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AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY MANUAL (VOLUME 2)

DIVISION 3: SHIP RULES

CHAPTER 08: SAFETY COMMUNICATIONS

PART 2: SOLUTIONS TO THE ANC RULES

This document is issued for use by Defence and Defence Industry personnel and is effective forthwith.

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Assistant Secretary
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3 https://www.legislation.gov.au/Series/C2004A03712

4 http://drnet/AssociateSecretary/security/policy/Pages/dspf.aspx

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Part 2: Solutions to the ANC Rules

Chapter 08: Safety Communications

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Solutions to the ANC Rules

Rule 0. Goal

0.1 The Goal of this chapter is contained in Part 1.

Rule 1. General

Solutions

1.1 The Naval Vessel Operator (NVO) shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. All decisions that affect compliance with the requirements of this chapter shall be recorded at all stages from concept to disposal and these records shall be maintained throughout the life of the ship.

1.2 The rulesets of a single Classification Society shall be used for designing, constructing, and maintaining the Safety Communications of Naval Vessels.

1.3 The Classification Society issuing the ruleset required by paragraph 1.2 shall be recognised as a Competent Organisation by the ANC Authority.

1.4 The requirements prescribed in Part 1 shall be met through the application of the appropriate class notations of the ship's Classification Society, supplemented by additional standards, or justified solutions where necessary to meet the Operating and Support Intent (OSI).

1.5 If requirements in this Chapter contradict the requirements in the ruleset of the Classification Society, requirements in this Chapter take precedence or consult the ANC Authority.

1.6 All Rules, Regulations, Codes and Standards used shall be the latest versions as amended at the time of drafting the ANC Basis, unless a specific version date is specified in the text.

1.7 For ships with a post damage capability requirement as required by the OSI, equipment, provision and system survivability may be impacted by Chapter 01 General Requirements, Rule 2 Post Damage Capability.

Rule 2. GMDSS Equipment

2.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solutions

2.2 Global Maritime Distress and Safety Systems (GMDSS) radio installations shall be installed and comply with the requirements of SOLAS Chapter IV (Radiocommunications) Regulations 4 to 11 as per the operational parameters prescribed by the OSI.

2.3 Individual subsystems forming part of the GMDSS suite shall comply with the following standards:

2.3.1 International Electrotechnical Commission (IEC) IEC 60945 Maritime navigation and radio-communication equipment and systems - General requirements - Methods of testing and required test results.

2.3.2 International Electrotechnical Commission (IEC) IEC 61097-3 series Global Maritime Distress and Safety System.

Rule 3. Availability of GMDSS Equipment

3.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

3.2 Availability of GMDSS equipment shall be in accordance with SOLAS Chapter IV Regulation 15 Maintenance Requirements.

Rule 4. GMDSS Sources of Energy

4.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

4.2 The GMDSS reserve sources of energy shall meet the requirements set out in SOLAS Chapter IV Regulation 13. A Reserve Source of energy shall be provided to GMDSS equipment installations on all vessels for the purpose of conducting distress and safety radio communication in the event of failure of the ship's main and emergency source of electrical energy.

Rule 5. Position Updates to GMDSS Equipment

5.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

5.2 Electronic navigation receivers used for position input to GMDSS equipment shall comply with IEC 61108-1:2003 - Maritime navigation and radio communication equipment and systems – Global navigation satellite systems (GNSS) – Part 1: Global positioning system (GPS) – Receiver equipment – Performance standards, methods of testing and required test results (2003-07).

5.3 The ship shall comply with SOLAS Chapter IV Regulation 18. Radiocommunications requires that a GPS receiver be connected to GMDSS equipment to ensure that the ship's most up to date position is transmitted as part of a distress alert.

Note: GMDSS equipment includes a feature known as data reporting and polling. This allows a ship's GPS-derived position to be automatically transmitted to another ship or shore station on receipt of an external polling command.

5.4 The re-transmission of GPS-derived position from Defence Ships represents a significant security risk. Thus, the GMDSS Automatic Acknowledgement and Position Polling functions shall be disabled on power-up in order to prevent unauthorised transmission of this information.

