Maritime Rules

Part 43: Radio

MNZ Consolidation

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Part objective

Part 43 prescribes requirements applying to shipborne radio installations and the performance standards that shipborne radio equipment must meet. The requirements include survey and inspection provisions, maintenance of a continuous radio watch, the installation, maintenance and testing of radio equipment, keeping of records of important radio messages and the qualifications to be held by radio operators.

Part 43 does not prescribe the radio equipment to be carried by ships. These requirements are found in the Part 40 series of maritime rules dealing with the design, construction and equipment of ships.

The requirements of Part 43 provide for a standard of radio communication for New Zealand ships and foreign ships within New Zealand waters that will ensure—

- an appropriate response to ships in distress; and
- that ships receive safety information promulgated from the shore.

For larger ships and ships going offshore, the requirements and performance standards are consistent with the global maritime distress and safety system (GMDSS) required by the International Safety of Life at Sea (SOLAS) convention, to which New Zealand has been party since 1989. Requirements for smaller ships are appropriate for the radio coverage within their restricted operating areas.

Part 43, together with the radio equipment provisions of Parts 40A, 40B, 40C, 40D, 40E and 40F, supercedes the requirements of the Shipping (Radio) Regulations 1989 and 1994.

Authority for making Part 43 is found in section 36(1)(b), (1)(f), (1)(k), (1)(o) and (1)(t) of the Maritime Transport Act 1994.

Maritime Rules are subject to the Regulations (Disallowance) Act 1989. Under that Act the rules are required to be tabled in the House of Representatives. The House of Representatives may, by resolution, disallow any rules. The Regulations Review Committee is the select committee responsible for considering rules under this Act.

History of Part 43

Part 43 first came into force on 1 February 2001 and now incorporates the following amendments:

Amendment	Effective date
Amendment 1	27 May 2004
Amendment 2	23 November 2006
Amendment 3	4 September 2008
Amendment 4	1 April 2011
Amendment 5	1 April 2014
Amendment 6	1 July 2014
Amendment 7	1 January 2015
Amendment 8	1 April 2015
Amendment 9	1 July 2016
Amendment 10	1 November 2016
Amendment 11	15 March 2018
Amendment 12	13 December 2019

Summary of amendments

Amendment 1

Maritime Amendments Parts 20-90	PO, Appendix 3: Table

Amendment 2

Maritime (EPIRBS) Amendment Rules 2006	43.18A

Amendment 3

Maritime (Various Amendments) Rules 2008 (Parts 20-91)	43.12(1)(b), 43.14(c), Appendix 3

Amendment 4

Maritime Rules Various Amendments 2011	43.2, 43.12(4), Appendix 3: Clause (v)

Amendment 5

Parts 20, 31, 32, 34 and 35: Consequential Amendments	43.2, 43.5

Amendment 6

Parts 19 and 44: Consequential Amendments	43.2, 43.6, 43.7, 43.11

Amendment 7

Maritime Rules Various Amendments 2015	43.2, 43.4(2)(a)(ii), 43.12(1)(b), 43.13, 43.15, 43.16, 43.17, 43.21, 43.22, 43.23(1), 43.23(2), 43.24, 43.25, 43.26, 43.27, 43.28

Amendment 8

Maritime Rules Various Amendments 2015	43.14(c), 43.18(b), 43.18(d)

Amendment 9

Various SOLAS-related Amendments 2016	43.2, 43.24, 43.25

Amendment 10

Maritime Rules Various Amendments 2016	43.4, 43.12, 43.14

Amendment 11	
Maritime Rules Part 40 Series Amendments 2017	43.2, New Rule: 43.22A
Amendment 12	
Maritime Rules Various Amendments 2019	43.6, 43.19, 43.20, 43.22A

All signed rules can be found on our website:
https://www.maritimenz.govt.nz/Rules/

Contents

General

43.1 Entry into force

Part 43 shall come into force on 1 February 2001.

43.2 Definitions

In this Part:

Act means the Maritime Transport Act 1994:

AIS means Automatic Identification System:

AIS-SART means AIS Search And Rescue Transmitter:

Certificate of Surveyor Recognition—

(a) has the same meaning as in Part 44; and

(b) includes any document that is deemed under Part 44 to be a valid Certificate of Surveyor Recognition:

coastal limits has the same meaning as in Part 20:

continuous radio watch means a radio watch that is not interrupted other than—

(a) for brief intervals when the ship's receiving capability is impaired; or

(b) when the radio installation is under periodic maintenance or tests; or

(c) in the case of a radio telephony watch on VHF or MF/HF, when the receiver is being used to obtain vital information on other channels or frequencies:

current, in relation to a document means that it is valid, has not expired, and, in the case of a maritime document, has not been suspended or revoked by the Director:

Director means the person who is for the time being the Director of Maritime Safety under section 439 of the Maritime Transport Act 1994:

direct-printing telegraphy means automated telegraphy techniques that comply with the relevant recommendations of the International Telecommunication Union:

DSC means Digital Selective Calling, being a technique using digital codes, which enables a radio station to establish contact with another station or group of stations:

EGC means Enhanced Group Calling, and in relation to enhanced group calling equipment, means equipment used to store and print out information received by the ship via the INMARSAT system:

enclosed water limits has the same meaning as in Part 20:

