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Radiocommunications

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C H A P T E R I V

Radiocommunications

Part A General

Regulation 1 Application

This chapter applies to all ships to which the present regulations apply, *cf. chapter I.*

From 1 February 2003, this chapter shall also apply to existing passenger ships of less than 24 metres in length. Any exemptions are mentioned at the end of each regulation.

2 (left out)

3 For the purpose of this chapter:

.1 the expression “ships constructed” means ships the keels of which are laid or which are at a similar stage of construction;

.2 the expression “a similar stage of construction” means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is less.

4 (left out)

5 (left out)

6 (left out)

7 (left out)

8 No provision in this chapter shall prevent the use by any ship, survival craft or person in distress, of any means at their disposal to attract attention, make known their position and obtain help.

Regulation 2 Terms and definitions

1 For the purpose of this chapter, the following terms shall have the meanings defined below:

.1 “Bridge-to-bridge communications” means safety communications between ships from the position from which the ships are normally navigated.

.2 “Continuous watch” means that the radio watch concerned shall not be interrupted other than for brief intervals when the ship’s receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks.

.3 “Digital selective calling (DSC)” means a technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of stations, and complying with the relevant recommendations of the International

Telecommunication Union – Radiocommunications (ITU-R).

.4 "Direct printing telegraphy" means automated telegraphy techniques which comply with the relevant recommendations of the International Telecommunication Union – Radiocommunications (ITU-R).

.5 "General radiocommuncations" means operational and public correspondence traffic, other than distress, urgency and safety messages, conducted by radio.

.6 "INMARSAT" means the Organization established by the Convention on the International Maritime Satellite Organization adopted on 3 September 1976.

.7 "International NAVTEX service" means the co-ordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct-printing telegraphy using the English language.[1]

.8 "Locating" means the finding of ships, aircraft, units or persons in distress.

.9 "Maritime safety information" means navigational and meteorological warnings, meteorological forecasts and other urgent safety related messages broadcast to ships.

.10 "Polar orbiting satellite" service means a service which is based on polar orbiting satellites which receive and relay distress alerts from satellite EPIRBs and which provides their position.

.11 "Radio Regulations" means the Radio Regulations annexed to, or regarded as being annexed to, the most recent International Telecommunication Convention which is in force at any time.

.12 "Sea area A1" means an area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.[2]

.13 "Sea area A2" means an area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.[2]

.14 "Sea area A3" means an area, excluding sea areas A1 and A2, within the coverage of an INMARSAT geostationary satellite in which continuous alerting is available.

.15 "Sea area A4" means an area outside sea areas A1, A2 and A3.

.16 "Global maritime distress and safety systems (GMDSS) identities" means maritime mobile services identity, the ship's call sign, INMARSAT identities and serial number identity which may be transmitted by the ship's equipment and used to identify the ship.

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1 Refer to the NAVTEX Manual approved by the Organization.

2 Refer to resolution A.801(19) concerning provision of radio services for the global maritime distress and safety systems (GMDSS).

.17 "EPIRB" (Emergency Position Indicating Radio Beacon) is a satellite emergency position indicator radio transmitter.

.18 "MMSI" (Maritime Mobile Service Identity) is a 9-digit number that identifies the ship on, among others, DSC equipment and EPIRBs.

.19 "Float-free EPIRB" means an EPIRB placed in a holder arranged so that the EPIRB automatically floats free of the ship and is activated if the ship sinks.

2 All other terms and abbreviations which are used in this chapter and which are defined in the Radio Regulations and in the International Convention on Maritime Search and Rescue (SAR), 1979, as may be amended, shall have the meanings as defined in those Regulations and the SAR Convention.

Regulation 3 Exemptions

1 The Contracting Governments consider it highly desirable not to deviate from the requirements of this chapter; nevertheless the Administration may grant partial or conditional exemptions to individual ships from the requirements of regulations 7 to 11 provided:

.1 such ships comply with the functional requirements of regulation 4; and

.2 the Administration has taken into account the effect such exemptions may have upon the general efficiency of the service for the safety of all ships.

2 An exemption may be granted under paragraph 1 only:

.1 if the conditions affecting safety are such as to render the full application of regulations 7 to *8* unreasonable or unnecessary;

.2 in exceptional circumstances, for a single voyage outside the sea area or sea areas for which the ship is equipped;

3 Each Administration shall submit to the Organization, as soon as possible after the first of January in each year, a report showing all exemptions granted under paragraph 1 and 2 during the previous calendar year and giving the reasons for granting such exemptions.