5.5 The Safety Communications equipment shall have the ability to disable automatic position updates.

Rule 6. Internal Communications

6.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

6.2 The main internal communications system shall:

6.2.1 Be operable from all positions used for escape, evacuation and rescue, damage control and command and control.

6.2.2 Be operable from positions used for operational activities related to the ship's role.

6.2.3 Be operable from locations identified in Chapter 04 *Engineering Systems* to support machinery control, RAS, and other engineering operations.

Note: The Internal Communications system may be operable from other locations as specified by the Naval Vessel Operator. An emergency means comprised of either fixed or portable equipment or both shall be provided for two-way communications between strategic positions for Escape, Evacuation and Rescue.

6.3 An emergency means comprised of either fixed or portable equipment, or both, shall be provided for two-way communications between strategic positions for Escape, Evacuation and Rescue.

6.4 Additionally, on ships fitted with a Marine Evacuation System (MES), two-way communication shall be provided between the vessel's MES embarkation point and the survival craft. This means of communication can be fulfilled by the Ship's Below Deck Wireless communications as per Rule 8 Portable Communications.

Note: For portable communications, see Rule 8 *Portable Communications*.

6.5 The power supply to the internal communication system shall comply with the requirements of Chapter 04 *Engineering Systems*. Alternatively, a redundant system not requiring a power supply shall be provided such as sound/self powered telephones or battery powered portable equipment.

6.6 Cables for internal communication systems shall be routed clear of galleys, machinery spaces and their casings and other high fire risk areas, except for supplying equipment in those spaces.

6.7 Communication equipment located or used in areas where flammable gases or Dangerous Goods may be present, shall comply with Chapter 10 Dangerous Goods, and shall be certified intrinsically safe.

6.8 Where Internal Communications systems may serve dual purposes, in addition to this rule, the Internal Communications system shall also comply with Chapter 13 Combat Systems Rule 9 Internal Communications Systems.

6.9 For navigation and control purposes, the internal communications system shall enable two-way speech communication between the bridge and at least the following locations:

6.9.1 Machinery Control Room;

6.9.2 Emergency steering;

6.9.3 Commanding Officer's cabin; and

6.9.4 Navigating Officer's cabin.

6.10 The conning positions (bridge) shall have priority over the internal communications system.

6.11 The internal communications used for navigation and controls shall remain operational during failure of the main source of power.

Sound Powered Voice System

6.12 A Sound Powered Voice System (SPS) shall be included as part of the internal communications system.

6.13 The hardware components of the SPS shall conform to the general rules of MIL-T-24649A-Military Specification for telephone hardware, sound powered.

6.14 All SPS headsets and handsets shall conform to the general requirements of MIL-DTL-15514G—Telephone equipment, sound powered telephone handset, headset and headset noise attenuating, general specifications.

6.15 The SPS shall be self-powered and independent of external power except for the operation of visual and acoustic alert indicators in high noise areas.

6.16 In the event of vessel power failure, the SPS shall provide voice communications for maintenance tasks, damage control and flight deck operations.

6.17 The SPS shall provide ship-to-ship communications while alongside via vessel handling circuits using external interconnection boxes.

6.18 The Sound Powered Telephone subsystem shall provide:

6.18.1 Emergency communications circuits for the essential Ship operations: steering, damage control, Replenishment At Sea (RAS) and machinery control;

6.18.2 Open line communications with all other stations on the same circuit;

6.18.3 Upper deck connection points for ship to ship communications;

6.18.4 A facility to link and isolate all the circuits;

6.18.5 Interface with the intercom system, where applicable.

6.18.6 Visual signalling device in addition to the acoustic alarm in noisy environment; and

6.18.7 Audio amplifiers and loud speakers for acoustic alert in high noise areas.

6.19 The SPS shall not be subject to any single point of failure.

6.20 The SPS for aviation support positions shall comply with Chapter 11 Aviation Systems.

6.21 The SPS system shall provide:

6.21.1 Emergency communications circuits for the essential vessel operations: steering, damage control, RAS and machinery control.