EPIRB means Emergency Position Indicating Radio Beacon, being a transmitting station in the mobile service, the emissions of which are intended to facilitate search and rescue operations:

fishing ship means any ship that is required to be registered under section 57 of the Fisheries Act 1983 or section 103 of the Fisheries Act 1996 or recognised by the Director as being engaged in fisheries research:

foreign ship means a ship which is not a New Zealand ship:

GMDSS means Global Maritime Distress and Safety System:

GMDSS ship means any ship that is—

(a) a ship, other than a fishing ship, of 45 metres or more in length which proceeds beyond restricted limits; or

(b) a non-passenger ship of 300 gross tonnage or more which proceeds beyond the offshore limit; or

(c) a passenger ship which proceeds beyond the offshore limit; or

(d) a fishing ship which proceeds beyond the offshore limit:

HF means high frequency, being the frequency spectrum between 3000 kHz and 30 MHz:

IMO Resolution A.664(16) means the resolution adopted by the International Maritime Organization Assembly, titled *Performance Standards for Enhanced Group Call Equipment*:

IMO Resolution MSC.306(87) means the resolution adopted by the International Maritime Organization Assembly, titled *Revised Performance Standards for Enhanced Group Call (EGC) Equipment*:

IMO Resolution A.762(18) means the resolution adopted by the International Maritime Organization Assembly, titled *Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus*:

IMO Resolution A.809(19) means the resolution adopted by the International Maritime Organization Assembly, titled *Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus*:

IMO Resolution MSC.149(77) means the resolution adopted by the International Maritime Organization Assembly, titled *Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus*:

INMARSAT means the organisation established by the Convention on the International Maritime Satellite Organization (INMARSAT) adopted on the 3rd day of September 1976:

inshore limits has the same meaning as in Part 20:

Integrated Radio Communication System (IRCS) means a system in which individual radio communication equipment and installations are used as sensors, that is, without the need for their own control units, providing outputs to and accepting inputs from the operator's position (workstation)[1]:

international voyage means a voyage to or from a port outside of New Zealand:

ITU means the International Telecommunication Union:

ITU Radio Regulations means the ITU Radio Regulations as adopted by the World Administrative Radio Conference, Geneva, 1979, as well as the revisions and resolutions adopted by subsequent Conferences of the ITU, and published under the authority of the Secretary-General of the ITU:

maintenance means any activity intended to keep a radio installation in satisfactory working condition; and includes tests, measurements, replacements, adjustments and repair:

maritime transport operator safety system has the same meaning as in Part 19:

maritime safety information (MSI) means navigational and meteorological warnings, meteorological forecasts, and other urgent safety-related messages broadcast to ships:

Maritime Transport Operator Plan—

(a) means a plan required by rule 19.61; or

[1] Under SOLAS, such workstations are called 'GMDSS workstations' if they – (a) provide for control and monitoring of all equipment and installations provided for the GMDSS on a ship; and (b) are also suitable for general radio communications.

(b) for a ship operating under rule 19.81(3), the equivalent requirements under the New Zealand Safe Ship Management Code that applied prior to the revocation of section 2 of Part 21 by Part 19:

MF means medium frequency, being the frequency spectrum between 300kHz and 3000kHz:

mile means a standard nautical mile:

NAVTEX means the international service of co-ordinated broadcast and automatic reception on 518kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language:

new ship means a ship built on or after the date Part 43 comes into force:

New Zealand ship means a ship that is registered under the Ship Registration Act 1992; and includes a ship that is not registered under that Act but is required or entitled to be registered under that Act:

Non-GMDSS ship means a—

(a) a restricted limits ship; or

(b) a non-passenger ship of less than 45 metres in length that proceeds beyond restricted limits but is not a ship of 300 gross tonnage or more that proceeds beyond the offshore limit; or

(c) a passenger ship of less than 45 metres in length that does not proceed beyond the offshore limit; or

(d) a fishing ship that does not proceed beyond the offshore limit:

non-passenger ship means a ship which is not a passenger ship:

offshore limits has the same meaning as in Part 20:

Part means a group of rules made under the Maritime Transport Act 1994:

passenger means any person carried on a ship, other than—

(a) the master and members of the crew, and any other person employed or engaged in any capacity on board the ship on the business of the ship:

(b) a person on board the ship either in pursuance of an obligation laid upon the master to carry shipwrecked, distressed, or other persons, or by reason of any circumstance that neither the master nor the owner nor the charterer (if any) could have prevented or forestalled:

(c) a child under the age of 1 year:

passenger ship means a ship which carries more than 12 passengers on a voyage beyond restricted limits, or any passengers on a voyage within restricted limits:

radar transponder means a survival craft radar transponder used to assist search and rescue between ships or aircraft and survival craft:

radio installation means any radio installation required by maritime rules to be provided on board a ship, including its associated antennas, interconnecting circuits and where appropriate, sources of electrical energy:

radio log means the record that rule 43.11 requires to be kept:

restricted limits has the same meaning as in Part 20:

restricted limits ship means a ship which does not proceed beyond restricted limits.

rules includes maritime rules and marine protection rules:

safe ship management system means a safe ship management system approved by the Director as complying with the requirements of section 2 of Part 21 as in force prior to the revocation of that section by Part 19 of the maritime rules:

silence period means a period of 3 minutes beginning at each hour and at 30 minutes after each hour of each day, reckoned according to Coordinated Universal Time, during which no transmission other than for distress may be made, on the frequency of 2182kHz:

SOLAS means the International Convention for the Safety of Life at Sea 1974:

STCW means International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended:

surveyor means a person who holds a current Certificate of Surveyor Recognition under Part 44:

VHF means very high frequency, being the frequency spectrum between 30 MHz and 300 MHz:

VHF coverage means the VHF maritime coverage areas shown in Appendix 3.

