INTERNATIONAL MARITIME ORGANIZATION

E

SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE
6th Session
Agenda Item 9

NCSR 6/9/6
16 October 2018
Original: English

UPDATING OF THE GMDSS MASTER PLAN AND GUIDELINES ON MSI (MARITIME SAFETY INFORMATION) PROVISIONS

Fleet Safety addition to the International SafetyNET Manual (MSC.1/Circ.1364/Rev.1)

Submitted by the United Kingdom

SUMMARY	
Executive Summary:	MSC 99 adopted resolution MSC.450(99) on *Statement of Recognition of Maritime Satellite Services Provided by Inmarsat Global Ltd* regarding the Inmarsat Fleet Safety services. WWNWS-SC 10 at its meeting in Monaco from 27 to 31 August 2018, noted that the revision of on the *International SafetyNET Manual* (MSC.1/Circ.1364/Rev.1) would not be ready until 2022.
Strategic direction if applicable:	SD 2 and other work
Output:	2.10 and OW 6
Action to be taken:	Paragraph 11
Related documents:	Resolution MSC.450(99); MSC.1/Circ.1364/Rev.1; NCSR 3/29; NCSR 5/23 and MSC 97/22

Introduction

1 MSC 99 adopted resolution MSC.450(99) on *Statement of Recognition of Maritime Satellite Services provided by Inmarsat Global Ltd relating to the Inmarsat Fleet Safety service*. Inmarsat plans to have this service available globally for non-SOLAS vessels and SOLAS vessels within the MEAS area in 2019 and GMDSS availability over all satellites following the launch of the I-6 satellite in 2020.

2 MSC 97 (21 to 25 November 2016) had approved amendments to MSC.1/Circ.1364 (Amendments to the Revised International SafetyNET Manual) as had been developed by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) at its third session (29 February to 4 March 2016). These came into force on 1 January 2018.

3 Member States are invited to use the Manual, as appropriate, and to bring it to the attention of all parties concerned.

Background

4 WWNWS-SC 10, held in Monaco from 27 to 31 August 2018, received editorial information recommended for the SafetyNET Manual inclusion of the GMDSS approved Fleet Safety system from Inmarsat. The Manual was reviewed. However, it was agreed that more discussion was necessary and therefore it would not be submitted to NCSR 6. As a result, the next revised version of the SafetyNET Manual, which may be approved by MSC 102 in 2020, would not be implemented until 2022.

5 NCSR 5 also noted that consequential amendments to the SafetyNET Manual would be prepared by the IHO Document Review Working Group for approval by WMO and IHO, and for endorsement by NCSR 6 and approval by MSC 101.

Discussion

6 Appreciating the extensive task that must be undertaken by the International SafetyNET Panel and WWNWS on revising and updating the International SafetyNET Manual to include new providers and systems, it is imperative the maritime industry is aware of approved ship earth stations capable of Enhanced Group Calling (EGC) reception as annotated in MSC.1/Circ.1364/Rev.1, annex 5 – EGC receiver specifications.

7 Inmarsat, as a service provider, has been approached by a number of maritime agencies and shipowners/operators requesting confirmation that Fleet Safety service is EGC capable and if this is required to be added to the International SafetyNET Manual.

8 It is considered that until such time as the amended International SafetyNET Manual can be completed, supplementary information addressing this issue should be provided to create certainty within the maritime community regarding approved EGC equipment.

9 Reflecting the Statement of Recognition by the Committee, it is further considered that this could be appropriately achieved by the inclusion of the necessary information as an additional annex to MSC.1/Circ.1364/Rev.1. This would have the additional benefit of avoiding any commercial implications or operational delays.

10 A proposed draft text of the suggested annex to MSC.1/Circ.1364/Rev.1 is attached to this submission.

Actions requested of the Sub-Committee

11 The Sub-Committee is requested to:

.1 consider the discussion above regarding an additional annex to MSC.1/Circ.1364/Rev.1;

.2 consider and finalize the proposed draft text of such an annex; and

.3 if finalized, forward the proposed draft annex to MSC for subsequent approval.