6.21.2 Open line communications with all other stations on the same circuit.

6.21.3 Upper deck connection points for ship-to-ship communications.

6.21.4 A facility to link and isolate all circuits.

6.21.5 Interface with the vessel's intercom, and other internal communications system, where applicable.

6.21.6 Visual alerts in addition to the acoustic alarm in noisy environments and compartments.

6.21.7 Audio amplifiers and loudspeakers, for acoustic alert in high noise areas and compartments.

Rule 7. Main Broadcast and Emergency Alarm System

7.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

7.2 Unless provided otherwise in this ANC Rules, the Main Broadcast system shall comply with:

7.2.1 SOLAS Chapter III Regulation 6/5 Communications - Public address systems on passenger ships Code Paragraph 7.2.2 Public Address System.

7.2.2 SOLAS Chapter III Regulation 6/4 Communications - On-board communications and alarm systems.

7.2.3 IMO Resolution A.1021(26) Code on alerts and indicators, 2009.

7.2.4 IMO MSC/Circ.808: "Recommendation on performance standards for public address systems on passenger ships, including cabling".

Note: In any referenced IMO documents where the term *public address system* is used, it should be read to mean *main broadcast system* for the purpose of ANC Rules.

7.3 The Main Broadcast System shall integrate the General Emergency Alarm system.

7.4 The Main Broadcast and General Emergency Alarm System (B&A) shall be capable of broadcasting of announcements, alarm, pre-recorded messages over the ship-wide Loudspeaker system.

7.5 The B&A system shall consist of the following components:

7.5.1 Loudspeaker system;

7.5.2 Control units for the Broadcast and Emergency Alarm system;

7.5.3 Initiation Terminals for Broadcast and Emergency Alarm system; and

7.5.4 Detachable microphones for Control Units and Initiation Terminal.

7.6 The Loudspeaker system shall be installed in all compartments accessible by ship's crew

7.7 Loudspeaker and electrical installations in Magazines and weapons setting areas are subject to the requirements of Chapter 10 Dangerous Goods Rule 5 Electrical Fittings.

7.8 Microphones shall include noise cancelling capability with 'push-to-talk' activation.

7.9 The B&A system shall be divided into independent circuits for separate areas.

7.10 The B&A system circuits shall service, but may not be limited to, the following areas:

7.10.1 Upper deck areas, including the flight deck/hangar for air-capable ships;

7.10.2 Wardroom and officer accommodation areas;

7.10.3 Crew accommodation areas;

7.10.4 Main machinery spaces;

7.10.5 Command and control areas; and

7.10.6 Main broadcast that covers all areas (i.e. whole of ship).

7.11 The B&A system shall be capable of multiple concurrent announcements to individual or combination of areas.

7.12 The B&A system shall include, but is not limited to, the following whole of ship alarms:

7.12.1 Action stations, General Emergency alarm;

7.12.2 Collision;

7.12.3 Chemical, Biological, Radiological, Nuclear;

7.12.4 Crash on deck alarm; and

7.12.5 Weapon System Check Fire alarm.

7.13 The B&A initiation terminals shall include, but may not be limited to, the following locations:

7.13.1 Bridge;

7.13.2 Alternate and Emergency conning positions where applicable;

7.13.3 Principal Warfare Officer's (PWO) position;

7.13.4 Captain's Command console;

7.13.5 Machinery Control Station;

7.13.6 Helicopter Control Station (HCS);

7.13.7 Landing Safety Officer Station (LSO Station);

7.13.8 Flight Deck Officer/Flight Deck Marshaller (FDO/FDM) Position;

7.13.9 Bridge Wing (Port and Starboard);

7.13.10 Central Control Station;

7.13.11 Secondary Control Station;

7.13.12 All damage control stations; and

7.13.13 Gangway (Port and Starboard).

7.14 The crash on deck alarm of the B&A system shall be capable of initiation from the bridge, flight control room, flight deck control office, central control station and, if available, from secondary control station, in accordance with Chapter 11 Aviation Systems Rule 13 Aviation Incident Response.

