

MARITIME SAFETY COMMITTEE
107th session
Agenda items 15 and 17

MSC 107/WP.7
31 May 2023
Original: ENGLISH

DISCLAIMER

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**NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE
(URGENT MATTERS EMANATING FROM THE TENTH SESSION
OF THE SUB-COMMITTEE)**

1 The Maritime Safety Committee, at its 106th session, having noted the close proximity of NCSR 10 and MSC 107, authorized NCSR 10 to submit, as urgent matters, the biennial status report for the 2022-2023 biennium, the proposed biennial agenda for the 2024-2025 biennium and the provisional agenda for NCSR 11, for approval at this session, along with any other urgent matters requiring approval by MSC 107 (MSC 106/19, paragraph 16.51).

2 The Committee also authorized NCSR 10 to submit, as urgent matters, for approval at this session (MSC 106/19, paragraphs 13.32 and 16.52):

- .1 the IMO position on ITU World Radio Conference 2023 (WRC-23) agenda items concerning matters relating to maritime services; and
- .2 the Iridium SafetyCast service manual, updating the interim version (MSC.1/Circ.1613/Rev.1).

3 This document contains the actions requested of MSC 107, emanating from NCSR 10. Given that the final report of NCSR 10 is not yet available, references are made to the relevant paragraphs of the draft report of the Sub-Committee (NCSR 10/WP.1/Rev.1) and the reports of working and experts groups (NCSR 10/WP.4, NCSR 10/WP.5, NCSR 10/WP.6 and NCSR 10/WP.7), taking into account final decisions taken by the Sub-Committee on the last day of the meeting (i.e. 19 May 2023), which will be reflected later in the final report.

Action requested of the Committee

4 The Committee, under agenda item 15 (Navigation, communications and search and rescue (Urgent matters emanating from the tenth session of the Sub-Committee)), is invited to:

- .1 note that the Sub-Committee agreed to draft associated protective measures, with a view to being included in the final MEPC resolution on the designation of a particularly sensitive sea area in the North-Western Mediterranean Sea to be considered by MEPC (NCSR 10/WP.1/Rev.1, paragraphs 3.6 to 3.14, 3.20 and 3.21; NCSR 10/WP.4, paragraph 6.1.2.1; and annex 1 to this document);

- .2 agree, as an urgent matter, that the above-mentioned associated protection measures can be directly referred by the Sub-Committee to MEPC 80, taking into account their general nature aiming at information-sharing primarily for contributing to the protection of the marine environment and that the Sub-Committee is an associated organ of output 4.1 (Identification and protection of Special Areas, Emission Control Areas and PSSAs and associated protective measures) (NCSR 10/WP.1/Rev.1, paragraphs 3.6 to 3.14, 3.20 and 3.21; and NCSR 10/WP.4, paragraph 6.1.2.2.1);
- .3 approve the draft MSC circular on Iridium SafetyCast service manual, to be issued as MSC.1/Circ.1613/Rev.2; and agree to the recommended implementation date of 1 July 2023, noting that the interim manual has been in operational use since it became effective on 1 January 2022 and thus, there has been adequate time for circulation within the maritime community (NCSR 10/WP.1/Rev.1, paragraphs 10.19.1 and 10.19.2; and annex 2 to this document);
- .4 approve the IMO position on WRC-23 agenda items concerning matters relating to maritime services; and request the Secretariat to submit it to WRC-23 (NCSR 10/WP.1/Rev.1, paragraphs 12.6 to 12.15, 12.43 and 12.44; NCSR 10/WP.5, paragraph 62.10; and annex 3 to this document);
- .5 request the Secretariat, when proposals are submitted for consideration by WRC-23, which have not been foreseen when developing the IMO position, to consult with IMO Member States present at WRC-23 and take appropriate action on new issues not included in the IMO position to protect IMO's interests (NCSR 10/WP.1/Rev.1, paragraphs 12.6 to 12.15, 12.43 and 12.44; NCSR 10/WP.5, paragraph 62.12);
- .6 endorse the approval of draft modifications to COMSAR/Circ.32/Rev.1 on *Harmonization of GMDSS requirements for radio installations on board SOLAS ships*, to be issued as COMSAR/Circ.32/Rev.2 superseding COMSAR/Circ.32/Rev.1, with an effective implementation date of 1 January 2024 (NCSR 10/WP.1/Rev.1, paragraphs 21.12 to 21.16, 21.30 and 21.31; NCSR 10/WP.5, paragraph 62.15 and annex 9, as modified during the consideration);
- .7 note the considerations with respect to permitting continued installation of radio installations complying with the existing standards (i.e. resolutions A.803(19), as amended, A.804(19), as amended, A.806(19), as amended and A.807(19), as amended) until 1 January 2028; and approve the draft MSC circular on Delays affecting the availability of new GMDSS equipment compliant with the revised performance standards set out in resolutions MSC.511(105), MSC.512(105) and MSC.513(105) (NCSR 10/WP.1/Rev.1, paragraphs 21.17 to 21.19, 21.21, 21.22, 21.30 and 21.31; NCSR 10/WP.5, paragraph 62.16; MSC 107/15; and annex 4 to this document); and
- .8 note the considerations with respect to the revision of MSC.1/Circ.1460/Rev.3 on *Guidance on the validity of radiocommunications equipment installed and used on ships* to extend the deadline for updating VHF radiocommunication equipment to 1 January 2028 in alignment with the above action (NCSR 10/WP.1/Rev.1, paragraphs 21.20, 21.22, 21.30 and 21.31; NCSR 10/WP.5, paragraph 62.17; MSC 107/15/1 and MSC 107/15/3).

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- 5 The Committee, under agenda item 17 (Work programme), is also invited to:
- .1 note the biennial status report 2022-2023 of the Sub-Committee (NCSR 10/WP.1/Rev.1, paragraph 19.2; and annex 5 to this document);
 - .2 consider extending the target completion year of output 2.12 (Development of generic performance standards for shipborne satellite navigation system receiver equipment) to 2024; and changing the scope of the output to develop a draft recommendation on generic performance standards for shipborne satellite navigation system receiver equipment (NCSR 10/WP.1/Rev.1, paragraphs 5.1 to 5.9; and NCSR 10/WP.6, paragraph 9.1.1);
 - .3 agree to relocate output 2.11 (Consideration of descriptions of Maritime Services in the context of e-navigation) to the Committee's post-biennial agenda, in order to have the possibility to revisit it at a future session, as necessary, to review existing Maritime Services and/or include new ones (NCSR 10/WP.1/Rev.1, paragraphs 7.5 to 7.11; and NCSR 10/WP.6, paragraph 9.1.5);
 - .4 agree to extend the target completion year of output 1.3 (Revision of the Criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS) (resolution A.1001(25))) to 2024 (NCSR 10/WP.1/Rev.1, paragraphs 11.1 to 11.10 and NCSR 10/WP.5, paragraph 62.4);
 - .5 agree to delete output 2.9 (Development of amendments to VDR performance standards and carriage requirements) from the biennial agenda of the Sub-Committee due to the absence of submissions for two consecutive sessions (NCSR 10/WP.1/Rev.1, paragraph 15.3);
 - .6 approve a new output on "Identification of measures to improve the security and integrity aspects of AIS" in order to continue to address the instructions given by the Committee (MSC 105/20, paragraph 2.7, and MSC 106/19, paragraph 2.8.1) and agree to include it in the biennial agenda of the Sub-Committee and in the provisional agenda of NCSR 11, with two sessions required to complete the output (NCSR 10/WP.1/Rev.1, paragraphs 21.4 to 21.6, 21.28 and 21.29; and NCSR 10/WP.6, paragraphs 8.5 to 8.16);
 - .7 approve the proposed biennial agenda of the Sub-Committee for the 2024-2025 biennium and the provisional agenda for NCSR 11 (NCSR 10/WP.1/Rev.1, paragraphs 19.3 and 19.4; and annexes 6 and 7 to this document), including:
 - .1 the consolidation of outputs 1.34 (Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures) and 7.20 (Amendments to the IAMSAR Manual) to facilitate the consideration of actions emanating from the reports of the ICAO/IMO Joint Working Group;
 - .2 the renaming of output 7.22 (Routeing measures and mandatory ship reporting systems) as "Routeing measures and ship reporting systems"; and

- .3 the inclusion of outputs 188 (Development of guidelines for the use of electronic nautical publications (ENP)) and 196 (Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)) from the post-biennial agenda of the Committee;
- .8 approve the holding of annual meetings of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters on a continuous basis, until decided otherwise either by IMO or ITU (NCSR 10/WP.1/Rev.1, paragraphs 12.41 and 19.8); and
- .9 approve the holding of annual meetings of the ICAO/IMO Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue on a continuous basis, until decided otherwise either by IMO or ICAO (NCSR 10/WP.1/Rev.1, paragraphs 13.13 and 19.8).

ANNEX 1

DRAFT ASSOCIATED PROTECTIVE MEASURES WITHIN A PARTICULARLY SENSITIVE SEA AREA IN THE NORTH-WESTERN MEDITERRANEAN SEA (NW MED PSSA)

- 1 Mariners should navigate with particular caution within the NW Med PSSA, in areas where large and medium cetaceans are detected or reported, and reduce their speed to between 10 and 13 knots as voluntary speed reduction (VSR). However, a safe speed should be kept, so that proper and effective action could be taken to avoid collision and any possible negative impacts on ship's manoeuvrability.
- 2 Mariners should keep an appropriate safety distance or speed reduction measure from any large and medium cetaceans observed or detected in close quarter situation. The safety distance or speed reduction measure should be adapted to the actual navigation circumstances and conditions of the ship.
- 3 Mariners should broadcast on VHF or other available means on scene, the position of medium and large cetaceans observed or detected within the designated PSSA and transmit the information and the position to a designated coastal Authority(ies); and
- 4 Mariners should report any collision with cetaceans to a designated coastal Authority(ies), which should forward this information to the International Whaling Commission (IWC) global cetacean ship strikes database.

ANNEX 2

DRAFT MSC.1/CIRC.1613/REV.2

INTERIM IRIDIUM SAFETYCAST SERVICE MANUAL

1 The Maritime Safety Committee, at its 101st session (5 to 14 June 2019), approved the *Interim Iridium SafetyCast service manual* (MSC.1/Circ.1613), which provided information on Iridium's enhanced group calling service, for circulation to Member States as advance information.

2 Member States were invited to take account of the information contained in the manual when conducting system trials and tests.

3 The Committee, at that session, also established an IMO Enhanced Group Call Coordinating Panel for coordinating the development and use of the international satellite-based enhanced group calling service. The Panel's terms of reference and certification process are given in MSC.1/Circ.1635.

4 The Committee, at its 104th session (4 to 8 October 2021), approved the revised *Interim Iridium SafetyCast service manual*, (MSC.1/Circ.1613/Rev.1), which became ~~as set out in the annex, and agreed that it should become effective on 1 January 2022.~~

[5 The Committee at its 107th session (31 May to 9 June 2023), approved the revised *Iridium SafetyCast service manual*, as set out in the annex, and agreed that it should become effective on 1 July 2023.]

56 Member States intending to use the Iridium SafetyCast service are invited to take account of the attached revised *Interim Iridium SafetyCast service manual*.

67 This revised circular supersedes MSC.1/Circ.1613/Rev.1, as from 1 ~~January 2022~~ July 2023.

ANNEX

INTERIM IRIDIUM SAFETYCAST SERVICE MANUAL 20222023 EDITION

Foreword

SOLAS regulation IV/12.2 states that "Every ship, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is navigating".

In 2013, a submission was made to the Maritime Safety Committee (MSC), at its ninety-second session, for evaluation of the Iridium mobile-satellite system against the criteria for the provision of mobile satellite services in the Global Maritime Distress and Safety System (GMDSS). In 2018, MSC 99 adopted resolution MSC.451(99) on *Statement of recognition of the maritime mobile satellite services provided by Iridium Satellite LLC*, including Iridium's enhanced group calling service. It was noted that an operational manual, similar to the International SafetyNET Manual, was necessary. The Committee also acknowledged the role of the International SafetyNET Coordinating Panel that worked on behalf of the Committee with respect to the implementation of the provision of maritime safety information in accordance with the guidance material approved by the Committee. Since then, the Iridium enhanced group call (EGC) service has been named "Iridium SafetyCast".

In June 2019, MSC 101 approved the *Interim Iridium SafetyCast Manual* (MSC.1/Circ.1613), which provided information on Iridium's EGC service, for circulation to Member States as advance information. Member States were invited, pending completion of a final text of the manual by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR), to take account of the information in the draft manual when conducting system trials and tests.

In October 2021, MSC 104 approved the revised *Interim Iridium SafetyCast Manual* (MSC.1/Circ.1613/Rev.1) and agreed that it should become effective on 1 January 2022. In June 2023, MSC 107 approved the removal of the *Interim* term from the title and, as no other amendments were proposed, agreed that it should become effective on 1 July 2023.

This revised Manual has been produced to describe the Iridium system and its capability for promulgating maritime safety information (MSI) and search and rescue (SAR) related information. The revised Manual has been prepared with the cooperation of the IHO WWNWS Sub-Committee, the WMO WWMIWS Standing Sub-Committee and their respective Secretariats. This Manual should be read alongside the Joint IMO/WMO/IHO Manual on Maritime Safety Information.

1 General information

1.1 The Iridium SafetyCast service is a satellite-based service for the promulgation of MSI, navigational and meteorological warnings, meteorological forecasts, SAR related information and other urgent safety-related messages to ships.

1.2 The Iridium SafetyCast service fulfils an integral role in the GMDSS developed by the International Maritime Organization (IMO) and incorporated into the 1988 amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, as a requirement for ships to which the Convention applies.

1.3 This Manual describes the structure and operation of the Iridium SafetyCast service. It is intended primarily for national Administrations and registered information providers, but may also be useful to the mariner who requires more operational information than is found in manufacturers' equipment manuals.

