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**NATIONAL STANDARD OF THE
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**Performance and test requirements for application specific
message (ASM) shipborne equipment**

特殊应用报文（ASM）船载设备性能和测试要求

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Table of Contents

5	Technical Requirements
5.7.1	General Requirements
5.7.2	PI Binary Message Datagram
5.7.5	Equipment Configuration
5.7.6	ASM Transmission PI
5.9	Physical Layer
5.9.2	Transmitter
5.10	Link Layer
5.10.3	Device Interaction on VDL
5.10.4	MITDMA Transmission and Retransmission
5.11	Network Layer
6	Test Conditions
6.1	Normal and Extreme Test Conditions
6.1.1	Normal Test Conditions
6.2	Standard Testing Environment

5 Technical Requirements

5.1 Transmitter shutdown procedure If the transmitter continues to transmit for more than 2 seconds, an automatic hardware shutdown procedure and instruction should be provided for the transmitter, and the shutdown procedure should be independent of the software. Component control.

5.2 Initialization Cycle The device should complete initialization within 2 minutes of being powered on.

5.3 Transceiver Protection The device should continue operating for at least 60 seconds if the antenna is disconnected or the antenna connector is short-circuited, and for 2 minutes after the corresponding fault is repaired. The system has resumed normal operation.

5.4 Transmitter malfunction The equipment should be capable of detecting transmitter malfunctions and reporting the status via PI (see 5.7) and HMI (see 4.8).

5.5 Voltage Standing Wave Ratio The equipment should have the function of detecting antenna VSWR. When the antenna VSWR exceeds the requirements, it should be detected through PI (see 5.7) and HMI (see 4.8) Report this status.

5.6 Receiver Failure The equipment should be capable of detecting receiver faults and reporting the status via PI (see 5.7) and HMI (see 4.8).

5.7 indicates the interface

5.7.1 General Requirements

5.7.1.1 talkerID The device should use the talkerID when outputting VDL received data, and only when the device outputs ASM message 0 via PI, and it should conform to... According to the provisions of Table 1.

5.7.1.2 PI Function The device should have a PI (Portable Component) to perform the following functions.

- a) Receive messages from other shipboard equipment and transmit them to other ASM stations using this equipment;
- b) Output all received broadcast or addressing ASM data sent to this station;
- c) Send equipment internal status and configuration information to other shipboard equipment or systems;
- d) Accept configuration instructions from other shipboard equipment or systems.

5.7.2 PI Binary Message Datagram

5.7.2.1 Message Header Parameters When communicating via PI, the device should use the binary message datagram format specified in IEC 61162-450.2024.(Compliant) The binary message datagram specified in IEC 61162-450.2024 should begin with a message header, followed by the PI binary message structure. The message header is used for synchronization and data integrity verification as specified in IEC 61162-450.2024. The message header parameters should conform to the specifications in Table 2.

5.7.2.2 Message Header Format Binary message datagrams should use "UdPtD" as a token. The first 6 bytes of a UDP multicast datagram should contain a token, followed by... Followed by one empty character, which conforms to the requirements of Table 3.

5.7.2.3 Binary Message Format The format of the PI binary message shall conform to the specifications in Table

4.The identifier of the PI binary message shall conform to the specifications in Appendix A.

5.7.3 Alarm Information Interface It should comply with the relevant provisions of GB/T 46415-2025.

5.7.4 Equipment Status Table 5 defines the binary message structure used by the device to report its status to other devices on board. The status identifier should conform to Table 6. Regulation.

5.7.5 Equipment Configuration

5.7.5.1 Equipment Configuration Parameters Device configuration inputs or reports should use the "Device Configuration Value" PI binary message structure. After receiving the "Device Configuration Information Request" PI binary message structure, the device should output the corresponding "Device Configuration Value" PI binary message. The structure should be as a response. The binary message structure used for device configuration should conform to the specifications in Table

7. The configuration identifier should conform to the specifications in Table 8.

5.7.5.2 ASM Configuration Parameters In response to an inquiry request, ASM configuration parameters should be stored in the format specified in IMOSN.1/Circ.289. ASM configuration parameters should meet the following requirements.

- a) Identifiers that conform to the requirements in Table 8;
- b) Sub-identifier, namely the International Application Identifier (IAI) of ASM;
- c) Length, conforming to the specifications in Table 9;
- d) The data conforms to the requirements of Table 9.

5.7.6 ASM Transmission PI

5.7.6.1 General Rules The device should be able to assemble the received complete MITDMA data packet group and use ASM to receive PI binary message structures via PI output data. Information from incomplete data packet groups should be discarded; that is, partially received information should not be used for ASM reception of PI binary data. The message structure is output via PI. Furthermore, the device can optionally output all received messages applicable to this device via PI binary message structure. The station's ASMVDL radio message functionality.

5.7.6.2 Input Message Interface to ASMVDL The interface data format should conform to the relevant requirements of 5.7.2. Table 10 specifies the data input to the device for transmission to ASM VDL. The PI binary message structure to be used. The specific binary message structure should conform to the provisions of Appendix A.

5.7.6.3 Output the received ASMVDL message interface The interface should conform to IEC 61162-450.2024. Table 11 specifies the statement format, and Table 12 specifies the statements applied to the slave device output. The binary message structure of ASMVDL data. Statements should be transmitted using the IEC 61162-450.2024 message header UdPtD (see...). 5.7.2). The specific binary message structure should conform to the provisions of Appendix A.

5.8 Alarm Management Alarm management shall comply with the provisions of

6.10 in GB/T 46415-2025.

5.9 Physical Layer

5.9.1 General Requirements The physical layer should include the following functions.

- a) Define the modulation and demodulation methods for TDMA signal transmission on VDL;
- b) Specify the radio frequency technical characteristics of TDMA transmitters and TDMA receivers.

5.9.2 Transmitter

5.9.2.1 Emission Characteristics The technical characteristics of the equipment transmitter should conform to the specifications in Table 13.

5.9.2.2 Transmitter Power and Time Characteristics The transmitter power and timing characteristics of the equipment should meet the requirements of Table 15 and Figure

2. The blue line in Figure 2 represents the transmitter power during ramp-up and ramp-down. Example of the ramp-down process. For multi-slot transmission, the ramp-down and protection phases (from TE through TG to T0) occur in the last transmit time slot. Finally, the synchronization sequence and payload period (TBTE) run through all launch slots.

5.9.3 Receiver The technical characteristics of the equipment receiver should conform to the provisions of Table 16.

5.10 Link Layer

5.10.1 General Requirements The equipment should meet the following requirements.

- a) The equipment operates only in autonomous mode, as specified in Annex 3, 4.5.4 of ITU-R M.2092-1.2022;
- b) On both ASM channels, the device may use a maximum of 50 time slots per frame for transmission (duty cycle of 2.2%, excluding those used for retransmission). Available time slots for transmitting addressing data (100 time slots in total across 2 channels).
- c) The silence period after each MITDMA transmission or a single non-MITDMA transmission;
- d) The data packet group transmitted by the device may contain a maximum of 15 MITDMA transmissions;

Note. Acknowledgments for addressing MITDMA are not part of the data packet group.

- e) The transmission of MITDMA data packets is completed on the same ASM channel