***

ANNEX

TECHNICAL REQUIREMENTS FOR FLEET SAFETY ENHANCED GROUP CALL RECEIVERS FOR SOLAS-COMPLIANT MOBILE EARTH STATIONS

1 MSI SafetyNET receivers for SOLAS installations

1.1 Background

The Global Maritime Distress and Safety System (GMDSS) is a radiocommunication system based on satellite and terrestrial technology, designed to improve communications relating to distress and safety of life at sea. It was adopted by the International Maritime Organization (IMO) in 1988, in the form of amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974 and came into effect on 1 February 1992. Implementation was completed on 1 February 1999.

It is the responsibility of national Administrations to determine whether a radio installation on board a ship meets the SOLAS requirements. This is done by national Type Acceptance or Approval testing of the sub-systems included in the installation and by inspection of the complete installation by a radio surveyor.

National Type Acceptance testing for SOLAS equipment is usually based on GMDSS specifications and procedures prepared by IMO and the International Electrotechnical Commission (IEC) on their behalf, although other national or regional specifications may be invoked as well.

IMO and IEC documents, which are identified in section 1.2, do not only summarize the general requirements for GMDSS equipment, but also the special requirements for EGC receivers for use in SOLAS installations, as specified by IMO/IEC.

A number of the Inmarsat specifications have been completely revised to reflect the latest IMO/IEC requirements, for example: electromagnetic compatibility and environmental requirements.

1.2 Principal relevant documents

For Inmarsat Fleet Safety GMDSS-compliant ship earth stations (SES) with MSI functions, the principal relevant documents in addition to the Inmarsat BGAN System Definition Manual are:

.1 Performance Standards for Enhanced Group Call Equipment – annex: *Recommendation on Performance Standards for Enhanced Group Call Equipment* (resolution A.664(16), as amended).

.2 *Amendments to the Revised Performance Standards for Enhanced Group Call (EGC) equipment* (resolution MSC.431(98), as amended).

.3 *General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids* (resolution A.694(17)).

.4 *Performance standards for a Ship Earth Station for use in the GMDSS* (resolution MSC.434(98), as amended).

.5 Shipborne Radio Equipment forming part of the Global Maritime Distress and Safety System and Marine Navigational Equipment, published by the IEC as IEC 60945.

.6 Global Maritime Distress and Safety System (GMDSS) – Part 4: Inmarsat Ship Earth Station and Inmarsat Enhanced Group Call Equipment – Operational and Performance Requirements, Methods of Testing and Required Test Results, published by the IEC as IEC 61097-4.

.7 Maritime Design and Installation Guidelines (DIGs), annex B, issue 6 of April 2008 published by Inmarsat at: http://www.inmarsat.com/Maritimesafety/DIGs.pdf

2 Introduction

2.1 EGC (Enhanced Group Call)

Enhanced Group Call is a message broadcast service transmitted over the Inmarsat communication system. The service allows terrestrial information providers to pass messages or data to approved SES with EGC receivers through the Inmarsat SafetyNET (II) system.

2.2 EGC receiver

An EGC receiver is defined as a receiver function in the Maritime Safety Terminal (MST) connected to the FleetBroadband User Terminal (UT) via the MSTI interface. This MST provides an MSI capability in addition to ship to-ship and ship-to-shore messaging capabilities.

2.3 Type approval

The Inmarsat BGAN SDM presents the technical requirements and recommendations for an MST receiver. These requirements must be satisfied before the equipment can be utilized in the Inmarsat system. Procedures for type approval by Inmarsat of a manufacturer's design are provided in a complementary document entitled FleetBroadband Alpha Beta Testing, produced by Inmarsat.