2 Iridium SafetyCast service

2.1 Introduction

2.1.1 The Iridium SafetyCast service provides shipping with navigational and meteorological warnings, meteorological forecasts, shore-to-ship distress alert relays, SAR related information and other urgent information in accordance with SOLAS requirements. It provides an automatic method of broadcasting messages to both fixed and variable geographical locations in all sea areas, including the means of disseminating MSI to coastal warning areas not covered by the International NAVTEX service. It is suitable for use in all sizes and types of ships. Figures 1 and 2 illustrate the way the service is structured.

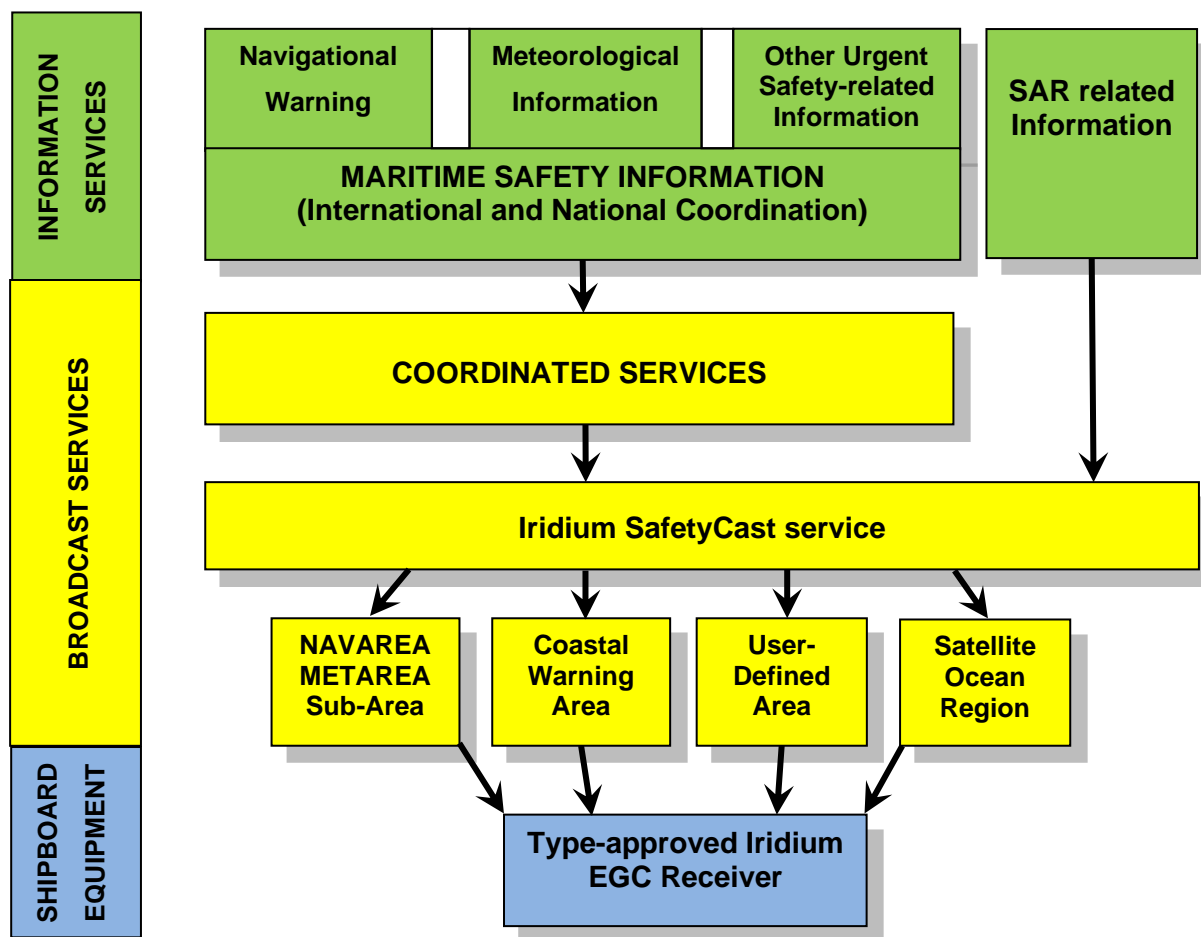


Figure 1 – Iridium SafetyCast service system

Iridium SafetyCastSM Service

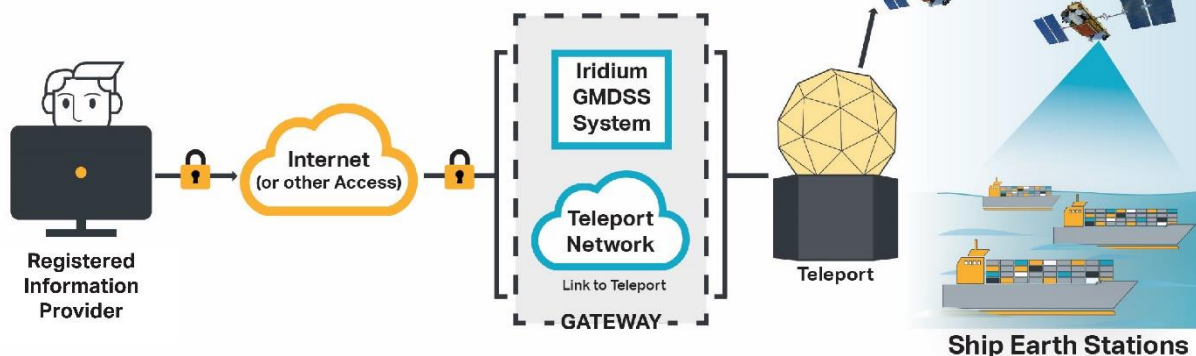


Figure 2 – Basic concept of the Iridium SafetyCast service

2.1.2 The Iridium SafetyCast service offers the ability to direct a message to a given geographical area. The area may be fixed, as in the case of a NAVAREA/METAREA or coastal warning area; or it may be a user-defined area (circular or rectangular). A user-defined area is used for messages, such as a local storm warning or a shore-to-ship distress alert relay, for which it is inappropriate to alert ships in an entire NAVAREA/METAREA. The basic concept of the service is shown in figure 2 above.

2.1.3 Messages are submitted by registered information providers via an Iridium gateway. Messages are broadcast according to their priority, i.e. distress, urgency or safety. Aboard ships, messages are received by type-approved Iridium Ship Earth Station (SES) EGC receivers.

2.2 Definitions

2.2.1 For the purposes of this manual, the following definitions apply:

- .1 *Coastal warning* means a navigational warning or in-force bulletin promulgated as part of a numbered series by a National Coordinator. Broadcast should be made by the International NAVTEX service to defined NAVTEX service areas and/or by an International Enhanced Group Call service to the coastal warning area. In addition, Administrations may issue coastal warnings by other means.
- .2 *Coastal warning area* means a unique and precisely defined sea area within a NAVAREA/METAREA or Sub-Area established by a coastal State for the purpose of coordinating the promulgation of coastal Maritime Safety Information through an International Enhanced Group Call service.
- .3 *Coastal and offshore waters* apply to areas for which WMO Members issue weather and sea bulletins, governed by the procedures in the Manual on Marine Meteorological Services (WMO-No.558).
- .4 *Enhanced Group Call (EGC)* means the international broadcast of coordinated Maritime Safety Information and Search and Rescue related information, to a defined geographical area using a recognized mobile satellite service.

- .5 *Expiry* means the time and date, set by the information provider, where the system will stop the information being automatically transmitted to vessels. Expiry is a specific feature of the Iridium SafetyCast service and does not impact the information available on the Ship Earth Station as per the performance and test standards.
- .6 *Gateway* means a terrestrial part of a mobile satellite system that acts as an interface between the network and other communication networks.
- .7 *Global Maritime Distress and Safety System (GMDSS)* means a system that performs the functions set out in SOLAS regulation IV/4.
- .8 *In-force bulletin* means a list of serial numbers of those NAVAREA, Sub-Area or coastal warnings in force issued and promulgated by the NAVAREA Coordinator, Sub-Area Coordinator or National Coordinator.
- .9 *International Enhanced Group Call service* means the coordinated broadcast and automatic reception of Maritime Safety Information and Search and Rescue related information via Enhanced Group Call, using the English language.
- .10 *International Iridium SafetyCast service* means the coordinated broadcast and automatic reception of Maritime Safety Information and Search and Rescue related information via the Enhanced Group Call system, using the English language.
- .11 *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.¹
- .12 *Iridium Safety Gateway* means the central system responsible for managing GMDSS communications within the Iridium Network.
- .13 *Issuing Service* means a National Meteorological and Hydrological Service (NMHS) or National Authority which has accepted responsibility for ensuring that meteorological warnings and forecasts for shipping are disseminated through the International Enhanced Group Call service to the designated METAREA for which the NMHS or National Authority has accepted responsibility under the broadcast requirements of the Global Maritime Distress and Safety System.²
- .14 *Local warning* means a navigational warning which covers inshore waters, often within the limits of jurisdiction of a harbour or port authority.
- .15 *Maritime Safety Information (MSI)*³ means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.

¹ As set out in the IMO NAVTEX Manual.

² As defined in WMO-No.558.

³ As defined in SOLAS regulation IV/2.

- .16 *Maritime Safety Information service* means the internationally and nationally coordinated network of broadcasts containing information which is necessary for safe navigation.
- .17 *METAREA* means a geographical sea area⁴ established for the purpose of coordinating the broadcast of marine meteorological information. The term METAREA followed by a roman numeral may be used to identify a particular sea area. The delimitation of such areas is not related to and should not prejudice the delimitation of any boundaries between States (see figure 3).
- .18 *METAREA Coordinator* means the individual with the authority to coordinate Marine Meteorological Information broadcasts by one or more National Meteorological and Hydrological Services acting as Preparation or Issuing Services within the METAREA.
- .19 *Meteorological information* means the marine meteorological warnings and forecast information in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.
- .20 *National Coordinator* means the national authority charged with collating and issuing coastal warnings within a national area of responsibility.
- .21 *National Enhanced Group Call service* means the broadcast and automatic reception of Maritime Safety Information via the EGC system, using languages as decided by the Administration concerned.
- .22 *NAVAREA* means a geographical sea area⁴ established for the purpose of coordinating the broadcast of navigational warnings. The term NAVAREA followed by a roman numeral may be used to identify a particular sea area. The delimitation of such areas is not related to and should not prejudice the delimitation of any boundaries between States (see figure 4).
- .23 *NAVAREA Coordinator* means the authority charged with coordinating, collating and issuing NAVAREA warnings for a designated NAVAREA.
- .24 *NAVAREA warning* means a navigational warning or in-force bulletin promulgated as part of a numbered series by a NAVAREA Coordinator.
- .25 *Navigational warning* means a message containing urgent information relevant to safe navigation broadcast to ships in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.
- .26 *Other urgent safety-related information* means Maritime Safety Information broadcast to ships that is not defined as a navigational warning or meteorological information. This may include, but is not limited to, significant malfunctions or changes to maritime communications systems, and new or amended mandatory ship reporting systems or maritime regulations affecting ships at sea.

⁴ Which may include inland seas, lakes and waterways navigable by seagoing ships.

- .27 *Preparation Service* means a National Meteorological and Hydrological Service or National Authority which has accepted responsibility for the preparation of warnings and forecasts, and warnings for parts of or an entire METAREA in the WMO system for the dissemination of meteorological forecasts to shipping under the GMDSS and for their transfer to the relevant Issuing Service for broadcast.
- .28 *Recognized mobile satellite service* means any service which operates through a satellite system and is recognized by IMO for use in the GMDSS.
- .29 *Registered information provider* means a Maritime Safety Information provider (MSI provider) or a Search and Rescue Information provider, authorized in accordance with annex 2 to the IMO Enhanced Group Call Coordinating Panel (MSC.1/Circ.1635).
- .30 *Rescue Coordination Centre (RCC)* means a unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region. Note: the term RCC will be used within this Manual to apply to either joint, aeronautical or maritime centres; JRCC, ARCC or MRCC will be used as the context warrants.
- .31 *Search and Rescue (SAR) related information* means distress alert relays and other urgent search and rescue related information broadcast to ships.
- .32 *Satellite Network Operations Center (SNOC)* means a terrestrial part of the Iridium mobile-satellite system which controls the Iridium satellites and manages the Iridium system overall.
- .33 *Satellite Ocean Region*⁵ means the area on the earth's surface within which a mobile or fixed antenna can obtain line-of-sight communications with one of the five primary Inmarsat geostationary satellites. This area may also be referred to as the "footprint":
- Atlantic Ocean Region – East (AOR-E)
 - Atlantic Ocean Region – West (AOR-W)
 - Indian Ocean Region (IOR)
 - Pacific Ocean Region (POR)
- .34 *Sea Area A1* means an area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC⁶ alerting is available, as may be defined by a Contracting Government.
- .35 *Sea Area A2* means an area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.

⁵ The Iridium system is not limited to specific Ocean Regions, therefore the Iridium SafetyCast equivalent for this would be a global transmission or sending to the Global Ocean Region. Other "Ocean Regions", such as an Arctic Ocean Region, could also be created as predefined areas in the Iridium SafetyCast system.

⁶ Digital selective calling (DSC) means a technique using digital codes, conforming to the technical structure and content set forth in the most recent version of Recommendations ITU R M.493 and ITU R M.541, which enables a radio station to establish contact with and transfer information to another station or group of stations.

