DRAFT

MINISTRY OF PORTS, SHIPPING AND WATERWAYS

NOTIFICATION

New Delhi, the_____ 2026

G.S.R. ----in exercise of the powers conferred by section 6, 118 and 120 Merchant Shipping Act, 2025 and in supersession of Merchant Shipping (Distress and Safety Radio Communication) Rules, 1995 and Merchant Shipping (Radio Direction Finders) Rules, 1968, except as respects things done or omitted to be done before such supersession, the Central Government hereby makes the following rules namely:

Part- I

Preliminary

1. Short title and Commencement:

(a) These rules may be called as **Merchant Shipping Radio Communication Rules, 2025.**

(b) These rules shall come into force on the date of their publication in the official gazettes.

2. Application: Unless specified otherwise, these Rules shall apply to all Indian Flag vessels and Foreign Flag Vessels operating in Indian waters:

(a) All passenger ships, and cargo ships of 300GT and above,

(b) Fishing Vessels (24 meters and above), Pleasure crafts, High Speed Crafts; and Mobile Offshore Drilling Units (MODUs)

(c) All ships other than Indian ships and vessels while they are in any port or place in India within territorial waters of India.

(d) Private scientific research and patrol vessels.

3. Exceptions: Unless otherwise specified:

(a) these rules shall not apply to the following ships and vessels registered under the Act:

(i) Warships and troop ships;

(ii) State owned ships not engaged in commercial services;

(b) the competent authority may enforce any provision, by general or special orders or Merchant Shipping Notices or Circulars issued in writing, to the above categories of vessels, subject to such conditions, exceptions and modifications as may be specified therein.

4. Definitions: In these Rules, unless the context otherwise requires: -

(1) "Act" means the Merchant Shipping Act, 2025; as amended

(2) "Administration" means the Directorate General of Maritime Administration, or any Ministry, Department, or any other authority of the Central Government as may be designated or authorized for carrying out the functions and purposes of this Act.

(3) "AIS-SART" means an automatic identification system search and rescue transmitter capable of operating on frequencies dedicated AIS (161.975 MHz (AIS1) and 162.025 MHz (AIS2));

(4) "Approved Person" means any person approved by the Approving Authority, in possession of the technical knowledge, expertise and requisite experience to test equipment as certified by the manufacturer of the equipment;

(5) "Approved Service Station" means a facility approved by the Nautical Advisor to the Government of India in order to carry out testing and servicing of radio and navigational equipment and also perform survey onboard vessels required under these Rules;

(6) "Approved" means approved by the Nautical Advisor to the Government of India or by the Recognised Organization authorized by the Central Government;

(7) "Bridge to Bridge Communications" means safety communication between vessels from the position from which ships are normally navigated;

(8) “Coast Earth Station” means an earth station in the fixed-satellite service or, in some cases, in the maritime mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the maritime mobile-satellite service;

(9) “Coast Station” means a land station in the maritime mobile service;

(10) “Coastal Vessels” means vessels which ply from a port or place in India to any other port or place in India, such that the vessel does not operate beyond 20 nautical miles from the nearest land;

(11) “Coastal Waters” means any part of the territorial waters of India or any marine areas adjacent thereto over which India has or may thereafter have, exclusive jurisdiction, under The Territorial Waters, Continental Shelf, Exclusive Economic Zone And Other Maritime Zones Act, 1976 or any other law for the time being in force;

(12) “Competent Authority” means Nautical Advisor to the Govt of India;

(13) “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;

(14) “Coordinated Universal Time (UTC)” means the primary international time standard for civil timekeeping, maintained by the International Bureau of Weights and Measures (BIPM) using highly precise atomic clocks and coordinated with the Earth's rotation.

(15) “Conventional Vessels” means vessels to which the SLOAS Convention applies.

(16) “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 complies with the relevant recommendations of the International Telecommunication Union Radiocommunication Sector (ITU-R);

(17) “Direct Printing Telegraphy” means automated telegraphy techniques which comply with the relevant recommendations of the International Radio Consultative Committee (CCIR);

(18) “Duplex Operation” means an operating method in which transmission is possible simultaneously in both directions of a telecommunication channel;

(19) “EGC (Enhanced Group Call)” means the broadcast of coordinated maritime safety information and search and rescue related information to a defined geographical area using a recognized mobile satellite service;

(20) “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;

(21) “False Distress” means an alert which has been sent inadvertently without the knowledge of the radio operator or personnel;

(22) “General Radiocommunications” means operational and public correspondence other than distress, urgency and safety communications, conducted by radio;

(23) “Global Maritime Distress and Safety System (GMDSS)” means a system that performs the functions set out in SOLAS regulation IV/4;

(24) “GMDSS Identities” means maritime mobile service identity, the ship’s call sign, Inmarsat identities, EPIRB hexadecimal identity, and serial number identity which may be transmitted by the ship’s equipment and used to identify the ship;

(25) “GMDSS Radio Operator” means a person who is qualified to perform GMDSS functions as per the provisions of ITU Radio Regulations and STCW Regulation IV/2 Code A and B;

(26) “High-Speed Craft” means vessels which are capable of obtaining maximum speed, in meters per second (m/s), equal to or exceeding: 3.7 ∇^0.1667, where: ∇ = volume of displacement corresponding to the design waterline (m^3), excluding craft the hull of which is supported completely clear above the water surface in non-displacement mode by aerodynamic forces generated by ground effect;

(27) “IMSO” means the International Mobile Satellite Organization, an intergovernmental body established by the Organisation to oversee public satellite safety and security communication services used in the GMDSS, and coordinator of the Long-Range Identification and Tracking (LRIT) system.

(28) “INMARSAT Ship Earth Station” means a satellite communication equipment such as Standard-C, Standard-M or Fleet 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 alerts including those directed to specifically defined geographical areas; and (iv) transmitting and receiving general radio communications using either telephony or direct printing telegraphy;

(29) "INMARSAT" means Inmarsat Global Limited a mobile satellite communication system service provider recognized to provide maritime communication services in the Global Maritime Distress and Safety System (GMDSS);

(30) "International NAVTEX Service" means the coordinated broadcast and automatic reception on 518 kHz of maritime safety information by means of narrow-band direct printing telegraphy using the English language and on 490 kHz for regional languages;

(31) "Iridium" means Iridium Communications Inc., a global satellite company which provides voice and data services anywhere on earth and is a recognized mobile satellite service under GMDSS by the Organization;

(32) "ITU MARS" means the Maritime mobile Access and Retrieval System, a database maintained by the International Telecommunication Union (ITU) containing details of ship stations, coast stations, accounting authorities and other maritime radio communication stations worldwide.

(33) "Locating" means finding the position of ships, aircraft, survival craft or persons in distress;

(34) "Maritime Mobile Satellite Service" means a mobile-satellite service in which mobile earth stations are located on board ships, and survival craft stations and emergency position-indicating radio beacon stations may participate;

(35) "Maritime Mobile Service Identity (MMSI)" means a series of nine digits which are sent in digital form over a radio frequency channel in order to uniquely identify ship stations assigned by the maritime administration;

(36) "Maritime Mobile Service" means a mobile service between coast stations and ship stations, or between ship stations, or between associated onboard communication stations, survival craft stations and emergency position-indication radio beacon stations;

(37) “Maritime Rescue Sub Centre (MRSC)” means a subordinate rescue coordination centre established under Maritime Rescue Coordination Centre (MRCC) for closer coordination of SAR services in local regions where communication facilities are not adequate;

(38) “Maritime Resue Coordination Centre (MRCC)” means an operational facility responsible for efficient operation of SAR services and for coordinating search and rescue operation within the search and rescue region;

(39) “Maritime Safety Information (MSI)” means navigational and meteorological warnings, meteorological forecasts and other urgent and safety-related messages broadcast to ships;

(40) “Mobile Station License” means the license issued to ships by the Ministry of Communication to operate radiocommunication and navigational equipment fitted onboard ships to operate on designated maritime frequencies;

(41) “MODU” means a Mobile offshore drilling unit, a vessel capable of engaging in drilling operations for the exploration for or exploitation of resources beneath the sea-bed such as liquid or gaseous hydrocarbons, Sulphur etc.;

(42) “NAVDAT” means an international automated digital service for promulgation of Maritime Safety Information (MSI) and Search and Rescue (SAR) related information, operating on international frequencies 500 kHz and 4226 kHz;

(43) “Onboard Communication Station” means a low-powered mobile station in the maritime mobile service intended for use for internal communications on board a ship, or between a ship and its lifeboats and life rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions;

(44) “Organization” means the International Maritime Organization (IMO);

(45) “Performance Standards” means the performance standards of radio communication and navigational equipment adopted by the IMO Assembly and Maritime Safety Committee (MSC), as amended from time to time;

(46) “Polar Orbiting Satellite Service” means a service which is based on polar orbiting satellites which receive and relay distress alerts from satellite EPIRBs and provide their position;

