appendices in Part 5 of this Section.

11.2 VHF equipment carried as an additional installation which provides for operation on the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service 156.80 MHz (Channel 16) shall comply with the provisions of Appendix B.

11.3 All installations listed in 10 are subject to the approval of the Authority and shall comply with the standards detailed in the Appendices in Part 5 of this Section.

12. Exemptions

12.1 The Authority may consider applications for exemptions from compliance with any of the provisions of this Part.

12.2 The Authority may grant total exemption to the following types of vessels:

- 12.2.1 open vessels or vessels where it is impractical to instal and maintain a radio installation;
- 12.2.2 vessels on voyages of not more than 35 nautical miles either side of a specified port or place and not more than 5 nautical miles offshore; and
- 12.2.3 vessels in company with an approved radio equipped vessel.

13. Maintenance

13.1 The radiotelephone installation shall be maintained so that, while the vessel is at sea, the radiotelephone installation is at all times capable of fulfilling the requirements of this Part.

14. Interference

14.1 The radiotelephone installation 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.

15. Location

- 15.1 The radiotelephone installation shall, to the satisfaction of the Radio Surveyor:
 - 15.1.1 be installed in the vessel in a satisfactory manner and in as high a position as is practicable; and

15.1.2 be protected against the harmful effects of salt water and extremes of temperature.

15.2 The radiotelephone 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.

16. New Installations

16.1 Before commencing to instal a radio installation in a vessel the owner or proposed owner thereof shall give early notice in writing pursuant to this Part to the Authority of the proposed radio installation, its siting and adjacent wiring.

16.2 Upon receiving any such notice, an officer appointed by the Authority in conjunction with a Radio Surveyor shall give to the owner or proposed owner such advice as is necessary to ensure compliance with the requirements of 15.

17. Documents

17.1 There shall be carried on board each vessel to which this Part applies:

17.1.1 a log book in which shall be entered details as to dates, times, frequencies and callsigns with respect to:

- (a) communications relating to tests required by 22; and
- (b) all distress calls together with the name and position of the vessel in distress and nature of the distress and the action taken.

17.1.2 A copy of the latest edition of the 'Handbook for Radiotelephone Ship Station Operators' published by the Commonwealth Department of Transport and Communications.

17.2 The log book referred to above shall be retained for a period of 12 months after the date on which the latest entry is made.

18. Miscellaneous Provisions

18.1 A vessel subject to the provisions of this Part shall have the following equipment fitted, in a manner approved by the Radio Surveyor, in the immediate vicinity of the radio installation:

18.1.1 a reliable clock visible to the operator;

18.1.2 in the immediate vicinity of the radio a suitable card which explains in simple terms the use of the equipment to an unskilled person for use in an emergency; and

18.1.3 an emergency electric light capable of illuminating the installation controls, the clock and the card referred to above, and capable of being controlled both from the installation and every entrance to the space in which the installation is fitted.

18.2 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.

18.3 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 over 50 volts under normal conditions of operation.

19. Spare Components

19.1 For vessels of Class 1B and 2B, spare components commensurate with the radio installation shall be carried on board and shall include:

19.1.1 In the case of a vessel not fitted with a reserve antenna, a spare antenna of such dimensions and design that it is electrically similar to the antenna used in the radiation system required by 10.1, and capable of being rapidly assembled and erected;

19.1.2 one of each type of valve used in the installation;

19.1.3 four of each type of fuse used in the installation; and

19.1.4 one globe for the electric light referred to in 18.1.3.

20. Qualification of Operators

20.1 The radiotelephone station in each vessel must be operated by a person holding a Radiotelephone Operator's Restricted Certificate of Proficiency or equivalent, or any certificate recognised by the Commonwealth Department of Transport and Communications as appropriate for operation of the installation concerned.

21. Radio Watch

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

21.2 The watch referred to in 21.1 shall be maintained on 2182 kHz unless the Master, having due regard to prevailing radio conditions and the position of the ship at the time, considers such action inadvisable and causes the watch to be maintained on 4125 kHz or 6215.5 kHz.