43.3 Application

(1) This Part applies to every New Zealand ship that is required by any rule in Part 40A, 40B, 40C, 40D, 40E or 40F of the maritime rules to carry radio communication equipment.

(2) Rule 43.5(6) applies to the following ships while they are at a New Zealand port or offshore terminal—

(a) a foreign passenger ship; and

(b) a foreign non-passenger ship of 300 gross tonnage or more.

(3) This Part does not apply to—

(a) any pleasure vessel; or

(b) any ship of the New Zealand Defence Force.

Radio watch

43.4 Radio watch

(1) The master of any ship must ensure that a continuous radio watch is maintained while the ship is at sea. The watch must be kept at the position from which the ship is normally navigated.

(2) The continuous watch required by rule 43.4(1) must be maintained—

(a) for every ship not undertaking an international voyage and which maritime rules require to be fitted with a VHF radio—

(i) except as provided in paragraph (ii), on channel 16 using radio telephony;

(ii) on channel 60 or 62 using radiotelephony, if the ship is based on the Chatham Islands and operating within the Chatham Islands VHF coverage area[2].

(b) for every ship undertaking an international voyage which maritime rules require to be fitted with a VHF radio, on channel 70 using DSC[3] and channel 16 using radiotelephony.

(c) for every non-GMDSS ship which maritime rules require to be fitted with an MF/HF radio, on such distress and safety frequencies for radiotelephony as may be appropriate for the time of day and the geographical location of the ship in relation to a New Zealand HF coast radio station.

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[2] It is recommended that Chatham Island based ships maintain a dual radio watch on channels 16 and 60/62 to monitor ships using channel 16 for emergency purposes.

[3] Note that New Zealand shore stations do not support DSC.

(d) for every GMDSS ship which is required to be fitted with an MF/HF radio—

(i) on the distress and safety DSC frequencies 2187.5 kHz and 8414.5 kHz, and

(ii) on at least one of the distress and safety DSC frequencies 4207.5 kHz, 6312 kHz, 12577 kHz or 16804.5 kHz, as may be appropriate to the time of day and the geographical position of the ship.

(e) for every GMDSS ship that maritime rules require to be fitted with an INMARSAT ship earth station, for satellite shore-to-ship distress alerts.

(3) The master of any ship must ensure that, while at sea, a radio watch is maintained for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is operating.

Personnel

43.5 Radio personnel

New Zealand ships

(1) The owner and master of a ship must ensure that, when at sea, the ship has on board a person or persons qualified in accordance with this rule for distress and safety radio communication purposes. The master must designate one such person as having primary responsibility for radio communications during distress incidents.

(2) On every ship which is required by maritime rules to be provided with a VHF radio only, and which—

(a) does not proceed beyond restricted limits; and

(b) does not carry more than 6 persons;

the person operating the VHF radio must hold, as a minimum qualification, a valid Marine VHF Operator's Qualification issued by or on behalf of the Secretary of Commerce.

(3) On every ship which is required by maritime rules to be provided with a VHF radio only, and to which rule 43.5(2) does not apply, the person operating the VHF radio must hold, as a minimum qualification, a valid Restricted Radiotelephone Operator's Certificate issued by or on behalf of the Secretary of Commerce.

(4) On every non-GMDSS ship which is required by maritime rules to be provided with an MF/HF radio installation, the person operating any of the radio equipment must hold, as a minimum qualification, a valid Radiotelephone Operator's General Certificate issued by or on behalf of the Secretary of Commerce.

This requirement does not apply to the holder of a Restricted Radiotelephone Operator's Certificate that was issued by or on behalf of the Secretary of Commerce before 1 May 1994, until 1 February 2003.

(5) On every GMDSS ship, the person operating any of the radio equipment required by Parts 40B, 40C, 40D and 40E, as may be applicable to that ship, must hold, as a minimum qualification, a valid General Operator's Certificate issued by or on behalf of the Secretary of Commerce and where STCW applies to that ship—

(a) a valid GMDSS radio operator's certificate issued by the Director in accordance with rules 32.12 and 32.114 of Part 32; and

(b) where the person's shipboard duties are only in respect of the radio equipment a valid radio officer certificate issued by the Director in accordance with rules 32.12 and 32.116 of Part 32.

Foreign ships

(6) The person operating any of the radio equipment on any foreign passenger ship or any foreign non-passenger ship of 300 gross tonnage or more while the ship is at a New Zealand port or offshore terminal must hold, as a minimum qualification, a valid—

(a) GMDSS radio operator's certificate issued in accordance with Chapter IV of STCW or

(b) General Operator's Certificate which is acceptable to the Director under section 42 of the Act or recognised by the Director under section 41 of the Act.