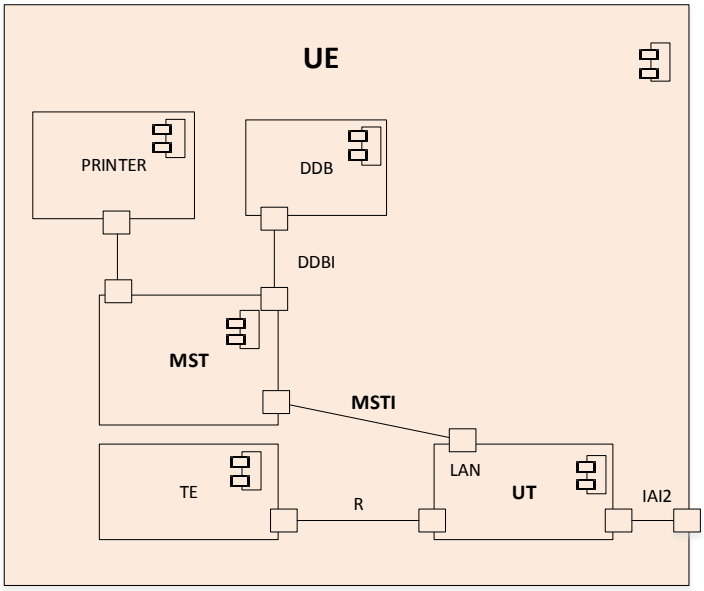

Figure 1 – Extended Architecture of a Fleet Safety GMDSS-compliant ship earth station (SES) with MSI functions

3 General requirements

3.1 Mandatory capabilities

The mandatory capabilities of EGC receivers for SOLAS applications are:

.1 continuous reception of broadcast channel and processing of the information according to the EGC message protocol;

.2 automatic recognition of messages directed to fixed and absolute geographical areas and service codes as selected by the receiver operator or based upon input(s) from navigational equipment;

.3 SafetyNET receivers meet the requirements of IEC 61097-4 and IEC 60945; and

.4 where automatic updates are not available, provision is made for a visual indication if the ship's position has not been updated during the last 12 hours. It is only possible to reset this indication by revalidating the ship's position.

4 Broadcast channel selection

4.1 General

EGC receivers are a function of the Maritime Safety Terminal that is connected to FleetBroadband. FleetBroadband UTs continuously monitor the broadcast system information for dynamic allocation of channel frequencies.

4.2 Global broadcast scanning

Automatic scanning of the system information and automated satellite selection is a mandatory feature of all Fleet Safety user equipment. In the event of loss of forward carrier connectivity from the satellite exceeding 30s, the UT attempts to retune to another satellite and re-establish the link to the ground automatically.

5 Message-processing requirements

5.1 General

Acceptance or rejection of the EGC service code types is under operator control, except that receivers always receive: navigational warnings; meteorological warnings; SAR information and shore-to-ship distress alerts – directed to a fixed or absolute geographical area within which the receiver is situated. The user can also select additional areas, see 5.9 below.

5.2 Display devices

5.2.1 Message display

The display is capable of presenting at least 40 characters per line of text. The EGC receiver ensures that if a word cannot be accommodated in full on one line it is transferred to the next line.

5.2.2 Status display

The MST is able to indicate the link status (i.e. various levels of connectivity to the Inmarsat network) which could trigger alarms to the users.

5.3 Printer requirements

A printer is required for a SOLAS EGC receiver. Received EGC messages may be stored for later printing with an indication to the operator that the message has been received. However, distress or urgency priority calls are directly printed as well as stored. Means are also provided not to print or store the same MSI message after it has been received error-free and printed.

Messages are not printed until completely received.

A local audible alarm is sounded to give advance warning of a printer "paper-low" condition.

All SafetyNET messages are annotated with the date and time (UTC) of reception. This information is displayed or printed with the message.

5.4 Character codes

For the EGC service, the International Reference Version of the International Alphabet 5 (IA5), also known as ASCII (a standard alphanumerical character set based on 7-bit codes) is used.

5.5 Operator control

The following control functions and displays are provided as a minimum:

.1 selection of EGC carrier frequency;

For SOLAS SafetyNET receivers:

.2 means of inputting the following information:

.1 mobile earth stations' (MES) position coordinates;

.2 current and planned (additional) NAVAREA(s)/METAREA(s);

.3 current and planned coastal warning area (B_1 Code); and

.4 coastal warning subject indicator character (B_2 Code).

Receivers are fitted with operator controls to allow the operator to select desired geographical areas and message categories. Details of the geographical areas and message categories which have been selected for reception by the operator are readily available.

5.6 MSI receiver memory capacity requirements

The MSI receiver shall be capable of storing safety related activity and messages.

