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**AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY
MANUAL (VOLUME 2)**

DIVISION 5: REMOTE AND AUTONOMOUS SYSTEMS

SECTION 4: LARGE UNCREWED SURFACE VESSELS

CHAPTER 08: SAFETY COMMUNICATIONS

PART 1: ANC RULES



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

A handwritten signature in black ink, appearing to read 'CN Dagg'.

CN Dagg, CSC
Assistant Secretary
Australian Naval Classification Authority
Department of Defence
CANBERRA ACT 2600
May 2024 Edition

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Division 5: Remote and Autonomous Systems, Section 4: Large Uncrewed Surface Vessels, Chapter 08: Safety Communications, Part 1: ANC Rules, May 2024 Edition

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¹ <https://www.legislation.gov.au/Series/C1968A00063>

² <https://www.legislation.gov.au/Series/C2004A04868>

³ <https://www.legislation.gov.au/Series/C2004A03712>

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

AUSTRALIAN NAVAL CLASSIFICATION RULES

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Proposals for amendments to the ANCA Manual (Volume 2) may be sent to:

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Division 5: Remote and Autonomous Systems (RAS) Rules
Section 4: Large Uncrewed Surface Vessel (L-USV)
Part 1: ANC Rules

Chapter 08: Safety Communications

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Australian Naval Classification Rules

Rule 0. Goal

- 0.1 The Safety Communications equipment shall be designed, installed, and maintained so that whilst the Large Uncrewed Surface Vessel (L-USV) is at sea, the End User, located at the Remote Command Unit (RCU), is, where appropriate to the vessel's missions listed in the Operating and Support Intent (OSI), capable of:
 - 0.1.1 Transmitting L-USV to shore distress alerts by at least two sub-systems and independent means, each using a different radio communication service;
 - 0.1.2 Transmitting L-USV to air distress alerts;
 - 0.1.3 Receive shore to L-USV distress alerts;
 - 0.1.4 Transmitting and receiving ship to L-USV distress alerts;
 - 0.1.5 Transmitting and receiving L-USV to L-USV distress alerts;
 - 0.1.6 Transmitting and receiving search and rescue coordinating communications;
 - 0.1.7 Transmitting and receiving on-scene communications;
 - 0.1.8 Transmitting and receiving signals for locating, ships, aircraft, USV, units or persons in distress, including persons lost overboard;
 - 0.1.9 Transmitting and receiving maritime safety information;
 - 0.1.10 Transmitting and receiving general radio communications to and from shore-based radio systems or networks; and
 - 0.1.11 Transmitting and receiving communications from the bridge of a crewed vessel to the End User located at the RCU.
- 0.2 The safety communications equipment shall:
 - 0.2.1 Provide high reliability and minimise the risk of incorrect operation in all foreseeable operating conditions, accidents and emergencies; and
 - 0.2.2 Be subject to the overall platform survivability requirements as stated in the Naval Vessel's OSI.
- 0.3 Not used.
- 0.4 Where required by the OSI, Naval L-USV shall also be designed to use and carry non-Radio Frequency (RF) communication including audio and visual signalling means, capable of being operated from the RCU
- 0.5 The Safety Communication systems of the L-USV shall match its RAS Maturity Level to allow safe operations as listed in the OSI.

Rule 1. General

Functional Objective

- 1.1 The purpose of this Rule is to outline the principles and framework of Chapter 08 *Safety Communications* and their applications.

Purpose

- 1.2 The ability to be deployed to any area of interest defined in the OSI shall be maintained and the communications fit shall provide:
- 1.2.1 The capability to receive and transmit all information as required by the Global Maritime Distress and Safety System (GMDSS) in all sea states and weather conditions.
- 1.2.2 Not used.
- 1.2.3 Qualified personnel certified to operate and, if required, maintain the GMDSS equipment to ITU Radio Regulations, from the RCU.

