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MARINE OPERATIONS NOTE 07/2023

Subject: Amendments to SOLAS CHAPTER IV: Radiocommunications

- Reference:**
- (a) [Resolution MSC.496\(105\)](#)
 - (b) [MSC.1/Circ.1645](#)
 - (c) [MSC.1/Circ.1676](#)
 - (d) [MSC.1/Circ.1460/Rev.4](#)

To: Shipowners/Operators/Recognized Organizations/Masters:

Purpose

The purpose of this Marine Operations Note is to inform shipowners, operators, recognized organizations and Masters of implementation of a revised SOLAS Chapter IV: Radiocommunications and the new requirements and regulatory amendments that affect maritime radiocommunication equipment, GMDSS and vessel operations.

Background

The International Maritime Organization (IMO) during the 105th meeting of the Maritime Safety Committee (MSC) adopted comprehensive amendments to SOLAS Chapter IV: Radiocommunication. The set of amendments updated the requirements of Chapter IV regarding GMDSS, the transmission and receipt of Maritime Safety Information (MSI), and re-formatted and revised certain sections of SOLAS Chapter IV regarding the radiocommunication equipment required by vessels. The revised SOLAS Chapter IV addresses the modernization of GMDSS and the future use of modern communication systems in the GMDSS and maritime communications whilst removing obsolete requirements from SOLAS Chapter IV.

Effective 01 January 2024, the revised and updated SOLAS Chapter IV will be implemented. Liberian flagged ships must comply with the requirements of revised Chapter IV as of that date unless a waiver or extension of the compliance has been promulgated by IMO or an exemption has been granted by the Administration.

Requirements: New and Amended

The amendments to SOLAS Chapter IV contain a large number of editorial amendments and re-formatting of Chapter IV that do not substantially change the communication equipment or operation requirements for ships. This Marine Operations Note provides guidance on the amendments and changes

to SOLAS Chapter IV that will affect a ship's operation and/or equipment required on board effective 01 January 2024.

1. Regulation 2 of revised SOLAS Chapter IV - Terms and Definitions:

The following definitions have been removed:

1. *Direct-printing telegraphy* means automated telegraphy techniques which comply with the relevant recommendations of the International Radio Consultative Committee (CCIR).
2. *INMARSAT* means the Organization established by the Convention on the International Maritime Satellite Organization adopted on 3 September 1976.
3. *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.
4. *Polar orbiting satellite service* means a service which is based on polar orbiting satellites which receive and relay distress alerts from satellite EPIRBs and which provides their position.

The following definitions have been added:

1. *AIS-SART* means an automatic identification system search and rescue transmitter capable of operating on frequencies dedicated for AIS (161.975 MHz (AIS1) and 162.025 MHz (AIS2)).
2. *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.
3. *Global Maritime Distress and Safety System (GMDSS)* means a system that performs the functions set out in regulation 4.1.1.
4. *Radar SART* means a search and rescue transponder operating on radar frequencies in the frequency band 9.2-9.5 GHz.
5. *Satellite service on 406 MHz* means a service operating through a satellite system having global availability designed to detect EPIRBs transmitting in the frequency band 406.0-406.1 MHz.

The following definitions have been amended:

1. *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.
2. *GMDSS identities* means information which may be transmitted to uniquely identify the ship or its associated rescue boats and survival craft. These identities are the ship's call sign, Maritime Mobile Service Identity (MMSI), EPIRB hexadecimal identity, recognized mobile satellite service identities and equipment serial numbers.

2. Regulation 4 of revised SOLAS Chapter IV – Functional Requirements

Regulation 4.1 has been amended to clarify that every ship, while at sea, shall be capable of performing the GMDSS functions. The capabilities listed in the amended regulation 4.1.1 of SOLAS Chapter I are the same as those previously listed in the old regulation 4, except with regards to the GMDSS, ships are only required to be capable of receiving MSI and ships are only required to be capable of transmitting and receiving urgency and safety communications.

The requirement for transmitting and receiving general radiocommunication previously contained in old regulation 4.1.8 is now prescribed in a new regulation 4.2.

3. Regulation 7 of revised SOLAS Chapter IV – Radio Equipment: General

Regulation 7.1.3 has been amended to state that each ship shall be provided with:

- .1 a radar SART or an AIS-SART, which:
 - .1 shall be so stowed that it can be easily utilized; and
 - .2 may be one of those required by paragraphs 2.1 or 3.1.

Regulation 7.1.4 has been amended to no longer require the mandatory installation of a NAVTEX.

The amended regulation requires:

a receiver or receivers capable of receiving MSI and search and rescue related information throughout the entire voyage in which the ship is engaged.

The old regulation 7.1.5 regarding reception of MSI by a recognized mobile satellite service enhanced group calling system if the ship is engaged in voyages in sea area A1, or A2 or A3 but in which an international NAVTEX service is not provided has been removed and replaced by old regulation 7.1.6. The amended regulation 7.1.4 (as mentioned above) is applicable to ships throughout the entire voyage without regard to the Sea Area in which the ship operates.