- .36 *Sea Area A3* means an area, excluding sea areas A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.
- .37 *Sea Area A4* means an area outside sea areas A1, A2 and A3.
- .38 *Ship Earth Station (SES)* means a mobile earth station in the recognized maritime mobile satellite service located on board a ship. This may also be referred to as Mobile Earth Station (MES) or a maritime mobile terminal.⁷
- .39 *Sub-Area* means a subdivision of a NAVAREA/METAREA in which a number of countries have established a coordinated system for the promulgation of Maritime Safety Information. The delimitation of such areas is not related to and should not prejudice the delimitation of any boundaries between States.
- .40 *Sub-Area Coordinator* means the authority charged with coordinating, collating and issuing Sub-Area warnings for a designated Sub-Area.
- .41 *Sub-Area warning* means a navigational warning or in-force bulletin promulgated as part of a numbered series by a Sub-Area Coordinator. Broadcast should be made by the International NAVTEX service to defined NAVTEX service areas or by an International Enhanced Group Call service (through the appropriate NAVAREA Coordinator).
- .42 *Teleport* means a terrestrial part of the Iridium mobile-satellite system which communicates between the Iridium satellites and the gateway and Satellite Network Operations Center terrestrial parts.
- .43 *User-defined area* means a temporary geographic area, either circular or rectangular, to which Maritime Safety Information or Search and Rescue related information is addressed.
- .44 *UTC* means Coordinated Universal Time which is equivalent to GMT (or ZULU) as the international time standard.
- .45 *Worldwide Met-Ocean Information and Warning Service (WMMIWS)*⁵ means the internationally coordinated service for the promulgation of meteorological warnings and forecasts.
- .46 *World-Wide Navigational Warning Service (WWNWS)*⁶ means the internationally and nationally coordinated service for the promulgation of navigational warnings.
- .47 In the operating procedures *coordination* means that the allocation of the time for data broadcast is centralized, the format and criteria of data transmissions are compliant as described in the *Joint IMO/IHO/WMO Manual on Maritime Safety Information* and that all services are managed as set out in resolutions A.705(17), as amended, A.706(17), as amended, and A.1051(27), as amended.

⁷ SES within this document refers to a type-approved EGC capable ship earth station.

⁵ As set out in resolution A.1051(27), as amended.

⁶ As set out in resolution A.706(17), as amended.

2.2.2 METAREA Limits:

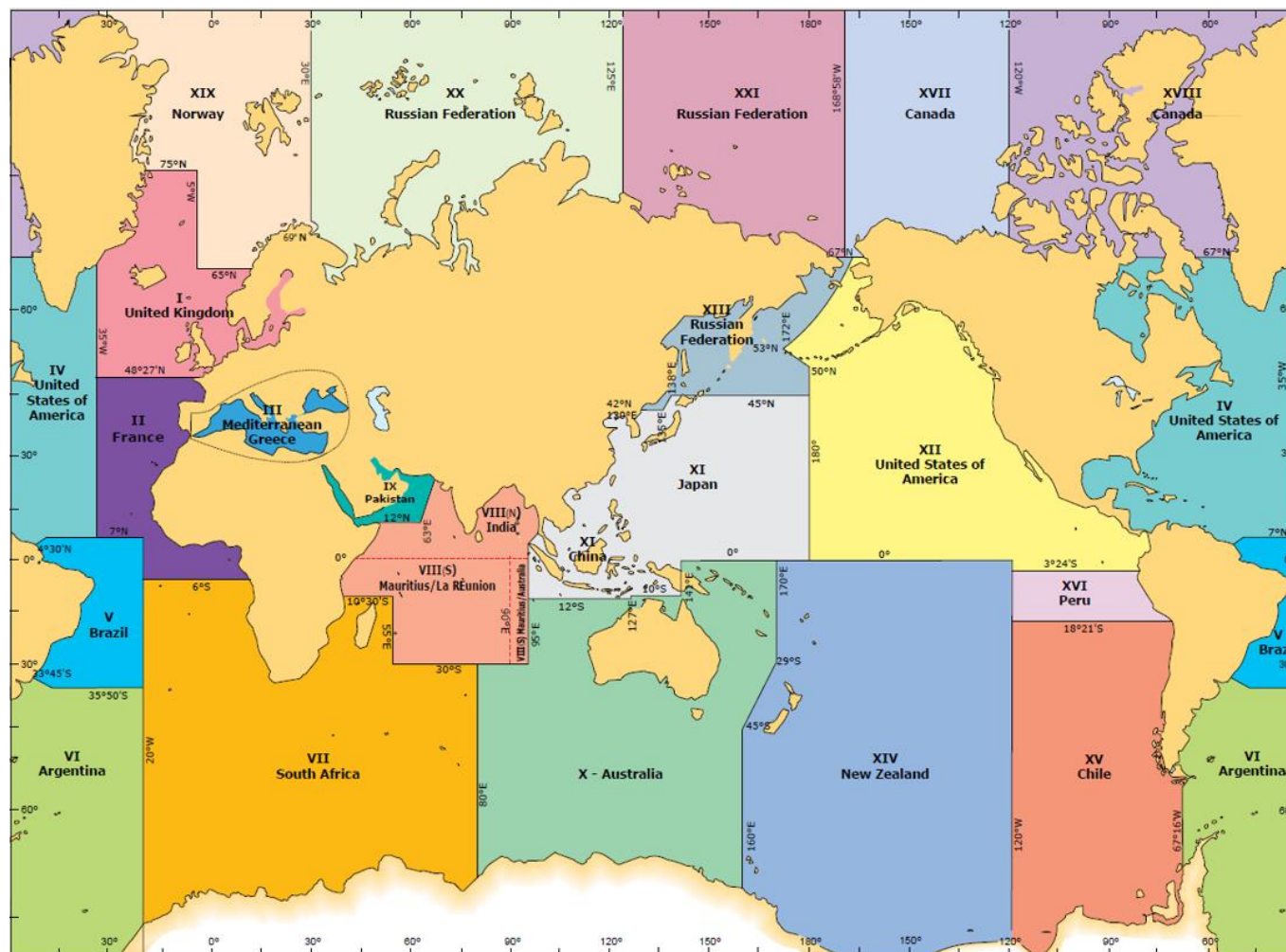


Figure 3 – Geographical areas for coordinating and promulgating METAREA warnings and forecasts.

The delimitation of these METAREAs is not related to and should not prejudice the delimitations of any boundaries between States.

2.2.3 NAVAREA Limits:

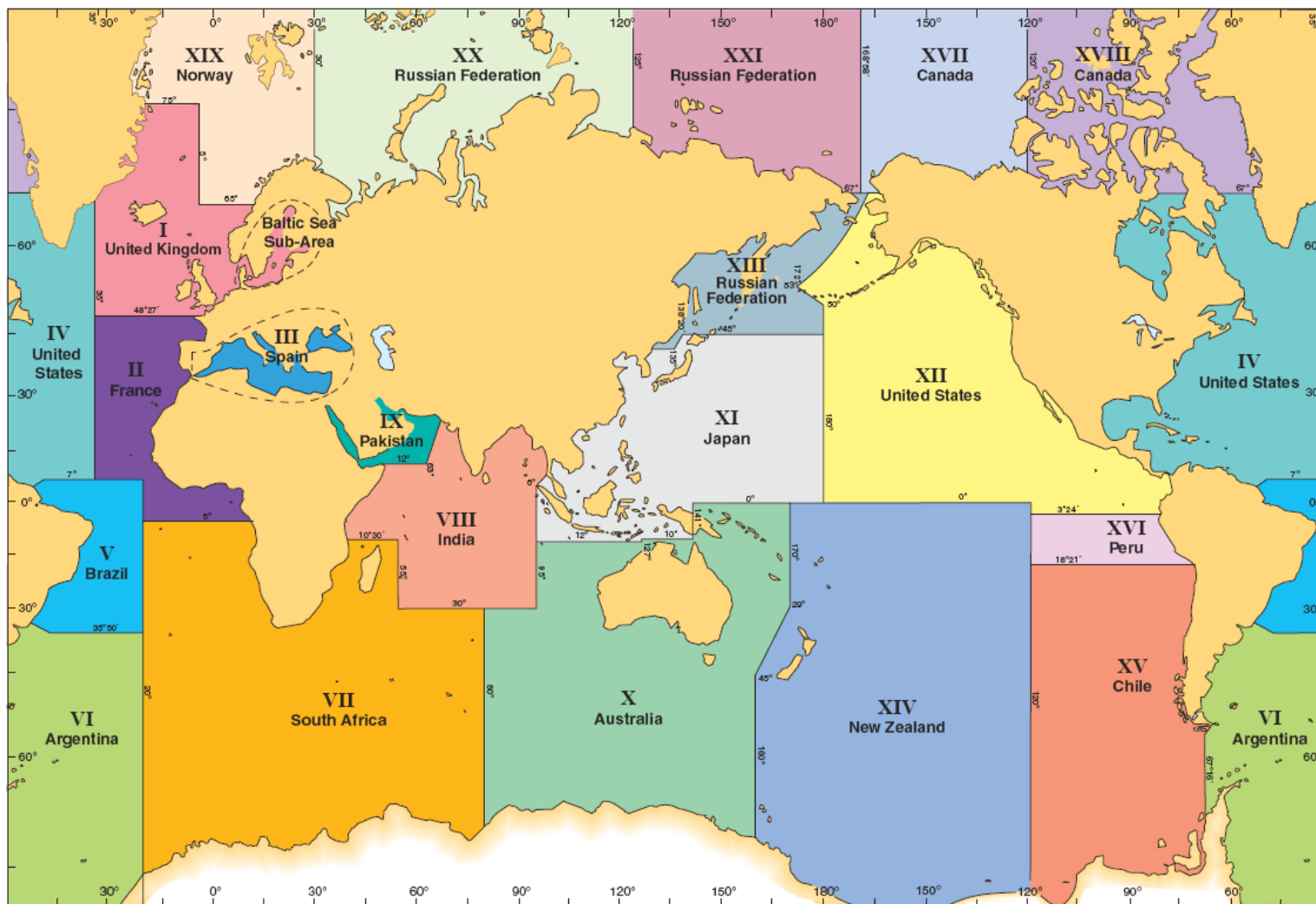


Figure 4 – Geographical areas for coordinating and promulgating NAVAREA warnings.

The delimitation of these NAVAREAs is not related to and should not prejudice the delimitations of any boundaries between States.

3 General features of the Iridium SafetyCast service

3.1 All navigable waters of the world are covered by satellites in the Iridium global satellite system. Reception of Iridium SafetyCast messages is normally not affected by the position of the ship, atmospheric conditions or time of day.

3.2 Area calls can be addressed to a fixed geographical area (NAVAREA/METAREA or coastal warning area) or to a user-defined area (circular or rectangular) selected by an information provider. Area calls or coastal warnings will be received automatically by any Iridium SafetyCast receiver within that area. Iridium SafetyCast receivers can be set up to receive additional fixed geographical areas.

3.3 The Iridium network enables the promulgation of MSI, SAR related information and other urgent safety related messages to ships. Messages are initiated via a secure, Web-based portal that Iridium will make available to registered information providers, or by such other means of access as may be agreed to. Using the portal, registered information providers will input the text of the message and specify the delivery characteristics for each message. The delivery characteristics that the registered information providers specify include message priority, geographical area, scheduling and cancellation of the broadcast, as applicable.

3.4 Each message is queued at a server in the Iridium Safety Gateway and scheduled for broadcast. When queued for broadcast, the message is routed to the appropriate teleport(s) for delivery to the satellite(s). The message is then routed from the teleport to one, or more, satellite(s) depending on the geographical area for broadcast. The satellite then utilizes an L-band channel to transmit the message to Iridium SESs. A flow diagram for shore-to-ship promulgation of Iridium SafetyCast messages is provided in figures 1 and 2 above.

3.5 Specific geographical sea areas are defined for each NAVAREA/METAREA (see figures 3 and 4), and for coastal areas. These are defined by a set of coordinates which provides the boundary of the delivery area.

3.6 The revised Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI) provides that a NAVAREA Coordinator should have access to broadcast systems for transmission to the navigable waters of the NAVAREA and that reception should normally be possible at least 300 nautical miles beyond the limit of the NAVAREA (see also resolutions MSC.469(101) on *Amendments to World-Wide Navigational Warning Service (resolution A.706(17), as amended)* and MSC.470(101) on *Amendments to World-Wide Met-Ocean Information and Warning Service (resolution A.1051(27), as amended)*).

3.7 The IMO *Performance standards for a ship earth station for use in the GMDSS* (resolution MSC.434(98)) require that facilities should be provided for SESs to receive MSI for the NAVAREA/METAREA and the coastal warning areas and different classes of messages where the ship is sailing and 300 nautical miles beyond the limits of the NAVAREA/METAREA. Therefore, the delivery area for each NAVAREA/METAREA extends from the boundary of each of the areas to 300 nautical miles beyond the line of demarcation with an adjacent NAVAREA/METAREA. This permits an SES outside of a NAVAREA/METAREA to receive a message in that adjacent NAVAREA/METAREA if the SES is within 300 nautical miles of that NAVAREA/METAREA boundary.

3.8 Aboard the ship, the Iridium SES should be interconnected to a message display and alarm panel that will perform the proper filtering, recording, alerting and display of messages. Additionally, an SES may have a keyboard and a printer. The SES will receive the message and then transfer the message content, along with the message priority, to the other components of the GMDSS system on board the ship. The SES shall be designed according to IMO performance standards for such equipment.

3.9 The IMO Performance standards for a SES for use in the GMDSS also require that if a dedicated display device or a connection to a navigation system is used, it should meet the general requirements of the Organization for such devices and the capability of showing at least 16 lines by 40 characters, with a non-volatile memory of at least 255 messages of 1,023 characters.

4 Planning of new Iridium SafetyCast service

4.1 Authorities wishing to become officially registered information providers of MSI and SAR related information to ships at sea via the Iridium SafetyCast service should contact IMO via the IMO EGC Coordinating Panel at an early stage for advice. The plans of any prospective registered information providers should be coordinated with IMO, IHO and WMO and with other national authorities, before authorization to broadcast via Iridium SafetyCast service may be granted by IMO, in accordance with the procedures of the IMO EGC Coordinating Panel.

4.2 Once authorized and registered, information providers should contact Iridium in order to determine specific details for addressing messages, accessing the Iridium SafetyCast service, charges and payment for services and any other matters with respect to providing MSI and SAR related information to mariners.

4.3 The IMO EGC Coordinating Panel, in cooperation with IHO and WMO, undertakes the coordination of times for scheduled transmissions.