21.3 The watch referred to in 21.1 may, except at the silence periods, be suspended:

21.3.1 whilst exchanging communications with coast, limited coast or other ship stations; and

21.3.2 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.

21.4 The watch referred to in 21.1 may be suspended whilst a vessel is at anchor.

21.5 Radio watch may be maintained by means of loud speaker reception at the place from which the vessel is navigated.

21.6 A radio watch shall be maintained on 156.8 MHz whilst a vessel fitted with VHF is at sea unless the equipment is being used on another frequency for the business or safe navigation of the vessel, watch is being maintained on another frequency prescribed by a local pilotage or harbour authority, or the maintenance of the watch would interfere with the safe navigation of the vessel.

22. Tests

22.1 A radiotelephone operator shall test a radio installation once daily when at sea by communicating the vessel's position to a coast station or limited coast station and shall record the results in the log book referred to in 17.1.1.

PART 5—TYPES OF RADIO INSTALLATIONS

APPENDIX A

MF/HF RADIOTELEPHONE INSTALLATION—RADIO TELEPHONY 2

Division 1—Main Installation

1. Specification

1.1 The equipment shall comply with the specification published by the Commonwealth Department of Transport and Communications for MF/HF Radiotelephone equipment—DOC 211B.

2. Transmitter

2.1 The transmitter shall be capable of transmission on frequencies using the types of emission listed below:

<i>Carrier frequencies (kHz)</i>	<i>Emission Class</i>
2182	2.8H3E
4125	2.8J3E
6215.5	2.8J3E

and may also provide for operation on such other frequencies as are appropriate to the service in which the vessel is engaged.

2.2 The total unmodulated output carrier power of any transmitter referred to in 2.1 shall in no case be less than 15 watts on the frequency of 2182 kHz.

3. Receiver

3.1 The receiver shall be capable of effective reception on the frequencies using the types of emission listed below:

<i>Frequencies</i>	<i>Type of Emission</i>
2182 kHz	2.8A3H
4125 kHz	2.8A3H & 2.8A3J
6215.5 kHz	2.8A3H & 2.8A3J

and may also provide for reception of such other frequencies as are appropriate to the service in which the vessel is engaged.

Division 2—Sources of Electrical Energy**4. Main Source**

4.1 There shall be a source of electrical energy capable of operating the main radiotelephone installation in the vessel.

4.2 When the main source of electrical energy meets the requirements of the reserve source, as specified in the following items, the main and reserve sources of energy may be combined.

5. Reserve Source

5.1 The reserve source of electrical energy 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:

5.1.1 one half of the current required to operate the MF/HF radiotelephone transmitter for the transmission of speech;

5.1.2 the current required to operate the radiotelephone MF/HF receiver; and

5.1.3 the current consumed by the electrical lamp referred to in 18.1.3 of Part 4 of this Section.

6. Batteries

6.1 Batteries provided as a source of electrical energy for any part of the radiotelephone installation shall be of the rechargeable type.

6.2 Batteries shall be placed and housed to the satisfaction of the Authority.

6.3 If the supply of electrical energy is derived wholly or in part from a battery or set of batteries means shall be provided on the vessel for charging the batteries, and preventing discharge of the battery or set of batteries other than by equipment listed in 5.1.

6.4 Each battery shall be capable of being fully charged by the means referred to in 6.3 within a period of 16 hours.

6.5 Means shall be provided for testing the charge condition of the batteries.

6.6 If the batteries provided are not solely for the use of the MF/HF radiotelephone installation means shall be provided at the installation for readily isolating all other loads in an emergency and the battery, as well as being capable of meeting the requirements set forth in 5.1 shall be capable of sustaining all other loads to which it is connected for such time as required by the Authority.

6.7 Where, in the opinion of the Authority, electrical generating devices in the vessel may cause damage to radio equipment through voltage fluctuations, the source of energy shall consist of two banks of batteries situated in or adjacent to the wheelhouse. The means of charging and discharging the batteries shall be through an interlocking isolating switch, which separates the battery on charge from the radio installation.

7. General

7.1 The master of a radiotelephone vessel shall cause a sufficient supply of electrical energy to be available for testing the radiotelephone installation on the vessel at all reasonable times whilst in port.