Regulation 7.1.6 is a new regulation that requires a radio installation capable of transmitting and receiving general radiocommunications operating on working frequencies in the band between 156 MHz and 174 MHz.

Regulation 7.2 is a new regulation that prescribes SART and two -way VHF radiotelephone requires for every cargo ship of 300 gross tons but less than 500 gross tons be provided with at least:

- .1 one radar SART or AIS-SART; and
- .2 two two-way VHF radiotelephone apparatuses.

Regulation 7.3 is a new regulation that prescribes SART and two -way VHF radiotelephone requires for every passenger ship and cargo ships of 500 gross tons and upwards be provided with at least:

- .1 one radar SART or AIS-SART on each side of the ship; and
- .2 three two-way VHF radiotelephone apparatuses.

Regulation 7.5 is a new regulation that prescribes the stowage locations for radar SARTS or AIS-SARTS with regards to a ship's lifeboats.

4. Regulation 8 of revised SOLAS Chapter IV - Radio equipment: Sea Area A1

Regulations 8.1 and 8.2 have been amended and re-formatted to remove language that duplicated the requirements of Regulation 7 and more clearly specify the requirements for operation in Sea Area 1. The functional and equipment requirements for Sea Area 1 remain the same.

5. Regulation 9 of revised SOLAS Chapter IV - Radio equipment: Sea Area A2

Regulation 9.3 is a new regulation that provides three options for installing the 406 MHz EPIRB as one of the secondary means of initiating the transmission of ship-to-ship distress alerts by a radio service other than MF. The old regulation 9.3 has been re-numbered 9.4.

The old regulation 9.4 regarding exempting ships constructed before 1 February 1997 and which operate exclusively in Sea Area 2 from complying with the requirements of certain sections of regulation 7 has been removed.

6. Regulation 10 of revised SOLAS Chapter IV - Radio equipment: Sea Area A3

Old regulation 10.1.1.4 regarding transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy has been removed from the regulations. Direct printing telegraphy is no longer required.

Old regulation 10.2 regarding the alternate compliance with the requirements of regulation 10.1 has been removed. Effective 01 January 2024, a MF/HF radio installation capable of transmitting and receiving, for distress and safety purposes, on all distress and safety frequencies in the bands between 1,605 kHz and 4,000 kHz and between 4,000 kHz and 27,500 kHz is no longer acceptable as an alternative means of compliance with the radio communication requirements for operation in SEA Area 3. It should be noted that equipment capable of direct printing telegraphy (i.e., NBDP) is no longer required.

Regulation 10.3 is a new regulation that provides three options for installing the 406 MHz EPIRB as the secondary means of initiating the transmission of ship-to-ship distress alerts by a radio service other than MF. The old regulation 10.3 regarding a ship being capable of initiating transmission of distress alerts by the radio installations specified in paragraphs 10.1.1, 1.2 and 1.4 from the position from which the ship is normally navigated has been re-numbered as 10.2.

Old regulation 10.4 has been revised to is a requirement for a ship with regards to the capability to transmit and receive general communications. The authorization to exempt ships constructed before 1 February 1997 and which operate exclusively in Sea Area 2 and Sea Area 3 from complying with the requires of certain sections of regulation 7 that was contained in the text of old regulation 10.4 has been removed.

7. Regulation 11 of revised SOLAS Chapter IV - Radio equipment: Sea Area A4

Regulation 11 has been revised to specifically list the radiocommunication equipment required for

ships operating in Sea Area 4

The authorization to exempt ships constructed before 1 February 1997 and which operate exclusively in Sea Area 2, Sea Area 3, and 4 from complying with the requires of certain sections of regulation 7 that was contained in the previous text of regulation 10.4 has been removed.

8. Regulation 14 of revised SOLAS Chapter IV – Performance Standards

[MSC.1/Circ 1676](#) has extended the due date for installation of VHF radio installations, MF and MF/HF radio installations and Inmarsat C ship earth stations that comply with the performance standards listed in amended regulation 14 until 01 January 2028 due to delays affecting the availability of the new equipment.

Therefore, Liberian flagged vessels may continue until 01 January 2028 to use:

1. shipborne VHF radio installations conforming to performance standards not inferior to those specified in the annex to resolution A.803(19), as amended;
2. shipborne MF and MF/HF radio installations conforming to performance standards not inferior to those specified in the annex to resolutions A.804(19), as amended and A.806(19), as amended; and
3. Inmarsat-C ship earth stations conforming to performance standards not inferior to those specified in the annex to resolution A.807(19), as amended.