4.4 Mariners should be informed of the establishment of an Iridium SafetyCast service by the registered information provider through the inclusion of full details in Notices to Mariners and other nautical publications, and the IMO Master Plan of Shore-Based Facilities for the GMDSS, as maintained in the Global Integrated Shipping Information System (GISIS). In addition, full details of the service should be sent to the IMO EGC Coordinating Panel.

4.5 Questions concerning promulgation of MSI and SAR related information through the Iridium SafetyCast service can be addressed to the IMO EGC Coordinating Panel.

4.6 Questions concerning the operation of the Iridium SafetyCast service should be addressed to:

Maritime Safety Services
Iridium Satellite LLC
1750 Tysons Boulevard, Suite 1400
McLean, VA
22102 USA

Email address: maritime.safety@iridium.com

5 Changes to existing Iridium SafetyCast service

5.1 Registered information providers wishing to change their existing service should follow the same coordination procedures as for a new service, in accordance with the procedures of the IMO EGC Coordinating Panel.

5.2 Mariners should be informed of the changes to an existing service by the information provider through the inclusion of full details in Notices to Mariners and other nautical publications and the IMO Master Plan of shore-based facilities for the GMDSS. In addition, full details of the service should be sent to the IMO EGC Coordinating Panel.

6 Operation of the Iridium SafetyCast service

6.1 To be more geographically relevant, some form of selectivity in receiving and printing the various messages is required. All ships within the geographically defined area of the broadcast will receive area calls; however, they will only be displayed and printed by those receivers that recognize both:

- .1 the fixed geographical area (NAVAREA/METAREA), user-defined area as appropriate; and
- .2 for coastal warnings, the coastal warning area and the subject indicator for the message.

6.2 The message includes a preamble which enables the SES to display and print only those messages which relate to its present position, to the intended route, or to the aforementioned areas as programmed by the operator.

6.3 For messages for coastal warning areas, the registered information provider must ensure the preamble includes the identifier allocated for the particular area, along with the appropriate subject indicator (see section 11.3). The SES can be set to reject messages concerning certain optional subjects which may not be required by the ship. The SES also uses the subject indicator to identify coastal warnings which, because of their importance, may NOT be rejected.

6.4 Reception of certain types of messages, such as shore-to-ship distress alert relays, SAR related information, meteorological warnings and forecasts and navigational warnings, addressed to a geographical area within which the SES is located, is mandatory and cannot be suppressed by ships in the affected area.

6.5 When a message has been received error-free, a record is made of the message identification (the unique sequence number, the unique identifier and the service code) associated with that message. The unique sequence number is used to suppress the display and printing of repeated transmissions of the same message.

6.6 The Iridium SafetyCast service allows several input parameters to support MSI and SAR related information transmissions:

- .1 fixed geographical area (NAVAREA/METAREA) or user defined area/areas;
- .2 message priority (Distress, Urgency, Safety and Routine);
- .3 delivery method (immediate or scheduled); and
- .4 repeat (number of instances).

6.7 Messages can be addressed to user-defined areas, which may be circular or rectangular in shape (see figure 5a). A circular area is described by latitude and longitude of the centre in degrees and radius of the circle in nautical miles. A rectangular area is described by latitude and longitude of the south-west corner in degrees and extension in degrees to the north and east of the rectangle. Messages may also be addressed to a coastal warning area. Each satellite has a footprint of approximately 4,500 km (approximately 2,500 nautical miles) diameter and comprises 48 spot beams of approximately 400 km (approximately 220 nautical miles) diameter (see figure 5b). Each beam within a footprint overlaps, as do the beams from adjacent satellites. The Iridium system dynamically uses the most appropriate combination of beams and satellites for the delivery area required.

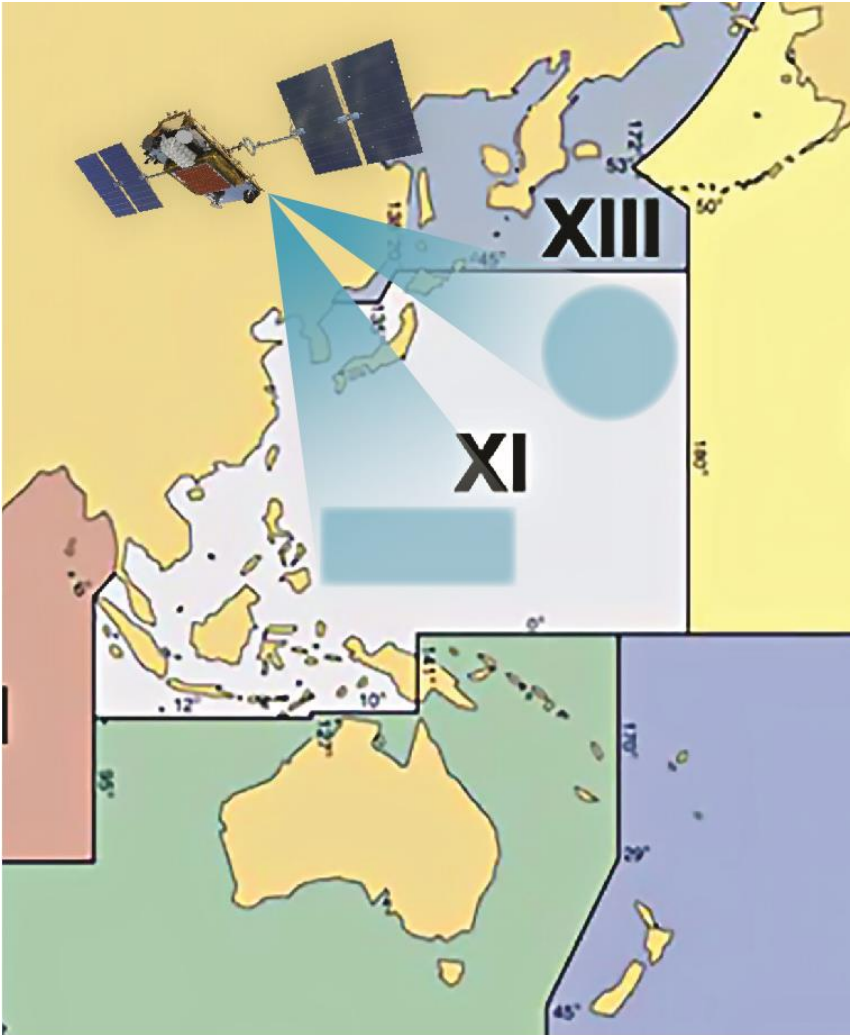


Figure 5a – Examples of message addressing to circular and rectangular areas

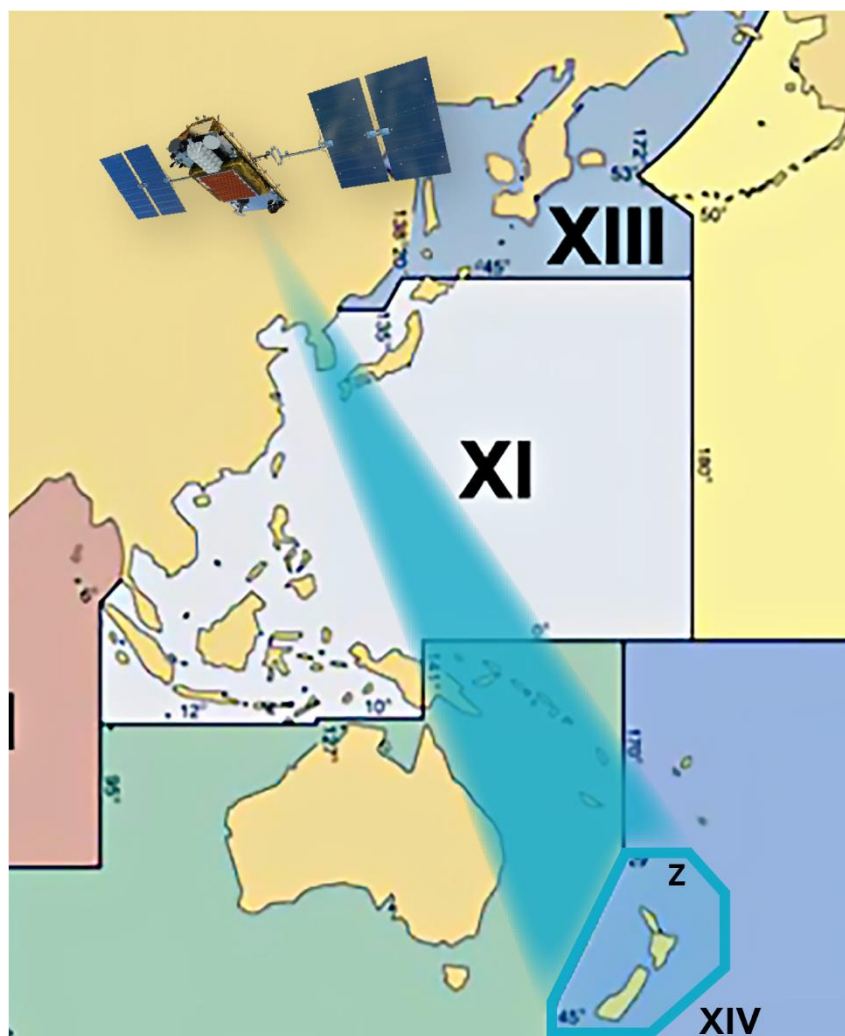


Figure 5b – Example of message addressing to a coastal area

6.8 In the case of a ship in distress, it is often appropriate to create a circular user-defined area, defined by the position of the casualty and a radius around the casualty to alert ships that may be able to render assistance. If no response is received from any ship at the first call, the area can be expanded in steps until an acknowledgement by one or more ships is received. In cases where the position of the distress is unknown, broadcasts to a rectangular area may be more appropriate (as described in paragraph 6.7 above), or a shore-to-ship distress alert relay can be transmitted to all ships, in a user-defined sea area. SAR related information should only be addressed to circular or to rectangular user-defined areas.

7 Promulgation of MSI or SAR related Information

7.1 MSI or SAR related information is promulgated by registered information providers whose Certificates of Authorization to promulgate via the Iridium EGC service are issued by IMO in accordance with the procedures of the IMO Enhanced Group Call Coordinating Panel. Registered information providers include, for example:

- .1 NAVAREA Coordinators: for navigational warnings and other urgent safety-related information;

- .2 National Coordinators: for coastal warnings and other urgent safety-related information;
- .3 METAREA Coordinators: for meteorological warnings and forecasts; and
- .4 Rescue Coordination Centres: for shore-to-ship distress alert relays, SAR related information and other urgent safety-related information.

7.2 All NAVAREA, Sub-Area and coastal warnings and METAREA warnings and forecasts should be promulgated only in English in the Iridium SafetyCast service in accordance with resolutions A.706(17), as amended, and A.1051(27), as amended. In addition to the required broadcasts in English, NAVAREA/METAREA, Sub-Area and coastal warnings may be broadcast in a national language using a national Iridium SafetyCast service.

7.3 Registered information providers should take into account the need for contingency planning.

7.4 Scheduled transmissions are made at specified times, as allocated by the IMO EGC Coordinating Panel. These schedules are published in nautical publications and the IMO Master Plan of Shore-Based facilities for the GMDSS.

7.5 MSI providers should adhere to their published scheduled broadcast times to facilitate reception of messages.

8 Message formatting and C codes

8.1 The Iridium SafetyCast service does not require registered information providers to manually enter transmission instructions using C codes, although some registered information providers may have an operational requirement to use these. For those users who have a continuing operational requirement to use C codes, appendix 2, part 2 of this manual is provided.

8.2 There are several methods for registered information providers to gain access to the Iridium SafetyCast service, and these are described in section 10 and appendix 2.

9 Monitoring of MSI and SAR related broadcasts⁷

9.1 In order to ensure the integrity of the MSI and SAR related messages being broadcast, registered information providers should monitor the broadcasts which they originate in accordance with resolutions A.706(17), as amended, and A.1051(27), as amended, and COMSAR/Circ.37/Rev.1. Monitoring is especially important in a highly automated service, which is dependent on careful adherence to procedure and format. This should be accomplished by a type-approved Iridium EGC receiver or by other appropriate means to enable each registered information provider to:

- .1 confirm that the message is transmitted and received correctly;
- .2 ensure that cancellation messages are properly executed; and
- .3 observe any unexplained delay in the message being broadcast.

⁷ Monitoring of MSI and SAR related broadcast in a multi provider environment is currently under discussion within the relevant IMO, IHO, WMO MSI and SAR bodies.

9.2 The SES maintains a Log, which contains information on all messages received by the terminal (see figure 6). This information within the Log includes:

Message number	Generated by the terminal
Originator	ID of the registered information provider which transmits the message.
Service	The SES displays a short title for the particular type message service.
Priority	The SES displays the appropriate Priority. This could be: Distress, Urgency, Safety or Routine.
Received date and time	The date time group YY-MM-DD HH:mm of when the message was received. A format of the date is configurable by the SES operator.
Size	Usually in number of bytes or characters.
Sequence number	The unique message sequence or reference number allocated to the message by the Iridium Safety Gateway.
Routeing	Message routeing (memory or memory and printer) – set up by the SES operator or a mandatory routeing for Urgency and Distress priority messages.