Surveys and inspections

43.6 Radio surveys and inspections

(1) The owner of every ship to which Section 1 of Part 46[4] applies must ensure that the ship's radio installation is surveyed in accordance with—

(a) rule 46.5 in respect of a new passenger ship; or

(b) rule 46.6 in respect of a new non-passenger ship; or

(c) rule 46.8 in respect of a new non-passenger ship of 300 gross tonnage which undertakes an international voyage; or

(d) rule 46.9 in respect of an existing passenger or non-passenger ship.

Such surveys must be undertaken by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function.

(2) The owner of every fishing ship which is assigned unlimited area operating limits under Part 20 must ensure that any radio installation fitted in the ship is surveyed by a surveyor who holds a current Certificate of Surveyor Recognition that entitles the surveyor to perform that function—

(a) when the radio installation is installed; and

(b) annually after the radio installation is installed.

(3) A maritime transport operator whose maritime transport operation uses a ship to which Part 19 applies, other than a fishing ship to which rule 43.6(2) applies, must ensure that any radio installation fitted in the ship is inspected by a radio inspector recognised by the Director under rule 43.7—

(a) when it is installed; and

(b) at 4 yearly intervals after its installation; and

(c) at such intermediate periods as may be determined by—

(i) the relevant survey plan prepared under rule 19.63.; or

(ii) for ships operating under rule 19.81(3), the relevant survey plan under the safe ship management system.

43.7 Recognition of radio inspectors

(1) The Director may, upon a person applying in accordance with section 35 of the Act, recognise that person as a radio inspector by issuing a maritime document in accordance with section 41 of the Act, if the Director is satisfied that the person—

(a) has the technical qualifications and experience to undertake the radio inspections authorised by the maritime document; and

(b) is proficient in reading, writing and communicating in the English language.

(2) A maritime document recognising a person as a radio inspector for the purpose of rule 43.6(3) must—

(a) state the extent and type of radio inspections that may be undertaken by the radio inspector; and

(b) be issued for a period of not more than 5 years; and

(c) state the period of validity of the document.

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[4] Section 1 of Part 46 applies to SOLAS ships, and to NON SOLAS passenger and non-passenger ships of 45 metres or more in length that operate beyond restricted limits. Also non-passenger ships of 300 tons gross tonnage or more which undertake international voyages.

Installation, maintenance and records

43.8 Installation, location and control of radio equipment

(1) The owner of a ship must ensure that any radio installation fitted on the ship is—

(a) so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems; and

(b) so located as to ensure the greatest possible degree of safety and operational availability; and

(c) protected against the harmful effects of water, extremes of temperature and other adverse environmental conditions; and

(d) where practicable, provided with reliable, permanently arranged electrical lighting, independent of the main and emergency sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation;[5] and

(e) clearly marked with the call sign, the ship station identity and other codes as may be applicable for use of the radio installation.

(2) The owner of a ship must ensure that—

(a) control of VHF radiotelephone channels is immediately available at a location convenient to the position from which the ship is normally navigated; and

(b) where applicable, facilities are available to permit radio communications from the wings of a navigation bridge or other remote station from which the ship may be navigated[6].

(3) The owner of a ship must ensure that each installed radio transmitter and receiver of a radio installation is provided with an antenna or antennas that are so constructed and sited as to enable each transmitter and receiver to perform its intended communication function effectively.

(4) The owner of a ship—

(a) on which wire antennas are provided as part of a radio installation of the ship must ensure that they are—

(i) fitted with suitable insulators; and

(ii) if suspended between supports liable to whipping, protected against breakage.

(b) of 24 metres or more in length proceeding beyond restricted limits and to which rule 43.8(3)(a) applies, must ensure that ship carries—

(i) if the antenna is a supported wire antenna, a spare wire antenna completely assembled for rapid replacement; and

(ii) if the antenna is not a supported wire antenna, a spare antenna of similar electrical characteristics to the antenna fitted.

43.9 Serviceability and maintenance requirements

(1) The owner and master of a ship must ensure that each radio installation on the ship is in a satisfactory working condition whenever the ship goes to sea, and that—

(a) where additional radio equipment not required by maritime rules is installed on the ship, that equipment is so designed that any malfunction of such equipment will not adversely affect the operation of the radio equipment that is required by maritime rules; and

(b) all equipment forming part of each radio installation is reliable and so constructed and installed that it is readily accessible for inspection and on board maintenance purposes; and

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5 Note that this is a general lighting requirement. Emergency lighting requirements are found in the Part 40 series of maritime rules, which specify the design, construction and equipment requirements of ships.

6 VHF equipment may be used for this purpose.

(c) adequate information, written in the English language, is provided on board the ship to enable the equipment to be properly operated and maintained; and

(d) adequate tools and spares are provided on board the ship to enable the radio equipment to be maintained; and

(e) the radio installation—

(i) meets the applicable performance standards prescribed in Part 43; and

(ii) is maintained to meet those standards continuously.

(2) The owner and master of a ship must ensure that each radio installation on the ship is of such design that the main units can be replaced readily, without significant recalibration or readjustment.

(3) The owner and master of a ship must ensure that radio equipment availability is maintained by using—

(a) in the case of a passenger ship of 45 metres in length or more which proceeds beyond restricted limits and any ship which proceeds beyond the offshore limit, a combination of 2 contingency methods, such as duplication of equipment, shore based maintenance or at sea electronic maintenance capability; and

(b) in the case of any other ship, such contingency methods as duplication of equipment, shore based maintenance or at sea electronic maintenance capability, or a combination of these.