(47) “Port Operations Service” means a maritime mobile service in or near a port, between coast stations and ship stations, in which messages are restricted to those relating to the operational handling, movement and safety of ships and, in emergencies, to the safety of persons;

(48) “Radar SART” means a search and rescue transponder operating on radar frequencies in the frequency band 9.2–9.5 GHz;

(49) “Radio Communication” means telecommunication by means of radio waves;

(50) “Radio Regulations” means the Radio Regulations annexed to, or regarded as being annexed to, the most recent International Telecommunication Union Convention which is in force at any time;

(51) “Radio Station” means one or more transmitters or receivers or a combination of both, including the accessory equipment, necessary at one location for carrying on a radiocommunication service;

(52) “River-Sea Vessels” means vessels which ply from a port or place in India to any other port or place in India, such that the vessel does not operate beyond the territorial waters of India;

(53) “Satellite EPIRB” means an emergency position-indicating radio beacon in the polar orbiting satellite service, the emissions of which are intended to facilitate search and rescue operations, including identification of the vessel in distress;

(54) “Schedule” means any of the schedules annexed to these rules;

(55) “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;

(56) “Sea Area A2” means an area, excluding Sea Area A1, within the radiotelephone coverage of at least one MF coast radio station in which continuous DSC alerting is available;

(57) “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;

(58) “Sea Area A4” means an area outside Sea Areas A1, A2 and A3 including polar areas;

(59) “Search and Rescue Radar Transponder (SART)” means a radar transponder for use in survival crafts by ships or aircraft;

(60) “Ship Earth Station” means a mobile earth station in the maritime mobile-satellite service located on board a ship;

(61) “Ship Station” means a mobile station in the maritime mobile service located on board a vessel which is not permanently moored, other than a survival craft station;

(62) “Shore-Based Maintenance Contract” means a document signed between owners of the vessel and service provider authorized by the manufacturer of the particular make of equipment as per the standards prescribed by the Organization;

(63) “Simplex Operation” means an operating method in which transmission is made possible alternately in each direction of a telecommunication channel, for example, by means of manual control;

(64) “Space Radio Communication” means any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space;

(65) “STCW” means the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended, which sets minimum qualification standards for masters, officers, and watch personnel on seagoing merchant ships.

(66) “Terrestrial Radio Communication” means any radiocommunication other than space radio communication or radio astronomy;

(67) “VDES (VHF Data Exchange System)” means a radio communication system that operates between ships, shore stations and satellites on Automatic Identification System (AIS), Application Specific Messages (ASM) and VHF Data Exchange (VDE) frequencies in the Marine Mobile VHF band.

(68) “Vessel” includes any ship, boat, sailing vessel, or other description of vessel used in navigation;

5. Distress Signals:

Notwithstanding anything contained in these Rules, it shall be lawful for any ship, vessel, survival craft or person in distress to use, in addition to the distress signals specified in Rule 37 and Annex IV of the International Regulations for Preventing Collisions at Sea 1972 (COLREG) as amended from time to time, or by any other means available to attract attention, make known their position, and obtain assistance. The distress signal in radiotelephony consists of the word “MAYDAY” pronounced as the French expression “m’aider”.

6. Exemptions:

(1) The Competent Authority considers it highly desirable not to deviate from the requirements of this rule, nevertheless it may grant partial or conditional exemptions to individual vessels, as specified in Rule 2, from certain requirements of these Rules, provided that:

(a) Such vessels comply with the functional requirements as specified in Rule 7 at all times while ship is at sea and;

(b) The efficiency of Distress and Safety radio Communication service towards the safety of all vessels shall not be affected in any case or in scenario.

(2) Such exemptions may be granted under Rule 6 (1) (a) only:

(a) if conditions affecting safety are such as to render full or partial application of the carriage of equipment specified in Rules 12 to 18 and Rule 25 unreasonable or unnecessary;

(b) in exceptional circumstances, for a single voyage outside the sea area or sea areas as defined in Rule 4(26) to 4(29)….. for which the ship is equipped.

7. Functional requirements:

(1) Every vessel specified in Rule 2, while at sea, shall be capable of performing following GMDSS functions:-

(a) Distress and safety communications:

i) Transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;
ii) Receiving shore-to-ship distress alert relays;
iii) Transmitting and receiving ship-to-ship distress alerts;
iv) Transmitting and receiving search and rescue coordinating communications;
v) Transmitting and receiving on-scene communications;
vi) Transmitting and receiving signals for locating;
vii) Receiving MSI;
viii) Transmitting and receiving urgency and safety communications; and
ix) Transmitting and receiving bridge-to-bridge communications; and

(b) Transmitting and receiving general radiocommunications.

(2) It should be noted that vessels performing GMDSS functions should use the Guidance for avoidance of false distress alerts adopted by the Organization through the Resolution MSC-514(105) and notifications and executive orders issued by Competent Authority of the Administration from time to time.

(3) The procedures for dealing with false distress alerts transmitted inadvertently from any radio communication alerting devices shall be cancelled without delay as specified in **Annexure-II.**

8. GMDSS Satellite Providers:

The IMSO shall determine the criteria, procedures and arrangements for the evaluation, recognition, review and oversight of the provision of Recognized Mobile Satellite Services (RMSS) in the GMDSS pursuant to the provisions of this rule as set out in the IMO Resolution A.1001 (25) and Resolution MSC.1/Circ.1414 as amended from time to time.

PART II

Undertakings by the Administration and provisions of radio communication service

9. Space and Terrestrial Services:

(1) The Administration shall undertake to make available appropriate shore-based facilities in its territory for the maritime mobile satellite service and maritime mobile service having due regard to the recommendations of the Organization. These services are:

(a) Recognized mobile satellite services;
(b) A satellite service on 406 MHz;
(c) The maritime mobile service in the bands between 156 MHz and 174 MHz;
(d) The maritime mobile service in the bands between 4000 kHz and 27500 kHz; and
(e) The maritime mobile service in the bands between 415 kHz and 535 kHz and between 1605 kHz and 4000 kHz.

(2) The Administration shall undertake to provide the Organization with pertinent information concerning the shore-based facilities in the maritime mobile service and maritime mobile satellite service, established for Sea Areas which it has designated off in its coasts. The Administration shall also undertake(s) 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. GMDSS Identities:

(1) This regulation applies to all ships as mentioned in Rule 2.
(2) The Administration shall undertake to ensure that suitable arrangements are made for registering GMDSS identities and for making information on these identities available to rescue coordination centres (RCC) 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.

PART III

Ship Requirements

11. Radio Installation:

(1) Every ship shall be provided with radio installations capable of complying with the functional requirements prescribed in Rule 7, throughout its intended voyage and, unless exempted under Rule 6, and executive orders issued by the competent authority, complying with the carriage requirements as specified in Rule 12 to 18 and Rule 26.

(2) Every radio installation shall be:

(a) 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;

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

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

(d) 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

(e) be clearly marked with the GMDSS identities, as applicable, for use by the radio installation operator;

(f) so located that no magnetic compass lies within the stated Compass Safe Distance of the equipment.

(3) Control of the VHF radiotelephone channels, required for navigational safety, shall be immediately available on the navigation bridge convenient to the conning position. Also,

facilities shall be available to permit radiocommunications from the wings of the navigation bridge. For this purpose, Portable VHF equipment may be used.

12. General Radio Equipment Requirement: Every ship shall be provided with the general radio equipment as specified in **SCHEDULE- I** of these Rules.

13. Additional requirements for Passenger Ships:

In addition to the requirements specified in Rule 12, all the Passengers vessels and passenger HSCs shall comply with additional requirements as specified in **SCHEDULE-II** of these Rules.

14. Additional Requirements for Mobile Offshore Drilling Units (MODU):

(1) Adequate noise protection should be provided by mechanical or other means, when acoustic noise level in a room fitted with operating controls for radio equipment is high during drilling operation.

(2) Training in the use of IMO Standard Marine Communication Phrases as specified in Resolution A.918 (22) shall be provided to personnel responsible for radio communications.

(3) All self-propelled units shall comply with the applicable provisions of this Rule.

(4) In cases where the towing ship complies fully with all applicable requirements concerning radiocommunications specified in this rule, the unit under tow when manned should:-

a) Be fitted with VHF facilities as required by Rule 12(1) and 12(2), MF facilities as required by Rule 15(1)(a) and 15(1)(b);

b) Be fitted with an EPIRB as required by Rule 12 (8); and

c) Be fitted with receiver(s) capable of receiving MSI and SAR related information throughout the entire voyage in which the unit is engaged in accordance with Rule 12(7).

(5) In cases where the towing ship does not comply fully with the applicable requirements concerning radiocommunications for ships prescribed in this rule, the unit under tow when manned shall comply with all the applicable provisions of this Rule.

(6) All lifeboats shall carry a two-way VHF radiotelephone apparatus. In addition, at least two such apparatuses shall be available on the MODU, so stowed that they can be rapidly placed in any life-raft.

(7) All lifeboats shall carry one RADAR SART or AIS-SART. In addition, at least two RADAR SARTs or AIS-SARTs shall be available on the MODU, so stowed that they can be rapidly placed in any life-raft.