Regulation 4 Functional requirements

1 Every ship, while at sea, shall be capable:

.1 except as provided in regulations 8.1.1 *(VHF DSC)* and 10.1.4.3 *(INMARSAT)*, of transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;

.2 of receiving shore-to-ship distress alerts;

.3 of transmitting and receiving ship-to-ship distress alerts;

.4 of transmitting and receiving search and rescue co-ordinating communications;

.5 of transmitting and receiving on-scene communications;

.6 of transmitting and, as required by regulation V/11(f), receiving signals for locating;[3]

.7 of transmitting and receiving[4] maritime safety information;

.8 of transmitting and receiving general radiocommunications to and from shore-based radio systems or networks subject to regulation 15.8; and

.9 of transmitting and receiving bridge-to-bridge communications.

Part B Undertakings by Contracting Governments[5]

Regulation 5 Provision of radiocommunication services

1 Each Contracting Government undertakes to make available, as it deems practical and necessary either individually or in co-operation with other Contracting Governments, appropriate shore-based facilities for space and terrestrial radiocommunication services having due regard to the recommendations of the Organization.[6] These services are:

.1 a radiocommunication service utilizing geostationary satellites in the Maritime Mobile-Satellite Service;

.2 a radiocommunication service utilizing polar orbiting satellites in the mobile-satellite service;

.3 the maritime mobile service in the bands between 156 MHz and 174 MHz;

.4 the maritime mobile service in the bands between 4,000 kHz and 27,500 kHz; and

.5 the maritime mobile service in the bands between 415 kHz and 535 kHz and between 1,605 kHz and 4,000 kHz.

2 Each Contracting Government undertakes to provide the Organization with pertinent information concerning the shore-based facilities in the maritime mobile service, mobile-satellite service and Maritime Mobile-Satellite Service, established for sea areas which it has designated off its coasts.

Regulation 5-1 Global maritime distress and safety system identities

1 This regulation applies to all ships on all voyages.

2 Each Contracting Government undertakes to ensure that suitable arrangements are made for registering global maritime distress and safety system (GMDSS) identities and for making information on these identities available to rescue co-

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[3] Refer to resolution A.614(15) concerning carriage of radar operating in the frequency band 9,300-9,500 MHz.

[4] It should be noted that ships may have a need for reception of certain maritime safety information while in port.

[5] 1. Each Contracting Government is not required to provide all radiocommunication services.

2. The requirements should be specified for shore-based facilities to cover the various sea areas.

[6] Refer to resolution A.801(19) concerning provision of radio services for the global maritime distress and safety system (GMDSS).

ordination centres on a 24-hour basis. Where appropriate, international organizations maintaining a registry of these identities shall be notified by the Contracting Government of these assignments.

Part C Ship requirements

Regulation 6 Radio installations

1 Every ship shall be provided with radio installations capable of complying with the functional requirements prescribed by regulation 4 throughout its intended voyage and, unless exempted under regulation 3, complying with the requirements of regulation 7 and, as appropriate for the sea area or areas through which it will pass during its intended voyage, the requirements of either regulation 8, 9, 10 or 11.

2 Every radio installation shall:

.1 be 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;

.2 be so located as to ensure the greatest possible degree of safety and operational availability;

.3 be protected against harmful effects of water, extremes of temperature and other adverse environmental conditions;

.4 be 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; and

.5 be clearly marked with the ship's *name*, call sign, *MMSI number and any INMARSAT numbers.*

3 Control of the VHF radiotelephone channels, required for navigational safety, shall be immediately available on the navigation bridge convenient to the conning position and, where necessary, facilities should be available to permit radiocommunications from the wings of the navigation bridge. Portable VHF equipment may be used to meet the latter provision.

4 In passenger ships, a distress panel shall be installed at the conning position. This panel shall contain either one single button which, when pressed, initiates a distress alert using all radiocommunication installations required on board for that purpose or one button for each individual installation. The panel shall clearly and visually indicate whenever any button or buttons have been pressed. Means shall be provided to prevent inadvertent activation of the button or buttons. *Regulation 6.4 on a distress panel shall not apply to existing passenger ships of less than 24 metres in length.* If the satellite EPIRB is used as the secondary means of distress alerting and is not remotely activated, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

5 In passenger ships, information on the ship's position shall be continuously and automatically provided to all relevant radiocommunication equipment *(DSC and INMARSAT)* to be

included in the initial distress alert when the button or buttons on the distress panel is pressed.