43.10 Testing of equipment

(1) The master of any GMDSS ship must—

(a) nominate a person to carry out the appropriate tests and checks specified in Appendix 1 of this Part while the ship is at sea; and

(b) ensure that the nominated person carries out the required tests and checks.

(2) The master of any non-GMDSS ship must—

(a) nominate a person to carry out the appropriate tests and checks specified in Appendix 2 of this Part, while the ship is at sea; and

(b) ensure that the nominated person carries out the required tests and checks.

(3) If any radio installation on the ship is not in working order, the nominated person must—

(a) inform the master; and

(b) record the details of the deficiencies in the radio log required by rule 43.11.

43.11 Radio records

(1) The master of a ship which is required by Part 73 of the maritime rules to maintain a New Zealand Official Logbook must ensure that the person designated under rule 43.5(1) as having primary responsibility for radio communication during distress incidents maintains a separate radio log in accordance with rules 43.11(2) and 43.11(3).

(2) The radio log must contain—

(a) a record of the following matters, recorded as they occur, together with the time of their occurrence—

(i) a summary of communications relating to distress, urgency and safety traffic; and

(ii) a record of important incidents connected with the radio service; and

(iii) where appropriate, the position of the ship at least once a day; and

(b) a summary of the condition of the radio equipment, including the condition of its source of energy.

(3) The radio log must be kept at the distress communications operating position and be readily available for inspection by—

(a) the master, who must sign each day's entries; and

(b) by the Director or any duly authorised officer of a State party to SOLAS.

(4) The master of every ship to which rule 43.11(1) does not apply must record a summary of any radio communication relating to distress or urgency, together with the time of its occurrence, in any logbook maintained for the ship as part of the log required to be maintained by rule 19.66 or maintained as part of the ship's safe ship management system.

Performance standards – VHF radios

43.12 VHF radio (voice communication only)

(1) VHF radios capable of voice communication only that operate in the band 156-174 MHz (VHF radios) must comply with—

(a) the technical standards laid down in Appendix 19 of the ITU Radio Regulations; and

(b) the Radiocommunications (Radio Standards) Notice 2010.

(2) VHF radios must operate on at least channels 6, 16, 67, 68 and 71, and if practicable, all those channels additionally specified in Appendix 18 of the ITU Radio Regulations. VHF radios on ships operating from the Chatham Islands within the Chatham Islands VHF coverage area must in addition operate on channels 60 and 62.

(3) The VHF radio must be available for operation from the position at which the ship is normally navigated or other remote station from which the ship may be navigated. Portable radios must be stored readily to hand. For handheld VHF radios that use batteries as their primary power source, procedures must be in place to ensure that the batteries remain charged and at least one spare battery pack is available for each radio if charging facilities are not available on the ship.

(4) For permanently installed VHF radios, the power wiring must be securely installed. Power wiring conductors are to be of large enough cross section to ensure that there is no more than 500mv voltage drop between the power source and the radio when the radio is transmitting at full power. Power connections from the radio to any emergency power source must be clearly labelled and accessible.

(5) (a) The antenna feeder must be of low-loss coaxial cable of the correct impedance, securely installed and as short as practicable.

(b) Antenna feeders must be protected from mechanical damage, in particular from abrasions or cuts to the outer sheathing which would allow water to penetrate. Any connectors in the feeder or at the antenna must be water proofed.

(c) The antenna must be securely mounted—

(i) as high as possible; and

(ii) where possible, a horizontal distance of at least 2 metres from other metallic objects; and

(iii) to give as close to vertical polarization as possible.

(d) The gain of the installed antenna must not be less than 2dbi nor more than 8dbi, and must have a nominally uniform gain pattern in the horizontal plane.

(6) Where radios and antennas are duplicated for reliability, any switching that is provided to allow changing antennas and power between radios must be—

(a) unambiguously labeled; and

(b) arranged in such a way that the switching will not damage the radios, power sources or antennas.

43.13 VHF radio (voice communication and DSC)

VHF radio installations capable of voice communication and DSC must comply with the *Performance Standards for Shipborne VHF Radio Installations Capable of Voice*

Communication and Digital Selective Calling adopted by the International Maritime Organization by Resolution A.609(15) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.803(19) if installed on or after 23 November 1996.

Performance standards – MF/HF radios

43.14 MF/HF radio (voice communication only)

An MF/HF radio installation capable of voice communication only must—

(a) be capable of transmitting and receiving for distress purposes on at least frequencies 2182kHz, 4125kHz, 6215kHz and 8291kHz; and

(b) be capable of at least transmitting and receiving maritime safety information on frequencies 2207kHz, 4146kHz, 6224kHz and 8297kHz; and

(c) comply with the Radiocommunications (Radio Standards) Notice 2010.

43.15 MF/HF radio (voice communication, narrow-band direct printing and DSC)

An MF/HF radio installation used for radiotelephony, narrow-band direct printing and DSC and capable of transmitting and receiving for distress and safety purposes on all distress and safety frequencies in the bands between 1605 kHz and 4000 kHz and between 4000 kHz and 27500 kHz must comply with the *Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling* adopted by the International Maritime Organization by Resolution A.613(15) if installed before 23 November 1996 and the document of the same name adopted by Resolution A.806(19) if installed on or after 23 November 1996.