7.15 Priority broadcasts shall be applied in the following order:

7.15.1 Alarms;

7.15.2 Priority select voice;

7.15.3 Weapons System Check Fire alarm;

7.15.4 Voice; and

7.15.5 Entertainment Programs.

7.16 The B&A system alarm tones and duration of alarms shall conform to US A-A-59003 Amplifiers, Audio Frequency, and Amplifier - control groups - shipboard announcing, or equivalent standard.

7.17 The exposure to noise from the B&A System shall comply with the WHS Regulations 2011 Regulation 56.

7.18 The B&A system shall allow the user the capability of making announcements or activating alarms from any configured Tactical Intercom terminal.

7.19 B&A initiation terminals shall be capable of being seen in the dark, and during red light conditions by means of internal lighting within the equipment. However, the internal lighting shall minimise its impact on the operator's night vision.

7.20 The B&A system shall be equipped with visual indicators (e.g. flashing lights) to indicate an alarm condition to personnel in high noise environments where audible alarms may be difficult to hear. Visual indicators shall be activated simultaneously with the alarm activation.

7.21 The B&A system shall have the ability to provide ship-wide entertainment audio services where required by the OSI (e.g. wardroom and crew accommodation areas).

7.22 The B&A system shall have the ability to override all entertainment services when initiating an alarm.

7.23 The overridden entertainment service shall only recommence following a reset from the Central Control Station at the conclusion of the alarm condition.

7.24 The B&A system shall have the capability to disable independent circuits and Entertainment circuits

7.25 Weapon System Check Fire alarm shall be interfaced with the B&A System.

7.26 The B&A System Administrators shall be capable of remotely accessing the B&A System control units from a Communications Management Terminal (CMT).

7.27 The B&A system shall be provided with a system event logging function.

7.28 The B&A system shall not have any single points of failure.

7.29 The B&A system shall generate an audio and visual alarm to alert operators in the event of a loss of critical functionality of the system.

7.30 Alarms shall be operable from all B&A system stations.

7.31 Alarms once activated, shall continue to operate until manually disabled.

7.32 The power supply to the general emergency alarm B&A System shall comply with the requirements of Chapter 04 Engineering Systems Rule 13 Electrical Distribution System.

7.33 The general emergency alarm and main broadcast functions of the B&A System shall be easily distinguishable from other signals on board, clearly audible across the upper deck and within every compartment with all doors and accesses closed unless, specifically stated otherwise by the Naval Vessel Operator NVO.

7.34 The General Emergency Alarm function of the B&A System shall have automatic priority over any other system input, so that all alarms will be broadcast even if any loudspeaker in the spaces concerned has been switched off or its volume has been turned down.

7.35 The main broadcast function of the B&A System shall have automatic priority over any other system input other than the general emergency alarm function, so that all announcements will be broadcast even if any loudspeaker in the spaces concerned has been switched off, its volume turned down or the main broadcast system is used for other purposes.

7.36 In compartments where audible alarm may, on occasions, not comply with audibility levels, an additional visual alarm system shall be installed which cannot be confused with other indications and should be consistent throughout the vessel.

7.37 The design of the general emergency alarm B&A System shall ensure that any damage that may cause alarm failure is guarded against by system or equipment redundancy.

7.38 Loudspeaker installations shall comply with the requirements of Section 7.2 of the IMO Life Saving Appliance Code (LSA Code).

7.39 Communication equipment located or used in areas where flammable gases or Dangerous Goods may be present shall be certified intrinsically safe.

7.40 Verification of the installed system shall demonstrate that any incident that may cause main broadcast system failure is guarded against by system or equipment redundancy.

Rule 8. Portable Communications

8.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Note: This rule covers portable internal communications, not portable external communications. Portable external communications are covered by Rule 2 GMDSS Equipment, and Rule 9 Survival Craft Radio Equipment.

Solution

8.2 Portable internal radio-communications shall be provided to enable escape, evacuation and rescue evolutions. This is in addition to internal communications requirements at Rule 6 Internal Communications.

8.3 Portable radio-communications shall be operable from all positions used for escape, evacuation and rescue, damage control and command and control. The equipment may also be required by shore parties and boat parties as defined in the OSI.