6 In passenger ships, a distress alarm panel shall be installed at the conning position. The distress alarm panel shall provide visual and aural indication of any distress alert or alerts received on board and shall also indicate through which radiocommunication service the distress alerts have been received.

Regulation 6.6 on a distress alarm panel shall not apply to existing passenger ships of less than 24 metres in length.

Regulation 7 Radio equipment: General

1 Every ship shall be provided with:

.1 a VHF radio installation capable of transmitting and receiving:

.1.1 DSC on the frequency 156.525 MHz (channel 70). It shall be possible to initiate the transmission of distress alerts on channel 70 from the position from which the ship is normally navigated;[7] and

.1.2 radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13) and 156.800 MHz (channel 16);

.2 a radio installation capable of maintaining a continuous DSC watch on VHF channel 70 which may be separate from, or combined with, that required by regulation 7.1.1;[7]

.3 a radar transponder capable of operating in the 9 GHz band, which:

.3.1 shall be so stowed that it can be easily utilized; and

.3.2 may be one of those required by regulation III/2 for a survival craft;

Regulation 7.1.3 on radar transponders shall not apply to passenger ships of class D (operation in protected waters, cf. the class division of passenger ships in chapter I).

.4 a receiver capable of receiving international NAVTEX service broadcasts if the ship is engaged on voyages in any area in which an international NAVTEX service is provided;

Regulation 7.1.4 on NAVTEX receivers shall not apply to passenger ships of class D (operation in protected waters, cf. the class division of passenger ships in chapter I).

.5 a radio facility for reception of maritime safety information by the INMARSAT enhanced group calling system (EGC) if the ship is engaged on voyages in any area of INMARSAT coverage but in which an international NAVTEX service is not provided. However, ships engaged exclusively on voyages in areas where an HF direct-printing telegraphy maritime safety information service is provided and fitted with equipment

[7] Certain ships may be exempted from this requirement (see regulation 9.4).

capable of receiving such service, may be exempt from this requirement.[8]

.6 a satellite emergency position-indicating radio beacon (satellite EPIRB) which shall be:

.1 capable of transmitting a distress alert through the polar orbiting satellite service operating in the 406 MHz band;

.2 installed in an easily accessible position;

.3 ready to be manually released and capable of being carried by one person into a survival craft;

.4 capable of floating free if the ship sinks and of being automatically activated when afloat; and

.5 capable of being activated manually.

Regulation 7.1.6 on satellite emergency position-indicating radio beacons shall not apply to passenger ships of class D (operation in protected waters, cf. the class division of passenger ships in chapter I).

2 (left out)

3 (left out)

4 (left out)

5 Every passenger ship shall be provided with means for two-way on-scene radiocommunications for search and rescue purposes using the aeronautical frequencies 121.5 MHz and 123.1 MHz from the position from which the ship is normally navigated.

Regulation 7.5 on equipment for aeronautical frequencies shall not apply to existing passenger ships of less than 24 metres in length.

Regulation 8 Radio equipment: Sea area A1

1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages exclusively in sea area A1 shall be provided with a radio installation capable of initiating the transmission of ship-to-shore distress alerts from the position from which the ship is normally navigated, operated either (*secondary means of alerts)*:

.1 on VHF using DSC; or

.2 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by regulation 7.1.6, either by installing he satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated; or

.3 if the ship is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or

.4 on HF using DSC; or

[8] Refer to the Recommendation on promulgation of maritime safety information adopted by the Organization by resolution A.705(17).

.5 through the INMARSAT geostationary satellite service; this requirement may be fulfilled by an INMARSAT ship earth station;[9]

Regulation 8.1 on secondary means of alerts shall not apply to existing passenger ships of less than 24 metres in length.

2 The VHF radio installation, required by regulation 7.1.1, shall also be capable of transmitting and receiving general radiocommunications using radiotelephony.

3 (left out)

Regulation 9 Radio equipment: Sea areas A1 and A2

1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages beyond sea area A1, but remaining within sea area A2, shall be provided with:

.1 an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

.1.1 2,187.5 kHz using DSC; and

.1.2 2,182 kHz using radiotelephony;

.2 a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz which may be separate from, or combined with, that required by subparagraph .1.1; and

.3 means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either (*secondary means of alerts)*:

.3.1 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by regulation 7.1.6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated; or

.3.2 on HF using DSC; or

.3.3 through the INMARSAT geostationary satellite service; this requirement may be fulfilled by an INMARSAT ship earth station.