(8) MODUs shall carry an aeromobile VHF radiotelephone equipment complying with the relevant requirements of International Civil Aviation Organization (ICAO) and suitable for communication with helicopters in its area of operation.

15. Radio equipment requirement for Sea area A1:

In addition to complying with the requirements specified in Rule 12, every ship operating in Sea Area A1 shall be equipped with a radio installation as detailed in **SCHEDULE-III** of these Rules.

16. Radio equipment requirement for Sea area A2:

In addition to complying with the requirements specified in Rules 12 and 15, every ship operating on voyages within Sea Area A2 shall be equipped with a radio installation as detailed in **SCHEDULE-IV** of these Rules.

17. Radio equipment requirement for Sea area A3:

In addition to complying with the requirements of Rules 12 and 15, every ship engaged on voyages within Sea Area A3 shall be equipped with a radio installation as specified in **SCHEDULE-V** of these Rules.

18. Radio equipment requirement for Sea area A4:

In addition to complying with the requirements of Rules 12 and 15, every ship engaged on voyages within Sea Area A4 shall be equipped with a radio installation as specified in **SCHEDULE-VI** of these Rules.

19. Radio watches:

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

(a) on VHF DSC channel 70;

(b) on DSC frequency 2187.5 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;

(c) on DSC frequencies 2187.5 kHz and 8414.5 kHz and also on at least one of the DSC frequencies 4207.5 kHz, 6312 kHz, 12577 kHz or 16804.5 kHz, appropriate to the time of day and the geographical position of the ship, if the ship, in accordance with the requirements of Rule 18(1)(b) is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver; and

(d) for satellite shore-to-ship distress alert relays, if the ship, in accordance with the requirements of Rule 17(1)(a) 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 VHF channel 16; and other appropriate frequencies for urgency and safety communications for the area in which the ship is navigating.

20. Sources of energy:

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.

The detailed regarding various sources of electrical energy are outlined in **SCHEDULE-XVIII** of these Rules.

21. Performance Standards:

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

22. Manning Requirements:

(1) Every Indian-flagged ship to which this rule applies, as stipulated under Rule 2, shall be manned by certificated personnel from the following categories of operators:-

Categories	Maintenance requirements	Type of Certificate Holder(s)
Sea Area- A3 and A4.	1. Duplication of equipment and Shore based maintenance	General Operator Certificate
	2. Duplication of equipment and at sea electronic maintenance	First class/ Second class Radio Electronic Certificate

	3. Shore based maintenance and at sea electronic maintenance	First class/ Second Class Radio Electronic Certificate
Sea Area- A2.	1. Duplication of equipment or Shore based maintenance	General Operator Certificate
	2. Shore based maintenance or At sea electronic maintenance	First class/ Second Class Radio Electronic Certificate
	3. Duplication of equipment or at sea electronic maintenance	First class/ Second Class Radio Electronic Certificate
Sea Area- A1, coastal vessels, and other vessels less than 300 GT	NIL	Restricted Operator Certificate

(2) Certified personnel engaged exclusively as radio operators shall

(a) carryout maintenance of the equipment as specified in the operating manual for such equipment and carry out appropriate checks and tests specified in **SCHEDULE-XIV**; and

(b) inform the Master where any of the radio installations are not in working order and record the details of the same in the radio logbook.

(3) Where certified persons are not engaged exclusively as radio operators and persons are required to carry out the duties of a radio operator in addition to their other duties (such as deck officers with additional qualification), at least two officers with qualification as specified in the table above shall be manned and one of these shall be nominated by the Master to carry out the duties specified in clauses (a) and (b), of sub-rule (2) of this rule.

23. 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.

(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 Rule 7 and to meet the recommended performance standards of such equipment.

(6) The method of availability of radio equipment(s) shall be ensured by using following methods:

a. duplication of equipment;

b. shore-based maintenance; or

c. at-sea electronic maintenance capability.

(7) On ships and high speed crafts engaged on voyages in sea areas A1 or A2, the availability shall be ensured by using at least one method as mentioned in Rule 23 (6), as may be approved by the Administration.

(8) On ships and high speed crafts engaged on voyages in sea areas A3 or A4, the availability shall be ensured by using a combination of at least two methods as mentioned in Rule 23 (6), as may be approved by the Administration.

(9) Method of maintenance to be adopted with details of equipment and maintenance capability shall be submitted to the approving authority, whose decision relating to the manning requirement vis-à-vis method of maintenance in accordance with Rule 22 shall be final.

(10) However, for High Speed Crafts operating solely between ports where adequate facilities for shore-based maintenance of the radio installations are available, and provided that no journey between two such ports exceed 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.

(11) 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 Rule 7, malfunction of the equipment for providing the general radiocommunications required by regulation 7(1)(b) 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.

(12) EPIRBs shall be:

(a) Annually tested, either on board the ship 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:

i. on passenger ships, within three months before the expiry date of the Passenger Ship Safety Certificate; and
ii. 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

(b) Subject to maintenance at intervals not exceeding five years, to be performed at an approved shore-based maintenance facility.

24. <u>Radio personnel</u>:

(1) Every ship shall carry qualified personnel for distress, urgency and safety communication purposes to the satisfaction of the STCW Convention and the Administration. The personnel shall be holders of the appropriate certificates specified in Section II of Article 47 of the Radio Regulation and in Sub-rule 4. 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 sub-Rule 24 (1) shall be assigned to perform only communications duties during distress incidents.

(3) Every ship shall be manned by radio personnel holding a valid Certificate of Proficiency granted under radio regulations by –

(i) The Central Government or any other authority appointed by it by a notification in the official Gazette.

(ii) The administration of any other country whose Certificate of Proficiency has been recognised by the Central Government and has issued such holder an authority to operate a radio installation on board an Indian ship.

(4) Certificate of Proficiency for the following grades shall be granted by the Central Government: -

(i) First class radio electronic certificate;

(ii) Second class radio electronic certificate;

(iii) General Operators' Certificate; and

(iv) Restricted Operator's Certificate

(5) Every radio operator shall possess a certificate of proficiencies for five basic STCW courses as mentioned below: -

(i) Elementary First Aid.

(ii) Personal Survival Techniques.

(iii) Fire Prevention and Firefighting.

(iv) Personnel Safety and Social Responsibility.

(v) Proficiency in Maritime Security Awareness.

25. Radio Records:

(1) Every radio operator shall, when keeping radio watch, enter the following in the radio logbook as they occur, together with the time of their occurrences: -

i. a summary of communication relating to distress, urgency and safety.
ii. A record of important incidents connected with radio service, and
iii. Where appropriate the position of the ship at least once a day.
iv. Summary of Communications exchanged between the ship station and other stations.
v. Summary of all the tests, maintenance, repairs carried out, and malfunction of equipment.

(2) The master of the ship shall inspect and sign entries in the radio logbook daily.

26. Position Updating through Electronic Position Fixing System (EPFS): -

(1) All fixed two-way radiocommunication equipment carried onboard ship & vessels as specified in Rule 2 to which this rule applies, shall be capable of continuously and automatically updating the ship's position to all the relevant radiocommunication equipment sending distress alerts.

(2) EPFS or radio navigational receiver shall be installed for automatic updating of the ship's position to the distress alerting devices i.e. DSC equipment and RMSS equipment. If such automatic updating is interrupted, it is required to enter the ship's position manually into relevant GMDSS equipment at intervals not exceeding 4 hours whenever the ship is under way, so that it is always ready for transmission by the equipment.

(3) If the EPFS is connected to the GMDSS equipment, it shall (similar to the mandatory GMDSS equipment) be supplied with energy from the reserve source of energy/batteries.

27. Carriage requirement of Radio Communication equipment for Conventional vessels: -

The equipment required to be carried on board conventional Indian vessels—including all cargo ships of 300 GT gross tonnage or above, all passenger ships, Mobile Offshore Drilling Units (MODUs), and High-Speed Crafts—is listed in the table specified in **SCHEDULE-VII**.

28. Carriage requirement of Radio communication equipment for non-conventional vessels (less than 300 GT), coastal vessels, and Port crafts:

a) The vessels, operating in the Indian Coast within 20 nautical miles from the nearest land, shall be required to carry radio communication equipment as specified in **SCHEDULE-VIII**.

b) These vessels include non-conventional vessels of less than 300 GT, vessels between 300 GT and 3,000 GT, and port or harbour craft operating within harbour waters, as specified in **SCHEDULE-VIII**.

c) Sub-rules 28(a) and 28(b) shall not apply to passenger vessels and conventional vessels. Such vessels shall carry radio communication equipment in accordance with the requirements as specified for conventional vessels under Rules 12 to 18.