Information stored should include:

- Date/time of activity
- Activity type (message received, etc. plus priority)

- Message/MSI header information
- Message/MSI size and contents
- Date/time of operator acknowledgement for received Distress and Urgency messages/MSI
- Date/time when operator read received messages/MSI (no date/time means not read)
- Message history

The database can record at least 500 messages (received/MSI) of average 500 characters (printable and non-printable). It is not possible for the user to erase messages from the memory. If the database becomes full, the oldest messages are overwritten by new messages.

The user can tag individual messages for permanent retention. These messages may occupy up to 25% of the available database and should not be overwritten by new messages. When no longer required, the user is able to remove the tag on these 'saved' messages which may then be overwritten in the normal manner.

5.7 MSI receiver addressing

The five basic methods of addressing EGC receivers are:

1. All-mobiles call (Inmarsat only);
2. Inmarsat system message addressing (Inmarsat only);
3. Fixed geographical area (NAV/METAREA);
4. Temporary area determined by MSI provider - circular or rectangular; and
5. Coastal warning area.

The type of address used in the header of an MSI packet is uniquely determined by the "C_2" service code field.

5.8 Message identification

All messages are transmitted with a unique reference number and originating ID. Each subsequent transmission of the message contains the original sequence number. This facility allows multiple printing of repeated messages to be inhibited.

5.9 Geographical area addressing

Geographical area addressing refers to messages transmitted to UTs in a particular area. The area may be expressed in terms of a fixed, pre-defined area such as the NAVAREA/METAREA, or satellite coastal warning area, or in terms of an absolute geographical address expressed as latitude and longitude coordinates on the surface of the earth. An absolute geographical area address is a representation of a closed boundary on the surface of the earth given in the address field of the message header. The receiver recognizes two forms of absolute geographical addressing: rectangular and circular. Each form is specified in terms of an absolute position in latitude and longitude and further parameters that completely specify the boundary.

In order to process a geographical area address, the receiver shall be provided with the UT's current position. The position may be entered automatically from an integrated or external navigation aid or entered manually. The receiver provides notification to the operator when the position has not been updated for four hours. If the UT's position has not been updated for more than 12 hours or is unknown, **ALL** MSI messages will be printed or stored in the memory.

A geographical area address is considered valid for a particular UT if its current position falls inside or on the boundary specified by the address. It is a mandatory requirement that the operator be able to select more than one area, so that messages directed to other area(s) of interest can be provided. It is recommended that the operator be able to select at least four areas.

6 Link performance monitoring

The EGC receiver continuously monitors the received bulletin board whenever it is tuned and synchronized to the SAS. The receiver stores at least 500 messages (received MSI) of average length 500 characters (printable and non-printable) in this database. It should not be possible for the user to erase messages from the memory. If the database becomes full, the oldest messages should be overwritten by new messages.

7 Alarms and indications

The following alarms and indications are provided at a SOLAS MSI receiver and meet the operational requirements for alarms stated in IEC 61097-4.

7.1 Distress/Urgency priority call alarm

For SOLAS EGC receivers:

Provision is made for a specific audible alarm and visual indication at the position from which the ship is normally navigated to indicate receipt of MSI messages with distress or urgency priority. It is not possible to disable this alarm and it is only possible to reset it manually, and then only from the position where the message is displayed or printed.

7.2 Other alarms and indications

1. Users SIM card not present
2. Registration Failure
3. Loss of Signal
4. Packet Switch connection failure
5. Circuit Switch connection failure
6. Distress Voice Call Failure
7. Printer Failure

Additional alarms and indications may be provided at the manufacturer's discretion.

8 Electromagnetic compatibility

The interference and electromagnetic compatibility requirements of IEC 60945 apply.

9 Environmental conditions

SOLAS EGC receivers operate satisfactorily under the environmental conditions specified in the SDM. The latest issues of IEC 61097-4 and IEC 60945 apply.

10 Navigational interface

All FleetBroadband UTs have an integrated navigational receiver. However, to update a receiver's position automatically from an alternative source, receivers may be equipped with an interface to vessel navigational equipment. A suggested standard interface is in IEC 61162, Part 1 Maritime navigation and radiocommunication equipment and systems - Digital interfaces (equivalent to NMEA 0183).