Division 3—Radiation System**8. Antenna**

- 8.1 The antenna of the radiating system shall be of such type and dimensions and be so erected and insulated as to secure efficient radiation.
- 8.2 The antenna shall be so placed and constructed that it:
- 8.2.1 is adequately protected from mechanical damage;
 - 8.2.2 precludes danger to personnel as a result of accidental contact;
 - 8.2.3 does not interfere with the safe navigation or working of the vessel; and
 - 8.2.4 is adequately protected from the adverse effects of salt water.

9. Earth

- 9.1 An efficient radio frequency earth together with a suitable connection to the radiotelephone installation shall be provided and fitted as considered necessary by the Authority.

APPENDIX B**VHF FREQUENCY MODULATED RADIOTELEPHONE INSTALLATIONS****Division 1—Main Installation****1. Specification**

- 1.1 The equipment shall comply with the requirements for ship station installations in Department of Transport and Communications specification for VHF FM Radiotelephone equipment DOC 274.

2. Transmitter and Receiver

- 2.1 VHF equipment shall be capable of transmitting and receiving on the following VHF maritime mobile band frequencies:
- 2.1.1 the international distress and calling frequency 156.8 MHz (Channel 16); and
 - 2.1.2 the supplementary safety frequency 156.375 MHz (Channel 67).
- 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.

Division 2—Sources of Electrical Energy**3. Main Source**

- 3.1 There shall be a source of electrical energy capable of operating the main radiotelephone installation in the vessel.
- 3.2 When the main source of electrical energy meets the requirements of the reserve source, as specified in the following items, the main and reserve sources of energy may be combined.

4. Reserve Source

- 4.1 The reserve source of electrical energy 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:
- 4.1.1 one half of the current required to operate the VHF radiotelephone transmitter for the transmission of speech;
 - 4.1.2 the current required to operate the VHF radiotelephone receiver; and
 - 4.1.3 the current consumed by the electric light referred to in 18.1.3 of Part 4 of this Section.

5. Batteries

- 5.1 Batteries provided as a source of the electrical energy for any part of the radiotelephone installation shall be of the rechargeable type.
- 5.2 Batteries shall be placed and housed to the satisfaction of the Authority.

5.3 If the supply of electrical energy is derived wholly or in part from a battery or set of batteries means shall be provided on the vessel for charging the batteries, and preventing discharge of the battery or set of batteries other than by equipment listed in 4.1.

5.4 Each battery shall be capable of being fully charged by the means referred to in 5.3 within a period of 16 hours.

5.5 Means shall be provided for testing the charge condition of the batteries.

5.6 If the batteries provided are not solely for the use of the VHF radiotelephone installation means shall be provided at the installation for readily isolating all other loads in an emergency and the battery, as well as being capable of meeting the requirements set forth in 4.1 shall be capable of sustaining all other loads to which it is connected for such time as required by the Authority.

5.7 Where, in the opinion of the Authority, electrical generating devices in the vessel may cause damage to radio equipment through voltage fluctuations, the source of energy shall consist of two banks of batteries situated in or adjacent to the wheelhouse. The means of charging and discharging the batteries shall be through an interlocking isolating switch, which separates the battery on charge from the radio installation.

6. General

6.1 The master of a vessel carrying a VHF radiotelephone shall cause a sufficient supply of electrical energy to be available for testing the VHF radiotelephone installation on the vessel at all reasonable times whilst in port.

Divison 3—Radiation System

7. Antenna

7.1 The antenna of the radiating system shall be of such type and dimensions and be so erected and insulated as to secure efficient radiation.

7.2 The antenna shall be so placed and constructed that it:

7.2.1 is adequately protected from mechanical damage;

7.2.2 precludes danger to personnel as a result of accidental contact;

7.2.3 does not interfere with the safe navigation or working of the vessel; and

7.2.4 is adequately protected from the adverse effects of salt water.

7.3 The antenna installation shall be of vertical polarization.

7.4 The product of the antenna gain (with reference to an isotropic radiator) and the power of the transmitter measured at the point of connection to the antenna terminal shall not exceed 41 watts Effective Isotropic Radiated Power.