29. <u>Radio Service Station:</u>

a) In accordance with Rules 21 and 23, the testing and maintenance of radio communication equipment shall be conducted at the Administration approved Radio Service Stations. These services must be carried out by appropriately trained personnel using suitable and calibrated test equipment to ensure compliance with required performance standards.

b) Radio Service Stations shall be established by Original Equipment Manufacturers (OEMs) or firms authorized by OEMs to provide such services, and must be approved by the Administration.

c) Approved Radio Service Stations must be staffed with adequately qualified personnel who have received appropriate training from the respective OEMs, as specified by the Administration.

d) All approved Radio Service Stations must be equipped with the latest valid and quality control certified testing equipment.

e) The procedures for approval of Radio Service Stations, qualification of competent personnel, addition or removal of such personnel, and modification or amendment of the Certificate of Approval (CoA) are detailed in **SCHEDULE-XV**.

PART IV

SCHEDULES

SCHEDULE-I

General Radio Equipment Requirement: Every ship shall be provided with the general radio equipment as follows.

(1) VHF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes:
   a. 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
   b. 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) (i);

(3) A RADAR SART or an AIS-SART, which:
   a. Shall be so stowed that it can be easily utilized;

b. For every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage shall be provided with at least one RADAR SART or AIS-SART; and

(4) For every passenger ship and every cargo ship of 500 gross tonnage and upwards shall be provided with at least one RADAR SART or AIS-SART on each side of the ship.

(5) The RADAR SARTs or AIS-SARTs shall be stowed in such locations that they can be rapidly placed in any survival craft other than a life-raft. On ships carrying at least two RADAR SARTs or AIS-SARTs and equipped with free-fall lifeboats:

a. One RADAR SART or AIS-SART shall be stowed in a free-fall lifeboat; and
b. The other shall be located in the immediate vicinity of the navigating bridge, readily available for use on board and for transfer to any survival craft other than a life-raft.

(6) Portable two-way VHF Requirement –

a. Every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage shall be provided with at least two two-way VHF radiotelephone apparatuses.
b. Every passenger ship and every cargo ship of 500 gross tonnage and upwards shall be provided with at least three two-way VHF radiotelephone apparatuses.
c. The two-way VHF radiotelephone apparatuses may be portable or fitted in survival craft. The portable apparatus may be stored on the bridge.

(7) A receiver or receivers capable of receiving MSI and search and rescue related information throughout the entire voyage in which the ship is engaged;

(8) An EPIRB which shall be: .

a. Installed in an easily accessible position;
b. Ready to be manually released and capable of being carried by one person into a survival craft;

c. Capable of floating free if the ship sinks and of being automatically activated when afloat; and
d. Capable of being activated manually; and

(9) 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 Rule 1 (a) (i).

SCHEDULE-II

Additional requirements for Passenger Ships:

In addition to the Rule 12, the Passengers ships and passenger HSCs shall comply with following additional requirements.

(1) A distress panel shall be installed at the conning position, i.e. within the range of the manoeuvring console in the front of the navigation bridge.

b) This panel shall contain either one single button which, when pressed, initiates a distress alert using all radiocommunication installation required on board for that purpose; or one button for each individual radio installation which are installed.
c) Means shall be provided to prevent inadvertent activation of the button or buttons.
d) The alert button or buttons shall be protected against inadvertent activation by use of a spring-loaded lid or cover permanently attached by hinges in order to fulfil the requirement of carrying out "at least two independent actions" when transmitting distress alert. (The button or buttons shall be pressed for at least 3 seconds before the alarm is activated.)
e) If the installed EPIRB is used as the secondary (mandatory) means of distress alerting and is not remotely activated from the distress panel, it shall

be acceptable to have an additional EPIRB (float-free or manual) installed on the navigation bridge near the conning position.

f) Information on the ship's position shall be continuously and automatically provided to all relevant radiocommunication equipment to be included in the initial distress alert when the button or buttons on the distress panel are pressed (i.e. interface connection from the ship's EPFS receiver shall be provided, where EPFS is not integrated).

g) The distress alarm panel shall be part of the distress panel and shall provide visual and aural indication of any distress alert or alerts received on board and shall also indicate through which radiocommunication service the distress alerts have been received.

h) The Distress Panel shall contain alerting buttons from the equipment in accordance to sea areas as mentioned in the table below: -

Sea Areas	Equipment
All Ships	VHF DSC
A1	EPIRB
A2	MF DSC and EPIRB or RMSS
A3	MF DSC, RMSS and one of HF DSC or EPIRB or second RMSS
A4	MF/HF DSC and EPIRB

i) 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. This equipment may be of a fixed or portable type and

shall be marked with ship name and call sign. The primary battery shall be marked with expiry date.

SCHEDULE-III

Radio equipment requirement for Sea area A1:

In addition to the requirements specified in Rule 12, 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:

(a) Through the satellite service on 406 MHz; or

(b) If the ship is engaged on voyages within coverage of MF coast stations equipped with DSC, on MF using DSC; or

(c) On high frequency (HF) using DSC; or

(d) Through a recognized mobile satellite service ship earth station.

(e) The requirement in paragraph 15(1)(a) may be fulfilled by installing:

(f) The EPIRB required by regulation 12(8) 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

(g) The EPIRB required by regulation 12(8) 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

(h) a second EPIRB near the position from which the ship is normally navigated.

SCHEDULE-IV

Radio equipment requirement for Sea area A2:

(1) In addition to meeting the requirements of Rule 12 & 15, every ship engaged on voyages within sea area A2 shall be provided with:

a) An MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies 2 187.5 kHz using DSC and 2 182 kHz using radiotelephony;

b) 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 the equipment specified in paragraph16 (1)(a) and,

c) A secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:

d) Through the satellite service on 406 MHz; or

On HF using DSC; or

Through a recognized mobile satellite service ship earth station.

e) It shall be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs 16 (1)(a) and 16(1)(c)(i) from the position from which the ship is normally navigated.

f) The requirement in Rule 16(1)(c)(i) may be fulfilled by installing the equipment as specified in Rule 15(2).

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

i. A radio installation operating on working frequencies in the bands between 1605 kHz and 4000 kHz or between 4000 kHz and 27500 kHz. This requirement may be fulfilled by the addition of this capability in the equipment required by Rule 16(1)(a); or

ii. A recognized mobile satellite service ship earth station.

SCHEDULE-V

Radio equipment requirement for Sea area A3:

i> In addition to meeting the requirements of Rule 12 & 15, every ship engaged on voyages within sea area A3 shall be provided with:

ii> a recognized mobile satellite service ship earth station capable of:

iii> Transmitting and receiving distress, urgency and safety communications;

iv> Initiating and receiving distress priority calls; and

v> Maintaining watch for shore-to-ship distress alert relays, including those directed to specifically defined geographical areas;

vi> An MF radio installation capable of transmitting and receiving, for distress, urgency and safety communications purposes, on the frequencies 2187.5 kHz using DSC and 2182 kHz using radiotelephony;

vii> A radio installation capable of maintaining a continuous DSC watch on the frequency 2187.5 kHz which may be separate from, or combined with the equipment specified in paragraph 16 (1) (a) (b) and,

viii> A secondary means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:

ix> Through the satellite service on 406 MHz; or

x> On HF using DSC; or

xi> Through a recognized mobile satellite service ship earth station.

xii> It shall be possible to initiate transmission of distress alerts by the radio installations specified in sub-rule 16 (1) (a), 16 (1)(b) and 16 (1)(d) from the position from which the ship is normally navigated.

xiii> The requirement in Rule 17(1)(d)(i) may be fulfilled by installing the equipment as specified in Rule 15(2).

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

xv> A radio installation operating on working frequencies in the bands between 1605 kHz and 4000 kHz or between 4000 kHz and 27500 kHz.

xvi> A recognised mobile satellite service ship earth station

xvii> The requirements in sub-rule17(4)(a) and 17(4)(b) may be fulfilled by the addition of this capability in the equipment required by Rule 17(1)(a) and 17(1)(b) respectively.

SCHEDULE-VI

Radio equipment requirement for Sea area A4:

In addition to meeting the requirements of Rule 12 & 15, every ship engaged on voyages within sea area A4 shall be provided with:

(a) 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 1605 kHz and 4000 kHz and between 4 000 kHz and 27500 kHz using DSC and radiotelephony.

(b) Equipment capable of maintaining DSC watch on 2187.5 kHz, 8414.5 kHz and on at least one of the DSC frequencies 4207.5 kHz, 6312 kHz, 12577 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 Rule 18(1)(a) and

(c) A secondary means of initiating the transmission of ship-to-shore distress alerts through the satellite service on 406 MHz.

(d) 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 Rule 18(1)(a).

(e) It shall be possible to initiate transmission of distress alerts by the radio installations specified in Rule 18(1)(a) and Rule 18(1)(c) from the position from which the ship is normally navigated.

(f) The requirement in Rule 18(1)(c) may be fulfilled by installing the equipment as specified in Rule 15(2).

SCHEDULE-VII

All cargo ships of gross tonnage 300 GT or above, all passenger ships, MODUs, High Speed Crafts shall carry radio communication equipment and comply with the Rules 12 to 18 for each Sea Area as set out in the table below.