Performance standards – satellite equipment

43.16 INMARSAT – C ship earth station

INMARSAT standard-C ship earth station installations capable of transmitting and receiving direct-printing communications must comply with the *Performance Standards for INMARSAT Standard-C Ship Earth Stations Capable of Transmitting and Receiving Direct-Printing Communications* adopted by the International Maritime Organization by Resolution A.663(16) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.807(19) if installed on or after 23 November 1996.

43.17 INMARSAT – ship earth station capable of two-way voice and data communication

INMARSAT ship earth stations capable of telephony and direct printing must comply with the *Performance Standards for Ship Earth Stations Capable of Two-Way Communications* adopted by the International Maritime Organization by Resolution A.698(17) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.808(19) if installed on or after 23 November 1996.

Performance standards – locator beacons

43.18 121.5/243 MHz EPIRB

Emergency position-indicating radio beacons operating on 121.5/243 MHz must comply with the following standards:

(a) emission in normal antenna conditions and positions must be vertically polarised and must be essentially omnidirectional in the horizontal plane:

(b) the carrier frequencies must be amplitude modulated (minimum duty cycle of 33 percent) with a minimum depth of modulation of 0.85:

(c) the emission must consist of a characteristic audio frequency signal obtained by amplitude modulation of the carrier frequencies with a downward audio frequency sweep within a range of not less than 700Hz between 1600 Hz and 300Hz and with a sweep repetition rate of 2 to 4 times per second:

(d) the emission must include a clearly defined carrier frequency distinct from the modulation sideband components. In particular, at least 30 percent of the power must be contained at all times within plus or minus 30Hz of the carrier frequency on 121.5MHz and plus or minus 60Hz of the carrier frequency on 243 MHz. The emission must be compatible with position fixing by the COSPAS-SARSAT satellite system:

(e) the EPIRB must be provided with a battery of sufficient capacity to enable it to operate for a period of at least 48 hours:

(f) the EPIRB must be designed to operate under the following environmental conditions—

(i) ambient temperatures of -20°C and +50°C:

(ii) icing:

(iii) relative wind speed up to 100 knots:

(iv) after stowage at temperatures between -30°C and +65°C:

(g) the EPIRB must be readily accessible, manually released and easily carried by one person.

43.18A 406 MHz Class 3 EPIRB

Class 3 Emergency position-indicating radio beacons operating on 406 MHz must—

(a) comply with the Australian/New Zealand standard A*S/NZS 4280.1:2003 – 406 MHz statellite distress beacons, Part 1: Marine emergency position indicating radio beacons (EPIRB)*; and,

(b) be readily accessible, manually released and easily carried by one person.

43.19 406 MHz EPIRB

(1) Except as provided in rule 43.19(2), float-free satellite emergency position-indicating radio beacons operating on 406 MHz must comply with the *Performance Standards for Float-Free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406 MHz* adopted by the International Maritime Organization by Resolution A.763(18) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.810(19) if installed on or after 23 November 1996.

(2) If the 406MHz EPIRB was installed before 4 November 1994 it need not be provided with the 121.5 MHz homing beacon required by 2.3.14 of part A of Resolution A.763(18).

43.20 1.6 GHz EPIRB

Float-free satellite emergency position-indicating radio beacons operating through the geostationary INMARSAT satellite system on 1.6 GHz must comply with the *Performance Standards for Float-Free Satellite Emergency Position-Indicating Radio Beacons Operating Through the Geostationary INMARSAT Satellite System on 1.6 GHz* adopted by the International Maritime Organization by Resolution A.661(16) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.812(19) if installed on or after 23 November 1996.

43.21 VHF EPIRB

Float-free VHF emergency position-indicating radio beacons using DSC on VHF Channel 70 must comply with the *Performance Standards for Float-Free VHF Emergency Position-Indicating Radio Beacons* adopted by the International Maritime Organization by Resolution A.612(15) if installed before 23 November 1996, and the document of the same name adopted by Resolution A.805(19) if installed on or after 23 November 1996.

43.22 9 GHz radar transponder (SART)

Survival craft radar transponders for use in search and rescue operations must comply with the *Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations* adopted by the International Maritime Organization by Resolution A.802(19).

43.22A AIS-SART

AIS-SARTs must comply with the *Performance Standards for Survival Craft AIS search and Rescue Transmitters (AIS-SART) for Use in Search and Rescue Operations* adopted by the International Maritime Organization by Resolution MSC.246(83).

Performance standards – EGC for MSI and NAVTEX

43.23 NAVTEX

(1) Narrow-band direct-printing equipment for the reception of navigational and meteorological warnings and urgent information to ships must comply with the *Performance Standards for Narrow-Band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships* adopted by the International Maritime Organization by Resolution A.525(13).

(2) Narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships by HF must comply with the *Performance Standards for Narrow-Band Direct–Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships (MSI) by HF* adopted by the International Maritime Organization by Resolution A.700(17).

43.24 EGC equipment

Enhanced group call equipment to be used in the INMARSAT system must comply with the performance standards in subrule (a) or (b) as applicable:

(a) if installed before 1 July 2016, the standards in IMO Resolution A.664(16):

(b) if installed on or after 1 July 2016, the standards in IMO Resolution MSC.306(87).

