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To: All IMO Members
Contracting Governments to the International Convention for the Safety of
Life at Sea, 1974

Subject: **Amendments to the International Convention for the Safety of Life at Sea
(SOLAS), 1974**

**Amendments to the Protocol of 1988 relating to the International
Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol)**

**Amendments to the International Code of Safety for High-speed Craft,
1994 (1994 HSC Code)**

**Amendments to the International Code of Safety for High-speed Craft,
2000 (2000 HSC Code)**

1 The Maritime Safety Committee, at its 104th session (4 to 8 October 2021), approved draft amendments to:

- .1 chapters II-1, III, IV and V, and the appendix (Certificates) of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as set out in annex 1;
- .2 the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol), as set out in annex 2;
- .3 the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code), as set out in annex 3; and
- .4 the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code), as set out in annex 4,

for circulation with a view to adoption at its 105th session (20 to 29 April 2022).

2 The Secretary-General has the honour to transmit herewith, in accordance with article VIII(b)(i) of the 1974 SOLAS Convention and article VI of the 1988 SOLAS Protocol, as appropriate, the text of the aforementioned proposed amendments to SOLAS 1974, the 1988 SOLAS Protocol and the 1994 and 2000 HSC Codes, set out in annexes 1 to 4, respectively, for consideration with a view to adoption by the Committee at its 105th session, in accordance with SOLAS article VIII(b)(iv) and article VI(c) of the Protocol, as appropriate.

ANNEX 1

**DRAFT AMENDMENTS TO SOLAS CHAPTERS II-1, III, IV AND V,
AND THE APPENDIX (CERTIFICATES)**

**CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY,
MACHINERY AND ELECTRICAL INSTALLATIONS**

**PART D
ELECTRICAL INSTALLATIONS**

Regulation 42 – Emergency source of electrical power in passenger ships

1 Paragraph 2.2.2.3 is replaced by the following:

".3 the MF/HF radio installation required by regulations IV/11.1.1 and IV/11.1.2."

Regulation 43 – Emergency source of electrical power in cargo ships

2 Paragraph 2.3.2.3 is replaced by the following:

".3 the MF/HF radio installation required by regulations IV/11.1.1 and IV/11.1.2."

**CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**PART B
REQUIREMENTS FOR SHIPS AND LIFE-SAVING APPLIANCES**

Regulation 6 – Communications

3 Paragraphs 1, 2, 2.1, 2.1.1, 2.1.2 and 2.2 are replaced by the following:

"1 [Reserved*]

2 [Reserved*]

* The provisions related to two-way VHF radiotelephone apparatus and search and rescue locating devices have been relocated under chapter IV (refer to resolution MSC.[...]). Paragraphs 1 and 2 were intentionally left blank to avoid renumbering of existing regulations."

CHAPTER IV RADIOCOMMUNICATIONS

4 The text of chapter IV is replaced by the following:

"PART A GENERAL

Regulation 1 – Application

1 Unless expressly provided otherwise, this chapter applies to all ships to which the present regulations apply and to cargo ships of 300 gross tonnage and upwards.

2 This chapter does not apply to ships to which the present regulations would otherwise apply while such ships are being navigated within the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of the St Lambert Lock at Montreal in the Province of Quebec, Canada.¹

3 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.

¹ Such ships are subject to special requirements relative to radio for safety purposes, as contained in the relevant agreement between Canada and the United States of America.

Regulation 2 – Terms and definitions

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

- .1 *AIS-SART* means an automatic identification system search and rescue transmitter capable of operating on frequencies dedicated for AIS (161.975 MHz (AIS1) and 162.025 MHz (AIS2)).
- .2 *Bridge-to-bridge communications* means safety radiocommunications between ships from the position from which the ships are normally navigated.
- .3 *Continuous radio watch* means that the radio and listening 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.
- .4 *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 Radiocommunication Sector (ITU-R).
- .5 *Emergency position-indicating radio beacon (EPIRB)* means a transmitter operating in the frequency band 406.0-406.1 MHz capable of transmitting a distress alert via satellite to a rescue coordination centre and transmitting signals for on-scene locating.

- .6 *General radiocommunications* means communications other than distress, urgency and safety communications.
- .7 *Global Maritime Distress and Safety System (GMDSS)* means a system that performs the functions set out in regulation 4.1.1.
- .8 *GMDSS identities* means information which may be transmitted to uniquely identify the ship or its associated rescue boats and survival craft. These identities are the ship's call sign, Maritime Mobile Service Identity (MMSI), EPIRB hexadecimal identity, recognized mobile satellite service identities and equipment serial numbers.
- .9 *Locating* means the finding of ships, aircraft, survival craft or persons in distress.
- .10 *Maritime safety information (MSI)*² means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.
- .11 *Radar SART* means a search and rescue transponder operating on radar frequencies in the frequency band 9.2-9.5 GHz.
- .12 *Radio Regulations* means the Radio Regulations complementing the Constitution and Convention of the International Telecommunication Union which is in force at any given time.
- .13 *Recognized mobile satellite service* means any service which operates through a satellite system and is recognized by the Organization, for use in GMDSS.
- .14 *Satellite service on 406 MHz* means a service operating through a satellite system having global availability designed to detect EPIRBs transmitting in the frequency band 406.0-406.1 MHz.
- .15 *Sea area A1* means an area within the radiotelephone coverage of at least one very high frequency (VHF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.³
- .16 *Sea area A2* means an area, excluding sea area A1, within the radiotelephone coverage of at least one medium frequency (MF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.³
- .17 *Sea area A3* means an area, excluding sea areas A1 and A2, within the coverage of a recognized mobile satellite service supported by the ship earth station carried on board, in which continuous alerting is available.
- .18 *Sea area A4* means an area outside of sea areas A1, A2 and A3.

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, 1979, as may be amended, shall have the meanings as defined in those Regulations and the SAR Convention.

² Refer to *Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI)* (MSC.1/Circ.1310, as revised).

³ Refer to *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)* (resolution MSC.[...]).

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 11 unreasonable or unnecessary; or
- .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 report to the Organization on all exemptions granted under paragraphs 1 and 2 giving the reasons for granting such exemptions.⁴

⁴ Exemptions should be reported through the Organization's Global Integrated Shipping Information System (GISIS) with reference to *Issue of Exemption Certificates under the 1974 SOLAS Convention and Amendments thereto* (SLS.14/Circ.115, as amended).

Regulation 4 – Functional requirements⁵

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

- .1 performing the GMDSS functions, which are as follows:
 - .1 transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;
 - .2 receiving shore-to-ship distress alert relays;
 - .3 transmitting and receiving ship-to-ship distress alerts;
 - .4 transmitting and receiving search and rescue coordinating communications;
 - .5 transmitting and receiving on-scene communications;
 - .6 transmitting and receiving signals for locating;⁶

- .7 receiving MSI;⁷
- .8 transmitting and receiving urgency and safety communications; and
- .9 transmitting and receiving bridge-to-bridge communications; and
- .2 transmitting and receiving general radiocommunications.

⁵ It should be noted that ships performing GMDSS functions should use *Guidelines for the avoidance of false distress alerts* (resolution MSC.[...]).

⁶ Refer also to regulations V/19.2.3.2 and V/19.2.4, as appropriate.

⁷ It should be noted that ships may have a need for reception of certain maritime safety information while in port.

Regulation 4-1 – GMDSS satellite providers

The Maritime Safety Committee shall determine the criteria, procedures and arrangements for the evaluation, recognition, review and oversight of the provision of recognized mobile satellite services in the GMDSS pursuant to the provisions of this chapter.⁸

⁸ Refer to *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)* (resolution A.1001(25)) and *Guidance to prospective GMDSS satellite service providers* (MSC.1/Circ.1414).

PART B UNDERTAKINGS BY CONTRACTING GOVERNMENTS⁹

⁹ 1 Each Contracting Government is not required to provide all radiocommunication services.
2 Provision No 48.1 of the Radio Regulations applies to the operation of coast stations and coast earth stations.

Regulation 5 – Provision of radiocommunication services

1 Each Contracting Government undertakes to make available, as it deems practical and necessary, either individually or in cooperation with other Contracting Governments, appropriate shore-based facilities for the mobile satellite service and maritime mobile service having due regard to the recommendations of the Organization.¹⁰ These services are:

- .1 recognized mobile satellite services;
- .2 a satellite service on 406 MHz;
- .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 kHz¹¹ 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 mobile satellite service and maritime mobile service, established for sea areas which it has designated off its coasts.¹² Each Contracting Government also undertakes to provide the Organization with timely and adequate notice prior to the planned withdrawal of any of these services or any particular shore-based facilities.

¹⁰ Refer to *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)* (resolution MSC.[...]).

¹¹ Refer to *Implementation of the NAVTEX system as a component of the World-Wide Navigational Warning Service* (resolution A.617(15)).

¹² Information communicated by Contracting Governments is made available through GISIS.

Regulation 5-1 – GMDSS 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 GMDSS identities and for making information on these identities available to rescue coordination centres on a 24-hour basis. Where appropriate, international organizations maintaining a registry of these identities, such as the ITU Maritime Mobile Access and Retrieval System (MARS), shall be notified by the Contracting Government of these identity 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 located in a such a way that no harmful interference of mechanical, electrical or other origin affects its proper use, and that electromagnetic compatibility is ensured and harmful interaction avoided 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 GMDSS identities, as applicable, for use by the radio installation operator.

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, which shall:

- .1 contain either one single button which, when pressed, initiates a distress alert using all radio installations required on board for that purpose or one button for each individual installation;
- .2 clearly and visually indicate whenever any button or buttons have been pressed; and
- .3 be provided with means to prevent inadvertent activation of the button or buttons referred to in paragraphs 4.1 and 4.2.

5 In passenger ships, if an EPIRB is used as the secondary means of distress alerting and is not remotely activated from the distress panel, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

6 In passenger ships, a distress alarm panel shall be installed at the conning position, which:

- .1 shall provide visual and aural indication of any distress alert or alerts received on board;
- .2 shall indicate through which radiocommunication service the distress alerts have been received; and
- .3 may be combined with the distress panel.

Regulation 7 – Radio equipment: General

1 Every ship shall be provided with:

- .1 a VHF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes:
 - .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; and
 - .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 paragraph 1.1;
- .3 a radar SART or an AIS-SART, which:
 - .1 shall be so stowed that it can be easily utilized; and
 - .2 may be one of those required by paragraphs 2.1 or 3.1;
- .4 receiver(s) capable of receiving MSI and search and rescue related information throughout the entire voyage in which the ship is engaged;¹³
- .5 an EPIRB¹⁴ which shall be:
 - .1 installed in an easily accessible position;
 - .2 ready to be manually released and capable of being carried by one person into a survival craft;
 - .3 capable of floating free if the ship sinks and of being automatically activated when afloat; and
 - .4 capable of being activated manually; and
- .6 a radio installation capable of transmitting and receiving general radiocommunications operating on working frequencies in the band between 156 MHz and 174 MHz. This requirement may be fulfilled by the addition of this capability in the equipment required by paragraph 1.1.

2 Every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage shall be provided with at least:

- .1 one radar SART or AIS-SART; and
- .2 two two-way VHF radiotelephone apparatuses.

3 Every passenger ship and every cargo ship of 500 gross tonnage and upwards shall be provided with at least:

- .1 one radar SART or AIS-SART on each side of the ship; and
- .2 three two-way VHF radiotelephone apparatuses.

4 The two-way VHF radiotelephone apparatuses required by paragraphs 2.2 and 3.2 may be portable or fitted in survival craft. The portable apparatus may be stored on the bridge.

5 The radar SARTs or AIS-SARTs required by paragraphs 2.1 or 3.1 shall be stowed in such locations that they can be rapidly placed in any survival craft other than a liferaft required by regulation III/31.1.4. Alternatively, one radar SART or AIS-SART shall be stowed in each survival craft other than a liferaft required by regulation III/31.1.4. On ships carrying at least two radar SARTs or AIS-SARTs and equipped with free-fall lifeboats, one of the radar SARTs or AIS-SARTs shall be stowed in a free-fall lifeboat and the other shall be located in the immediate vicinity of the navigating bridge so that it can be utilized on board and ready for transfer to any of the other survival craft, other than a liferaft required by regulation III/31.1.4.

6 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. These means may be portable.

¹³ Refer to *Guidance for reception of maritime safety information and search and rescue related information as required in the Global Maritime Distress and Safety System (GMDSS)* (MSC.1/Circ.[...]).

¹⁴ Refer to *Search and rescue homing capability* (resolution A.616(15))

Regulation 8 – Radio equipment: Sea area A1

1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages 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, operating either:

- .1 through the satellite service on 406 MHz; or
- .2 if the ship is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or
- .3 on high frequency (HF) using DSC; or
- .4 through a recognized mobile satellite service ship earth station.

2 The requirement in paragraph 1.1 may be fulfilled by installing:

- .1 the EPIRB required by regulation 7.1.5 close to the position from which the ship is normally navigated, but in a location whereby it can still float free of the ship in an emergency; or
- .2 the EPIRB required by regulation 7.1.5 elsewhere on the ship, provided that this EPIRB has a means of remote activation which is installed near the position from which the ship is normally navigated; or
- .3 a second EPIRB near the position from which the ship is normally navigated.

Regulation 9 – Radio equipment: Sea area A2

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

- .1 an MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies:
 - .1 2 187.5 kHz using DSC; and
 - .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 paragraph 1.1; and

- .3 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:
 - .1 through the satellite service on 406 MHz; or
 - .2 on HF using DSC; or
 - .3 through a recognized mobile satellite service ship earth station.
- 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 requirement in paragraph 1.3.1 may be fulfilled by installing:
 - .1 the EPIRB required by regulation 7.1.5 close to the position from which the ship is normally navigated, but in a location whereby it can still float free of the ship in an emergency; or
 - .2 the EPIRB required by regulation 7.1.5 elsewhere on the ship, provided that this EPIRB has a means of remote activation which is installed near the position from which the ship is normally navigated; or
 - .3 a second EPIRB near the position from which the ship is normally navigated.
- 4 The ship shall, in addition, be capable of transmitting and receiving general radiocommunications 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 fulfilled by the addition of this capability in the equipment required by paragraph 1.1; or
 - .2 a recognized mobile satellite service ship earth station.

Regulation 10 – Radio equipment: Sea area A3

- 1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages within sea area A3, shall be provided with:
 - .1 a recognized mobile satellite service ship earth station capable of:
 - .1 transmitting and receiving distress, urgency and safety communications;
 - .2 initiating and receiving distress priority calls; and
 - .3 maintaining watch for shore-to-ship distress alert relays, including those directed to specifically defined geographical areas;
 - .2 an MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies:
 - .1 2 187.5 kHz using DSC; and
 - .2 2 182 kHz using radiotelephony;

- .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 paragraph 1.2; and
- .4 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:
 - .1 through the satellite service on 406 MHz; or
 - .2 on HF using DSC; or
 - .3 through any recognized mobile satellite service on an additional ship earth station.

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

3 The requirement in paragraph 1.4.1 may be fulfilled by installing:

- .1 the EPIRB required by regulation 7.1.5 close to the position from which the ship is normally navigated, but in a location whereby it can still float free of the ship in an emergency; or
- .2 the EPIRB required by regulation 7.1.5 elsewhere on the ship, provided that this EPIRB has a means of remote activation which is installed near the position from which the ship is normally navigated; or
- .3 a second EPIRB near the position from which the ship is normally navigated.

4 The ship shall, in addition, be capable of transmitting and receiving general radiocommunications by either:

- .1 a recognized mobile satellite service ship earth station; or
- .2 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.

5 The requirements in paragraphs 4.1 and 4.2 may be fulfilled by the addition of this capability in the equipment required by paragraph 1.1 or 1.2, respectively.

Regulation 11 – Radio equipment: Sea area A4

1 In addition to meeting the requirements of regulation 7, every ship engaged on voyages within sea area A4 shall be provided with:

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

- .2 equipment capable of maintaining DSC watch on 2 187.5 kHz, 8 414.5 kHz and on at least one of the DSC frequencies 4 207.5 kHz, 6 312 kHz, 12 577 kHz or 16 804.5 kHz; it shall be possible at any time to select any of these DSC frequencies for distress, urgency and safety communications purposes. This equipment may be separate from, or combined with, the equipment required by paragraph 1.1; and
- .3 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radiocommunication service other than HF operating through the satellite service on 406 MHz.

2 The ship shall, in addition, be capable of transmitting and receiving general radiocommunications by a 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 paragraph 1.1.

3 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.

4 The requirement in paragraph 1.3 may be fulfilled by installing:

- .1 the EPIRB required by regulation 7.1.5 close to the position from which the ship is normally navigated, but in a location whereby it can still float free of the ship in an emergency; or
- .2 the EPIRB required by regulation 7.1.5 elsewhere on the ship, provided that this EPIRB has a means of remote activation which is installed near the position from which the ship is normally navigated; or
- .3 a second EPIRB near the position from which the ship is normally navigated.

Regulation 12 – Watches

1 Every ship, while at sea, shall maintain a continuous radio watch for distress, urgency and safety communications purposes:

- .1 on VHF DSC channel 70;
- .2 on DSC frequency 2 187.5 kHz, if the ship, in accordance with the requirements of regulation 9.1.1 or 10.1.2, is fitted with an MF radio installation;
- .3 on DSC frequencies 2 187.5 kHz and 8 414.5 kHz and also on at least one of the 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 11.1.2, is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver; and
- .4 for satellite shore-to-ship distress alert relays, if the ship, in accordance with the requirements of regulation 10.1.1, is fitted with a recognized mobile satellite service ship earth station.

2 Every ship, while at sea, shall maintain a radio watch for broadcasts of MSI and search and rescue related 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, which shall be kept at the position from which the ship is normally navigated, on:

- .1 VHF channel 16; and
- .2 other appropriate frequencies for urgency and safety communications for the area in which the ship is navigating.

Regulation 13 – Sources of energy

1 While the ship is at sea, a supply of electrical energy shall be available at all times 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, urgency and safety communications, 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, as appropriate for the sea area or sea areas for which the ship is equipped, either the MF radio installation required by regulation 9.1.1 or 10.1.2, the MF/HF radio installation required by regulation 11.1.1, or the 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 one hour on ships provided with an emergency source of electrical power, if such source of power complies fully with all relevant provisions of regulation II-1/42 or 43, including the supply of such power to the radio installations; and
- .2 six hours on ships not provided with an emergency source of electrical power complying fully with all relevant provisions of regulation II-1/42 or 43, including the supply of such power to the radio installations.¹⁵

The reserve source or sources of 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 hours; and
- .2 the capacity of the battery or batteries shall be checked, using an appropriate method,¹⁶ at intervals not exceeding 12 months, when the ship is not at sea.

7 The siting 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;
- .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 required by this chapter, including the navigation receiver referred to in regulation 18, 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.

¹⁵ 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: 1/2 of the current consumption necessary for transmission + the current consumption necessary for reception + the current consumption of any additional loads.

¹⁶ One method of checking the capacity of an accumulator battery is to fully discharge and recharge the battery, using normal operating current and period. 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.

Regulation 14 – Performance standards

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.¹⁷

¹⁷ Refer to the following resolutions adopted by the Organization:

General requirements

- .1 *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids (resolution A.694(17));*
- .2 *Performance standards for the presentation of navigation-related information on shipborne navigational displays (resolution MSC.191(79), as amended);*

- .3 *Performance standards for bridge alert management* (resolution MSC.302(87));
- VHF equipment**
- .4 *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling* (resolution MSC.[...]);
- .5 *Performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.[...]);
- .6 *Recommendation on Performance standards for on-scene (aeronautical) portable two-way VHF radiotelephone apparatus* (annex 1 to resolution MSC.80(70), as amended);
- MF and HF equipment**
- .7 *System performance standard for the promulgation and coordination of maritime safety information using high-frequency narrow-band direct-printing* (resolution MSC [...]);
- .8 *Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information* (resolution MSC.[...]);
- .9 *Performance standards for the reception of maritime safety information and search and rescue related information by MF (NAVTEX) and HF* (resolution MSC.[...]);
- Ship earth stations and enhanced group call (EGC) equipment**
- .10 *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications* (resolution MSC.[...]);
- .11 *Revised performance standards for enhanced group call (EGC) equipment* (resolution MSC.306(87), as amended);
- .12 *Performance standards for a ship earth station for use in the GMDSS* (resolution MSC.434(98));
- Integrated radiocommunication systems**
- .13 *Performance standards for a shipborne integrated communication system (ICS) when used in the Global Maritime Distress and Safety System (GMDSS)* (resolution MSC.[...]);
- Emergency position-indicating radio beacons**
- .14 *Performance standards for float-free release and activation arrangements for emergency radio equipment* (resolution A.662(16));
- .15 *Performance standards for float-free emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz* (resolution MSC.471(101));
- Search and rescue transmitters and transponders**
- .16 *Performance standards for search and rescue radar transponders* (resolution MSC.[...]); and
- .17 *Performance standards for survival craft AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations* (resolution MSC.246(83)).

Regulation 15 – Maintenance 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 onboard 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.¹⁸

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

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 or 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.

7 On ships engaged on voyages in sea areas A3 or 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.

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 4.1.2 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, urgency and safety functions.

9 EPIRBs shall be:

- .1 annually tested, either on board the ship¹⁹ or at an approved testing station, 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 three months before the expiry date of the Passenger Ship Safety Certificate; and
 - .2 on cargo ships, within three months before the expiry date, or within three months before or after the anniversary date, of the Cargo Ship Safety Radio Certificate; and
- .2 subject to maintenance at intervals not exceeding five years, to be performed at an approved shore-based maintenance facility.²⁰

¹⁸ Refer to *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids* (resolution A.694(17)), *General requirements for electromagnetic compatibility (EMC) for all electrical and electronic ship's equipment* (resolution A.813(19)), and *Clarifications of certain requirements in IMO performance standards for GMDSS equipment* (MSC/Circ.862).

¹⁹ Refer to *Guidelines on annual testing of emergency position-indicating radio beacons (EPIRBs)* (MSC.1/Circ.1040/Rev.2) and *Guidelines for the avoidance of false distress alerts* (resolution MSC.[...]).

²⁰ Refer to *Guidelines for shore-based maintenance of emergency position-indicating radio beacons (EPIRBs)* (MSC.1/Circ.1039/Rev.1)

Regulation 16 – Radio personnel

1 Every ship shall carry personnel qualified for distress, urgency and safety communications purposes to the satisfaction of the Administration.²¹ The personnel shall be holders of the appropriate certificates specified in the Radio Regulations; one of the personnel shall be designated as having primary responsibility for communications during distress incidents.

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

²¹ Refer to the STCW Code, chapter IV, section B-IV/2.

Regulation 17 – Radio records

A record shall be kept on board, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication services which appear to be of importance to safety of life at sea.

Regulation 18 – Position-updating

1 All two-way communication equipment carried on board a ship to which this chapter applies which is capable of automatically including the ship's position in the distress alert shall be automatically provided with this information from an internal or external navigation receiver.²²

2 In case of malfunction of the internal or external navigation receiver, the ship's position and the time at which the position was determined shall be manually updated at intervals not exceeding four hours, while the ship is under way, so that it is always ready for transmission by the equipment.

²² Requirements for automatic update of the ship's position are given in resolutions MSC.[...].

CHAPTER V SAFETY OF NAVIGATION

Regulation 5 – Meteorological services and warnings

5 The footnote under paragraph 2.2, after the word "services", is replaced by the following:

"
*
Refer to regulation IV/7.1.4."

Regulation 19-1 – Long-range identification and tracking of ships

6 Paragraphs 4.1 and 4.2 are replaced by the following:

"4.1 Ships¹ shall be fitted with a system to automatically transmit the information specified in paragraph 5 as follows:

.1 ships constructed on or after 31 December 2008;

- .2 ships constructed before 31 December 2008 and certified for operations:
- .1 in sea areas A1 and A2, as defined in regulations IV/2.1.15 and IV/2.1.16; or
 - .2 in sea areas A1, A2 and A3, as defined in regulations IV/2.1.15, IV/2.1.16 and IV/2.1.17,
- not later than the first survey² of the radio installation after 31 December 2008;
- .3 ships constructed before 31 December 2008 and certified for operations in sea areas A1, A2, A3 and A4, as defined in regulations IV/2.1.15, IV/2.1.16, IV/2.1.17 and IV/2.1.18, not later than the first survey² of the radio installation after 1 July 2009. However, these ships shall comply with the provisions of sub-paragraph .2 above while they operate within sea areas A1, A2 and A3.

4.2 Ships, irrespective of the date of construction, fitted with an automatic identification system (AIS), as defined in regulation 19.2.4, and operated exclusively within sea area A1, as defined in regulation IV/2.1.15, shall not be required to comply with the provisions of this regulation.

¹ Refer to *Guidance on the survey and certification of compliance of ships with the requirement to transmit LRIT information* (MSC.1/Circ.1307).

² Refer to *Unified interpretation of the term "first survey" referred to in SOLAS regulation* (MSC.1/Circ.1290)."

APPENDIX

CERTIFICATES

FORMS OF CERTIFICATES

Passenger Ship Safety Certificate
Cargo Ship Safety Radio Certificate
Nuclear Passenger Ship Safety Certificate
Nuclear Cargo Ship Safety Certificate

7 In the Passenger Ship Safety Certificate, the Cargo Ship Safety Radio Certificate, the Nuclear Passenger Ship Safety Certificate and the Nuclear Cargo Ship Safety Certificate, a footnote is included under the section "Particulars of Ship", after the existing sentence "Sea areas in which ship is certified to operate (regulation IV/2)", as follows:

"
*
For a ship certified to operate in sea area A3, indicate the recognized mobile satellite service in brackets."

RECORDS OF EQUIPMENT

Record of Equipment for Passenger Ship Safety (Form P)
Record of Equipment for Cargo Ship Safety (Form E)
Record of Equipment for Cargo Ship Safety Radio (Form R)
Record of Equipment for Cargo Ship Safety (Form C)

8 In part 2 of the Record of Equipment for Passenger Ship Safety (Form P), items 13, 13.1, 13.1.1, 13.1.2 and 13.2 are deleted.

9 In part 2 of the Record of Equipment for Cargo Ship Safety (Form E) and of the Record of Equipment for Cargo Ship Safety (Form C), items 11, 11.1, 11.1.1, 11.1.2 and 11.2 are deleted.

10 In part 3 of the Record of Equipment for Passenger Ship Safety (Form P) and of the Record of Equipment for Cargo Ship Safety (Form C), and in part 2 of the Record of Equipment for Cargo Ship Safety Radio (Form R), item 1.3.4 is deleted and items 2, 3, 3.1, 3.2, 3.3, 4, 4.1, 5, 6, 6.1 and 6.2 are replaced by the following:

- "2 Secondary means of initiating the transmission of ship-to-shore distress alerts
- 3 Facilities for reception of MSI and search and rescue related information
- 4 EPIRB
- 5 Two-way VHF radiotelephone apparatus
- 5.1 Portable two-way VHF radiotelephone apparatus
- 5.2 Two-way VHF radiotelephone apparatus fitted in survival craft
- 6 Search and rescue locating devices
- 6.1 Radar search and rescue transponders (radar SART) stowed for rapid placement in survival craft
- 6.2 Radar search and rescue transponders (radar SART) stowed in survival craft
- 6.3 AIS search and rescue transmitters (AIS-SART) stowed for rapid placement in survival craft
- 6.4 AIS search and rescue transmitters (AIS-SART) stowed in survival craft"

ANNEX 2

**DRAFT AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO THE
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

ANNEX

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

APPENDIX

**MODIFICATIONS AND ADDITIONS TO THE APPENDIX TO THE ANNEX TO THE
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

**Passenger Ship Safety Certificate
Cargo Ship Safety Certificate**

In the Passenger Ship Safety Certificate and the Cargo Ship Safety Certificate, a footnote is included under the section "Particulars of Ship", after the existing sentence "Sea areas in which ship is certified to operate (regulation IV/2)", as follows:

"
* _____
For a ship certified to operate in sea area A3, indicate the recognized mobile satellite service in brackets."

ANNEX 3**DRAFT AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)****CHAPTER 8
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

- 1 Paragraphs 8.2.1, 8.2.1.1 and 8.2.1.2, are replaced by the following:

"8.2.1 [Reserved*]"

*
The provisions related to two-way VHF radiotelephone apparatus and search and rescue locating devices were relocated under chapter 14 of the 2000 HSC Code (resolution MSC.97(73), as amended up to and including resolution MSC.[...]). Paragraph 8.2.1 was intentionally left blank to avoid renumbering of existing paragraphs."

**CHAPTER 14
RADIOCOMMUNICATIONS**

- 2 The text of chapter 14 is replaced by the following:

"Craft should be provided with radiocommunications facilities as specified in chapter 14 of the 2000 HSC Code (resolution MSC.97(73)), as amended up to and including resolution MSC.[...], that are fitted and operated in accordance with the provisions of that chapter."

ANNEX 1**FORM OF SAFETY CERTIFICATE FOR HIGH-SPEED CRAFT****Record of Equipment for High-Speed Craft Safety Certificate**

- 3 In part 2 (Details of life-saving appliances), items 11, 11.1 and 11.2 are deleted.
- 4 In part 3 (Details of radio facilities), item 1.3.4 is deleted and items 2, 3, 3.1, 3.2, 3.3, 4, 4.1, 4.2, 5 and 6 are replaced by the following:

- "2 Secondary means of initiating the transmission of ship-to-shore distress alerts
- 3 Facilities for reception of MSI and search and rescue related information
- 4 EPIRB
- 5 Two-way VHF radiotelephone apparatus
- 6 Radar SART or AIS-SART"

ANNEX 4

DRAFT AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)

CHAPTER 8 LIFE-SAVING APPLIANCES AND ARRANGEMENTS

1 Paragraphs 8.2.1, 8.2.1.1 and 8.2.1.2, are replaced by the following:

"8.2.1 [Reserved*]

* Refer to chapter 14 for provisions related to two-way VHF radiotelephone apparatus and search and rescue locating devices. Paragraph 8.2.1 was intentionally left blank to avoid renumbering of existing paragraphs."

CHAPTER 14 RADIOCOMMUNICATIONS

2 The text of chapter 14 (Radiocommunications) is replaced by the following:

"14.1 Application

14.1.1 Unless expressly provided otherwise, this chapter applies to all craft specified in 1.3.1 and 1.3.2.

14.1.2 This chapter does not apply to craft to which this Code would otherwise apply while such craft are being navigated within the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of the St. Lambert Lock at Montreal in the Province of Quebec, Canada.¹

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

¹ Such craft are subject to special requirements relative to radio for safety purposes, as contained in the relevant agreement between Canada and the United States.

14.2 Terms and definitions

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

- .1 *AIS-SART* means an automatic identification system search and rescue transmitter capable of operating on frequencies dedicated for AIS (161.975 MHz (AIS1) and 162.025 MHz (AIS2)).
- .2 *Bridge-to-bridge communications* means safety radiocommunications between craft and ships from the position from which the craft is normally navigated.

- .3 *Continuous radio watch* means that the radio and listening watch concerned shall not be interrupted other than for brief intervals when the craft's receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks.
- .4 *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 Radiocommunication Sector (ITU-R).
- .5 *Emergency position-indicating radio beacon (EPIRB)* means a transmitter operating in the frequency band 406.0-406.1 MHz capable of, transmitting a distress alert via satellite to a rescue coordination centre, and transmitting signals for on-scene locating.
- .6 *General radiocommunications* means communications other than distress, urgency and safety communications.
- .7 *Global Maritime Distress and Safety System (GMDSS)* means a system that performs the functions set out in paragraph 14.5.
- .8 *GMDSS identities* means information which may be transmitted to uniquely identify the craft or its associated rescue boats and survival craft. These identities are the craft's call sign, Maritime Mobile Service Identity (MMSI), EPIRB hexadecimal identity, recognized mobile satellite service identities and equipment serial numbers.
- .9 *Locating* means the finding of ships, craft, aircraft, survival craft or persons in distress.
- .10 *Maritime safety information (MSI)*² means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships and craft.
- .11 *Radar SART* means a search and rescue transponder operating on radar frequencies in the frequency band 9.2 – 9.5 GHz.
- .12 *Radio Regulations* mean the Radio Regulations complementing the Constitution and Convention of the International Telecommunications Union which is in force at any given time.
- .13 *Recognized mobile satellite service* means any service which operates through a satellite system and is recognized by the Organization, for use in GMDSS.
- .14 *Satellite service on 406 MHz* means a service operating through a satellite system having global availability designed to detect EPIRBs transmitting in the frequency band 406.0-406.1 MHz.
- .15 *Sea area A1* means an area within the radiotelephone coverage of at least one very high frequency (VHF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government to the Convention.³

- .16 *Sea area A2* means an area, excluding sea area A1, within the radiotelephone coverage of at least one medium frequency (MF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government to the Convention.³
- .17 *Sea area A3* means an area, excluding sea areas A1 and A2, within the coverage of a recognized mobile satellite service supported by the ship earth station carried on board, in which continuous alerting is available.
- .18 *Sea area A4* means an area outside of sea areas A1, A2 and A3.

14.2.2 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, 1979, as it may be amended, shall have the meanings as defined in those Regulations and the SAR Convention.

² Refer to *Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI)* (MSC.1/Circ.1310, as revised).

³ Refer to *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS)* (resolution MSC.[...]).

14.3 Exemptions

14.3.1 It is considered highly desirable not to deviate from the requirements of this chapter; nevertheless, the Administration, in conjunction with the base port State, may grant partial or conditional exemptions to individual craft from the requirements of 14.7 to 14.11 provided:

- .1 such craft comply with the functional requirements of 14.5; 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 and craft.

14.3.2 An exemption may be granted under 14.3.1 only:

- .1 if the conditions affecting safety are such as to render the full application of 14.7 to 14.11 unreasonable or unnecessary; or
- .2 in exceptional circumstances, for a single voyage outside the sea area or sea areas for which the craft is equipped.

14.3.3 Each Administration shall report to the Organization on all exemptions granted under 14.3.1 and 14.3.2 giving the reasons for granting such exemptions.⁴

⁴ Exemptions should be reported through the Organization's Global Integrated Shipping Information System (GISIS) with reference to *Issue of Exemption Certificates under the 1974 SOLAS Convention and Amendments thereto* (SLS.14/Circ.115, as amended).

14.4 GMDSS Identities

14.4.1 This section applies to all craft on all voyages.

14.4.2 Each Administration undertakes to ensure that suitable arrangements are made for registering GMDSS identities and for making information on these identities available to rescue coordination centres on a 24-hour basis. Where appropriate, international organizations maintaining a registry of these identities, such as the ITU Maritime Mobile Access and Retrieval System (MARS), shall be notified by the Administration of these identity assignments.

14.5 Functional requirements⁵

14.5.1 Every craft, while at sea, shall be capable of:

- .1 performing the GMDSS functions, which are as follows:
 - .1 transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;
 - .2 receiving shore-to-ship distress alert relays;
 - .3 transmitting and receiving ship-to-ship distress alerts;
 - .4 transmitting and receiving search and rescue coordinating communications;
 - .5 transmitting and receiving on-scene communications;
 - .6 transmitting and receiving signals for locating;⁶
 - .7 receiving MSI;⁷
 - .8 transmitting and receiving urgency and safety radiocommunications; and
 - .9 transmitting and receiving bridge-to-bridge communications; and
- .2 transmitting and receiving general radiocommunications.

⁵ It should be noted that ships performing GMDSS functions should use *Guidelines for the avoidance of false distress alerts* (resolution MSC.[...]).

⁶ Refer also to 13.5 and 13.15, as appropriate.

⁷ It should be noted that craft may have a need for reception of certain maritime safety information while in port.

14.6 Radio installations

14.6.1 Every craft shall be provided with radio installations capable of complying with the functional requirements prescribed by 14.5 throughout its intended voyage and, unless exempted under 14.3, complying with the requirements of 14.7 and, as appropriate for the sea area or areas through which it will pass during its intended voyage, the requirements of either 14.8, 14.9, 14.10 or 14.11.

14.6.2 Every radio installation shall:

- .1 be located in such a way that no harmful interference of mechanical, electrical or other origin affects its proper use, and that electromagnetic compatibility is ensured and harmful interaction avoided 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 sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation; and
- .5 be clearly marked with the GMDSS identities, as applicable, for use by the radio installation operator.

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

14.6.4 In passenger craft, a distress panel shall be installed at the conning position, which shall:

- .1 contain either one single button which, when pressed, initiates a distress alert using all radio installations required on board for that purpose or one button for each individual installation;
- .2 clearly and visually indicate whenever any button or buttons have been pressed; and
- .3 be provided with means to prevent inadvertent activation of the button or buttons referred to in 14.6.4.1 and 14.6.4.2.

14.6.5 In passenger craft, if an EPIRB is used as the secondary means of distress alerting and is not remotely activated from the distress panel, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

14.6.6 In passenger craft, a distress alert panel shall be installed at the conning position, which:

- .1 shall provide visual and aural indication of any distress alert or alerts received on board;
- .2 shall indicate through which radiocommunication service the distress alerts have been received; and
- .3 may be combined with the distress panel.

14.7 Radio equipment: General

14.7.1 Every craft shall be provided with:

- .1 a VHF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes:
 - .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 craft is normally navigated; and
 - .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 14.7.1.1.1;
- .3 a radar SART or an AIS-SART, which:
 - .1 shall be so stowed that it can be easily utilized; and
 - .2 may be one of those required by 14.7.2.1 for a survival craft;
- .4 receiver(s) capable of receiving MSI and search and rescue related information throughout the entire voyage in which the craft is engaged;⁸
- .5 an EPIRB⁹ which shall be:
 - .1 installed in an easily accessible position;
 - .2 ready to be manually released and capable of being carried by one person into a survival craft;
 - .3 capable of floating free if the craft sinks and of being automatically activated when afloat; and
 - .4 capable of being activated manually; and
- .6 a radio installation capable of transmitting and receiving general radiocommunications operating on working frequencies in the band between 156 MHz and 174 MHz. This requirement may be fulfilled by the addition of this capability in the equipment required by 14.7.1.1.

14.7.2 Every passenger high-speed craft and every cargo high-speed craft of 500 gross tonnage and upwards shall be provided with at least:

- .1 one radar SART or AIS-SART on each side of the craft; and
- .2 three two-way VHF radiotelephone apparatuses.

14.7.3 The radar SARTs or AIS-SARTs required by 14.7.2.1 shall be stowed in such locations that they can be rapidly placed in any one of the liferafts. Alternatively, one radar SART or AIS-SART shall be stowed in each survival craft.

14.7.4 Every passenger craft 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 craft is normally navigated. These means may be portable.

⁸ Refer to *Guidance for reception of maritime safety information and search and rescue related information as required in the Global Maritime Distress and Safety System (GMDSS)* (MSC.1/Circ.[...]).

⁹ Refer to *Search and rescue homing capability* (resolution A.616(15))

14.8 Radio equipment: sea area A1

14.8.1 In addition to meeting the requirements of 14.7, every craft engaged on voyages 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 craft is normally navigated, operating either:

- 1 through the satellite service on 406 MHz; or
- 2 if the craft is on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or
- 3 on high frequency (HF) using DSC; or
- 4 through a recognized mobile satellite service ship earth station.

14.8.2 The requirement in 14.8.1.1 may be fulfilled by installing:

- .1 the EPIRB required by 14.7.1.5 close to the position from which the craft is normally navigated, but in a location whereby it can still float free of the craft in an emergency; or
- .2 the EPIRB required by 14.7.1.5 elsewhere on the craft, provided that this EPIRB has a means of remote activation which is installed near the position from which the craft is normally navigated; or
- .3 a second EPIRB near the position from which the craft is normally navigated.

14.9 Radio equipment: sea area A2

14.9.1 In addition to meeting the requirements of 14.7, every craft engaged on voyages within sea area A2, shall be provided with:

- .1 an MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies:
 - .1 2 187.5 kHz using DSC; and
 - .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 14.9.1.1; and

- .3 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF, operating either:
 - .1 through the satellite service on 406 MHz; or
 - .2 on HF using DSC; or
 - .3 through recognized mobile satellite service ship earth station.

14.9.2 It shall be possible to initiate transmission of distress alerts by the radio installations specified in 14.9.1.1 and 14.9.1.3 from the position from which the craft is normally navigated.

14.9.3 The requirement in 14.9.1.3.1 may be fulfilled by installing:

- .1 the EPIRB required by 14.7.1.5 close to the position from which the craft is normally navigated, but in a location whereby it can still float free of the craft in an emergency; or
- .2 the EPIRB required by 14.7.1.5 elsewhere on the craft, provided that this EPIRB has a means of remote activation which is installed near the position from which the craft is normally navigated; or
- .3 a second EPIRB near the position from which the craft is normally navigated.

14.9.4 The craft shall, in addition, be capable of transmitting and receiving general radiocommunications 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 fulfilled by the addition of this capability in the equipment required by 14.9.1.1; or
- .2 a recognized mobile satellite service ship earth station.

14.10 Radio equipment: sea area A3

14.10.1 In addition to meeting the requirements of 14.7, every craft engaged on voyages within sea area A3, shall be provided with:

- .1 a recognized mobile satellite service ship earth station capable of:
 - .1 transmitting and receiving distress, urgency and safety communications;
 - .2 initiating and receiving distress priority calls; and
 - .3 maintaining watch for shore-to-ship distress alert relays, including those directed to specifically defined geographical areas;
- .2 an MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies:
 - .1 2 187.5 kHz using DSC; and

- .2 2 182 kHz using radiotelephony;
- .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 14.10.1.2; and
- .4 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:
 - .1 through the satellite service on 406 MHz; or
 - .2 on HF using DSC; or
 - .3 through any recognized mobile satellite service on an additional ship earth station.

14.10.2 It shall be possible to initiate transmission of distress alerts by the radio installations specified in 14.10.1.1, 14.10.1.2 and 14.10.1.4 from the position from which the craft is normally navigated.

14.10.3 The requirement in 14.10.1.4.1 may be fulfilled by installing:

- .1 the EPIRB required by 14.7.1.5 close to the position from which the craft is normally navigated, but in a location whereby it can still float free of the craft in an emergency; or
- .2 the EPIRB required by 14.7.1.5 elsewhere on the craft, provided that this EPIRB has a means of remote activation which is installed near the position from which the craft is normally navigated; or
- .3 a second EPIRB near the position from which the craft is normally navigated.

14.10.4 The craft shall, in addition, be capable of transmitting and receiving general radiocommunications by either:

- .1 a recognized mobile satellite service ship earth station; or
- .2 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.

14.10.5 The requirements in 14.10.4.1 and 14.10.4.2 may be fulfilled by the addition of this capability in the equipment required by 14.10.1.1 or 14.10.1.2, respectively.

14.11 Radio equipment: sea area A4

14.11.1 In addition to meeting the requirements of 14.7, every craft engaged on voyages within sea area A4, shall be provided with:

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

- .2 using radiotelephony;
- .2 equipment capable of maintaining DSC watch on 2 187.5 kHz, 8 414.5 kHz and on at least one of the DSC frequencies 4 207.5 kHz, 6 312 kHz, 12 577 kHz or 16 804.5 kHz; it shall be possible at any time to select any of these DSC frequencies for distress, urgency and safety communications purposes. This equipment may be separate from, or combined with, the equipment required by 14.1.1; and
- .3 a secondary means of initiating the transmission of ship-to-shore distress alerts by a radio communication service other than HF operating through the satellite service on 406 MHz.

14.11.2 The craft shall, in addition, be capable of transmitting and receiving general radiocommunications by a 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 14.11.1.1.

14.11.3 It shall be possible to initiate transmission of distress alerts by the radio installations specified in 14.11.1.1 and 14.11.1.3 from the position from which the craft is normally navigated.

14.11.4 The requirement in 14.11.1.3 may be fulfilled by installing:

- .1 the EPIRB required by 14.7.1.5 close to the position from which the craft is normally navigated, but in a location whereby it can still float free of the craft in an emergency; or
- .2 the EPIRB required by 14.7.1.5 elsewhere on the craft, provided that this EPIRB has a means of remote activation which is installed near the position from which the craft is normally navigated; or
- .3 a second EPIRB near the position from which the craft is normally navigated.

14.12 Watches

14.12.1 Every craft, while at sea, shall maintain a continuous radio watch for distress, urgency and safety communications purposes:

- .1 on VHF DSC channel 70;
- .2 on DSC frequency 2 187.5 kHz, if the craft, in accordance with the requirements of 14.9.1.2 or 14.10.1.3, is fitted with an MF radio installation;
- .3 on DSC frequencies 2 187.5 kHz and 8 414.5 kHz and also on at least one of the 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 craft, if the craft, in accordance with the requirement of 14.11.1.2, is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver; and
- .4 for satellite shore-to-ship distress alert relays, if the craft, in accordance with the requirements of 14.10.1.1, is fitted with a recognized mobile satellite service ship earth station.

14.12.2 Every craft, while at sea, shall maintain a radio watch for broadcasts of MSI and search and rescue related information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the craft is navigating.

14.12.3 Every craft, while at sea, shall maintain, when practicable, a continuous listening watch, which shall be kept at the position from which the craft is normally navigated, on:

- .1 VHF channel 16; and
- .2 other appropriate frequencies for urgency and safety radiocommunications for the area in which the craft is navigating.

14.13 Sources of energy

14.13.1 While the craft is at sea, a supply of electrical energy shall be available at all times sufficient to operate the radio installations and to charge any batteries used as part of a reserve source of energy for the radio installations.

14.13.2 A reserve source or sources of energy shall be provided on every craft to supply radio installations, for the purpose of conducting distress, urgency and safety communications, in the event of failure of the craft's main and emergency sources of electrical power. The reserve source of energy shall be capable of simultaneously operating the VHF radio installation required by 14.7.1.1 and, as appropriate for the sea area or sea areas for which the craft is equipped, either the MF radio installation required by 14.9.1.1 or 14.10.1.2, the MF/HF radio installation required by 14.11.1.1 or the ship earth station required by 14.10.1.1 and any of the additional loads mentioned in 14.13.5 and 14.13.8 for a period of at least:

- .1 one hour on craft provided with an emergency source of electrical power, if such source of power complies fully with all relevant provisions of 12.3 and 12.7 or 12.8, including the supply of such power to the radio installations; and
- .2 six hours on crafts not provided with an emergency source of electrical power complying fully with all relevant provisions of 12.3 and 12.7 or 12.8, including the supply of such power to the radio installations.

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

14.13.3 The reserve source of energy shall be independent of the propelling power of the craft and the craft's electrical system.

14.13.4 Where, in addition to the VHF radio installation, two or more of the other radio installations referred to in 14.13.2 can be connected to the reserve source or sources of energy, they shall be capable of simultaneously supplying, for the period specified in 14.13.2, the VHF radio installation and:

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

14.13.5 The reserve source of energy may be used to supply the electrical lighting required by 14.6.2.4.

14.13.6 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 hours; and
- .2 the capacity of the battery or batteries shall be checked, using an appropriate method,¹⁰ at intervals not exceeding 12 months, when the craft is not at sea.

14.13.7 The siting 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;
- .3 reasonable safety;
- .4 that the 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.

14.13.8 If an uninterrupted input of information from the craft's navigational or other equipment to a radio installation required by this chapter is needed to ensure its proper performance, including the navigation receiver referred to in 14.18, means shall be provided to ensure the continuous supply of such information in the event of failure of the craft's main or emergency source of electrical power.

¹⁰ One method of checking the capacity of an accumulator battery is to fully discharge and recharge the battery, using normal operating current and period. 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.

14.14 Performance standards

14.14.1 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.¹¹

¹¹ Refer to the following performance standards adopted by the Organization:

General requirements

- .1 *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids* (resolution A.694(17));
- .2 *Performance standards for the presentation of navigation-related information on shipborne navigational displays* (resolution MSC.191(79), as amended);

- .3 *Performance standards for bridge alert management* (resolution MSC.302(87));

VHF equipment

- .4 *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling* (resolution MSC.[...]);
- .5 *Performance standards for survival craft portable two-way VHF radiotelephone apparatus* (resolution MSC.[...]);
- .6 *Recommendation on Performance standards for on-scene (aeronautical) portable two-way VHF radiotelephone apparatus* (annex 1 to resolution MSC.80(70), as amended);

MF and HF equipment

- .7 *System performance standard for the promulgation and coordination of maritime safety information using high-frequency narrow-band direct-printing* (resolution MSC [...]);
- .8 *Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information* (resolution MSC.[...]);
- .9 *Performance standards for the reception of maritime safety information and search and rescue related information by MF (NAVTEX) and HF* (resolution MSC.[...]);

Ship earth stations and enhanced group call (EGC) equipment

- .10 *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications* (resolution MSC.[...]);
- .11 *Revised performance standards for enhanced group call (EGC) equipment* (resolution MSC.306(87), as amended);
- .12 *Performance standards for a ship earth station for use in the GMDSS* (resolution MSC.434(98));

Integrated radiocommunication systems

- .13 *Performance standards for a shipborne integrated communication system (ICS) when used in the Global Maritime Distress and Safety System (GMDSS)* (resolution MSC.[...]);

Emergency position-indicating radio beacons

- .14 *Performance standards for float-free release and activation arrangements for emergency radio equipment* (resolution A.662(16));
- .15 *Performance standards for float-free emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz* (resolution MSC.471(101));

Search and rescue transmitters and transponders

- .16 *Performance standards for search and rescue radar transponders* (resolution MSC.[...]);
and
- .17 *Performance standards for survival craft AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations* (resolution MSC.246(83)).

14.15 Maintenance requirements

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

14.15.2 Where applicable, equipment shall be so constructed and installed that it is readily accessible for inspection and onboard maintenance purposes.

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

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

14.15.5 The Administration shall ensure that radio equipment required by this chapter is maintained to provide the availability of the functional requirements specified in 14.5 and to meet the recommended performance standards of such equipment.

14.15.6 On craft engaged on voyages in sea areas A1 or 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.

14.15.7 On craft engaged on voyages in sea areas A3 or 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.

14.15.8 However, for craft operating solely between ports where adequate facilities for shore-based maintenance of the radio installations are available, and provided no journey between two such ports exceeds six hours, then the Administration may exempt such craft from the requirement to use at least two maintenance methods. For such craft, at least one maintenance method shall be used.

14.15.9 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 14.5, malfunction of the equipment for providing the general radiocommunications, required by 14.5.1.2, shall not be considered as making a craft unseaworthy or as a reason for delaying the craft in ports where repair facilities are not readily available, provided the craft is capable of performing all distress, urgency and safety functions.

14.15.10 EPIRBs shall be:

- .1 annually tested, either on board the craft¹³ or at an approved testing station, for all aspects of operational efficiency with special emphasis on checking the emission on operational frequencies, coding and registration, at intervals specified below:
 - .1 on passenger craft, within three months before the expiry date of the High-Speed Craft Safety Certificate; and
 - .2 on cargo craft, within three months before the expiry date, or within three months before or after the anniversary date, of the High-Speed Craft Safety Certificate; and
- .2 subject to maintenance at intervals not exceeding five years, to be performed at an approved shore-based maintenance facility.¹⁴

¹² Refer to *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids* (resolution A.694(17)), *General requirements for electromagnetic compatibility (EMC) for all electrical and electronic ship's equipment* (resolution A.813(19)), and *Clarifications of certain requirements in IMO performance standards for GMDSS equipment* (MSC/Circ.862).

¹³ Refer to *Guidelines on annual testing of emergency position-indicating radio beacons (EPIRBs)* (MSC.1/Circ.1040/Rev.2) and *Guidelines for the avoidance of false distress alerts* (resolution MSC.[...]).

¹⁴ Refer to *Guidelines for shore-based maintenance of emergency position-indicating radio beacons (EPIRBs)* (MSC.1/Circ.1039/Rev.1).

14.16 Radio personnel

14.16.1 Every craft shall carry personnel qualified for distress, urgency and safety communications purposes to the satisfaction of the Administration. The personnel shall be holders of the appropriate certificates specified in the Radio Regulations; one of the personnel shall be designated as having primary responsibility for communications during distress incidents.

14.16.2 In passenger craft, at least one person qualified in accordance with 14.16.1 shall be assigned to perform only communications duties during distress incidents.

14.17 Radio records

A record shall be kept on board, 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.

14.18 Position-updating

14.18.1 All two-way communication equipment carried on board craft to which this chapter applies which is capable of automatically including the craft's position in the distress alert shall be automatically provided with this information from an internal or external navigation receiver.

14.18.2 In case of malfunction of the internal or external navigation receiver the craft's position and the time at which the position was determined shall be manually updated at intervals not exceeding four hours, while the craft is under way, so that it is always ready for transmission by the equipment."

ANNEX

FORM OF HIGH-SPEED CRAFT SAFETY CERTIFICATE AND RECORD OF EQUIPMENT

High-Speed Craft Safety Certificate

3 In the High-Speed Craft Safety Certificate a footnote is included under the section "Particulars of craft", after the existing sentence "Sea areas in which the craft is certified to operate (paragraph 14.2.1)", as follows:

"
* _____
For a craft certified to operate in sea area A3, indicate the recognized mobile satellite service in brackets."

Record of Equipment for High-Speed Craft Safety Certificate

4 In part 2 (Details of life-saving appliances), items 11, 11.1 and 11.2 are deleted.

5 In part 4 (Details of radio facilities), item 1.3.4 is deleted and items 2, 3, 3.1, 3.2, 3.3, 4, 4.1, 4.2, 5 and 6 are replaced by the following:

"2 Secondary means of initiating the transmission of ship-to-shore distress alerts

3 Facilities for reception of MSI and search and rescue related information

- 4 EPIRB
 - 5 Two-way VHF radiotelephone apparatus
 - 6 Radar SART or AIS-SART"
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