8.4 The Portable Radio system shall have complete redundancy.

8.5 Portable communication equipment located or used in areas where Dangerous Goods, flammable gases or ordnance, may be present shall be certified intrinsically safe.

8.6 The ability of portable communications to allow clear and distinguishable two-way verbal communication with complete system redundancy shall be verified by demonstration.

8.7 The Ship shall carry a minimum of 2 Portable Radios in accordance with SOLAS Chapter II-2 - Construction - Fire protection, fire detection and fire extinction - Part C - Suppression of fire - Regulation 10 - Fire fighting.

8.8 The Portable Communications system shall include portable radios and base stations if required.

8.9 The Portable Communication system shall have AES 256 or higher encryption standard.

8.10 The Portable Communication system shall maintain commonality with systems currently in service.

8.11 Portable radios used for below deck shall be limited to a maximum output of 100 mW effective isotropic radiated power (EIRP) (in accordance with MIL-STD-464C para 5.2.2).

8.12 The portable radios shall be programmable to operate in the 380-400 MHz frequency range compatible with the base stations.

8.13 Portable radio batteries shall provide a minimum of eight hours of operation under duty cycle of 5% Tx, 5% Rx and 90% standby.

8.14 Portable Radio system (including peripherals used in all weather decks) shall have an ingress protection rating of IP67 or higher.

8.15 Portable radios system (including peripherals) shall be intrinsically safe, to Class I Division 2 and Groups A, B, C and D of the US National Electrical Code (NEC) Hazardous Location Standard for flammable gasses, vapours, and liquids; or an acceptable international standard.

8.16 Portable radios shall provide:

8.16.1 Display on/off illumination capability;

8.16.2 Night Vision Goggles (NVG) compatibility;

8.16.3 Hands free functionality (belt clip, pouch) to securely carry the radio; and

8.16.4 Readily replaceable batteries without radio disassembly.

8.17 Portable radios shall comply with MIL-STD-810G or recognised commercial standard for drop testing from one (1) meter to a steel surface on all six faces.

Radiating transmission line (RTL)

8.18 RTL may be used to facilitate communications throughout the ship.

UPS/Emergency Power

8.19 Fixed radios shall be supplied with ships emergency power to maintain operation in the event of ship's main power failure.

8.20 Fixed radios shall seamlessly transition between emergency and ship's main power system.

Battery Charger

8.21 The Portable Communications system shall be provided with battery chargers for charging portable radio batteries to be installed in locations as required (with the battery attached to the radio).

8.22 Battery charger shall be able to charge batteries that are detached from the radios.

Rule 9. Survival Craft Communication Equipment

9.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

9.2 Survival craft radio and transponder equipment required by Chapter 7 Escape, Evacuation and Rescue Rule 24 Survival Craft shall be supplied and compliant as indicated below:

9.2.1 International Electrotechnical Commission (IEC) IEC 61097 series Global Maritime Distress and Safety System:

9.2.2 Part 1: Radar transponder – Marine search and rescue (SART) Operational and performance requirements, methods of testing and required test results.

9.2.3 Part 2: COSPAS-SARSAT EPIRB - Satellite emergency position indicating radio beacon operating on 406 MHz - Operational and performance requirements, methods of testing and required test results.

9.2.4 Part 12: Survival craft portable two-way VHF radiotelephone apparatus - Operational and performance requirements, methods of testing and required test results

9.2.5 Part 14: AIS search and rescue transmitter (AIS-SART) - Operational and performance requirements, methods of testing and required test results.

9.2.6 LSA Code, Chapter 3 Visual Signals.

9.2.7 SOLAS Chapter IV Radio communications.

9.3 At least three waterproof portable two-way VHF radiotelephone apparatus shall be provided on every ship. The location shall be approved by the ANC Authority.

9.4 At least one search and rescue transponder (SART) shall be carried on each side of a ship. SARTs shall be stowed in such locations that they can be rapidly placed in any one of the survival craft.

9.5 The Survival Craft Communication Equipment shall be supplied and stowed according to IMO Resolution MSC.496(105) Amendments to the International Convention for the Safety of Life at Sea 1974 and Chapter 7 *Escape Evacuation and Rescue* Rule 24 *Survival Craft*.