Equipment	A1	A2	A3	A4
VHF telephony installation with DSC capable of:				
DSC watch on channel 70	X	x	x	x
Radiotelephony watch on channel 16	X	x	x	x
Watch on other appropriate frequency or frequencies for urgency and safety	X	x	x	x

communications for the area in which the ship is navigating				
MF telephony[1] installation with MF DSC capable of:				
DSC watch on 2 187.5 kHz		x	x	
Watch on other appropriate frequency or frequencies for urgency and safety communications for the area in which the ship is navigating.		x	x	
SES Providing RMSS			x	
MF/HF telephony installation with DSC capable of:				
DSC watch on 2 187.5 kHz and 8 414.5 kHz				x
Depending on time of day and geographical position, DSC watch on at least one of the frequencies 4207.5 kHz, 6312 kHz, 12577 kHz or 16804.5 kHz				x
Watch on other appropriate frequency or frequencies for urgency and safety communications for the area in which the ship is navigating.				x

Duplicated VHF with DSC	X	x	x	x
Duplicated MF[1] with DSC		x		
Duplicated SES[3] providing RMSS			x	
Duplicated MF/HF telephony[1,3] with DSC			x	x
Receiver(s) for MSI and SAR – related information[4]	X	x	x	x
Float-free EPIRB	X	x	x	x
RADAR SART or AIS SART[2]	X	x	x	x
Portable GMDSS VHF transceivers[2]	X	x	x	x
Automatic updating of position to all relevant Radiocommunication equipment	X	x	x	x
The following additional requirements apply to passenger ships				
"Distress Panel" and "Distress Alarm Panel" (SOLAS regulation IV/6.4 and 6.6)	X	x	x	x
Two-way on scene Radiocommunication on 121.5 MHz and 123.1 MHz from the navigating bridge. (SOLAS regulation IV/7.6)	X	x	x	x

Table 25.1. Carriage requirement of Radio Communication equipment for ships

Footnote:

1. In place of MF Radio Installation, MF/HF Radio Installation is accepted.

2. Number of portable radio equipment is to be carried in accordance with Gross Tonnage of the ship.

3. For Sea Area A3, a ship may choose duplication either with complete MF/HF Installation or with RMSS-SES with coverage equal to or broader than the primary RMSS for providing the required redundancy.

4. This may be either a combined SES and EGC receiver or separate pieces of equipment.

SCHEDULE- VIII

Carriage requirement for vessels plying in Indian Coast within 20 nautical miles from the nearest land:

Sr. No.	Equipment	Vessels operating in Indian Coast within 20 Nautical miles from the nearest land			Harbour/ Port Operational Vessels
		Less than 300 GT	Greater than 300GT and less than 3000 GT	More than 3000 GT	
Requirements for Cargo Vessels				Comply with the carriage requirement as specified in SOLAS Chapter – IV for all the Sea Areas	
1.	VHF-DSC & RT	Two (2)	Two (2)		One (1)
2.	VHF-RT	-	-		-
3.	Portable VHF	Two (2)	Three (3)		One (1)
4.	MF/HF-DSC & RT	-	-		-
5.	MF/HF RT/SSB	One (1)	One (1)		-
6.	Inmarsat-C	-	One (1)		-
7.	NAVTEX	One (1)	One (1)		One (1)
8.	EGC	-	One (1)		-
9.	GPS EPIRB or AIS-EPIRB	One (1)	One (1)		One (1)
10.	RADAR SART or AIS-SART	One (1)	Two (2)		One (1)
11.	AIS	One (1)	One (1)		One (1)

12.	EPFS (GPS, Galileo, IRNSS etc.)	One (1)	One (1)		One (1)
Additional Requirements for Passenger Vessels					
13.	AERO-VHF	One (1)	One (1)		One (1)
14.	Distress Panel	YES	YES		YES
15.	SBMC	YES	YES		-

SCHEDULE- IX

Documents to be carried on Indian vessels:

All the Indian flag ships as mentioned in Rule 2, shall carry following certificates, licenses, logbooks, manuals, publications.

Certificates and Licenses: -

a) Valid cargo ship safety radio certificate or passenger ship safety certificate.
b) Type approval Certificate of all radio communication equipment fitted onboard ship.

(c) Valid Radio Operators Certificate & License issued by Ministry of Communication or Competent Authority of the Flag Administration with STCW endorsement by the Flag Administration.
(d) Valid Shore based maintenance contract between ship-owner and the OEM (Original Equipment Manufacturer) or its authorized partner.
(e) Valid Mobile ship station license issued by the Ministry of Communication or Competent Authority of the Flag Administration.
(f) EPIRB registration certificate.
(g) Valid EPIRB shore-based maintenance and Test Certificates as per MSC.1/Circ.1039 & 1040 as amended.
(h) Annual performance test certificate for AIS-SART and RADAR-SART as applicable.

(i) Annual performance test certificate for AIS.
(j) Global Chart for all the coast radio stations.
(k) GMDSS master plan.
(l) Global SAR Plan.

2. Radio Records

a) GMDSS logbook.
b) Reserve Source Battery logbook.
c) Maintenance logbook.

3. Publications

a) ITU publications (Manual for use by the maritime mobile and maritime mobile- satellite services),
b) List-V (List of Ship Stations),
c) List-IV (List of Coast stations and special service stations)
d) Safety of Life at Sea (SOLAS)
e) Admiralty List of Radio Signals (ALRS).

4. Manuals

a) Operational and maintenance Manual of all fixed and portable radio communication equipment.
b) GMDSS Manual.

SCHEDULE- X

GMDSS PLAN:

Specified drawings (plans of the radio installation) shall be prepared well before the work on a new building or reconstruction of ships or offshore units is started. For radio installations, the following drawings should be prepared:

Antenna drawing: - Antenna drawings shall show all antennas seen from fore or aft position, the port or starboard position and aerial view. The antenna and radio arrangement drawings shall at least be of size 1:50. This applies to the following antennas:

a) all transmitting antennas including location of antenna tuner;
b) all receiving antennas including electronic position fixing system (EPFS) antennas;
c) radar antennas;
d) AIS antennas;
e) satellite communication antennas; and
f) the location of float-free EPIRBs.

Wheel-house arrangement plan: - This plan shall provide the location of the following equipment:

i. controllers for transmitting distress alert;
ii. VHF radio installations, including any control units;
iii. MF or MF/HF radio installations, including any control units, printers, etc.;
iv. satellite communication equipment, including terminals, printers, etc.;
v. receivers for keeping watch on VHF channels 16, 70, MF 2 187.5 kHz, and
vi. HF distress channels in 4, 6, 8, 12 and 16 MHz bands;
vii. receivers for MSI and SAR related information services recognized by IMO;
viii. SARTs, AIS SARTs and EPIRBs along with IMO symbols (if located on the navigation bridge);
ix. portable two-way VHF radiotelephone apparatus and their chargers along with IMO symbols;
x. emergency light powered from a reserve source of energy to illuminate the
xi. mandatory radio equipment;
xii. battery charger (for the reserve source of energy); and
xiii. fuse or circuit breaker box.
xiv. Position of Distress Panel & Distress Alarm Panel.

Wiring (Interconnection) Diagram: - These drawings shall show the following connections:-

g) antenna connections.
h) connections to telephone exchange (PABX), fax machine, etc.
i) connections to the ship's mains, emergency source of energy, the reserve source of energy (batteries), and switching systems for all radiocommunication and radio navigation equipment.
j) radio equipment (including emergency light) being connected to each power unit/source.
k) AIS and its pilot plug.

l) fuses or circuit breakers for all radio equipment.
m) uninterruptable power supply (UPS) with all connections, circuit breakers and fuses, if installed as power for mandatory radio equipment (block diagram showing how the UPS operates, showing the circuit breakers, fuses and switch-over connections to alternative power supplies, by-pass switches, etc.)
n) any connections (interface connections) between EPFS and GMDSS radio equipment.
o) battery chargers for the reserve source of energy.
p) Connection of distress panel and distress alarm panel.
q) connections to gyro (if applicable).
r) type of cables used in the installation; and
s) connections to VDR (if applicable).

List of all the radio equipment operating with reserve power source.

Reserve source battery capacity calculation plan as attached in Annexure-I

SCHEDULE-XI

Cabling and Wiring:

t) The cabling and wiring in the radio installation shall be designed so as to prevent electrical interference to radio and navigational equipment.
u) Cables should have the correct dimension to prevent voltage reduction to radio equipment when full load. The voltage reduction in copper conductors is calculated as follows:
Voltage drop = 0,035 x length (m) x total load (A) divided by the cross section in squared mm.
v) In order to reduce interference, it is essential to have good separation between signal cables and those cables carrying higher voltages.
w) All cabling and wiring shall be of a type approved and suitable for use on board ships.

SCHEDULE-XII

Tools and Spare Parts:

As a minimum requirement, the ship shall have the following tools and spare parts readily available on board:

x) Spare fuses for all radio equipment, battery circuit and main fuses where safety fuse ("melting" fuse) are used.
y) reserve emergency lamps.
z) tools necessary for simple servicing.
aa) acid specific density meter if the ship is fitted with lead acid accumulators and
bb) Multi-meter.
cc) Long wire antennas of approx. 20 meters.
dd) Hydrometer.
ee) Thermometer.
ff) Personnel Protective Gears.

SCHEDULE-XIII

EMC (Electro-Magnetic Compatibility), Earthing and Screening:

gg) All reasonable and practical steps shall be taken to ensure EMC between the equipment concerned and other radio communication and navigational equipment carried on board. In order to avoid interference, following shall be ensured: -

hh) Radio installations shall not cause harmful interference to other electronic, electrical or navigational systems on board ships. However, other systems shall also not cause harmful interference to the radio installation.

ii) In order to avoid electromagnetic noise interference, it is essential that manufacturers' guidelines relating to EMC, screening and earthing are correctly followed.

jj) **Interference from LED lighting and other unintentional emitters**: -

kk) In order to avoid unintentional electromagnetic interference, periodic EMC inspections shall be carried out, especially after the installation of LED-equipped lighting or any electrical system installed in proximity to antennas that are susceptible to such interference.

ll) Appropriate checks shall be conducted to ensure that no harmful electromagnetic interference (EMI) is experienced by any radio communication or navigation system. In the event EMI is detected, remedial measures shall be taken, which may include the removal of the identified source of interference, suppression of the interference at its origin, or relocation of the affected antenna to a location where no harmful interference is present. Such checks shall be carried out prior to the initial acceptance or flag-in of the vessel and after any electrical or system modifications that may impact electromagnetic conditions on board.

mm) Screening of Cables

In order to avoid interference, the following guidelines should apply with regards to screening of cables:

nn) Coaxial down leads shall be used for all receiving antennas and the coax screen should be connected to ground on at least one end.

oo) All cables within a distance of 2 meters from a transmitting antenna should be screened and the screen should be properly earthed in a metal tube or duct.

pp) Earthing of radio equipment shall be carried out in accordance with appropriate guidelines for earthing in maritime installations required in international standards. Great care should be taken in order to fulfil the following rules: -

Each unit of radio equipment should have a separate earth connection.

qq) MF/HF antenna tuners should be earthed with either a copper bar or copper band.

rr) The earthing bar or strap should be as short as possible, should not be more than 1 meter in length, and should be at least 60 mm in width.

ss) For earthing straps up to 5 meters in length, the width should be at least 100 mm (may be relevant on board vessels made of wood or synthetic materials).

tt) It should be noted that a long earthing strap or bar will act as an antenna and radiate energy.

uu) Copper bars and straps should be brazed to the steel bulkhead in order to eliminate corrosion and vibration and make a good earth connection.

vv) Great care should be taken when earthing radio equipment on ships with aluminum superstructures in order to avoid galvanic corrosion. An approved and acceptable method of earthing should be used on such ships.

SCHEDULE-XIV

Onboard Plan Maintenance of Radio Communication Equipment:

The operational procedure of radio communication equipment in case of emergencies shall be made available near to all the distress alerting equipment in English and in the working language understood by the operator. The onboard plan maintenance/test of radio equipment shall be carried out as per the following schedule: -

ww) Daily Tests:

xx) Self and loop test of VHF installations.

yy) Self-test of MF/HF installations.

zz) Performance verification test of satellite equipment.

aaa) Reserve source battery voltage on/off load test.

bbb) Printer test (if fitted).

ccc) Emergency light for radio console.

ddd) Any other devices as required by the regulation.

eee) Weekly Tests:

fff) MF/HF DSC External test with a coast radio station at least once a week. Where a ship has been out of communication range of coast radio station for more than one week, a test call shall be made on the first opportunity when the ship comes within communication range of such coast radio stations.

ggg) Emergency source of electrical power, supplied to the radio equipment.

hhh) Monthly Tests:

iii) EPIRB test without radiation to the satellites, shall be conducted at least once a month along with checking towards battery expiry, visible signs of any damage, Hydrostatic releasing unit (HRU) and mounting bracket, lanyard, operating instructions, Hex ID, markings, IMO symbols, etc.

jjj) SARTs: RADAR-SART to be tested in conjunction with RADAR, AIS -SART to be tested in conjunction with AIS shall be conducted at least once a month along with checking towards battery expiry date, visual signs of any damage, operating instructions, lanyard, markings, IMO symbols, etc.

kkk) Portable Survival craft radio operation shall be tested on channel 16 and 06 at least once a month along with checks towards battery expiry, visual signs of any damage, operating instructions, lanyard, markings, IMO symbols, etc.

lll) Portable on-scene radio communication (AERO VHF) test(s) shall be conducted at least once a month along with checks towards battery expiry, visual signs of any damage, operating instructions, markings, IMO symbols, etc. if carried. (only for emergency communication with aircraft).

mmm) Antenna: Monthly checks shall be carried out towards cleaning, markings, insulators, connectors, warning posters, radiation hazard displays, safety guard rails, earthing connections, etc.

nnn) Reserve source batteries: Monthly checks shall be carried out towards electrolyte level, specific gravity of electrolyte, corrosion, terminal connectivity, cleanliness, personnel protective gears, etc.

ooo) Annually:

ppp) Every EPRIB and RADAR SART or AIS-SART and other life-saving radio equipment, as required by the Rules, shall be serviced by a competent person approved by the Administration. Such serving may be carried out on board without exposure to the Satellite system.

qqq) The capacity test of reserve source of energy (battery) shall be carried out while the ship is not at sea.

SCHEDULE – XV

Procedure/guidelines for Approval and renewal of Radio Service Stations for "Testing & servicing of EPIRB, SART and testing of AIS & other GMDSS radio communication equipment".

A) The step-by-step procedure for the approval and/or renewal of a service station for the testing and servicing of EPIRBs, SARTs, and the testing of AIS and other GMDSS radio communication equipment is outlined below.

Step-1:

Application Process:

An application must be submitted to the Directorate General of Shipping (DG Shipping) detailing the current status of the proposed service station, along with valid supporting documents. The minimum required documents are as follows:

a) Copy of the land/premises/building ownership deed or rental/lease agreement for the service station.
b) Experimental License issued by the Ministry of Communications.
c) Dealer Possession Licence issued by the Ministry of Communications.
d) Valid ISO certificate with a scope relevant to the services offered.
e) Authorization certificates from at least two Original Equipment Manufacturers (OEMs) for the service station.
f) Duly filled Checklists I, II, III, and IV, signed by the top management of the company, along with supporting documents.
g) Documents supporting the qualifications, experience, OEM authorizations, and training of service engineers, as specified in Section (B).
h) A self-declaration from the company confirming readiness for inspection by MMD/DGS.
i) Proof of payment of the applicable processing fee made in favour of DG Shipping via Bharatkosh. The transaction receipt must be submitted along with the application.

Step-2: Upon scrutiny of the application and confirmation of the service station's readiness, the Directorate General of Shipping (DGS) will instruct the jurisdictional MMD to carry out the inspection. The applicable inspection fee shall be paid separately in favour of the Principal Officer or Surveyor-in-Charge. The inspection must be completed within a maximum period of 30 days.

Step-3: Upon completion of the inspection and receipt of a recommendation from the Principal Officer of the jurisdictional MMD, the Directorate General of Shipping shall review, process, and issue the Certificate of Approval (CoA) for the service station within 15 working days.

B) <u>Procedure for approval of service engineers for the initial approval (or) addition/deletion of service engineers for the approved service station:</u>

The service engineer shall have the basic qualification, experience, OEM authorization and training as stipulated below towards approval.

1. **Basic Qualification**: The Service engineer should be in possession of;

a) a degree or diploma engineering in the discipline of Electronics & telecommunications, or Electrical engineering.
b) Indian GMDSS General Operators Certificate.

2. **Experience:** The Service engineer should have at least one year experience in the maritime field dealing with radio communication equipment.
3. **Authorization from OEM:** The Service engineer shall have authorization from at least two OEMs for carrying out servicing and testing.
4. **Training:** The Service engineer should have been trained by;
   a) the OEM, or
   b) the OEM trained service engineers which are accepted by the manufacturers.
5. The aforementioned procedures shall also apply to any subsequent addition or removal of service engineers from the CoA list.
6. A processing fee shall be charged on a per-case basis for any alteration or change in the CoA, including the addition or removal of service engineers from the CoA list.
7. **Verification & Evaluation of performance by jurisdictional MMD:**
   Verification and evaluation of service engineers shall be conducted by the MMD surveyor during the inspection of the service station. All service engineers must be physically present at the time of inspection. Only those engineers who meet the qualification criteria outlined in paragraphs 1 to 4 will have their names included in the Certificate of Approval (CoA)
8. A service engineer shall be permitted to perform servicing only on behalf of the service station where he/she is employed full-time. Upon termination of employment, the service engineer's name shall be removed from the Certificate of Approval (CoA) issued by DG Shipping.
9. A service engineer shall be permitted to perform surveys on board ships only if he/she meets the qualification criteria specified in paragraphs 1 to 4 and names are enlisted in CoA.

SCHEDULE – XVI

List of Radio Equipment operating from vessel's Reserve Source of Energy (RSE):

The list of radio communication equipment to be powered by the Reserve Source of Energy (RSE) is as follows:

Primary Equipment:

1. VHF DSC/RT installation.

2. MF DSC/RT installation.
3. MF/HF DSC/RT installation.
4. Recognised Mobile Satellite Service (RMSS) installation.
5. NAVTEX
6. EPFS (GPS).
7. Emergency Light.
8. Distress Panel.

Duplicated Equipment:
1. VHF DSC/RT installation.
2. MF/HF DSC/RT installation, or
3. Recognised Mobile Satellite Service (RMSS) installation.

Additional Equipment:
1**.** AIS.
2. Printers.
3. EPFS (2nd set if any).
4. Gyro Compass (if continuous heading information to the RMSS is required (Ch. IV Reg.13.8).

SCHEDULE – XVII

Sources of energy:

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.

(1) **Main Source of electrical energy** means the primary electrical power supply system of the ship, commonly referred to as the ship's mains, which provides continuous electrical power under normal operating conditions to all essential shipboard systems, including communication, navigation, safety, and propulsion equipment.

(a) It shall be independent, reliable, and capable of supplying power to all basic and duplicated equipment simultaneously, including the battery charging arrangements associated with reserve sources of energy.

(b) provision shall be made for an aural alarm and visual indication at the position from which the ship is normally navigated, indicating an interruption of the ship's main source of electrical power supply, such alarm and indication —

i. Shall not be capable of being disabled;
ii. Shall be capable of being acknowledged and silenced manually; and
iii. Shall reset automatically upon restoration of the ship's electrical power supply.

(2) **Emergency source of energy** means the independent electrical supply system, distinct from the ship’s main source of electrical power, automatically available in the event of failure of the main source within 45 seconds, and

(a) Shall not be applicable to cargo ships of less than 500 GT.
(b) Shall be capable of supplying electrical power for the operation of all GMDSS communication equipment and other essential safety systems for the period of 18 hours on cargo ships and 36 hours on passenger ships;
(c) Shall automatically start upon failure of main source of electric supply and restore the power to all the equipment, within 45 seconds.

(3) **Reserve source of energy** means a self-contained energy storage system, independent of the main source of electrical power and the emergency source of electrical power, intended exclusively for maintaining the continuous operation of the basic and duplicated radio communication equipment and miscellaneous equipment for the prescribed period of uninterrupted operation in the event of total failure of other power sources.

(a) A reserve source or sources of energy shall be provided on every ship, to supply energy to 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 all the equipment as specified in **SCHEDULE-XVI** for a period of at least: -

i. One hour on ships provided with an emergency supply which is adequate to operate the radiocommunication equipment for a period of 18 hours on cargo ships and 36 hours on passenger ships; or

ii. Six hours on ships not provided with an emergency supply as specified in Rule 20(2).

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

i. 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

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

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

(d) The siting and installation of accumulator batteries which provide a reserve source of energy shall be such as to ensure:

i. The highest degree of service;

ii. A reasonable lifetime;

iii. Reasonable safety;

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

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

vi. Records related to maintenance and replacement of batteries shall be maintained in battery logbook.

(4) **Radio Battery Capacity:**

"Minimum Required Battery Capacity" means the battery capacity determined by giving consideration to the expected extreme temperatures for the location of the battery, reduction of its capacity during its lifetime, and the loads which are to be connected to it, and the temperature range of the battery shall be wider than the expected temperature range of the location where the battery is to be installed.

b) The batteries shall have enough capacity to operate all the GMDSS radio equipment for the specific times outlined in Rule 20(3)(a). The total load for the entire radio installation shall be calculated prior to the installation of any radio batteries for the reserve supply;
c) Where the basic and duplicated radio equipment cannot be operated simultaneously, the battery capacity shall be sufficient to operate the equipment with the highest power consumption;
d) Where the basic and duplicated radio equipment are connected simultaneously, the battery capacity shall be sufficient to meet the average consumption of all connected equipment including any additional loads such as printers, displays, emergency light etc.;
e) If the capacity requirement of radio batteries is to be maintained over their normal life cycle, an extra 40% capacity shall be added to the minimum calculated capacity;
f) When calculating discharge time, the following guidelines may be of assistance:

i. the capacity of a lead acid battery is normally quoted at 20 hours of discharge at an operational temperature of 20°C;
ii. the capacity at one hour discharge is approximately 50% of the capacity at 20 hours discharge;

iii. the capacity at six hours discharge is approximately 80% of the capacity at 20 hours discharge; and

iv. for batteries other than the lead acid type, the capacity at one hour discharge is approximately 60% of the capacity at 10 hours discharge and six hours discharge will be approximately 92% of the capacity at 10 hours discharge.

g) An example of calculation shall be included. See **Annexure-I.**

h) The capacity of the radio batteries shall be checked at intervals not exceeding 12 months when the ship is not at sea. One method of checking the capacity is to fully discharge and recharge the batteries using normal operation current over a period of 10 hours. Assessment of the charge conditions can be made at any time, but it shall be done without significant discharge of the battery when the ship is at sea. Another method could be to check the capacity by means of a battery tester, e.g. in connection with a radio survey.

i) When determining the battery capacity, the following shall also be taken into consideration:

i. the battery is normally not fully charged;

ii. reduction of capacity due to ageing;

iii. reduction of capacity due to high or low temperatures; and

iv. reduction of capacity due to rapid discharge.

j) The capacity calculation plan shall be as **Annexure-I**

(5) **Battery Installation and Construction Requirements:**

(a) The batteries shall be properly marked with:

i. type or construction;

ii. rated capacity (capacity for one hour discharge "C1" and capacity for six hours discharge "C6"); and

iii. installation date.

(b) The marking shall be visible when the batteries have been installed and during their lifetime.

(c) A label warning of explosion danger shall be displayed near the installed batteries.

(d) Any type or construction of batteries, including but not limited to lead acid, alkaline, maintenance free, traction, and semi-traction, may be used as reserve source or sources of energy, taking into consideration the environmental conditions of the location where they are installed.

(e) The battery shall maintain its rated capacity when inclined at any angle up to 22 ½° in any orientation.

(f) All battery units shall be securely braced so that they will not be dislocated by movement of the ship.

(g) An instruction manual which contains all necessary specifications of the batteries shall be available on board.

(h) The information in the manual shall include at least the following:

i. capacity and temperature range within which the stated capacity is maintained for the specific operation period, i.e. one hour or six hours;

ii. charging voltage and current limits to keep batteries fully charged while preventing overcharging;

iii. actual specific gravity of the electrolyte and/or cell voltages or the voltage of the fully charged battery;

iv. guidelines on how to carry out a controlled discharge test, including the location and identification of all breakers (or similar) required to be switched off to ensure that the ship's main and emergency sources of power are disconnected from all GMDSS equipment, including the reserve battery charger, to ensure that the controlled discharge is carried out using the reserve battery only;

v. methods of determining the condition of charge of the battery, such as:

i.) Check of specific gravity of electrolyte (acid density); or

ii.) Check of battery cell voltage/battery voltages using an accurate measuring instrument in accordance with the battery manufacturer's specifications;

iii.) Requirement for ventilation; and

iv.) Requirement for maintenance.

(i) Equipment requiring a lower voltage than the total voltage of the battery bank shall not be connected to a part of the battery bank.

(j) The batteries shall be installed:

i. In the upper part of the ship;

ii. In an elevated position; and

iii. As close to the radio equipment as possible.

(k) An outdoor located battery case shall be avoided due to considerable temperature variation.

(l) The location shall generally satisfy the manufacturers' specifications with regards to temperature tolerance and environmental strain in accordance with IEC 60945 or other equivalent standards. Ideal location for the radio batteries is in a battery room with a constant temperature of approximately 20°C.

(m) Batteries of different types, cell constructions, capacities or manufacturers shall not be mixed in a battery bank.

(n) Batteries of different types and different cell constructions shall not be installed in the same location if they can affect each other.

(o) Sufficient ventilation for batteries shall be provided, as required by the battery manufacturer.

(p) Electrical installations, including battery chargers, located in the battery room shall be intrinsically safe.

(q) Sufficient space between batteries or battery banks shall be provided to enable inspections and maintenance.

(r) The cabling from the batteries shall be:

i. protected against earth faults and short-circuits;

ii. appropriately fused; and

iii. installed according to recognized international standards (IEC 60092-101 and IEC 60533).

(s) Battery cables shall have sufficient dimensions to prevent voltage reduction at peak current consumption.

(6) **Uninterruptable power supplies (UPSs):**

(a) A UPS is defined as a device which for a specific period of time supplies continuous power to radio equipment independent of any power failures in the ship's main or emergency source of electrical power.

(b) The UPS, installed as the reserve source or sources of energy, shall comply with the load determined in Rule 20(3) Minimum Required Battery Capacity and shall also comply with the following requirements:

i. shall comprise of an automatic charger and rechargeable accumulator batteries;

ii. Suitable arrangements shall be provided for both aural alarms and visual indications at the ship's main navigating position to indicate any failure of the UPS, these alarms shall warn if the UPS has any failure that is **not covered** by the alarms required for its automatic charging system.

iii. The UPS shall be operational within five seconds of switching on

iv. The UPS shall be designed to prevent damage due to battery disconnection or short-circuiting of the battery connections, with automatic reset of electronic protection upon clearance of the fault.

v. a second UPS or means for directly supplying the radio installation from the ship's main or emergency supply shall be installed and be available permanently in case of a failure of the UPS.

vi. The changeover to the second UPS or to the ship's supplies may be manual or automatic, and shall not require manual re-initialization of connected equipment nor result in loss of stored data.

vii. If the UPS does not fulfil the requirements in accordance with SOLAS Regulation IV/13, two separate UPS systems shall be installed: one for the basic radio equipment and one for the duplicated equipment.

(7) **Automatic battery chargers:**

(b) The charger shall be capable of recharging the completely discharged accumulator batteries to the minimum required capacity within 10 hours.

(c) The charger shall be capable of keeping the batteries appropriately charged as prescribed by the manufacturer for permanent charging.

(d) The supplied voltage and current shall always be within the tolerance limits prescribed by the battery manufacturer, taking into account the environmental temperature of the battery, likely to be experienced on a ship.

(e) A protection shall be provided against overcharging or discharging of batteries from a possible fault in the charger. The automatic charger shall be provided with a visual indication that it is switched on. An indication of the battery voltage and charge/discharge current shall be available on the navigation bridge.

(f) Provisions shall be made for an aural alarm and visual indication at the position from which the ship is normally navigated, indicating when the charging voltage or current is outside the limits given by the manufacturer. It shall not be possible to disable this alarm and indication, and it shall only be possible to acknowledge and silence the alarm manually. Both the alarm condition and indication shall reset automatically when normal charging condition has been restored. Failure of the alarm system shall not interrupt the charging or discharging of batteries.

(g) The automatic charger shall be operational within five seconds of switching on or after a power supply interruption.

(h) The automatic charger shall be so designed and constructed that it is protected against damage resulting from disconnection of the batteries or, with the battery disconnected, short-circuiting the battery connection. If this protection is provided by electronic means, it shall automatically reset following removal of the open or short-circuit conditions.

(8) **Protection of circuits for accumulator batteries**

(a) Battery circuits (i.e. the cables from battery case/room) shall be protected against short-circuit and overload. The protection device is to be installed as near as possible to the batteries.

(b) When conductors from the batteries are not protected against short-circuit and overload, they are to be installed so as to be proof against short circuit and earth faults. The requirements for short-circuit protection also apply to charge current circuits.

(c) Equivalent solutions may be accepted, e.g. by using double-screened cables in the battery room with explosion-proof fuses. The inner screen shall be treated according to Ex-rules, but the outer screen can be treated according to what is necessary to achieve good EMC-screening. The outer screen can, for example, be earthed at both ends to protect against High Frequency EMC-fields.

SCHEDULE – XVIII

Disposal of Radio Communication Equipment, Navigational Equipment and Batteries:

The disposal of radio equipment, navigational equipment, batteries and other such related equipment waste (e-waste) shall be governed by following provisions of;-

rrr) The Indian Telegraph Act 1885,

sss) The Indian Wireless Telegraphy Act 1933,

ttt) The Telecommunications Act 2023,

uuu) any executive orders or guidelines issued by the Ministry of Environment, Forest and climate change and Ministry of Communications.

vvv) any executive orders or guidelines issued by the state pollution control board and;

www) other concerned Ministry's or departments from time to time.

ANNEXURE-I

CAPACITY OF RESERVE SOURCE OF ENERGY (SOLAS Chapter IV Reg.13.2, COMSAR/Circ. 32/Rev.3 Par COMSAR/Circ.16 Annexes)

VESSEL NAME:	**IMO No.:**		**Call Sign:**
	Area of Operation:		Provided with Emergency Generator

Battery Type and Capacity (in AH): -	

The reserve source of energy should be capable of operating the radio installations described in Reg. IV/13.2 – th "duplication of equipment"
(if appropriate)- and any of the additional loads mentioned in SOLAS Ch. IV Reg. 13.4, 13.5 & 13.8 for period of a with an emergency
source of electrical power, and 6 hours on ships not provided with an emergency source of electrical power.

To determine the electrical load to be supplied by the reserve source of energy for each radio installation requ following formula is
recommended = one half of the current consumption necessary for transmission + the current consumption neces consumption of any
additional loads. (**COMSAR/Circ. 32/Rev.3 Para Sec 7.3.5)**

Current consumption of:		Half of Current Consumption necessary for transmission	Current Consumption necessary for reception	Current Consumption for any additional loads (SOL IV/13.4, 13.5 & 13.8)
1	**"BASIC EQPMENT"**			
1.1	VHF/DSC Radio Installation			
1.2	MF Radio Installation			
1.3	MF/HF Radio Installation			
1.4	INMARSAT Ship Earth Station			
1.5	NAVTEX			
2	**"DUPLICATED EQUIPMENT"**			
2.1	VHF/DSC Radio Installation			
2.2	MF Radio Installation			
2.3	MF/HF Radio Installation			
2.4	INMARSAT Ship Earth Station			
3	**"ADDITIONAL EQUIPMENTS ON LOAD"**			

3.1	AIS			
3.2	GPS (Ch. IV Reg.13.8)			
3.3	PRINTERS			
3.4	Electrical lighting for illumination of radio controls (Ch. IV Reg.13.5)			
3.5	Gyro Compass (if continuous heading information to the INMARSAT Ship Earth Station is required (Ch. IV Reg.13.8))			
4	Total current consumption (Total load determined) (in Amperes)			
5	Total current requirement for battery (minimum capacity requirements at all times) for over normal life cycle is 1.4 times the load determined i.e. Extra 40% capacity of load determined. **COMSAR/Circ. 32/Rev.3 Sec. 7.4.4**			
To allow for the reduced capacity of a battery when discharged over a shorter period than its rated specificatio rating factor of 0.5 for a 1-hour discharge and 0.85 for a 6-hour discharge should be applied. The result, in hours, should exceed the minimum ca				
6	**ENDURANCE OF BATTERY**			
6.1	**Discharge time of reserve source of energy:**			

	{Full capacity of battery x de-rating factor (0.5)} Total current (5)		For vessels provided with Lead Acid battery & Emergency Generator. (1 hour)
	{Full capacity of battery x de-rating factor (0.8)} Total current (5)		For vessels provided with Lead Acid battery & without Emergency Generator. (6 hours)
6.2	**COMSAR/Circ. 32/Rev.3 Sec. 7.4.5:** For batteries other than lead acid type, de-rating factor 0.6 for 1-hour discharge to be taken.		

COMSAR/Circ. 32/Rev.3 Sec. 7.4:

Note: When determining the battery capacity, the following should also be taken into consideration:

a) The battery is normally not fully charged; **b)** Reduction of capacity due to ageing; **c)** Reduction of capacity and

d) Reduction of capacity due to rapid discharge.

Ch. IV Reg.13.6.2: The capacity of the rechargeable accumulator batteries shall be checked at intervals not exce is not at sea.

Annexure -II

Procedure for cancellation of false distress alerts:

If a distress alert is inadvertently transmitted, the steps shall be taken to cancel the distress alert activated from following alerting devices.

VHF digital selective calling:

1) Reset the equipment immediately;
2) If the DSC equipment is capable of cancellation, cancel the alert in accordance with the most recent version of Recommendation ITU-R M.493;
3) Set to channel 16; and
4) Transmit a broadcast message to “All Stations” giving the ship’s name, call sign and maritime mobile service identity (MMSI), and cancel the false distress alert.

MF digital selective calling:

1) Reset the equipment immediately;
2) If the DSC equipment is capable of cancellation, cancel the alert in accordance with the most recent version of Recommendation ITU-R M.493;
3) Tune for radiotelephony transmission on 2 182 kHz; and
4) Transmit a broadcast message to “All Stations” giving the ship’s name, call sign and

MMSI, and cancel the false alert.

HF digital selective calling:

1) Reset the equipment immediately;
2) If the DSC equipment is capable of cancellation, cancel the alert in accordance with the most recent version of Recommendation ITU-R M.493;
3) Tune for radiotelephony on the distress and safety frequency in each frequency band in which a false distress alert was transmitted (see Appendix 15); and
4) Transmit a broadcast message to “All Stations” giving the ship’s name, call sign and MMSI, and cancel the false alert on the distress and safety frequency in each frequency band in which the false distress alert was transmitted.

RMSS Ship Earth Station:

Notify the appropriate rescue coordination centre that the alert is cancelled by sending a distress priority message. Provide ship name, call sign and ship earth station identity with the cancelled alert message.