Performance standards – survival craft two-way VHF radio

43.25 Survival craft two – way VHF radiotelephone

Survival craft portable two-way VHF radiotelephones must comply with the following standards as applicable:

(a) if installed before 23 November 1996, the standards in IMO Resolution A.762(18)

Performance Standards – IRCS system

43.26 Integrated radio communication system (IRCS)

Shipborne Integrated Radio Communication Systems used in the GMDSS must comply with the *Performance Standards for a Shipborne Integrated Radiocommunication System (IRCS) When Used in the* GMDSS adopted by the International Maritime Organization by Resolution A.811(19).

Performance standards – generally applicable

43.27 Float-free release and activation arrangements

Float-free release and activation arrangements required by maritime rules to enable the automatic release of radio apparatus from a sinking ship and automatic activation of the apparatus must comply with the *Performance Standards for Float-Free Release and Activation Arrangements for Emergency Radio Equipment* adopted by the International Maritime Organization by Resolution A.662(16).

43.28 General requirements for equipment forming part of the GMDSS system

Equipment which forms part of the GMDSS system in addition to complying with its specific performance standard under this Part of the maritime rules must also comply with the

General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids adopted by the International Maritime Organization by Resolution A.694(17).

EPIRB registration

43.29 EPIRB registration

The owner or master of a New Zealand ship provided with a 406 MHz EPIRB must ensure that—

(a) the 406 MHz EPIRB is registered for that ship with the Director; and

(b) when registering the 406 MHz EPIRB, the following information is supplied to the Director—

(i) the EPIRB's hexadecimal number; and

(ii) the ship's name or other contact detail[7]; and

(iii) the owner's name and contact details; and

(iv) the ship's home port; and

(v) the manufacturer and type of EPIRB; and

(c) the Director is informed in writing of any disposal of the 406 MHz EPIRB or of any change in the information provided under rule 43.29(b) for that 406 MHz EPIRB.

[7] For example, a radio call sign.

Appendix 1 Radio equipment tests for GMDSS ships

1. Daily

(a) The proper functioning of the DSC facilities must be tested daily, without radiation of signals, by use of the means provided on the radio equipment.

(b) Batteries providing a source of energy for any part of the radio installations must be tested daily and, where necessary, brought up to the fully charged condition.

(c) The accuracy of the clock required by maritime rules must be confirmed.

2. Weekly

(a) The proper operation of the DSC facilities must be tested at least once a week by means of a test call when within communication range of a coast station fitted with DSC equipment. Where a ship has been out of communication range of a coast station fitted with DSC equipment for a period longer than one week, a test call must be made on the first opportunity that the ship is within communication range of such a coast station.

(b) Where the reserve source of energy is not a battery (for example a motor generator), the reserve source of energy must be tested weekly.

3. Monthly

(a) Each EPIRB and satellite EPIRB must be tested at least once a month to verify that it operates properly using the means provided on the device and without using the satellite system.

(b) Each search and rescue radar transponder, other than one required for survival craft in accordance with Part 40B, must be checked at least once a month, for security and signs of damage.

(c) Survival craft two-way VHF equipment must be tested at least once a month on a frequency other than 156.8 MHz (VHF Channel 16).

(d) A check must be made at least once a month on the security and condition of all batteries providing a source of energy for any part of a radio installation. The battery connections and compartment must also be checked.

Appendix 2 Radio equipment tests for non-GMDSS ships

1. Daily

(a) The radiotelephone distress frequency watch receiver must be tested daily, when crew are on board, by checking the proper functioning of its muting circuits or those of the radiotelephone auto alarm receiver.

(b) Batteries providing a source of energy for any part of a fixed radio installation must be tested daily, when crew are on board and, where necessary, brought up to the fully charged condition.[8]

(c) Where the reserve source of energy is not a battery (for example, a motor generator), the reserve source of energy must be tested daily.

2. Weekly

(a) The radiotelephone alarm signal generating device must be tested once a week to check its proper functioning by ensuring that it can modulate satisfactorily the radiotelephone transmitter. The radiotelephone transmitter must not radiate signals during such checking.

(b) Batteries forming part of the two-way radiotelephone apparatus for survival craft must be tested once a week and, where appropriate, brought up to the fully charged condition. Where non-rechargeable batteries are provided as a source of energy the batteries must be checked and replaced if necessary.

(c) At least once a week a two-way radio call must be made from any radiotelephone apparatus to verify operation of the transmitter and receiver.

3. Monthly

Batteries providing a source of energy for any part of the radio installation must be tested at least once a month by means of a hydrometer where practicable or, where a hydrometer cannot be used, by a suitable load test. A check must also be made of the security of the battery and its connections and the conditions of the battery and its compartment.

4. Annually

Satellite emergency position-indicating radio beacons must be inspected and tested at least once every 12 months, provided that, where rules 43.6(1) and (2) apply, the interval may be extended to a maximum of 17 months to permit the inspection to take place concurrently with a radio survey.

[8] For portable radios, a spare battery pack should be carried.

Appendix 3 – Defined maritime VHF coverage area

[Note – Local environment may cause variations in the computer predicted coverage, and terrain shielding may occur close inshore in certain areas.]