Note: AS ANCA may approve the carriage of two waterproof portable two-way VHF radiotelephone apparatus and/or one SART on smaller ships.

9.6 Not less than 12 rocket parachute distress flares shall be carried and be stowed directly available on or near the bridge. Flares shall comply with the LSA Code Chapter 3.1 Rocket parachute flares and Rule 19 Visual Signalling.

9.7 All ships shall be provided with a portable daylight signalling lamp which is always available, and which is not dependent on the ship's main source of electrical power.

9.8 Communication equipment located or used in areas where Dangerous Goods may be present shall be certified intrinsically safe.

Rule 10. Sea-Air Radiocommunications

10.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

10.2 The ship shall be provided with a means to conduct two-way communications on the aeronautical frequencies of 121.5 MHz, 123.1 MHz and 243 MHz. A means to communicate via the transceiver used for aeronautical distress shall be available on the bridge, in the COMMCEN and operations room where applicable.

10.3 A loudspeaker monitoring facility shall be provided for the International UHF Distress Frequency (243MHz). This shall be patched through from the ship's normal UHF receiver equipment to the Ops Room and COMCEN during aviation operations.

10.4 Sea-Air radiocommunication equipment shall comply with ETSI EN 301 688 V1.1.1 Electromagnetic compatibility and Radio spectrum Matters (ERM) Technical characteristics and methods of measurement for fixed and portable VHF equipment operating on 121.5 MHz and 123.1 MHz.

10.5 Additionally, for ships requiring Air System operations, the requirements of Chapter 11 Aviation Systems Rule 02 Communication Systems shall be met.

Rule 11. Not Used

Rule 12. Not Used

Rule 13. Not Used

Rule 14. Installation, Maintenance, Test and Repairs

14.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

14.2 Chapter 09 Navigation Rule 2 Bridge Working Environment defines the environment in which the GMDSS and other safety communications equipment shall be installed.

14.3 The GMDSS system installation shall comply with the applicable requirements of Chapter 09 Navigation Rule 3 Bridge Workstations.

14.4 GMDSS and Safety Communications systems shall be installed to comply with SOLAS Chapter IV Regulation 6 Radio Installations.

14.5 GMDSS and Safety Communications systems shall be installed to comply with SOLAS Chapter IV Regulation 15 Maintenance Requirements.

14.6 GMDSS equipment shall be installed on the bridge, however, the NVO may consider installing remote monitoring/control equipment in the COMCEN for situational awareness purposes.

14.7 Transceivers forming part of GMDSS shall not be fitted within areas categorised or certified as a Security Zone 4 or 5 under DSPF.

Configuration and Settings for GMDSS Installations

14.8 VHF Equipment:

14.8.1 Access to and full control of the VHF DSC transceivers shall be available on the Bridge from both the Commanding Officer's position and a second position to be derived from the OSI.

14.8.2 Access to a VHF Maritime Mobile Band circuit in Security Zone 4 and 5 compartments shall be achieved by including an interface to the voice switching system or using a remote-control head in order to meet EMSEC requirements.

14.8.3 The VHF DSC units shall have the Automatic Acknowledgment and Position Polling functions disabled by default for OpSec purposes. Equipment shall power-up in this mode without operator intervention.

14.9 MF/HF DSC Equipment:

14.9.1 Access and control of the MF/HF radio shall be available from both the COMMCEN and on the bridge, where applicable.

14.10 Emergency Position Indicating Radio Beacon (406MHz EPIRB)

14.10.1 Ships shall be fitted with Class 1 'Float-free' and Category 1 'Automatically activated' 406 EPIRBs that comply with AS/NZS 4280.1:2017.

14.10.2 406MHz EPIRBs shall be provided with an Automatic Identification System (AIS) locating signal in accordance with the Recommendation ITU-R M.1371, Technical characteristics for an Automatic Identification System using time division multiple access in the VHF maritime mobile frequency band.

Note: Where extra EPIRBs are carried on board they shall meet the standard prescribed by Rule 9.2.1.