Regulation 9.1.3 on secondary means of alerts shall not apply to existing passenger ships of less than 24 metres in length.

2 It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs 1.1 and 1.3 from the position from which the ship is normally navigated.

3 The ship shall, in addition, be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by either:

.1 a radio installation operating on working frequencies in the bands between 1,605 kHz and 4,000 kHz or between 4,000 kHz and 27,500 kHz. This requirement may be

[9] This requirement can be met by INMARSAT ship earth stations capable of two-way communications, such as INMARSAT-A or INMARSAT-C ship earth stations. Unless otherwise specified, this footnote applies to all requirements for an INMARSAT ship earth station prescribed by this chapter.

fulfilled by the addition of this capability in the equipment required by paragraph 1.1; or

.2 an INMARSAT ship earth station.

4 The Administration may exempt ships constructed before 1 February 1997, which are engaged exclusively on voyages within sea area A2, from the requirements of regulations 7.1.1.1 and 7.1.2 provided such ships maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated.

Regulation 10Radio equipment: Sea areas A1, A2 and A3

Alternative 1

1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall, if it does not comply with the requirements of paragraph 2, be provided with:

.1 an INMARSAT ship earth station capable of:

.1.1 transmitting and receiving distress and safety communications using direct-printing telegraphy;

.1.2 initiating and receiving distress priority calls;

.1.3 maintaining watch for shore-to-ship distress alerts, including those directed to specifically defined geographical areas;

.1.4 transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy; and

.2 an MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

.2.1 2,187.5 kHz using DSC; and

.2.2 2,182 kHz using radiotelephony; and

.3 a radio installation capable of maintaining a continuous DSC watch on the frequency 2,187.5 kHz which may be separate from or combined with that required by subparagraph .2.1; and

.4 means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:

.4.1 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by regulation 7.1.6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated; or

.4.2 on HF using DSC; or

.4.3 through the INMARSAT geostationary satellite service; this requirement may be complied with by installing an additional ship earth station.

Alternative 2

2 In addition to meeting the requirements of regulation 7, every ship engaged on voyages beyond sea areas A1 and A2, but

remaining within sea area A3, shall, if it does not comply with the requirements of paragraph 1, be provided with:

.1 an MF/HF radio installation capable of transmitting and receiving for distress and safety purposes, on all distress and safety frequencies in the bands between 1,605 kHz and 4,000 kHz and between 4,000 kHz and 27,500 kHz:

.1.1 using DSC;

.1.2 using radiotelephony; and

.1.3 using direct-printing telegraphy; and

.2 equipment capable of maintaining DSC watch on 2,187.5 kHz, 8,414.5 kHz and on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz; at any time, it shall be possible to select any of these DSC distress and safety frequencies. This equipment may be separate from, or combined with, the equipment required by subparagraph .1; and

.3 means of initiating the transmission of ship-to-shore distress alerts by a radiocommunication service other than HF operating either:

.3.1 through the polar orbiting satellite service on 406 MHz; this requirement may be fulfilled by the satellite EPIRB, required by regulation 7.1.6, either by installing the satellite EPIRB close to, or by remote activation from, the position from which the ship is normally navigated; or

.3.2 through the INMARSAT geostationary satellite service; this requirement may be fulfilled by an INMARSAT ship earth station.

.4 in addition, ships shall be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by an MF/HF radio installation operating on working frequencies in the bands between 1,605 kHz and 4,000 kHz and between 4,000 kHz and 27,500 kHz. This requirement may be fulfilled by the addition of this capability in the equipment required by subparagraph .1.

3 It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs 1.1, 1.2, 1.4, 2.1 and 2.3 from the position from which the ship is normally navigated.

4 The Administration may exempt ships constructed before 1 February 1997, and engaged exclusively on voyages within sea areas A2 and A3, from the requirements of regulations 7.1.1.1 and 7.1.2 provided such ships maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated.