Notable Changes and Revisions to SOLAS CHAPTER IV- Radiocommunications

A. The requirements to install an Inmarsat-C system on board a ship have been removed from SOLAS Chapter IV. With the approval of Iridium as a GMDSS system, SOLAS Chapter IV in lieu of specifying Inmarsat-C equipment requires ships, when applicable, to be outfitted with a recognized mobile satellite service ship earth station capable of:

- .1 Transmitting and receiving distress, urgency and safety communications;
- .2 initiating and receiving distress priority calls; and
- .3 maintaining watch for shore-to-ship distress alert relays, including those directed to specifically defined geographical areas.

The recognized mobile satellite service ship earth station may be any such system that has been approved by IMO for use in the GMDSS.

- B. NAVTEX and NBDP are no longer mandatory required equipment that must be installed on ships no matter in which Sea Area the ship operates.
- C. Ships are required to be outfitted with a receiver or receivers capable of receiving MSI and search and rescue related information throughout the entire voyage in which the ship is engaged. It should be noted that currently not every NAVAREA or METAREA coordinator is transmitting MSI on all available recognized mobile satellite services.

- D. The alternative method of compliance for operation in Sea Area A3 using VHF + MF/HF (DSC + radiotelephony + NBDP) + Secondary means (EPIRB or Ship Earth Station (SES)) has been deleted from Regulation 10.2. This alternate method is no longer acceptable. After 01 January 2024, for operation in Sea Area 3, existing ships in accordance with regulation IV/10.1 shall have installed:

VHF	SES	MF (DSC radiotelephony)	+	Secondary means (EPIRB or HF DCS or a 2 nd SES)
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Therefore, after 01 January 2024 existing ships operating in Sea Area 3 which have only MF/HF equipment and no SES, at a minimum will need to install one SES. All Liberian flagged ships must comply with the revised regulation 10.1 not later than the first safety radio survey after 1 January 2024. Ships unable to comply by the first safety radio survey after 01 January 2024 should contact the Administration for consideration of an extension of the compliance date.

- E. Sea Area 3 has been redefined as 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. Under this definition for a vessel equipped with a recognized mobile satellite service, such as Iridium, which provides continuous full global coverage and alerting, Sea Area 3, as defined by SOLAS IV/2.1.17 extends into and includes the polar regions.

Therefore, effectively for vessels equipped with an Iridium GMDSS system which provides complete globally coverage Sea Area A4, as defined by regulation 2.1.1.18 of SOLAS Chapter IV, does not exist as Sea Area 3 for such vessels includes all waters beyond Sea Areas A1 and A2, including the polar regions. The chart below provides the equipment that shall be installed on ships operating in Sea Areas with regards to GMDSS and the two currently recognized mobile satellite services accepted for GMDSS.

Equipment	A1	A1-2	A1-3 SES + SES	A1-3 SES + HF	A1-3(4) Iridium	A1-4 Inm-C
1. VHF DSC + Radio + DSC Watch Receiver	✓	✓	✓	✓	✓	✓
2. MF DSC + Radio + DSC Watch Receiver (WR)	*	✓	✓	✓	✓	
3. RMSS Ship Earth Station (SES)- (INM-C)/Iridium	*	**	✓ Inm-C/Irid	✓ Inm-C/Irid	✓ Irid	✓ Inm-C
4. MF/HF DSC + Radio + DSC WR		**		✓		✓
5. Duplicated VHF with DSC ***	✓	✓	✓	✓	✓	✓
6. Duplicated MF DSC + Radio + DSC WR***		✓				
7. Duplicated MF/HF DSC + Radio + DSC WR***				✓		✓
8. Duplicated RMSS SES – INM-C /Iridium			✓ Inm-C/Irid		✓ Irid	

9. Receiver for MSI ****+ SAR information	✓	✓	✓	✓	✓	✓
10. Float-free EPIRB	✓	✓	✓	✓	✓	✓
11. Radar-SART or AIS-SART	✓	✓	✓	✓	✓	✓
12. Portable GMDSS VHF Transceivers	✓	✓	✓	✓	✓	✓

* Vessels operating in Sea Area A1 may choose to install either a 406 MHz EPIRB, or a MF using DSC, or a HF using DSC, or a RMSS as a means of initiating the transmission of ship-to-shore distress alerts from the position from which the ship is normally navigated (SOLAS IV/8.1).

** Vessels operating in Sea Area 2 may choose to install a RMSS or a HF using DSC as a secondary means of initiating the transmission of ship-to-shore distress alerts and for transmitting and receiving general radiocommunications (SOLAS IV/9.1.3 and IV/9.4.2)

*** Only applicable if a vessel has chosen duplication of equipment in order to ensure availability of equipment (SOLAS IV/15.6 and 15.7)

**** MSI receivers may be incorporated with the SES or the MF/HF equipment

It should be noted that approved Iridium GMDSS terminals may be installed on Liberian flagged vessels for compliance with the applicable requirements of SOLAS Chapter IV regarding GMDSS.

Questions regarding this guidance should be referred to RegsandStandards@liscr.com or telephone +1-703-790-3434.

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