Scope

- 1.3 Division 2 *Core Design Rules* applies to all chapters of the ANC Rules as applicable to the design, and therefore in order to meet the Chapter 08 Goal, the requirements of both this chapter and Division 2 shall be met.
- 1.4 Division 3 *Ship Rules* Chapter 08 *Safety Communications* goal applies to all Naval Vessels greater than 24m length overall that carry persons. Therefore, to meet the Chapter 08 *Safety Communications* goal, a L-USV that requires embarked persons shall meet the requirements of both this chapter and the requirements of Division 3 *Ship Rules* Chapter 08 *Safety Communications* as applicable to the design.
- 1.4.1 The Rules listed in this Chapter are based on those in the corresponding Chapter within Division 3 *Ship Rules* and have been adapted for L-USV. When referring to Division 2 or 3, the following terms may be interchanged:
- 1.4.1.1 'Ship' as 'L-USV';
- 1.4.1.2 'Crew' or 'Operator' or 'Embarked Person' as 'End User';
- 1.4.1.3 'Primary, Main or Damage Control Station' as 'Remote Command Unit (RCU)';
- 1.4.1.4 'Bridge' or 'conning position' as RCU; and
- 1.4.1.5 'Signature Reduction' as 'Signature Management'.
- 1.5 The Safety Communications systems of the L-USV shall match its RAS Maturity Level to allow End Users to safely operate the L-USV to achieve missions listed in the OSI.
- 1.6 The ANC Rules excludes training requirements. Chapter 08 assumes all End Users have an appropriate level of competence for the operation of the installed systems. Chapter 08 *Safety Communications* Part 3 contains some guidance on typical training requirements.

Performance Requirements

- 1.7 The OSI is the Naval Vessel Operator's (NVO's) direction of how the communications systems of the L-USV are to be operated and maintained throughout the life of the ship and is to be shared by the NVO and, where appointed, it's Competent Organisation.

- 1.8 The adoption of Chapter 08 *Safety Communications* Rules supports interoperability with authorities and civil ships to alert, monitor, assist and coordinate in Search and Rescue (SAR) events.
- 1.9 International Ship and Port Security code (ISPS) does not apply, and Ship Security Alert Systems (SASS) shall not be fitted to Naval L-USV.

Rule 2. GMDSS Equipment

- 2.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 2 *GMDSS Equipment* as amended in Table 1.1 below:

Table 1.1: Division 3 Chapter 08 Rule 2 Amendments

Rule Number	Amendment
2.2.9	Transmitting and receiving communications from the bridge of a crewed vessel to the End User located at the RCU.

Rule 3. Availability of GMDSS Equipment

- 3.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 3 *Availability of GMDSS Equipment* as amended in Table 1.2 below:

Table 1.2: Division 3 Chapter 08 Rule 3 Amendments

Rule Number	Amendment
3.2	The continuous availability of the GMDSS communications functions defined at Part 1 Chapter 08 <i>Safety Communications</i> , Rule 2 GMDSS Equipment, Paragraph 2.2 shall be ensured by using such methods as duplication of equipment.

Rule 4. GMDSS Sources of Energy

- 4.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 4 *GMDSS Sources of Energy* as amended in Table 1.3 below:

Table 1.3: Division 3 Chapter 08 Rule 4 Amendments

Rule Number	Amendment
4.5	Not used.

Rule 5. Position updates to GMDSS Equipment

- 5.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 5 *Position updates to GMDSS Equipment*.

Rule 6. Internal communications

- 6.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 6 *Internal communications* as amended in Table 1.4 below:

Table 1.4: Division 3 Chapter 08 Rule 6 Amendments

Rule Number	Amendment
6.1	Internal communications equipment at the RCU shall be provided to:
6.1.1	Enable safe operation of the L-USV.
6.1.2	Alert End Users of emergency or hazardous situations in the RCU.
6.1.3	Not used.
6.1.4	Not used.
6.2	The main internal communications system shall provide effective two-way verbal communication between End Users at all positions within the RCU.
6.3	A back-up internal communications system shall also be provided in the event that the main system is unavailable. The back-up system shall:
6.3.1	Be effective and continuously available.
6.3.2	Not used.
6.3.3	Not used.
6.3.4	Not used.

Rule 7. Not Used

Rule 8. Not Used

Rule 9. Not Used

Rule 10. Sea-Air Radio Communications

10.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 10 *Sea-Air Radio Communications*.