Regulation 11Radio equipment: Sea areas A1, A2, A3 and A4

1 In addition to meeting the requirements of regulation 7, ships engaged on voyages in all sea areas shall be provided with the radio installations and equipment required by regulation 10.2 (MF/HF), except that the equipment required by regulation 10.2.3.2 (INMARSAT) shall not be accepted as an alternative

to that required by regulation 10.2.3.1 (406 MHz), which shall always be provided. In addition, ships engaged on voyages in all sea areas shall comply with the requirements of regulation 10.3.

2 The Administration may exempt ships constructed before 1 February 1997, and engaged exclusively on voyages within sea areas A2, A3 and A4, from the requirements of regulations 7.1.1.1 and 7.1.2 provided such ships maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated.

Regulation 12Watches

1 Every ship, while at sea, shall maintain a continuous watch:

.1 on VHF DSC channel 70, if the ship, in accordance with the requirements of regulation 7.1.2, is fitted with a VHF radio installation;

.2 on the distress and safety DSC frequency 2,187.5 kHz, if the ship, in accordance with the requirements of regulation 9.1.2 or 10.1.3, is fitted with an MF radio installation;

.3 on the distress and safety DSC frequencies 2,187.5 kHz and 8,414.5 kHz and also on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz, appropriate to the time of day and the geographical position of the ship, if the ship, in accordance with the requirements of regulation 10.2.2 or 11.1, is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver;

.4 for satellite shore-to-ship distress alerts, if the ship, in accordance with the requirements of regulation 10.1.1, is fitted with an INMARSAT ship earth station.

2 Every ship, while at sea, shall maintain a radio watch 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 navigating.

3 Every ship while at sea shall maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated.

Regulation 13Sources of energy

1 There shall be available at all times, while the ship is at sea, a supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source or sources of energy for the radio installations.

2 A reserve source or sources of energy shall be provided on every ship, to supply radio installations, for the purpose of conducting distress and safety radiocommunications, in the event of failure of the ship's main and emergency sources of electrical power. The reserve source or sources of energy shall be capable of simultaneously operating the VHF radio installation required by regulation 7.1.1 and either the MF radio installation required by regulation 9.1.1, the MF/HF

radio installation required by regulation 10.2.1 or 11.1, or the INMARSAT ship earth station required by regulation 10.1.1 and any of the additional loads mentioned in paragraphs 4, 5 and 8 for a period of at least:

.1 1 h on ships provided with an emergency source of electrical power, if such source of power complies fully with all relevant provisions of regulation II-1 D/3, including the supply of such power to the radio installations; and

.2 6 h on ships not provided with an emergency source of electrical power complying fully with all relevant provisions of regulation II-1 D/3, including the supply of such power to the radio installations.[10]

The reserve source or sources or energy need not supply independent HF and MF radio installations at the same time.

3 The reserve source or sources of energy shall be independent of the propelling power of the ship and the ship's electrical system.

4 Where, in addition to the VHF radio installation, two or more of the other radio installations, referred to in paragraph 2, can be connected to the reserve source or sources of energy, they shall be capable of simultaneously supplying, for the period specified, as appropriate, in paragraph 2.1 or 2.2, the VHF radio installation and:

.1 all other radio installations which can be connected to the reserve source or sources of energy at the same time; or

.2 whichever of the other radio installations will consume the most power, if only one of the other radio installations can be connected to the reserve source or sources of energy at the same time as the VHF radio installation.

5 The reserve source or sources of energy may be used to supply the electrical lighting required by regulation 6.2.4.

6 Where a reserve source of energy consists of a rechargeable accumulator battery or batteries:

.1 a means of automatically charging such batteries shall be provided which shall be capable of recharging them to minimum capacity requirements within 10 h; and

.2 the capacity of the battery or batteries shall be checked, using an appropriate method,[11] at intervals not exceeding 12 months, when the ship is not at sea.

7 The sitting and installation of accumulator batteries which provide a reserve source of energy shall be such as to ensure:

.1 the highest degree of service;

.2 a reasonable lifetime;

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[10] For guidance, the following formula is recommended for determining the electrical load to be supplied by the reserve source of energy for each radio installation required for distress conditions: ½ of the current consumption necessary for transmission + the current consumption of any additional loads.

[11] One method of checking the capacity of an accumulator battery is to fully discharge and recharge the battery, using normal operating current and period (e.g. 10 h). Assessment of the charge condition can be made at any time, but it should be done without significant discharge of the battery when the ship is at sea.

.3 reasonable safety;

.4 that battery temperatures remain within the manufacturer's specifications whether under charge or idle; and

.5 that when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.