14.11 Adequate information shall be provided to enable the GMDSS and other safety communications equipment to be properly operated and maintained, taking into account the recommendations of the IMO.

14.12 Adequate tools and spares shall be provided to enable the GMDSS and Safety Communications equipment to be maintained.

14.13 Safety Communications equipment shall be designed so that the major assemblies can be replaced readily without elaborate recalibration or readjustment.

14.14 The maintenance information and maintenance procedures shall be approved by the ANC Authority.

14.15 Installation, maintenance, test, and repair of GMDSS and Safety Communications to which Chapter IV of SOLAS applies, shall also comply with:

14.15.1 ITU Radio Regulations;

14.15.2 IEC 62238 Maritime navigation and radio communication equipment and systems – VHF radiotelephone equipment incorporating Digital Selective Calling – Methods of testing and required test results;

14.15.3 IEC 60945 Maritime navigation and radio communication equipment and systems – General requirements – Methods of testing and required test results;

14.15.4 IEC 61097 GMDSS Series; and

14.15.5 Chapter 07 Escape, Evacuation, and Rescue, Rule 4 Inspection and Maintenance.

Rule 15. Operational Audit and Compliance Validation

15.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

15.2 GMDSS equipment surveys shall be conducted in accordance with IMO Resolution A.1053(27) – Survey Guidelines Under the Harmonized System of Survey and Certification (HSSC), 2011 – Amended by resolution A.1076(28) - Annex - Survey Guidelines Under the Harmonized System of Survey and Certification (HSSC), 2011 - Annex 1 - Survey Guidelines Under the 1974 SOLAS Convention.

15.3 All GMDSS equipment installed in accordance with SOLAS Chapter IV shall be of a type approved by an appropriate Competent Organisation as determined by AS ANCA in accordance with the performance standards of SOLAS Chapter IV Regulation 14.

15.4 For GMDSS compliance purposes, the required publications listed in the AMSA GMDSS Handbook are to be carried on Australian GMDSS ships.

Rule 16. Man Overboard Indicator (MOBI) and Personal Locator Beacons (PLB)

16.1 The NVO shall present and justify a solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

16.2 MOBI System

16.2.1 The vessel shall be equipped with a MOBI system which consists of:

16.2.1.1 Personal Locator Beacons (PLBs);

16.2.1.2 MOBI Receiver; and

16.2.1.3 Direction-finding antenna system.

16.2.2 The direction-finding antenna system shall be located such that it can receive MOBI signals at any ship orientation.

Note: Most installations typically consist of port and starboard antenna installations for 360 degree coverage.

16.2.3 A MOBI shall be provided on the ship's bridge.

16.2.4 The MOBI shall be capable of detecting any activation of the ship's PLBs or EPIRBs providing a visual and audible warning.

16.2.5 The MOBI shall manually accept the input of the hexadecimal code of the ship's own PLBs and EPIRBs using the front panel interface.

16.2.6 The stored data in the MOBI shall be capable of addition or deletion as required.

16.2.7 The MOBI shall automatically display the 15 character hexadecimal code of all activated EPIRBs and PLBs.

16.2.8 The MOBI shall decode and display GPS position data from all activated ship-issued PLBs and EPIRBs.

16.2.9 The MOBI shall be provided with external antennas suitable for the marine environment.

16.2.10 The MOBI shall provide an audible warning and positional information of any activated PLB or EPIRB within 3nm of the ship.

16.2.11 The MOBI shall be connected to the GMDSS power sources as per Rule 4 GMDSS Sources of Energy.

16.2.12 The PLBs shall comply with:

16.2.12.1 AS/NZ 4280 - 406MHz Satellite Distress Beacons, Part 2: Personal Locator Beacons (PLBs).

16.2.12.2 The environmental requirements of IEC 60945.

16.2.12.3 The immunity characteristics of AZ/NZS CISPR 24 Amd 1:2017.

16.2.13 PLBs shall be capable of being manually activated.

16.2.14 The number of PLBs carried by the ship shall be determined by the NVO.

Rule 17. Self-Locating Datum Marker Buoys (SLDMB)

17.1 The NVO shall present and justify a Solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

17.2 SLDMB shall be designed to emulate the drift of a life raft or a person.

17.3 At least two SLDMBs shall be provided for each ship.

17.4 Organic/Embarked Watercraft do not require SLDMB capability.

Note: Self-Locating Datum Marker Buoys are used for oceanographic telemetry and tracking, but also have application in the Search and Rescue domain. SLBMBs are not a SOLAS requirement or part of the GMDSS system.

17.5 SLDMBs shall be stowed in dry, well-ventilated compartment where they are easily accessible, and secured in a manner where containers are free from potential damage.

17.6 The SLDMB shall be designed and constructed for carriage and deployment from ships and organic rotary wing aircraft under the environmental conditions prescribed by the OSI.

17.7 The SLDMB shall include a Global Positioning System (GPS) capability.

17.8 The GPS position of the SLDMB, and other telemetry data, shall be sent via satellite communications means and made available at specified intervals to the parent ship, HQJOC, and where applicable, the Australian Maritime Safety Authority (AMSA) Joint Rescue Co-ordination Centre (RCC).

17.9 In the event of non-availability of the communications path, the SLDMB shall store positional movement data onboard and include, as a minimum, date/time, latitude, and longitude. These parameters shall be collated and sent as a single report when communications are restored.

17.10 As a minimum the SLDMB shall provide real-time reporting on the following:

17.10.1 Latitude and longitude.

17.10.2 Date/time of report.

17.10.3 Water Temperature (Degrees Celsius).

17.10.4 A unique identification number.

17.11 When deployed, the SDLMB shall sample and transmit data in three different time/mode intervals over the period of its operating endurance. In the event that a transmission is unsuccessful, the data collected shall be saved and transmitted along with the next scheduled transmission. The three transmission modes are shown in Table 1.

Table 1 - SDLMB Transmission Modes

MODE	DURATION	DATA SAMPLING INTERVAL	TRANSMISSION INTERVAL
Rapid SAR	0-24 Hours	10 Minutes	10 Minutes
Standard SAR	24-72 Hours	30 Minutes	30 Minutes
Scientific	72 Hours - Expiry	30 Minutes	1 Hour

17.12 The SLDMB shall include signage to clearly identify the serial number and the expiry date.

17.13 The SLDMB shall be fitted with a strobe light to aid in visual identification when deployed.

17.14 The SLDMB shall auto-scuttle at the end of the buoy deployment.

17.15 The SLDMB shall have a storage shelf life of greater than 3 years.

17.16 The SLDMB shall be capable of full operation when deployed in an area with a minimum water depth of 10 metres.

17.17 The SLDMB in the Activated State shall be capable of full operation for a period of no less than 240 hours following deployment.

17.18 The SLDMB shall be capable of full operation following deployment from a height of up to 50 metres.

17.19 Latitude and Longitude shall be expressed in: Degrees, Minutes, Decimal Minutes and the Date/Time in DDHH:MM:SS MMM YYYY where DD – day, HH – hour, MM – minute, SS – seconds, MMM – month, YYYY – year in 24-hour time.

Rule 18. Signalling Devices in Restricted Visibility

18.1 The NVO shall present and justify a Solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

18.2 The signalling device shall be able to warn other vessels of own-ship presence in the fog and restricted visibility. The signalling device shall be able to produce all the sound signals required in COLREGs Rule 35 Sound Signals in Restricted Visibility.

Rule 19. Visual Signalling

19.1 The NVO shall present and justify a Solution for demonstrating compliance to Part 1 of the ANC Rules. In the presentation and justification of a solution, the following must be considered.

Solution

19.2 Visual Signalling devices (signalling lamps and searchlights) provided shall be in accordance with SOLAS Chapter V Regulation 19.

19.3 Distress flares shall comply with Australian Standard 2092-200 Pyrotechnic Marine Distress Flares and Signals, and IMO LSA-Code International Life-saving appliance Code (MSC.48(66)) Chapter III Visual Signals.

Note: Refer to Chapter 10 *Dangerous Goods* for rules relating to stowage and handling of Pyrotechnic Visual Signalling devices.