Rule 11. Not Used

Rule 12. Not Used

Rule 13. Not Used

Rule 14. Installation, Maintenance, Testing and repairs

- 14.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 14 *Installation, Maintenance, Testing and repairs* as amended in Table 1.5 below:

Table 1.5: Division 3 Chapter 08 Rule 14 Amendments

Rule Number	Amendment
14.2.4	Not used.
14.2.5	Not used.
14.3	Not used.
14.4	Not used.
14.5	Not used.
14.6	Not used.

Rule 15. Operational Audit and Compliance Validation

- 15.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 15 *Operational Audit and Compliance Validation*.

Rule 16. Not Used

Rule 17. Not Used

Rule 18. Signalling Devices in Restricted Visibility

- 18.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 18 *Signalling Devices in Restricted Visibility* as amended in Table 1.6 below:

Table 1.6: Division 3 Chapter 08 Rule 18 Amendments

Rule Number	Amendment
18.1	The End User, located at the RCU, shall be capable of acoustically signalling from the L-USV to other vessels within the vicinity of the L-USV in restricted visibility conditions.
18.3	If required by the OSI, the L-USV shall be fitted with directable loud-hailers steerable by the End User, located at the RCU, for directing audio messages to surrounding vessels.
18.4	Vessels shall have the means of enabling End Users, located at the RCU, to hear acoustic signalling from other vessels in the vicinity.

Rule 19. Visual Signalling

- 19.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 08 *Safety Communications* Rule 19 *Visual Signalling* as amended in Table 1.7 below:

Table 1.7: Division 3 Chapter 08 Rule 19 Amendments

Rule Number	Amendment
19.1	If required by the L-USV OSI, the End User, located at the RCU, shall be capable of visual signalling to shore, aircraft, and other vessels within the vicinity of the L-USV by day and night.
19.2	If required by the OSI, the L-USV shall be fitted with equipment to transmit and receive visual communications with nearby entities including shore, aircraft, and other vessels.
19.3	Signalling lamps shall be capable of being operated in accordance with the L-USV RAS Maturity Level to meet the missions listed in the OSI.

Rule 20. Remote Monitoring

Functional Objective

20.1 The L-USV shall have Remote Monitoring capabilities to ensure Safety communications.

Scope

20.2 This rule is applicable for L-USV with a Remote Monitoring level of RM1 or greater.

Performance Requirements

20.3 L-USV systems with a Remote Monitoring level of RM1 or greater shall be able to monitor essential communication systems as per the OSI.

20.4 L-USV systems with a Remote Monitoring level of RM2 or greater shall be able to monitor communication systems required for safe operation IAW with OSI.

20.5 L-USV systems with a Remote Monitoring level of RM3 or greater shall be able to monitor all communication systems typically operated by onboard operators.

Rule 21. Remote Control

Functional Objective

21.1 The L-USV shall have Remote Control capabilities to ensure Safety communications.

Scope

21.2 This rule is applicable for L-USV with a Remote Control level of RC1 or greater.

Performance Requirements

21.3 L-USV systems with a Remote Control level of RC1 or greater shall be able to control essential communication systems as per the OSI.

21.4 L-USV systems with a Remote Control level of RC2 or greater shall be able to control communication systems required for safe operations IAW with OSI.

21.5 L-USV systems with a Remote Control level of RC3 or greater shall be able to control all communication and control systems typically operated by onboard operators.

Rule 22. Autonomy

Functional Objective

- 22.1 The L-USV shall have autonomy control and decision-making capabilities to ensure Safety communications.

Scope

- 22.2 This rule is applicable for L-USV with an Autonomy level of A1 or greater.

Performance Requirements

- 22.3 L-USV systems with an Autonomous level of A1 or greater shall be able to Autonomously control essential communication systems as per the OSI.
- 22.4 L-USV systems with an Autonomous level of A2 or greater shall be able to Autonomously control communication systems required for safe manoeuvring IAW with OSI
- 22.5 L-USV systems with an Autonomous level of A3 or greater shall have the capability to Autonomously control communication systems essential to maintaining operations to achieve the system OSI.