8 If an uninterrupted input of information from the ship's navigational or other equipment to a radio installation is needed to ensure its proper performance, means shall be provided to ensure the continuous supply of such information in the event of failure of the ship's main or emergency source of electrical power.

9 *The lighting required in regulation 6.2.4 and the navigational equipment required in regulation 6.5 that is connected to the radio equipment of the ship shall be connected to the same source of power as the radio equipment.*

Regulation 14Performance standards

1 All equipment to which this chapter applies shall be of a type approved by the Administration. Such equipment shall conform to appropriate performance standards not inferior to those adopted by the Organization.

In existing passenger ships with a length of less than 24 metres, VHF-DSC equipment may be of class A, B or D.

2 *The radio equipment of this chapter and of chapter III, regulation 2, shall comply with the requirements of Council Directive 96/98/EC of 20 December 1996 on marine equipment.*

3 *Radio equipment complying with the requirements of Council Directive 99/5/EC of 9 March 1999 on radio equipment and telecommunications terminal equipment shall be exempted from the requirement of regulation 14.2.*

Regulation 15Maintenance requirements

1 Equipment shall be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment.

2 Where applicable, equipment shall be so constructed and installed that it is readily accessible for inspection and on-board maintenance purposes.

3 Adequate information shall be provided to enable the equipment to be properly operated and maintained, taking into account the recommendations of the Organization.[12]

4 Adequate tools and spares shall be provided to enable the equipment to be maintained.

[12] Refer to the Recommendation on general requirements for shipborne radio equipment forming part of the global maritime distress and safety system and for electronic navigational aids adopted by the Organization by resolution A.694(17) and to resolution A.813(19) on general requirements for electromagnetic compatibility (EMC) for all electrical and electronic ship's equipment.

5 The Administration shall ensure that radio equipment required by this chapter is maintained to provide the availability of the functional requirements specified in regulation 4 and to meet the recommended performance standards of such equipment.

6 On ships engaged on voyages in sea areas A1 and A2, the availability shall be ensured by using such methods as duplication of equipment, shore-based maintenance or at-sea electronic maintenance capability, or a combination of these, as may be approved by the Administration.

Regulation 15.6 on maintenance methods shall not apply to existing passenger ships of less than 24 metres in length.

7 On ships engaged on voyages in sea areas A3 and A4, the availability shall be ensured by using a combination of at least two methods such as duplication of equipment, shore-based maintenance or at-sea electronic maintenance capability, as may be approved by the Administration, taking into account the recommendations of the Organization.[13]

8 While all reasonable steps shall be taken to maintain the equipment in efficient working order to ensure compliance with all the functional requirements specified in regulation 4, malfunction of the equipment for providing the general radiocommunications required by regulation 4.8 shall not be considered as making a ship unseaworthy or as a reason for delaying the ship in ports where repair facilities are not readily available, provided the ship is capable of performing all distress and safety functions.

9 Satellite EPIRBs shall be:

.1 annually tested for all aspects of operational efficiency, with special emphasis on checking the emission on operational frequencies, coding and registration, at intervals as specified below:

.1 on passenger ships, within 3 months before the expiry date of the Passenger Ship Safety Certificate; and

.2 (left out)

The test may be conducted on board the ship or at an approved testing station; and

.2 subject to maintenance at intervals not exceeding five years, to be performed at an approved shore-based maintenance facility.

Regulation 16Radio personnel

1 Every ship shall carry personnel qualified for distress and safety radiocommunication purposes to the satisfaction of the Administration.[14] The personnel shall be holders of certificates specified in the Radio Regulations as appropriate, any one of whom shall be designated to have primary responsibility for radiocommunications during distress incidents.

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13 Refer to resolution A.702(17) concerning radio maintenance guidelines for the global maritime distress and safety system related to sea areas A3 and A4.

14 Refer to recommendation on the training of radio personnel under GMDSS (Assembly resolution A.703(17)).

2 In passenger ships, at least one person qualified in accordance with paragraph 1 shall be assigned to perform only radiocommunication duties during distress incidents.[16)]

Regulation 16.2 shall not apply to existing passenger ships of less than 24 metres in length and passenger ships of class D (operation in protected waters, cf. the class division of passenger ships in chapter I).

Regulation 17Radio records

A record shall be kept *in a radio log book or in the ship's log book*, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea.