

GMDSS radio maintainer as specified in paragraph (b) of this section.

(d) The GMDSS radio maintainer must possess the knowledge covering the requirements set forth in IMO Assembly on Training for Radio Personnel (GMDSS), Annex 5 and IMO Assembly on Radio Maintenance Guidelines for the Global Maritime Distress and Safety System related to Sea Areas A3 and A4.

§80.1075 Radio records.

A record must be kept, as required by the Radio Regulations and §80.409 (a), (b) and (e), of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea.

§80.1077 Frequencies.

The following table describes the frequencies used in the Global Maritime Distress and Safety System:

Alerting:	
406 EPIRBs	406–406.1 MHz (Earth-tospace). 1544–1545 MHz (space-to-Earth).
INMARSAT A	1626.5–1645.5 MHz (Earth-to-space).
VHF DSC Ch. 70.	156.525 MHz ¹ .
MF/HF DSC ² ...	2187.5 kHz ³ , 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz, and 16804.5 kHz.
On-scene communications:	
VHF Ch. 16	156.8 MHz.
MF radiotelephony.	2182 kHz.
NBDP	2174.5 kHz.
Communications involving aircraft:	
On-scene, including search and rescue.	156.8 MHz ⁴ , 121.5 MHz ⁵ , 123.1 MHz, 156.3 MHz, 2182 kHz, 3023 kHz, 4125 kHz, and 5680 kHz ⁶ .
Locating signals:	
406 MHz EPIRB beacons.	121.5 MHz.
9 GHz radar transponders.	9200–9500 MHz.
Maritime safety information (MSI):	
International NAVTEX.	518 kHz ⁷ .
Warnings	490 kHz ⁸ , 4209.5 kHz ⁹ .

NBDP	4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz, 26100.5 kHz.
Satellite	1530–1545 MHz (space-to-Earth) ¹⁰ .
General distress and safety communications and calling:	
Satellite	1530–1544 MHz (space-to-Earth) and 1626.5–1645.5 MHz (Earth-to-space) ¹⁰ .
Radiotelephony.	2182 kHz, 4125 kHz, 6215 kHz, 8291 kHz, 12290 kHz, 16420 kHz, and 156.8 MHz.
NBDP	2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz, and 16695 kHz.
DSC	2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz, 16804.5 kHz, and 156.525 MHz.
Survival craft:	
VHF radiotelephony.	156.8 MHz and one other 156–174 MHz frequency.
9 GHz radar transponders.	9200–9500 MHz.

¹Frequency 156.525 MHz can be used for ship-to-ship alerting and, if within sea area A1, for ship-to-shore alerting.

²For ships equipped with MF/HF equipment, there is a watch requirement on 2187.5 kHz, 8414.5 kHz, and one other frequency.

³Frequency 2187.5 kHz can be used for ship-to-ship alerting and, if within sea areas A2, for ship-to-shore alerting.

⁴Frequency 156.8 MHz may also be used by aircraft for safety purposes only.

⁵Frequency 121.5 MHz may be used by ships for aeronautical distress and urgency purposes.

⁶The priority of use for ship-aircraft communications in 4125 kHz, then 3023 kHz. Additionally, frequencies 123.1 MHz, 3023 kHz, and 5680 kHz can be used by land stations engaged in coordinated search and rescue operations.

⁷The international NAVTEX frequency 518 kHz is the primary frequency for receiving maritime safety information. The other frequencies are used only to augment the coverage or information provided on 518 kHz.

⁸Frequency 490 kHz cannot be used for MSI employing NBDP transmissions until February 2, 1999.

⁹Frequency 4209.5 kHz is not used in the United States (see 47 CFR 2.106 footnote 520A).

¹⁰In addition to EPIRBs, 1544–1545 MHz can be used for narrowband distress and safety operations and 1645.5–1646.5 MHz can be used for relay of distress alerts between satellites. Feeder links for satellite communications are assigned from the fixed satellite service, see 47 CFR 2.106.

EQUIPMENT REQUIREMENTS FOR SHIP STATIONS

§80.1081 Functional requirements.

Ships, while at sea, must be capable:
(a) Except as provided in §§80.1087(a)(1) and 80.1091(a)(4)(iii), of transmitting ship-to-shore distress

alerts by at least two separate and independent means, each using a different radiocommunication service;

(b) Of receiving shore-to-ship distress alerts;

(c) Of transmitting and receiving ship-to-ship distress alerts;

(d) Of transmitting and receiving search and rescue co-ordinating communications;

(e) Of transmitting and receiving on-scene communications;

(f) Of transmitting and receiving signals for locating;

(g) Of transmitting and receiving maritime safety information;

(h) Of transmitting and receiving general radiocommunications to and from shore-based radio systems or networks; and

(i) Of transmitting and receiving bridge-to-bridge communications.

§ 80.1083 Ship radio installations.

(a) Ships must be provided with radio installations capable of complying with the functional requirements prescribed by § 80.1081 throughout its intended voyage and, unless exempted under § 80.1071, complying with the requirements of § 80.1085 and, as appropriate for the sea area of areas through which it will pass during its intended voyage, the requirements of either §§ 80.1087, 80.1089, 80.1091, or 80.1093.

(b) The radio installation must:

(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 call sign, the ship station identity and

other codes as applicable for the use of the radio installation.

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

§ 80.1085 Ship radio equipment—General.

This section contains the general equipment requirements for all ships subject to this subpart.

(a) Ships must be provided with:

(1) A VHF radio installation capable of transmitting and receiving:

(i) DSC on the frequency 156.525 MHz (channel 70), and it must be able to initiate the transmission of distress alerts on channel 70 from the position from which the ship is normally navigated; and

(ii) Radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13), and 156.800 MHz (channel 16);

(2) A dedicated, non-scanning 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 (a)(1)(i) of this section;

(3) A radar transponder capable of operating in the 9 GHz band, which must be stowed so that it is easily utilized (this transponder may be one of those required by § 80.1095(b) for a survival craft);

(4) A receiver capable of receiving international NAVTEX service broadcasts;

(5) If the ship is engaged on voyages in any area of INMARSAT coverage in which an international NAVTEX service is not provided, a radio facility for reception of maritime safety information by the INMARSAT enhanced group calling system, *i.e.*, SafetyNet, (this requirement does not apply to ships engaged exclusively on voyages in areas where an HF direct-printing telegraphy maritime safety information service, as identified by the IMO

GMDSS Master Plan Publication, is provided and the ship is fitted with equipment capable of receiving such service); and

(6) A satellite emergency position-indicating radio beacon (satellite EPIRB) which must be:

(i) Capable of transmitting a distress alert through the polar orbiting satellite service operating in the 406 MHz band (406 MHz EPIRB); and

(ii) Installed in an easily accessible position, ready to be manually released and capable of being carried by one person into a survival craft, capable of floating free if the ship sinks and of being automatically activated when afloat, and capable of being activated manually.

(b) Until February 1, 1999, all ships must be equipped with a radio installation consisting of a radiotelephone distress frequency 2182 kHz watch receiver prescribed by § 80.807. This requirement does not apply to ships constructed on or after February 1, 1997.

(c) Until February 1, 1999, all ships, except ships engaged on voyages in sea area A1 only, must be equipped with a device for generating the 2182 kHz radiotelephone alarm signal as prescribed by § 80.807. This requirement does not apply to ships constructed on or after February 1, 1997.

(d) Ships must carry the most recent edition of the IMO publication entitled *GMDSS Master Plan of Shore-Based Facilities*. Notice of new editions will be published in the FEDERAL REGISTER and copies may be obtained from: International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom.

[51 FR 31213, Sept. 2, 1986, as amended at 60 FR 50122, Sept. 28, 1995]

§ 80.1087 Ship radio equipment—Sea area A1.

This section contains the additional equipment requirements for ships that remain within sea area A1 at all times.

(a) In addition to meeting the requirements of § 80.1085, ships engaged on voyages exclusively in sea area A1 must 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) On VHF using DSC; or

(2) Through the polar orbiting satellite service on 406 MHz (this requirement may be fulfilled by the 406 MHz EPIRB, required by § 80.1085(a)(6), either by installing the 406 MHz EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

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

(4) On HF using DSC; or

(5) Through the INMARSAT geostationary satellite service if within INMARSAT coverage. This requirement may be fulfilled by an INMARSAT ship earth station capable of two way communication.

(b) The VHF radio installation, required by § 80.1085(a)(1), must also be capable of transmitting and receiving general radiocommunications using radiotelephony.

§ 80.1089 Ship radio equipment—Sea areas A1 and A2.

This section contains the additional equipment requirements for ships that remain within sea areas A1 or A2 at all times. Ships fitting in accordance with this section satisfy the sea area A1 requirements denoted in § 80.1087.

(a) In addition to meeting the requirements of § 80.1085, ships engaged on voyages beyond sea area A1, but remaining within sea area A2, must be provided with:

(1) An MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

(i) 2187.5 kHz using DSC; and

(ii) 2182 kHz using radiotelephony;

(2) A radio installation capable of maintaining a continuous DSC watch on the frequency 2187.5 kHz which may be separate from or combined with, that required by paragraph (a)(1)(i) of this section; and

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

(i) Through the polar orbiting satellite service on 406 MHz (this requirement may be fulfilled by the 406 MHz EPIRB required by § 80.1085(a)(6), either by installing the 406 MHz EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(ii) On HF using DSC; or

(iii) Through the INMARSAT geostationary satellite service if within INMARSAT coverage; this requirement may be fulfilled by an INMARSAT ship earth station.

(b) It must be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (a)(1) and (a)(3) of this section from the position from which the ship is normally navigated.

(c) Ships subject to this section must 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 1605–4000 kHz or between 4000–27500 kHz (this requirement may be fulfilled by the addition of this capability to the equipment required by paragraph (a)(1) of this section); or

(2) An INMARSAT ship earth station.

§ 80.1091 Ship radio equipment—Sea areas A1, A2, and A3.

This section contains the additional equipment requirements for ships that remain within sea areas A1, A2, or A3 at all times. Ships fitting in accordance with this section satisfy the requirements denoted in §§ 80.1087 or 80.1089 for sea-areas A1 and A2. Ships fitting in accordance to this section have the option to comply with either the requirements of paragraph (a) or (b) of this section.

(a) In addition to meeting the requirements of § 80.1085, ships subject to this section must be provided with:

(1) An INMARSAT ship earth station capable of:

(i) Transmitting and receiving distress and safety communications using direct-printing telegraphy;

(ii) Initiating and receiving distress priority calls;

(iii) Maintaining watch for shore-to-ship distress alert, including those di-

rected to specifically defined geographical areas;

(iv) 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:

(i) 2187.5 kHz using DSC; and

(ii) 2182 kHz using radiotelephony; and

(3) A radio installation capable of maintaining a continuous DSC watch on the frequency 2187.5 kHz which may be separate from or combined with that required by paragraph (a)(2)(i) of this section; and

(4) Means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:

(i) Through the polar orbiting satellite service on 406 MHz (this requirement may be fulfilled by the 406 MHz EPIRB required by § 80.1085(a)(6), either by installing the 406 MHz EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(ii) On HF using DSC; or

(iii) Through the INMARSAT geostationary satellite service, by an additional ship earth station.

(b) In addition to meeting the requirements of § 80.1085, ships subject to this section must be provided with:

(1) An MF/HF radio installation capable of transmitting and receiving on all distress and safety frequencies in the bands between 1605–27500 kHz using DSC, radiotelephony, and narrow-band direct-printing telegraphy; and

(2) Equipment capable of maintaining DSC watch on 2187.5 kHz, 8414.5 kHz and on at least one of the distress and safety DSC frequencies 4207.5 kHz, 6312 kHz, 12577 kHz, or 16804.5 kHz although it must be possible to select any of these DSC distress and safety frequencies at any time (this equipment may be separate from, or combined with, the equipment required by paragraph (b)(1) of this section); and

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

(i) Through the polar orbiting satellite service on 406 MHz (this requirement may be fulfilled by the 406 MHz EPIRB required by § 80.1085(a)(6), either by installing the 406 MHz EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated; or

(ii) Through the INMARSAT geostationary satellite service (this requirement may be fulfilled by an INMARSAT ship earth station).

(4) In addition, ships must 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 1605–4000 kHz and between 4000–27500 kHz (this requirement may be fulfilled by the addition of this capability to the equipment required by paragraph (b)(1) of this section).

(c) It must be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (a)(1), (a)(2), (a)(4), (b)(1), and (b)(3) of this section from the position from which the ship is normally navigated.

§ 80.1093 Ship radio equipment—Sea areas A1, A2, A3, and A4.

This section contains the additional equipment requirements for ships that sail in all sea areas, *i.e.*, sea areas A1, A2, A3, and A4. Ships fitting in accordance with this section satisfy the requirements denoted in §§ 80.1087, 80.1089, and 80.1091 for sea areas A1, A2, and A3.

(a) In addition to meeting the requirements of § 80.1085, ships engaged on voyages in all sea areas must be provided with the radio installations and equipment required by § 80.1091(b), except that the equipment required by § 80.1091(b)(3)(ii) cannot be accepted as an alternative to that required by regulation § 80.1091(b)(3)(i), which must always be provided.

(b) Ships engaged on voyages in all sea areas also must comply with the requirements of § 80.1091(c).

§ 80.1095 Survival craft equipment.

(a) At least three two-way VHF radiotelephone apparatus must be provided on every passenger ship and on

every cargo ship of 500 tons gross tonnage and upwards. At least two two-way VHF radiotelephone apparatus must be provided on every cargo ship of between 300–500 tons gross tonnage. Portable two-way VHF radiotelephones must be stowed in such locations that they can be rapidly placed in any survival craft other than liferafts required by Regulation III/26.1.4 of the SOLAS Convention. Alternatively, survival craft may be fitted with a fixed two-way VHF radiotelephone installation. Two-way VHF radiotelephone apparatus, portable or fixed, must conform to performance standards as specified in § 80.1101. Two-way VHF radiotelephone apparatus provided on board ships prior to February 1, 1992, and not complying fully with the performance standards specified in § 80.1101, may be used until February 1, 1999, provided it is compatible with approved two-way VHF radiotelephone apparatus.

(b) At least one radar transponder must be carried on each side of every passenger ship and every cargo ship of 500 tons gross tonnage and upwards. At least one radar transponder must be carried on every cargo ship of 300 tons gross tonnage and upwards but less than 500 tons gross tonnage. Such radar transponders must conform to performance standards as specified in § 80.1101. The radar transponders must be stowed in such locations that they can be rapidly placed in any survival craft other than liferafts required on cargo ships in forward and aft areas (see Regulation III/26.1.4 of the SOLAS Convention). Alternatively, one radar transponder must be stowed in each survival craft other than those required by Regulation III/26.1.4 of the SOLAS Convention. One of these radar transponders may be radar transponder required by § 80.1085(a)(3).

(c) Survival craft equipment must be tested at intervals not to exceed twelve months. For batteries used for survival craft equipment, the month and year of its manufacture must be permanently marked on the battery. Also, the month and year upon which 50 percent of its useful life will expire must be permanently marked on both the battery and the outside of the transmitter. Batteries must be replaced if 50 percent of their useful life has expired

or if the transmitter has been used in an emergency situation.

§ 80.1099 Ship sources of energy.

(a) There must 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 of energy for the radio installations.

(b) A reserve source of energy to supply radio installations must be provided on every ship 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 sources of energy must be capable of simultaneously operating the VHF radio installation required by § 80.1085(a)(1) and, as appropriate for the sea area or sea areas for which the ship is equipped, either the MF radio installation required by § 80.1089(a)(1), the MF/HF radio installation required by §§ 80.1091(a)(2)(i) or 80.1093(a), or the INMARSAT ship earth station required by § 80.1091(a)(1) and any of the additional loads mentioned in paragraphs (d), (e) and (h) of this section for a period of at least:

(1) One hour, on ships constructed on or after February 1, 1995;

(2) One hour, on ships constructed before February 1, 1995, if the emergency source of electrical power complies fully with all relevant requirements of SOLAS, Chapter II-1, Regulation 42 or 43 (as amended); or

(3) Six hours, on ships constructed before February 1, 1995, and on cargo ships of less than 500 tons gross tonnage, if the emergency source of electrical power is not provided or does not comply fully with all relevant requirements of SOLAS, Chapter II-1, Regulation 42 or 43 (as amended).

(c) The reserve sources of energy need not supply independent HF and MF radio installations at the same time. The reserve sources of energy must be independent of the propelling power of the ship and the ship's electrical system.

(d) Where, in addition to the VHF radio installation, two or more of the other radio installations, referred to in paragraph (b) of this section, can be

connected to the reserve sources of energy, they must be capable of simultaneously supplying, for one hour, as specified in paragraph (b) of this section, the VHF radio installation and;

(1) All other radio installations which can be connected to the reserve 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 sources of energy at the same time as the VHF radio installation.

(e) The reserve sources of energy may be used to supply the electrical lighting required by § 80.1083(b)(4).

(f) Where a reserve source of energy consists of a rechargeable accumulator battery or batteries:

(1) A means of automatically charging such batteries must be provided which must be capable of recharging them to minimum capacity requirements within 10 hours; and

(2) The capacity of the battery or batteries must be checked, using an appropriate method, at intervals not exceeding 12 months. These checks must be performed when the vessel is not at sea.

(g) The accumulator batteries which provide a reserve source of energy must be installed to ensure: The highest degree of service, a reasonable lifetime, reasonable safety; that the battery temperatures remain within the manufacturer's specifications whether under charge or idle; and that when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.

(h) If an uninterrupted input of information from the ship's navigational or other equipment to a radio installation required by this subpart is needed to ensure its proper performance, means must 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.

(i) An uninterruptible power supply or other means of ensuring a continuous supply of electrical power, within equipment tolerances, shall be provided to all GMDSS equipment that could be affected by normal variations and interruptions of ship's power.

§ 80.1101 Performance standards.

(a) The abbreviations used in this section are as follows:

(1) International Maritime Organization (IMO).

(2) International Telegraph and Telephone Consultative Committee (CCITT).

(3) International Electrotechnical Commission (IEC).

(4) International Organization for Standardization (ISO).

(5) International Radio Consultative Committee (CCIR).

(b) All equipment specified in this subpart must meet the general requirements for shipboard equipment listed in this paragraph, which are incorporated by reference.

(1) IMO Resolution A.694(17), "General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids," adopted 6 November 1991.

(2) CCITT Recommendation E.161, "Arrangement of Figures, Letters and Symbols on Telephones and Other Devices that Can Be Used for Gaining Access to a Telephone Network," 1989.

(3) CCITT Recommendation Q.11, "Numbering Plan for the International Telephone Service," 1989.

(4) IEC Publication 92-101, "Electrical Installations in Ships," Third Edition 1980 with amendments through 1984.

(5) IEC Publication 533, "Electromagnetic Compatibility of Electrical and Electronic Installations in Ships," First Edition 1977.

(6) IEC Publication 945, "Marine Navigational Equipment," First Edition 1988.

(7) ISO Standard 3791, "Office Machines and Data Processing Equipment—Keyboard Layouts for Numeric Applications," First Edition 1976(E).

(c) The equipment specified in this subpart must also conform to the appropriate performance standards listed below which are incorporated by reference.

(1) *NAVTEX receivers*: (i) IMO Resolution A.525(13), "Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological

Warnings and Urgent Information to Ships," adopted 17 November 1983.

(ii) CCIR Recommendation 540-2, "Operational and Technical Characteristics for an Automated Direct-printing Telegraph System for Promulgation of Navigational and Meteorological Warnings and Urgent Information to Ships," 1990.

(2) *VHF radio equipment*: (i) IMO Resolution A.609(15), "Performance Standards for Shipborne VHF Radio Installations Capable of Voice Communication and Digital Selective Calling," adopted 19 November 1987.

(ii) CCIR Recommendation 493-4, "Digital Selective-calling System for use in the Maritime Mobile Service," 1990.

(3) *MF radio equipment*: (i) IMO Resolution A. 610(15), "Performance Standards for Shipborne MF Radio Installations Capable of Voice Communication and Digital Selective Calling," adopted 19 November 1987.

(ii) CCIR Recommendation 493-4, "Digital Selective-calling System for use in the Maritime Mobile Service," 1990.

(4) *MF/HF radio equipment*: (i) IMO Resolution A.613(15), "Performance Standards for Shipborne MF/HF Radio Installations capable of Voice Communication, Narrow-band Direct Printing and digital Selective Calling," adopted 19 November 1987.

(ii) CCIR Recommendations 493-4, "Digital Selective-calling System for use in the Maritime Mobile Service," 1990.

(iii) CCIR Recommendation 625-1, "Direct-printing Telegraph Equipment Employing Automatic Identification in the Maritime Mobile Service," 1990. Equipment may conform to CCIR Recommendation 476-4, "Direct-Printing Telegraph Equipment in the Maritime Mobile Service," 1986, in lieu of CCIR Recommendation 625-1, where such equipment was installed on ships prior to February 1, 1993.

(iv) IMO Resolution A.700(17), "Performance Standards for Narrow-band Direct-printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships (MSI) by HF," adopted 6 November 1991.

(5) *406 MHz EPIRBs*: (i) IMO Resolution A.611(15), "Performance Standards for Float-free Satellite Emergency Position-indicating Radio Beacons Operating on 406 MHz," adopted 19 November 1987.

(ii) IMO Resolution A.662(16), "Performance Standards for Float-free Release and Activation Arrangements for Emergency Radio Equipment," adopted 19 October 1989.

(iii) OCIR Recommendation 633-1, "Transmission Characteristics of a Satellite Emergency Position-indicating Radiobeacon (Satellite EPIRB) System Operating Through a Low Polar-orbiting Satellite System in the 406 MHz Band," 1990.

(iv) The 406 MHz EPIRBs must also comply with §80.1061.

(6) *9 GHz radar transponders*: (i) IMO Resolution A.604(15), "Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations," adopted 19 November 1987.

(ii) CCIR Recommendation 628-1, Technical Characteristics for Search and Rescue Radar Transponders," 1990.

(7) *Two-way VHF radiotelephone*: IMO Resolution A.605(15), "Performance Standards for Survival Craft Two-way VHF Radiotelephone Apparatus," adopted 19 November 1987.

(8) *INMARSAT-A SES*: IMO Resolution A.698(17), "Performance Standards for Ship Earth Stations Capable of Two-way Communications," adopted 6 November 1991.

(9) *INMARSAT-C SES*: IMO Resolution A.663(16), "Performance Standards for INMARSAT Standard-C Ship Earth Stations Capable of Transmitting and Receiving Direct-printing Communications," adopted 19 October 1989.

(10) *INMARSAT EGC*: IMO Resolution A.664(16), "Performance Standards for Enhanced Group Call Equipment," adopted 19 October 1989.

(d) The above-referenced documents have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Identification data and place to purchase for each of the above-reference documents are listed as follows:

(1) Copies of IMO Resolutions, the 1974 SOLAS Convention, and the 1983

and 1988 amendments to the 1974 SOLAS Convention can be purchased from Publications, International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom.

(i) IMO resolution A.525(13) is contained in the Resolutions and Other Decisions of the Assembly of the International Maritime Organization, 13th Session, 1983, (IMO, London, 1984), Sales Number 073 84.07.E.

(ii) IMO Resolutions A.604(15), A.605(15), A.610(15), A.611(15) and A.613(15) are contained in the Resolutions and Other Decisions of the Assembly of the International Maritime Organization, 15th Session, 1987, (IMO, London, 1988), Sales Number 130 88.03.E.

(iii) IMO Resolutions A.662(16), A.663(16) and A.664(16) are contained in the Resolutions and Other Decisions of the Assembly of the International Maritime Organization, 16th Session, 1989, (IMO, London, 1990), Sales Number 136 90.04.E

(iv) IMO Resolutions A.694(17), A.698(17), and A.700(17) can be ordered from IMO by requesting "A.694, A.698, or A.700(17) from the seventeenth session." IMO Resolutions A.694(17), A.698(17), and A.700(17) will be published in the Resolutions and Other Decisions of the Assembly of the International Maritime Organization, 17th Session, 1991.

(2) CCIR Recommendations, ITU Radio Regulations, and CCITT publications can be purchased from the International Telecommunications Union (ITU), Place des Nations, CH-1211 Geneva 20, Switzerland.

(i) All CCIR Recommendations referenced in this section are contained in Recommendations of the CCIR, 1990, Volume VIII, (ITU, Geneva, 1990), 92-61-0424104.

(ii) CCITT Recommendation E.161 is contained in CCITT Volume II—Telephone and Network ISDN—Operation, Numbering, Routing and Mobile Service, (ITU, Geneva, 1989), ISBN 92-61-03261-3.

(iii) CCITT Recommendation Q.11 is contained in CCITT Blue Book Volume VI, General Recommendation on Telephone Switching and Signalling, (ITU, Geneva, 1989), ISBN 92-61-03451-9.

(3) IEC Publications can be purchased from the International Electrotechnical Commission, 3 Rue de Varembe, CH-1211 Geneva 20, Switzerland, or from the American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036, telephone (212) 642-4900.

(4) ISO Standards can be purchased from the International Organization for Standardization, 1 Rue de Varembe, CH-1211 Geneva 20, Switzerland, or from the American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036, telephone (212) 642-4900.

(5) Copies of the publications listed in this section that are incorporated by reference may be inspected at the Federal Communications Commission, 1919 M Street, NW., Dockets Branch (room 239), Washington, DC or at the Office of the Federal Register, 800 North Capital Street, NW., suite 700, Washington, DC.

[57 FR 44701, Sept. 29, 1992]

§80.1103 Equipment authorization.

(a) All equipment specified §80.1101 must be type accepted in accordance with 47 CFR part 2 specifically for GMDSS use, except for equipment used in the INMARSAT space segment which must be type-approved by INMARSAT and notified in accordance with 47 CFR part 2 specifically for GMDSS use. The technical parameters of the equipment must conform to the performance standards as specified in §80.1101. For emergency position-indicating radiobeacons operating on 406 MHz (406 MHz EPIRBs) that were authorized prior to April 15, 1992, and meet the requirements of §80.1101, the manufacturer may attest by letter that the equipment (indicate FCC ID#) meets the requirements of §80.1101 and request that it be denoted as approved for GMDSS use.

(b) Applicants for type acceptance must submit with their applications measurement data sufficiently complete to ensure compliance with the technical parameters. The application must include the items listed in 47 CFR 2.983. Additional measurement data or information may be requested depending upon the equipment. For items not listed in §2.983 of this chapter, the applicant must attest that the equipment

complies with performance standards as specified in §80.1101 and, where applicable, that measurements have been made that demonstrate the necessary compliance. Submission of representative data demonstrating compliance is not required unless requested by the Commission.

(c) Applicants for notification must attest that the equipment complies with performance standards as specified in §80.1101 and, where applicable, that measurements have been made that demonstrate the necessary compliance. Submission of representative data demonstrating compliance is not required unless requested by the Commission. An application must include the items listed in §2.975 of this chapter and a copy of the INMARSAT type approval certificate indicating that equipment meets GMDSS standards and includes all peripheral equipment associated with the specific unit under review.

(d) Submission of a sample unit is not required unless specifically requested by the Commission.

(e) In addition to the requirements in part 2 of this chapter, equipment specified in §80.1101 shall be labelled as follows: "This device complies with the GMDSS provisions of part 80 of the FCC Rules." Such a label is not required for emergency position-indicating radiobeacons operating on 406 MHz (406 MHz EPIRBs) that were authorized prior to April 15, 1992.

[57 FR 9065, Mar. 16, 1992, as amended at 57 FR 44702, Sept. 29, 1992]

§80.1105 Maintenance requirements.

(a) Equipment must be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment. Where applicable, equipment must be constructed and installed so that it is readily accessible for inspection and on-board maintenance purposes. Adequate information must be provided to enable the equipment to be properly operated and maintained (see IMO Resolution A.569(14)).

(b) Radio equipment required by this subpart must be maintained to provide the availability of the functional requirements specified in §80.1081 and to

meet the performance standards specified in § 80.1101.

(c) On ships engaged on voyages in sea areas A1 and A2, the availability must be ensured by duplication of equipment, shore-based maintenance, or at-sea electronic maintenance capability, or a combination of these.

(d) On ships engaged on voyages in sea areas A3 and A4, the availability must be ensured by using a combination of at least two of the following methods: duplication of equipment, shore-based maintenance, or at-sea electronic maintenance capability.

(e) Irrespective of the maintenance methods used, a ship must not depart from any port unless and until the ship is capable of performing all distress and safety functions as specified in § 80.1081.

(f) Irrespective of the maintenance methods used, all manufacturers' instruction manuals and maintenance manuals for each piece of equipment required and installed must be available on-board ship. Adequate tools, spare parts, and test equipment appropriate to the methods used by the ship as recommended by the manufacturer should be provided. The manuals, tools, spare parts, and test equipment, as applicable, should be readily accessible.

(g) If the duplication of equipment maintenance method is used, the following radio installations, in addition to other equipment requirements specified in this subpart, must be available on-board ships for their sea areas as applicable. Equipment carried in accordance with this paragraph must comply with §§ 80.1101 and 80.1103. Additionally, each radio installation must be connected to a separate antenna and be installed and be ready for immediate operation.

(1) Ships, equipped in accordance with § 80.1087 for sea area A1, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1).

(2) Ships, equipped in accordance with § 80.1089 for sea areas A1 and A2, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1) and an MF radio installation complying with the requirements of § 80.1089(a)(1) and being able to fully comply with watch requirements as

specified in § 80.1123(a)(2). The MF radio installation installed for duplication must also comply with the requirements § 80.1089(c).

(3) Ships, equipped in accordance with § 80.1091 for sea areas A1, A2, and A3, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1) and either an MF/HF radio installation complying with the requirements of § 80.1091(b)(1) and being able to fully comply with watch requirements as specified in § 80.1123(a)(2) or an INMARSAT ship earth station complying with the requirements of § 80.1091(a)(1). The MF/HF radio installation or the INMARSAT ship earth station installed for duplication must also comply with the requirements § 80.1091(c).

(4) Ships, equipped in accordance with § 80.1093 for sea areas A1, A2, A3, and A4, must carry a VHF radio installation complying with the requirement of § 80.1085(a)(1) and an MF/HF radio installation complying with the requirements of § 80.1091(b)(1) and being able to fully comply with watch requirements as specified in § 80.1123(a)(2). The MF/HF radio installation installed for duplication must also comply with the requirements § 80.1091(c).

(h) The radio installations specified in paragraph (g) of this section (referred as "duplicated equipment"), in addition to the appropriate radio equipment specified in § 80.1099 (referred as "basic equipment"), must be connected to the reserve sources of energy required by § 80.1099. The capacity of the reserve sources of energy should be sufficient to operate the particular installation (*i.e.*, the basic equipment or the duplicated equipment) with the highest power consumption, for the appropriate period specified in § 80.1099. However, the arrangement for the reserve sources of energy must be such that a single fault in this arrangement cannot affect both the basic and the duplicated equipment.

(i) If the shore-based maintenance method is used, the following requirements apply.

(1) Maintenance services must be completed and performance verified and noted in the ship's record before departure from the first port of call entered after any failure occurs.

(2) Each GMDSS equipment must be tested and performance verified and the results noted in the ship's record before departure from every port. To accomplish this, each ship shall carry a performance checkoff sheet listing each GMDSS equipment carried on a mandatory basis.

(j) If the at-sea maintenance method is used, the following requirements apply.

(1) Adequate additional technical documentation, tools, test equipment, and spare parts must be carried on-board ship to enable a qualified maintainer as specified in § 80.1074 to perform tests and localize and repair faults in the radio equipment.

(2) Only persons that comply with the requirements of § 80.1074 may perform at-sea maintenance on radio installations required by this subpart.

OPERATING PROCEDURES FOR DISTRESS
AND SAFETY COMMUNICATIONS

§ 80.1109 Distress, urgency, and safety communications.

(a) Distress traffic consists of all messages relating to the immediate assistance required by the ship in distress, including search and rescue communications and on-scene communications. Distress traffic must as far as possible be on the frequencies contained in § 80.1077.

(b) Urgency and safety communications include: navigational and meteorological warnings and urgent information; ship-to-ship safety navigation communications; ship reporting communications; support communications for search and rescue operations; other urgency and safety messages and communications relating to the navigation, movements and needs of ships and weather observation messages destined for an official meteorological service.

(c) Intership navigation safety communications are those VHF radiotelephone communications conducted between ships for the purpose of contributing to the safe movement of ships. The frequency 156.650 MHz is used for intership navigation safety communications (see § 80.1077).

§ 80.1111 Distress alerting.

(a) The transmission of a distress alert indicates that a mobile unit or person is in distress and requires immediate assistance. The distress alert is a digital selective call using a distress call format in bands used for terrestrial radiocommunication or a distress message format, which is relayed through space stations.

(b) The distress alert must be sent through a satellite either with absolute priority in general communication channels or on exclusive distress and safety frequencies or, alternatively, on the distress and safety frequencies in the MF, HF, and VHF bands using digital selective calling.

(c) The distress alert must be sent only on the authority of the person responsible for the ship, aircraft or other vehicle carrying the mobile station or the mobile earth station.

(d) All stations which receive a distress alert transmitted by digital selective calling must immediately cease any transmission capable of interfering with distress traffic and must continue watch until the call has been acknowledged.

§ 80.1113 Transmission of a distress alert.

(a) The distress alert must identify the station in distress and its position. The distress alert may also contain information regarding the nature of the distress, the type of assistance required, the course and speed of the mobile unit, the time that this information was recorded and any other information which might facilitate rescue.

(b) The format of distress calls and distress messages must be in accordance with CCIR Recommendation 493 as specified in § 80.1101.

(c) Ship-to-shore distress alerts are used to alert Rescue Coordination Centers via coast stations or coast earth stations that a ship is in distress. These alerts are based on the use of transmissions via satellites (from a ship earth station or a satellite EPIRB) and terrestrial services (from ship stations and EPIRBs).

(d) Ship-to-ship distress alerts are used to alert other ships in the vicinity of the ship in distress and are based on