The following co-ordinates describe the seaward limit of Maritime Operations Centre's VHF coverage—

(a) commencing from an arc radius 41 nm centred on position 34° 28′·2S, 172° 46′·5E (Te Paki), between bearings of 201°(T) and 243°(T) from Te Paki; then

(b) following an arc radius 49 nm centred on position 34° 28′·2S, 173° 46′·5 E (Te Paki) to a bearing of 063°(T) from Te Paki; then

(c) following an arc radius 64 nm centred on position 35° 10′S, 173° 31′E (Maungataniwha) to a bearing of 066°(T) from Maungataniwha; then

(d) following an arc radius 62 nm centred on position 35° 32′·6S, 173° 55′E (Hikurangi) to a bearing of 084°(T) from Hikurangi; then

(e) following an arc radius 56 nm centred on position 36° 20′S, 175° 31′E (Mt Isaacs) to a bearing of 100°(T) from Mt Isaacs; then

(f) following an arc radius 76 nm centred on position 37° 32′·5S, 175° 44′·5E (Te Aroha) to a bearing of 066°(T) from Te Aroha; then

(g) from the latter bearing, an arc radius 51 nm centred on position 37° 33′·7S, 178° 00′·4E (Cape Runaway) to a bearing of 114°(T) from Cape Runaway; then

(h) following an arc radius 56 nm centred on position 38° 34′·4S, 178° 07′·7E (Pukeakura)) to a bearing of 185°(T) from Pukeakura; then

(i) following an arc radius 58 nm centred on position 39° 44′·5S, 176° 50′E (Mount Erin) to a bearing of 153°(T) from Mount Erin; then

(j) following an arc radius 35 nm centred on position 39° 44′·5S, 176° 50′E (Mount Erin) to a bearing of 163°(T) from Mount Erin; then

(k) following an arc radius 58 nm centred on position 39° 44′·5S, 176° 50′E (Mount Erin) to a bearing of 174°(T) from Mount Erin; then

(l) Thence, an arc radius 65 nm centred on position 41° 19′S, 175° 46′E (Mt Adams) to a bearing of 193°(T) from Mount Adams; then

(m) following an arc radius 75 nm centred on position 42° 12′S, 173° 47′E (Blue Duck) to a bearing of 171°(T) from Blue Duck; then

(n) following an arc radius 50 nm centred on position 43° 43′S, 172° 56′E (Mt Pearce) to a bearing of 080°(T) from Mt Pearce; then

(o) following an arc radius 63 nm centred on position 43° 43′S, 172° 56′E (Mt Pearce) to a bearing of 187°(T) from Mt Pearce; then

(p) following an arc radius 78 nm centred on position 44° 39′S, 170° 57′E (Mt Studholme) to a bearing of 137°(T) from Mt Studholme; then

(q) following an arc radius 70 nm centred on position 45° 49′S, 170° 33′E (Mt Cargill) to a bearing of 210°(T) from Mt Cargill; then

(r) following an arc radius 60 nm centred on position 46° 05′·5S, 168° 42′·3E (Hedgehope) to a bearing of 156°(T) from Hedgehope; then

(s) following an arc radius 58 nm centred on position 46° 51′·7S, 167° 52′·9E (Mt Rakeahua) to a bearing of 246°(T) from Rakeahua; then

(t) following an arc radius 70 nm centred on position 46° 07′·6S, 166° 49′·2E (Wednesday Peak) to a bearing of 314°(T) from Wednesday Peak; then

(u) following an arc radius 76 nm centred on position 44° 53′·2S, 167° 19′E (Mt Elder) to a bearing of 028°(T) from Mt Elder; then

(v) following an arc radius 70 nm centred on position 43° 35′·5S, 169° 45′·7E (Karangarua) to a bearing of 006°(T) from Karangarua; then

(w) following an arc radius 63 nm centred on position 42° 24′S, 171° 21′E (Paparoa) to a bearing of 289°(T) from Paparoa; then

(x) following an arc radius 80 nm centred on position 41° 47′S, 171° 44′E (Rochfort) to a bearing of 344°(T) from Rochfort; then

(y) following an arc radius 63 nm centred on position 40° 38′S, 172° 38′E (Mt Burnett) to a bearing of 015°(T) from Mt Burnett; then

(z) following an arc radius 50 nm centred on position 39° 18′S, 173° 59′E (Kahui Trig) to a bearing of 338°(T) from Kahui Trig; then

(za) following an arc radius 86 nm centred on position 39° 17′·6S, 174° 17′·6E (Mt Egmont) to a bearing of 352°(T) from Mt Egmont; then

(zb) following an arc radius 83 nm centred on position 37° 32′·5S, 175° 44′·5E (Te Aroha) to a bearing of 267°(T) from Te Aroha; then

(zc) following an arc radius 48 nm centred on position 36° 56′S, 174° 34′E (Waiatarua) to a bearing of 278°(T) from Waiatarua; then

(zd) following an arc radius 36 nm centred on position 36° 56′S, 174° 34′E (Waiatarua) to a bearing of 304°(T) from Waiatarua; then

(ze) following an arc radius 63 nm centred on position 35° 32′·6S, 173° 55′E (Hikurangi) to a bearing of 194°(T) from Hikurangi; then

(zf) following an arc radius 50 nm centred on position 35° 32′·6S, 173° 55′E (Hikurangi) to a bearing of 247°(T) from Hikurangi; then

(zg) following an arc radius 51 nm centred on position 35° 10′S, 173° 31′E (Maungataniwha) to a bearing of 201°(T) from position 34° 28′·2S, 173° 46′·5E(Te Paki).