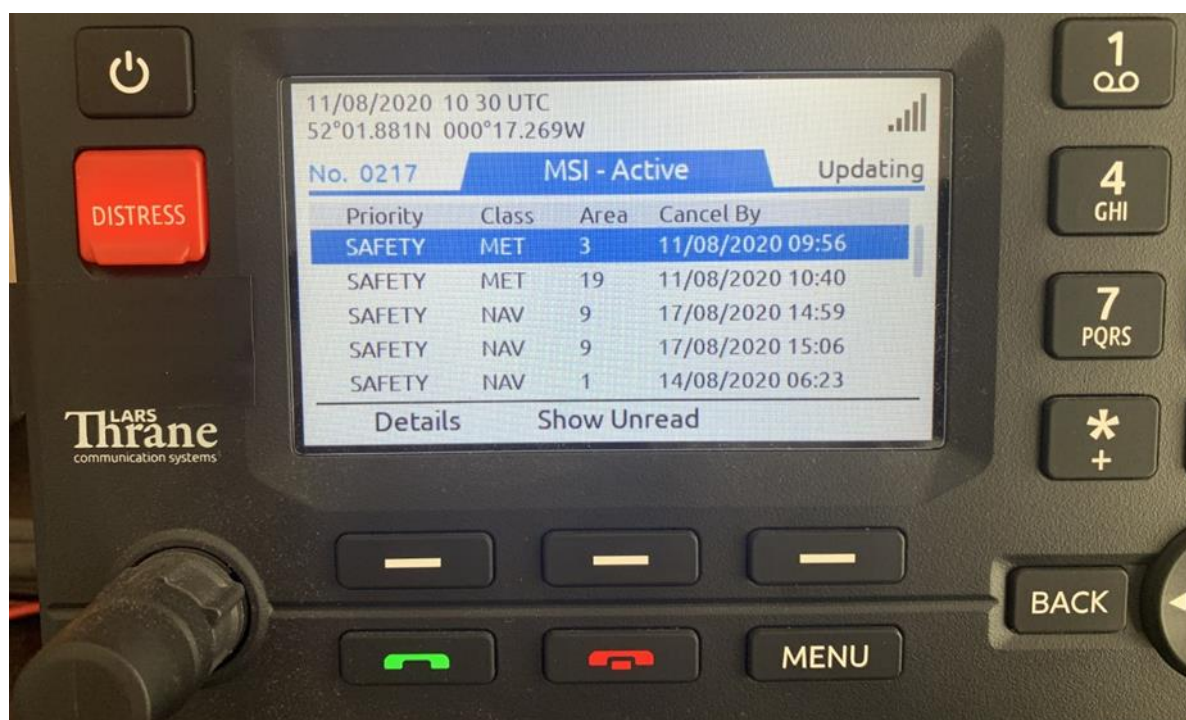


Figure 6 – Example of an Iridium SES Log Display

10 Accessing the Iridium SafetyCast service

10.1 MSI or SAR related information is promulgated by registered information providers whose Certificates of Authorization to promulgate via the Iridium SafetyCast service are issued by IMO in accordance with the procedures of the IMO EGC Coordinating Panel.

10.2 Messages may be initiated via a secure, Web-based portal that Iridium will make available to registered information providers. Using the portal, registered information providers will input the text of the message and specify the delivery characteristics for each message. The delivery characteristics that the registered information providers specify include message priority, geographic region for broadcast, frequency of broadcast and cancellation of broadcast. Messages can also be manually cancelled.

10.3 Registered information providers may also elect to have a direct connection to the Iridium gateway using alternative means. Utilizing this interface, the message priority, delivery area, frequency of broadcast and cancellation of broadcast are specified by the message originator when the message is sent to the Iridium Safety Gateway for delivery.

11 Receiving transmission

11.1 When a message has been received, a record is made of the message identification associated with that message. The unique sequence number is used to suppress the display and printing of repeated transmissions of the same message. The Iridium SafetyCast system tracks the transmission and receipt of MSI broadcasts for each ship in the targeted area. The Iridium SafetyCast system filters messages that have already been received by the Iridium SESs in the area targeted by the registered information provider.

11.2 It is not possible to reject mandatory "all ship" messages such as shore-to-ship distress alert relays for the area within which the ship is located. When a distress or urgency message is received, an audio and visual alarm will be given.

11.3 The following subject indicators for coastal warnings are in use:⁸

- A = Navigational warnings
- B = Meteorological warnings
- C = Ice reports
- D = Search and rescue related information and acts of piracy warnings
- E = Meteorological forecasts
- F = Pilot service messages
- G = AIS
- H = Not used
- I = Not used
- J = SATNAV messages
- K = Other navaid messages
- L = Other navigational warnings – additional to subject code A
- V = Special services allocation by the IMO EGC Coordinating Panel
- W = Special services allocation by the IMO EGC Coordinating Panel
- X = Special services allocation by the IMO EGC Coordinating Panel
- Y = Special services allocation by the IMO EGC Coordinating Panel
- Z = No messages on hand

⁸ Subject indicators A, B and D cannot be rejected by the receiver.

11.4 It is recommended that, in order to ensure that all necessary MSI is available before sailing, the SES should remain in operation while the ship is in port. When the SES is switched on and logged onto the Iridium SafetyCast system it will automatically receive in-force messages.

11.5 Although reception of MSI and SAR related information is automatic, the shipboard operator must set up the SES properly before the start of the voyage, in accordance with the manufacturer's instructions.

11.6 The position information in an SES is updated automatically from integrated navigational receivers and these are fitted on all SESs, or may be updated from a separate electronic position-fixing system.

12 Charges for MSI services

12.1 Resolution A.707(17) on *Charges for distress, urgency and safety messages through the Inmarsat system* establishes the arrangements in place for the treatment of charges. Resolution A.1001(25) on *Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)* requires that prospective satellite systems operating in the GMDSS undertake to apply the principles of resolution A.707(17), and Iridium has given such an undertaking.

12.2 There are no charges to the mariner for reception of these messages.

12.3 Message transmission charges apply to MSI providers and are set at a special tariff.

APPENDIX 1

THE IRIDIUM GLOBAL MOBILE-SATELLITE SYSTEM

1 Introduction

1.1 Iridium Satellite LLC owns and operates a Global Mobile Personal Communications by Satellite (GMPCS) system providing fully global digital communications. The major components of the Iridium mobile-satellite system are:

- .1 the space segment, consisting of 66 operational satellites and additional in-orbit spare satellites;
- .2 the ground segment, consisting of satellite teleports ("teleports") for the transfer of voice and data communications between the gateways and the satellite constellation, and gateways which provide connection to terrestrial voice and data networks; and
- .3 mobile earth stations (MES), which consist of a satellite modem, which is incorporated into a commercial product, and an externally installed antenna. This may also be referred to as a Ship Earth Station (SES).

1.2 The satellite constellation provides the communication links between the MES and the teleport(s), which are interconnected to the gateways. The gateways serve as the switching centre, routing all communications into and from terrestrial networks, such as the Public Switched Telephone Network (PSTN). The gateway also locates, identifies and tracks subscribers for mobility management, and records user activity for billing purposes.

1.3 These components are illustrated in figure 7 below.

IRIDIUM GATEWAY & GROUND STATION LOCATIONS

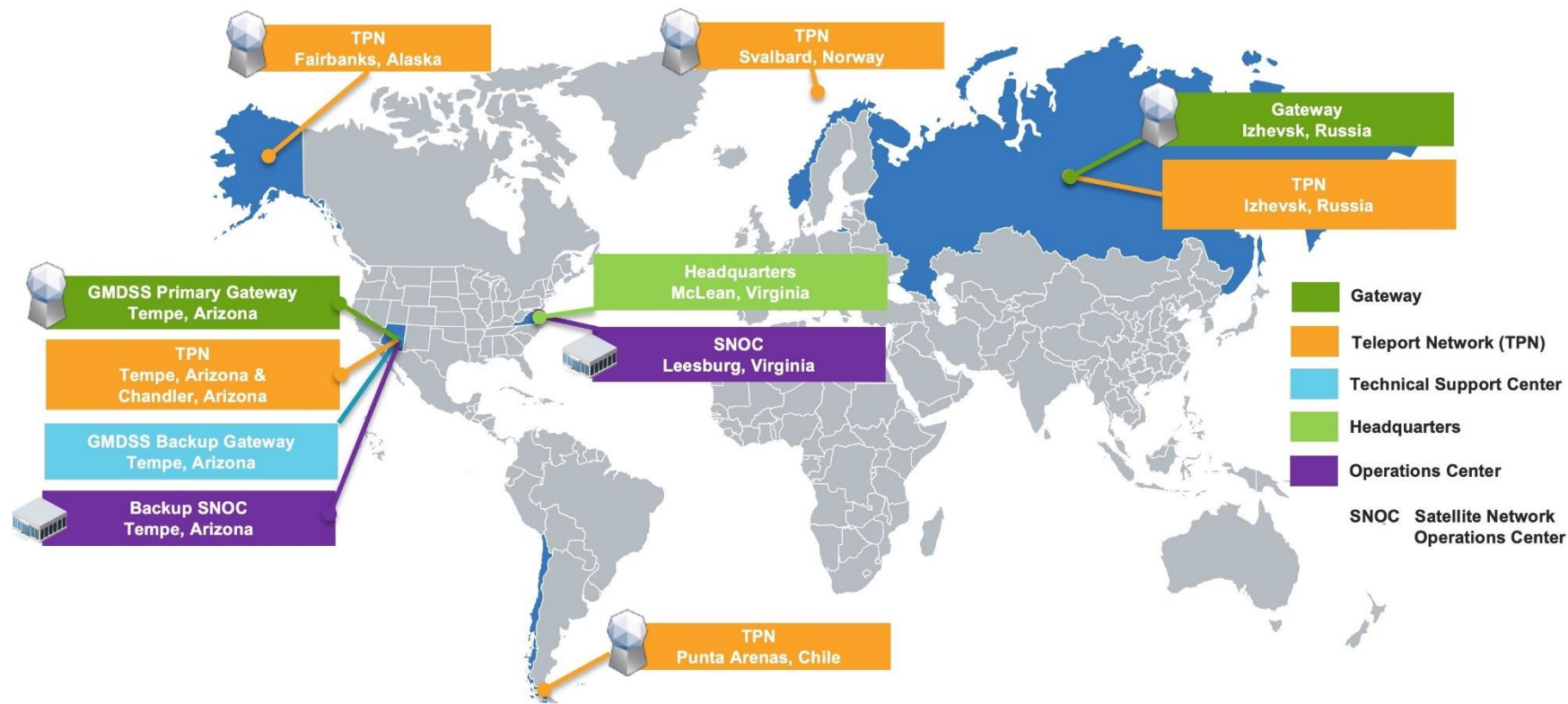


Figure 7 – The Iridium global satellite system, network overview

2 The space segment

2.1 The constellation of 66 operational Low Earth Orbit (LEO) satellites enables MES-to-MES, MES-to-gateway and gateway-to-MES communications. The 66 satellites are evenly distributed in six orbital planes with a polar (86.4 degree) inclination, with on-orbit spare satellites. The satellites orbit the Earth at an altitude of 780 km and take approximately 100 minutes to complete one orbit.



Figure 8 – Iridium constellation

2.2 The satellites support three types of communication links – satellite-to-satellite, satellite-to-teleport and satellite-to-MES. Each satellite communicates with the satellite immediately ahead and behind in its orbital plane (north/south) and to the nearest satellite in each of the two adjacent orbital planes (east/west) using a K-band link. The Iridium system is the first mobile-satellite system employing this cross-linked satellite architecture. As a result, an MES is not required to be within the same satellite footprint as a gateway in order to gain access to the network.

2.3 The satellite-to-MES link uses an L-band antenna system. This projects 48 spot beams, or cells, on the Earth, with each beam being approximately 400 km (approximately 250 miles, or 220 nautical miles) in diameter. Each satellite antenna has a "footprint" with a diameter of approximately 4,500 km (approximately 2,800 miles or 2,500 nautical miles). Adjacent satellite footprints overlap on the Earth's surface, enabling seamless global coverage from pole to pole. The overlapping coverage provided by the cross-linked satellites operates as a fully meshed network.

2.4 About once every minute, the coverage for a MES is provided by a different beam on the same satellite. About once every six minutes, the coverage transitions to a beam on an adjacent satellite. Special processing called a "handoff" ensures that communication sessions are maintained.

3 The ground segment

3.1 The Satellite Network Operations Center (SNOC) manages the satellite constellation and provides network management over the entire Iridium system. The SNOC communicates with the satellites through Telemetry, Tracking and Control (TTAC) facilities. In addition to controlling communications between the SNOC and the satellites, the TTAC sites track the Iridium satellites and receive telemetry data from them.

3.2 Iridium currently operates teleports at geographically diverse locations around the globe, as part of the commercial network (refer to figure 7). The teleports use a Ka-band link to interconnect the satellite constellation with the Iridium gateways for the transfer of communications to and from Iridium user terminals.

3.3 Operating as a switching centre, the primary gateway provides the connection between the Iridium network and terrestrial-based networks. Additional gateways may be added where appropriate, to enhance overall system reliability and capacity. Each gateway controls system access, call set up, mobility management, billing, tracking and maintaining all information pertaining to MESSs, such as user identity and geo-location.

3.4 Each message is queued at a server in the Iridium Safety Gateway and scheduled for broadcast. When queued for broadcast, the message is routed to the appropriate teleport(s) for broadcast to the satellite(s). The message is then routed from the teleport to one or more satellite(s) depending on the geographic region for broadcast.

4 Coverage area

4.1 The Iridium network provides fully global service coverage. All communication services are provided for MESSs independent of geographic location. Communications are provided by a constellation of LEO satellites with overlapping coverage areas, providing global coverage.

5 Iridium network functional capabilities

5.1 The Iridium network permits ship-to-shore, shore-to-ship and ship-to-ship communications. It provides four levels of prioritization for all communications and performs pre-emption of lower priority communications, if necessary.

5.2 Only registered information providers will be allowed to input messages for broadcast. Approval and registration of these entities is performed by the IMO EGC Coordinating Panel by the procedure described in MSC.1/Circ.1635. During the approval and registration process, the means of access and the credentials needed by the authorized entity will be provided by the IMO EGC Coordinating Panel and Iridium. It is necessary to ensure that the prioritization of traffic is protected against inadvertent or malicious misuse. For example, access can be protected by requiring a two-stage access procedure using a password and PIN, and these could be combined into other functions where a registered information provider had existing alternative operational security measures in place. Registered information providers can input messages using email, a Web interface or other means of transmitting data over the Internet, a leased line or VPN, according to their operational requirements. One such method is a secure portal provided by Iridium, a development version of which has been made available for testing and is subject to further refinement. Operational guidance for the use of the portal is given in appendix 2, part 1, of this manual.

5.3 Transmission of safety-related information by ships to shore authorities is accomplished using the communication capabilities of the Iridium system. Calls may be initiated to relevant shore authorities (hydrographic offices, meteorological offices or other shore authorities) using the contact details available in national lists of radio signals publications and elsewhere.

6 Network availability and service restoration

6.1 The Iridium network provides all services globally and is in continuous operation. System performance for each of the services is continuously monitored worldwide through numerous mechanisms. If there is a service impairment, Iridium will issue an advisory notice to registered information providers within 10 minutes of the impairment being identified by operations staff, and provide regular updates until the impairment is corrected. The constellation architecture and operation does not permit a single satellite to cause an extended service interruption from the user's perspective. The nature of the satellite footprints as they orbit ensures that ships will still be able to transmit distress alerts and to receive MSI or SAR related information even in the event of a satellite failure.

6.2 The International Mobile Satellite Organization (IMSO) will provide annual reports to IMO on Iridium's performance of its GMDSS functions, including availability during the reporting period.

APPENDIX 2

OPERATIONAL GUIDANCE

Part 1 of this appendix contains operational guidance for the benefit of registered information providers who are responsible for preparing messages for broadcast using a secure online portal (with graphical user interface or GUI) for accessing the Iridium SafetyCast service.

Part 2 of this appendix contains operational guidance for the benefit of registered information providers who are responsible for preparing messages for broadcast using a direct connection method (SFTP or email) for accessing the Iridium SafetyCast service (see paragraph 8 onwards).

Operational guidance – Part 1

For those registered information providers who require it, Iridium provides a secure online portal (with graphical user interface or GUI) for accessing the Iridium SafetyCast service.

For those registered information providers who require it, for example those who use tailor-made operational management systems, or whose messages are generated by highly automated (machine-to-machine) processes, Iridium will also make available an application programming interface (API) to enable access to the Iridium SafetyCast service.

Credentials

1 Only registered information providers will have access to the Iridium SafetyCast service. Authorization and certification of registered information providers follow the procedures of the IMO EGC Coordinating Panel. These registered information providers will be provided with credentials for access to the Iridium SafetyCast service. These credentials will identify the registered information provider to the service and will also determine which types of messages the registered information provider can send.

Message type

- 2.1 METAREA Coordinators can generally only select meteorological message types.
- 2.2 NAVAREA Coordinators can generally only select navigational message types.
- 2.3 SAR authorities can generally only select SAR coordination traffic or urgency and safety traffic message types.

Message priority

- 3.1 METAREA and NAVAREA Coordinators can select either "Safety" or "Urgency". SAR authorities can select either "Safety", "Urgency" or "Distress", whichever is appropriate to the emergency phase of the situation. A distress alert relay will be "Distress".
- 3.2 Although the service permits "Routine" priority, this is unlikely to be an appropriate priority for use by registered information providers.

Message delivery address

- 4.1 Delivery addresses can be a predefined or a user-defined area.
- .1 Predefined addresses can include METAREA, NAVAREA, coastal warning area or another predefined area if required. These areas are created during the integration of the registered information provider with the Iridium SafetyCast service.
 - .2 User-defined areas are either circular or rectangular. These can be determined by the authority for a particular message.
- 4.2 When the message type is for delivery to a METAREA or NAVAREA, this will default to the area of the authority.
- 4.3 When the message type is for a coastal warning area or another predefined area, the authority selects that area from their particular list of predefined areas. The authority also selects the message subject.
- 4.4 When the message type is for delivery to a circular area, the authority defines that area with the latitude and longitude of its centre, and its radius in nautical miles.
- 4.5 When the message type is for delivery to a rectangular area, the authority defines that area with the latitude and longitude of its southwestern corner, and its extent north and east from that point, in degrees.

Scheduling, expiry and cancellation

- 5.1 The option "Immediate" should be selected for immediate transmissions.
- 5.2 The option "Scheduled" should be selected for transmissions in accordance with the broadcast schedule determined by the IMO EGC Coordinating Panel.
- 5.3 It is a feature of the Iridium SafetyCast service that it will continue to monitor and transmit messages to receiving terminals, ensuring all those terminals which should receive a message, indicate by reply that they have received it. This will continue until the message "expires" according to the expiry time and date set by the registered information provider, or until the registered information provider sends a message to cancel that previous message.
- 5.4 The relationship between the repetition code and expiry for messages in the SafetyCast system is described in the tables at the end of part 2 of appendix 2.
- 5.5 At the end of the expiry period, the system will stop automatically broadcasting a message to ships entering the area or activating their terminals within the area. It is also possible for a registered information provider to cancel the automatic broadcast of their messages before the end of the expiry period.
- 5.6 These procedures are shown in the illustrations of the Iridium SafetyCast graphical user interface shown below.

Iridium SafetyCast Services Message Entry Graphical User Interface

6.1 Registered information providers and other users of the Iridium SafetyCast Service Web interface will navigate to the launch page via "gmdss.iridium.com", shown in figure 9a below. Users will select the "Log In" button in the upper right corner and will be asked to enter their User ID and Password.

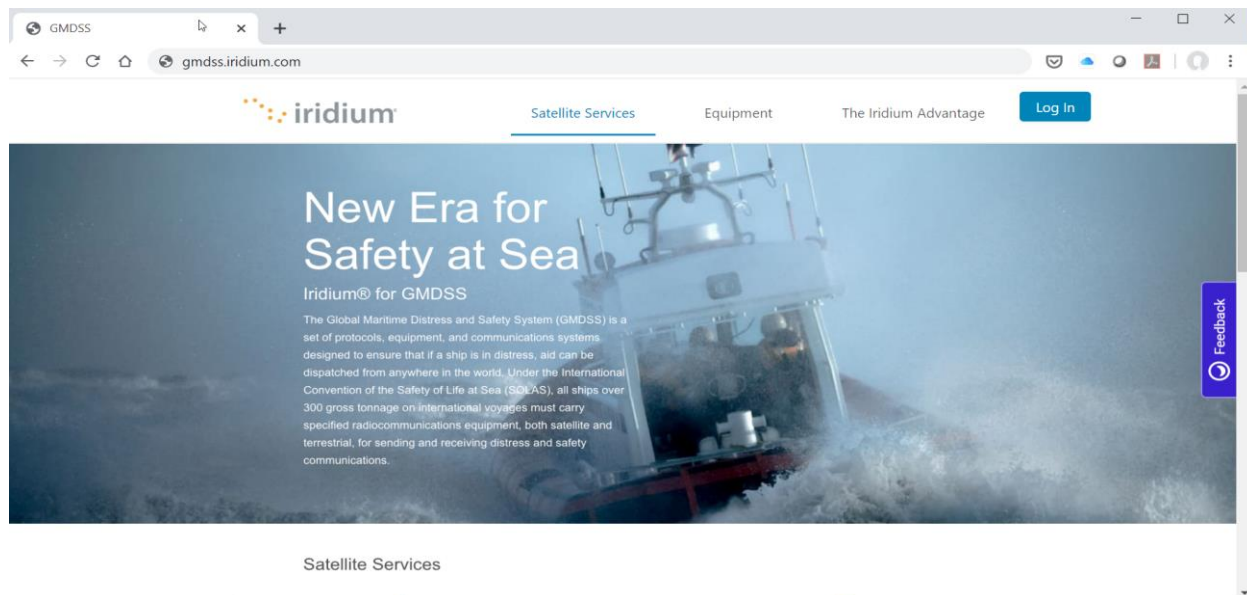


Figure 9a – Iridium GMDSS home page

6.2 Users will select the "Log In" button in the upper right corner and will be asked to enter their User ID and Password in a new pop-up window, as shown in figure 9b below.

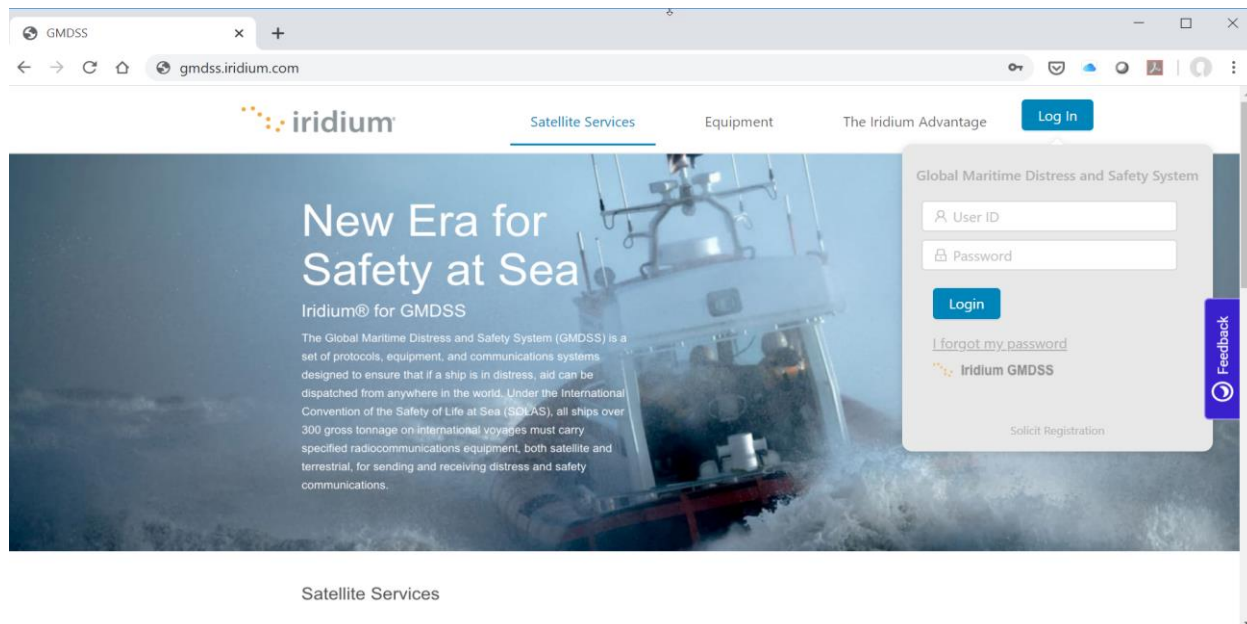


Figure 9b – Log In window

6.3 After authentication, the registered information provider will be brought to the "SafetyCast Messages" tab, shown in figure 9c below. This tab displays messages that have been sent, are scheduled to be sent in the future or have been cancelled.

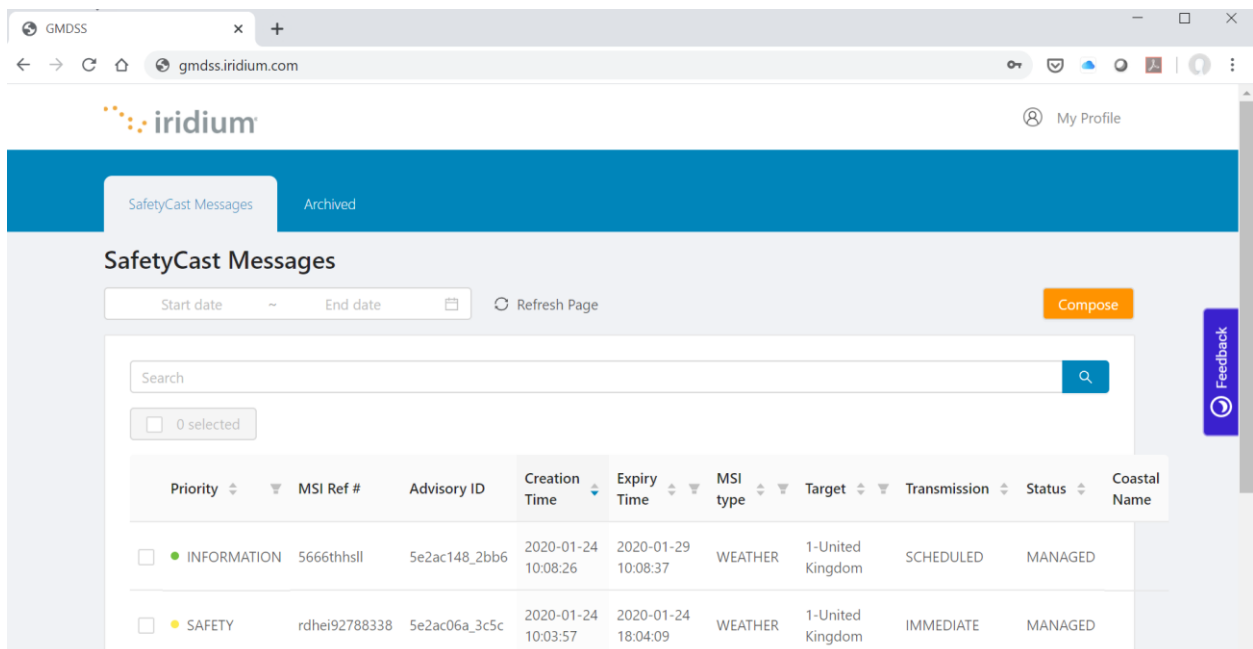


Figure 9c – SafetyCast Messages tab showing "Compose" button

6.4 When registered information providers need to transmit messages, they select "Compose" from the "SafetyCast Messages" tab shown in figure 9c above. This will trigger a "New Message" pop-up window, shown in figure 9d below. The registered information providers must complete the full set of fields in order for the "Send" button to become a selectable button.

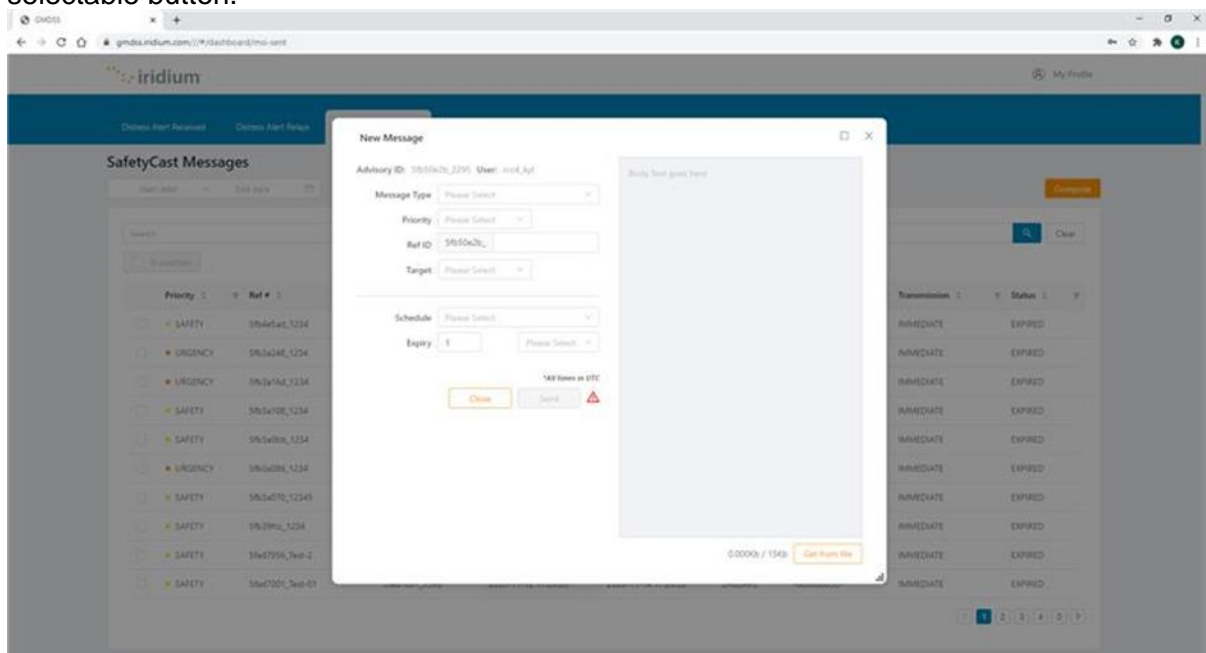


Figure 9d – New Message

6.5 Once the "Send" button is selected within the "New Message" window and the message has been accepted for transmission by the Iridium SafetyCast Service, a confirmation pop-up window will state "New Message Successful" as shown in figure 9e below.

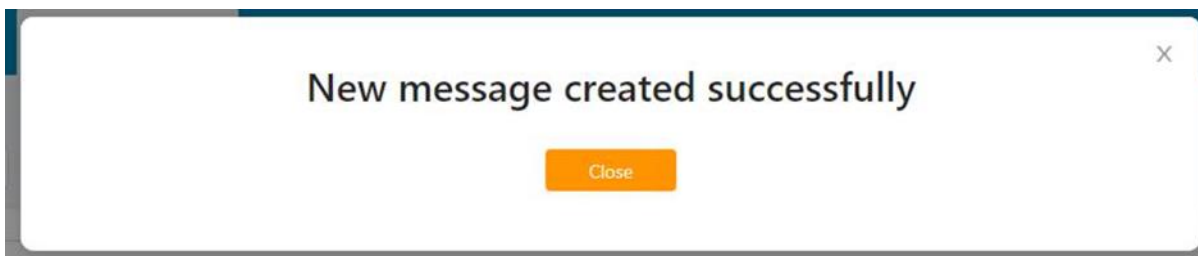


Figure 9e – New message confirmation notice

6.6 SafetyCast messages that have been sent and scheduled are then displayed on the "SafetyCast Messages" tab as shown in figure 9f below.

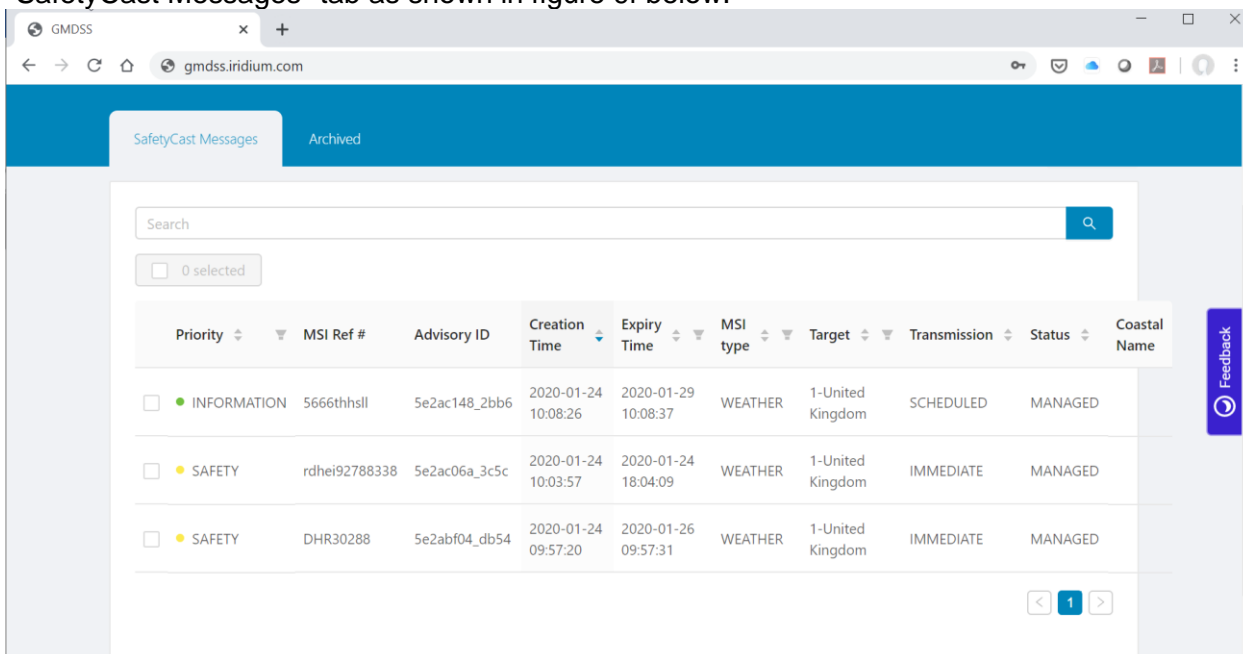


Figure 9f – SafetyCast Messages tab showing sent messages

6.7 Once a message has been submitted successfully by a registered information provider, the message details may be viewed by clicking anywhere on the summary line for that message within the "SafetyCast Messages" tab. The message details are shown in a pop-up as shown in figure 9g below.

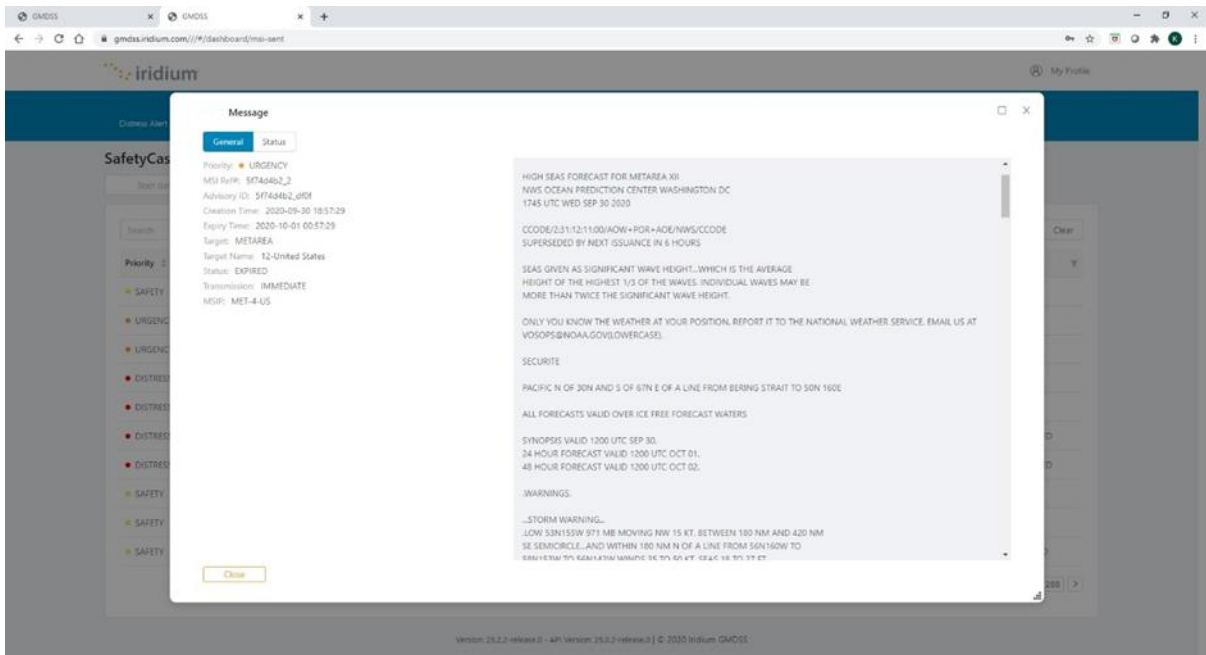


Figure 9g – Sample "Message Details" pop-up

6.8 Once a message has been sent via the satellite network, the status of the message can be viewed by selecting the "Status" button in the "Details" pop-up, as shown in figure 9h below.

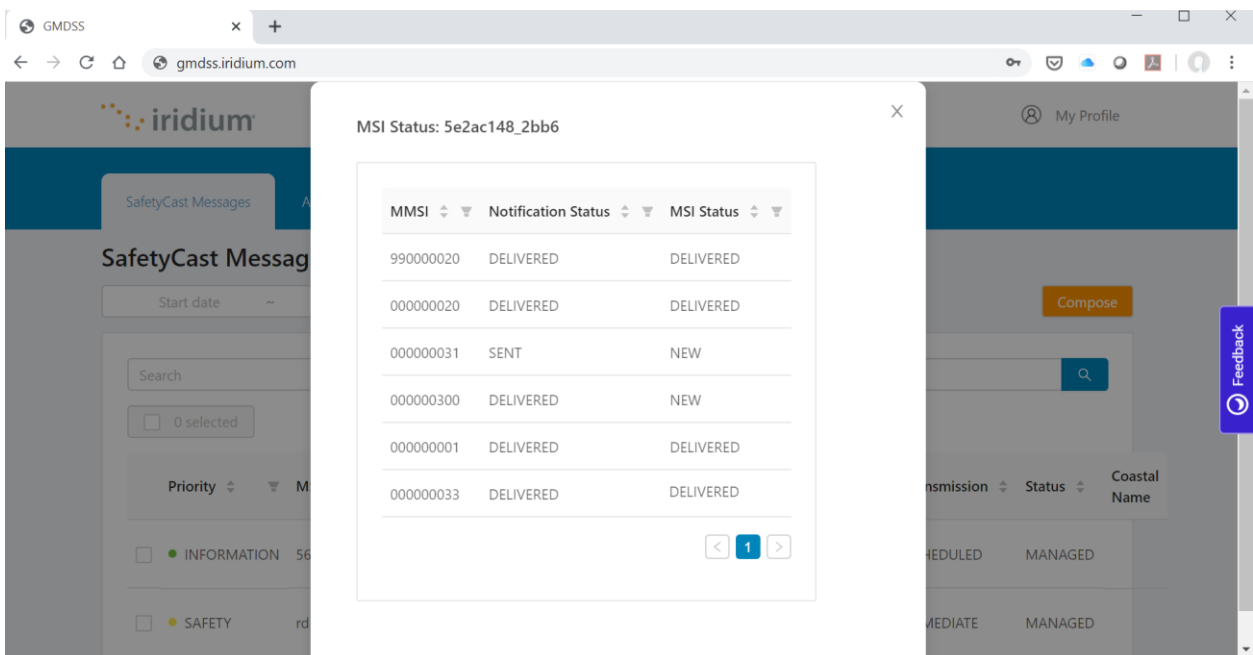


Figure 9h – Message status

6.9 SafetyCast messages may be archived to the "Archived" tab by selecting the message via the check box and selecting the "Archive" button that will appear on the "SafetyCast Messages" tab.

6.10 Messages that have been archived from the "SafetyCast Messages" tab are displayed on the "Archived" tab, as shown in figure 9i below.

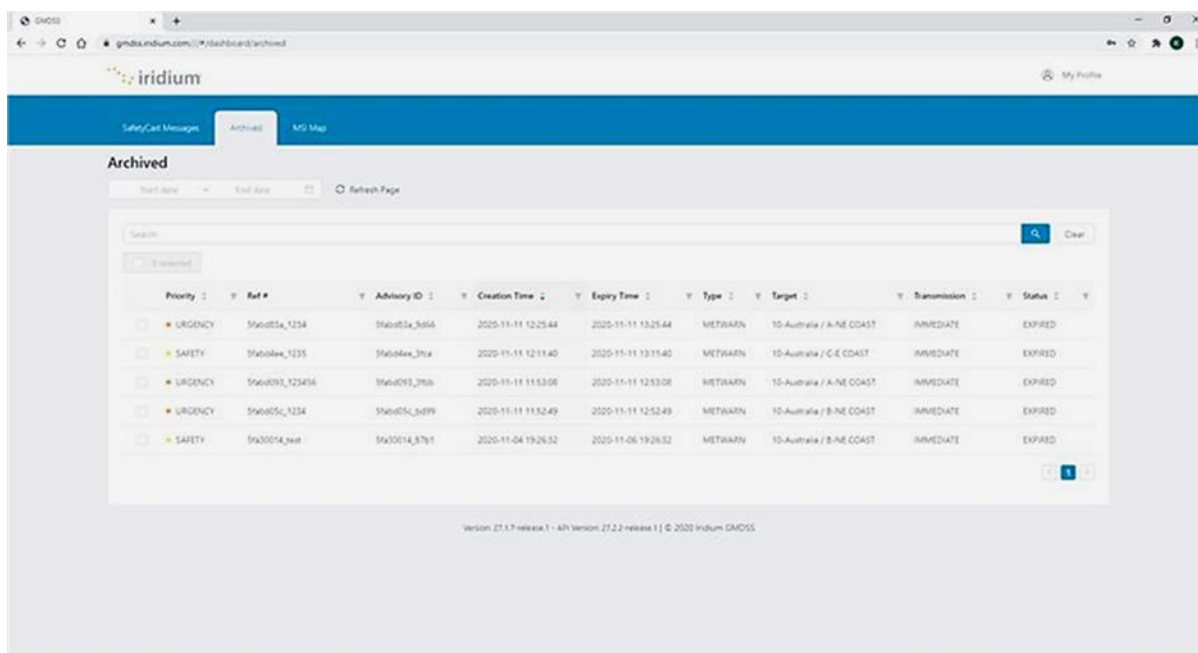


Figure 9i – Archived messages

6.11 Once a message has been archived that message moves to the "Archived" tab. To bring that message back to the "SafetyCast Messages" tab, the registered information provider checks the box next to the archived message and selects the "Restore" button that appears.

6.12 New messages may be addressed to a NAVAREA, METAREA or Coastal Warning Area or to a specific user-defined rectangular or circular area, as shown in figures 9j and 9k below.

The screenshot shows a 'New Message' dialog box. The 'Geography' dropdown is set to 'RECTANGULAR'. The 'SW Corner' section has 'Lat' set to 52.00 N and 'Long' set to 0.00 W. The 'Provide width and height of rectangle in degrees' section has 'Width' and 'Height' both set to 2. The 'Schedule' is 'IMMEDIATE' and 'Expiry' is 1 hour. The message content area on the right contains the text 'TEST MARITIME SAFETY INFORMATION BROADCAST'. At the bottom, there are 'Close' and 'Send' buttons, a status bar showing '0.042Kb / 154b', and a 'Get from file' button.

Figure 9j – Message addressed to a rectangular area

The screenshot shows the same 'New Message' dialog box, but with 'Geography' set to 'CIRCULAR'. The 'Center' section has 'Lat' set to 52.00 N and 'Long' set to 0.00 W. The 'Provide circle radius in NM' section has 'Radius' set to 50. The 'Schedule' is 'IMMEDIATE' and 'Expiry' is 1 hour. The message content area on the right contains the text 'TEST MARITIME SAFETY INFORMATION BROADCAST'. At the bottom, there are 'Close' and 'Send' buttons, a status bar showing '0.042Kb / 154b', and a 'Get from file' button.

Figure 9k – Message addressed to a circular area

Additional guidance

7.1 Additional guidance for METAREA Coordinators is contained in resolution A.1051(27), as amended, on *Worldwide Met-Ocean Information and Warning Service*.

7.2 Additional guidance for NAVAREA Coordinators is contained in resolution A.706(17), as amended, on *World-Wide Navigational Warning Service*.

7.3 Additional guidance for SAR Authorities is contained in *IAMSAR Manual, Volumes I and II*.

7.4 Additional guidance on piracy countermeasures is contained in the *Guidelines on operational procedures for the promulgation of maritime safety information concerning acts of piracy and piracy countermeasure operations* (resolution MSC.305(87)).

Operational guidance – Part 2

8 Part 2 contains operational guidance for using methods other than the Web interface for accessing the Iridium SafetyCast service. Further detail on the availability and format of those interfaces is available by contacting Iridium at the contact details in given in section 4 of this Manual.

Use of the codes given in this appendix is mandatory for all messages in the system.

9 Types of messages and message formats are detailed in the sub-parts of this appendix:

- Part A – Navigational warning service;
- Part B – Meteorological service;
- Part C – Search and Rescue (SAR) services and SAR coordination traffic;
- Part D – Piracy countermeasures broadcast messages; and
- Part E – Iridium SafetyCast interpretation of repetition codes (C₄).

Allocation of priority and services codes for EGC services		
Service	Message priority	Service code (type)
Navigational warning services	<p>C₁ = 1 (Safety) – normally</p> <p>C₁ = 2 (Urgency) – exceptionally at discretion of information provider</p>	<p>C₂ = 04 – Navigational warning to a rectangular area</p> <p>C₂ = 13 – Coastal warning to a coastal warning area</p> <p>C₂ = 24 – Navigational warning to a circular area</p> <p>C₂ = 31 – NAVAREA warning to a NAVAREA</p>
Meteorological services	<p>C₁ = 1 (Safety) – always for forecasts and warnings</p> <p>C₁ = 2 (Urgency) – always for Beaufort Force 12 and above warnings only</p>	<p>C₂ = 04 – Meteorological warning or forecast to a rectangular area</p> <p>C₂ = 13 – Meteorological warning or forecast to a coastal warning area</p> <p>C₂ = 24 – Meteorological warning or forecast to a circular area</p> <p>C₂ = 31 – Meteorological warning or meteorological forecast to a METAREA</p>

Allocation of priority and services codes for EGC services		
Service	Message priority	Service code (type)
SAR services: 1) Shore-to-ship distress alert relays ¹³	C ₁ = 3 (Distress) – always	C ₂ = 14 – Shore-to-ship distress alert relay to a circular area
2) SAR coordination traffic	C ₁ = 1 (Safety) – determined by the phase of emergency C ₁ = 2 (Urgency) – determined by the phase of emergency C ₁ = 3 (Distress) – determined by the phase of emergency	C ₂ = 34 – SAR coordination to a rectangular area C ₂ = 44 – SAR coordination to a circular area
3) Shore-to-ship urgency and safety traffic	C ₁ = 1 (Safety) C ₁ = 2 (Urgency)	C ₂ = 31 – Urgency and safety traffic
4) General (all ships call within the Inmarsat Ocean Region)	C ₁ = 2 (Urgency) C ₁ = 3 (Distress)	C ₂ = 00
Piracy countermeasures broadcast messages	C ₁ = 1 (Safety) C ₁ = 2 (Urgency) – for piracy attack warnings	C ₂ = 04 – Piracy warning to a rectangular area C ₂ = 13 – Piracy warning to a coastal warning area C ₂ = 24 – Piracy warning to a circular area C ₂ = 31 – Piracy warning to a NAVAREA

10 The broadcast parameters are controlled by the use of five (or six) C codes which are combined into a generalized message address header format, prescribed by Iridium.

- C₀ – Ocean Region
- C₁ – Message priority
- C₂ – Service code
- C₃ – Address code
- C₄ – Repetition code
- C₅ – Presentation code

Each C code controls a different broadcast parameter and is assigned a numerical value according to the options specified in the following parts.

¹³ The original text, in the International SafetyNET Manual, refers to "distress alerts". This should be "distress alert relays" and will be corrected in a future edition of the SafetyNET Manual.

The C₀ code is needed to maintain the structure of the protocol but is not used by the SafetyCast service, therefore any numeric from 0 to 9 can be entered.

- 11 All EGC messages should comprise of three elements:
- .1 address header instruction (EGC C codes);
 - .2 TEXT OF MESSAGE; and
 - .3 NNNN.

Mandatory message element table	
Message element	Remarks
Address header instruction	The syntax of the special address header in relation to the exact number of digits and/or alphanumeric characters, and to the spaces between each C code is critical, and must conform to the format required by the Iridium SafetyCast Service guides.
Message element	Remarks
TEXT OF MESSAGE	The content of the message should be presented in UPPER-case. For maritime safety information messages, the format of navigational warnings, and meteorological warnings and forecasts, is defined in the <i>Joint IMO/IHO/WMO Maritime Safety Information Manual</i> .
NNNN	The letters NNNN should be inserted at the end of the text to indicate "end of message".

12 IMO requires that, in order to allow the use of non-dedicated receive facilities, the majority of broadcasts on the International EGC Service are made at scheduled times. Broadcast schedules must be coordinated through the IMO EGC Coordinating Panel, which can also offer advice on ways of scheduling information within the system.

13 Because errors in the header format of a message may prevent it being released, MSI and SAR related information providers must monitor broadcasts of messages which they originate.

14 For all the services described below, a cancellation or deleting capability is provided through the GUI.

15 The Iridium SafetyCast system tracks the transmission and receipt of MSI broadcasts for each ship in the targeted area. C₄ codes are interpreted as described in part E, and users of the GUI need to set the expiry date and time. See also section 11.1 of this Manual and paragraphs 5.3 to 5.5 (Scheduling, expiry and cancellation) of appendix 2, part 1, above.

Appendix to appendix 2

Types of messages and message formats

Types of messages and message formats are detailed in the sub-parts of this appendix.

- Part A – Navigational warning services
- Part B – Meteorological services
- Part C – Search and Rescue (SAR) services
- Part D – Piracy countermeasures broadcast messages
- Part E – Iridium SafetyCast interpretation of repetition codes (C4)

Part A – Navigational warning services

1 The following guidelines set out the arrangements to be used for promulgating navigational and coastal warnings for the GMDSS. **They are mandatory for broadcasts in the International EGC Service. Broadcasts originated by the International Ice Patrol also follow the guidelines in this part.**

2 These guidelines are to be read in conjunction with the *IMO/IHO World-Wide Navigational Warning Service (WWNWS) guidance document* (set out in the annex to resolution A.706(17), as amended).

3 Navigational warnings that require an immediate broadcast should be transmitted as soon as possible after receipt. If still in force, they should be repeated in subsequent scheduled broadcasts, twice a day for six weeks or until cancelled.

4 Navigational warnings shall remain in force until cancelled by the originating Coordinator. Navigational warnings should be broadcast for as long as the information is valid; however, if they are readily available to mariners by other official means, for example in Notices to Mariners, then after a period of six weeks they may no longer be broadcast. If the navigational warning is still valid and not available by other means after six weeks, it should be reissued as a new navigational warning.

5 The following C codes shall be used for warnings issued under the auspices of the WWNWS.

5.1 C₁ – Message priority

- C₁ = 1 (safety)
- C₁ = 2 (urgency) (at discretion of the registered information provider)

5.2 C₂ – Service code¹⁴

- C₂ = 04 Navigational warning to a rectangular area
- C₂ = 13 Coastal warning to a coastal warning area
- C₂ = 24 Navigational warning to a circular area
- C₂ = 31 NAVAREA warning to a NAVAREA

¹⁴ C₂ = 04 may be used for NAVAREA warnings to a rectangular area by NAVAREAs XVII, XVIII, XIX, XX and XXI.

5.3 C₃ – Address code

<p>C₃ = two digits X₁X₂</p>	<p>When C₂ = 31, then:</p> <p>X₁X₂ are the two digits of the NAVAREA number (with a leading zero where necessary in the range 01 – 21).</p>
<p>C₃ = four alphanumeric characters X₁X₂B₁B₂</p>	<p>When C₂ = 13 for Coastal warnings, then:</p> <p>X₁X₂ are the two digits of the NAVAREA number (with a leading zero where necessary in the range 01 – 21)</p> <p>B₁ is the coastal warning area A to Z</p> <p>B₂ is the subject indicator and must always be A or L, where:</p> <p>A = Navigational warnings</p> <p>L = Other navigational warnings</p>
<p>C₃ = twelve alphanumeric characters D₁D₂LaD₃D₄D₅LoD₆D₇D₈D₉D₁₀</p>	<p>When C₂ = 04 for NAVAREA warnings within a rectangular area:</p> <p>D₁D₂ is latitude of south-west corner of the rectangle in degrees</p> <p>La is hemisphere which will always be N for Arctic NAVAREAs XVII to XXI</p> <p>D₃D₄D₅ is longitude of south-west corner of rectangle in degrees, with leading zeros if required</p> <p>Lo is longitude E or W</p> <p>D₆D₇ is extent of rectangle in latitude (degrees)</p> <p>D₈D₉D₁₀ is extent of rectangle in longitude (degrees)</p>
<p>Example: a rectangle whose south-west corner is 60°N and 010°W, extending 30° north and 25° east, is coded as: 60N010W30025</p> <p>Note: Latitude and longitude are limited by values from 00° to 90° latitude and 000° to 180° longitude.</p>	

5.4 C₄ – Repetition code

C ₄ = 01	May be used for initial unscheduled broadcast of NAVAREA warnings, and coastal warnings (transmit once on receipt, one hour expiry)
C ₄ = 11	Recommended for use with initial unscheduled broadcast of NAVAREA warnings, and coastal warnings (transmit on receipt, one hour expiry)
C ₄ = 16	Use for NAVAREA or coastal warnings scheduled for broadcast with safety priority (Message available until cancelled)
Note: For NAVAREA or coastal warnings scheduled for broadcast more than twice per day, the appropriate C ₄ repetition code detailed in part E of this Manual must be used.	

5.5 C₅ – Presentation code

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

Part B – Meteorological services

1 The following guidelines set out the arrangements to be used for promulgating meteorological forecasts and warnings for the GMDSS. **They are mandatory for broadcasts in the International EGC Service.**

2 These guidelines are to be read in conjunction with the *IMO/WMO Worldwide Met-ocean Information and Warning Service (WWMIWS) Guidance Document* (set out in the annex to resolution A.1051(27), as amended) and in conjunction with the WMO Manual on Marine Meteorological Services (WMO No.558).

3 In order to ensure uniformity of meteorological forecasts and warnings globally, the following C codes should be used for meteorological services via EGC.

3.1 C₁ – Message priority

C ₁ = 2 (urgency)	Only use for meteorological warnings with Beaufort force 12 or above
C ₁ = 1 (safety)	For forecasts and other meteorological warnings

3.2 C₂ – Service code¹⁵

C ₂ = 04	Meteorological warning or forecast to a rectangular area
C ₂ = 13	Meteorological warning or forecast to a coastal warning area
C ₂ = 24	Meteorological warning or forecast to a circular area
C ₂ = 31	Meteorological warning or forecast to a METAREA

¹⁵ C₂ = 04 may be used for METAREA warnings or meteorological forecasts to a rectangular area by METAREAs XVII, XVIII, XIX, XX and XXI.

3.3 C₃ – Address code

<p>C₃ = ten alphanumeric characters D₁D₂LaD₃D₄D₅LoR₁R₂R₃</p>	<p>When C₂ = 24 for meteorological warnings to user-defined circular area, then:</p> <p>D₁D₂La (three characters) is latitude of centre in degrees, and La whether north (N) or south (S). A leading zero should be used for latitudes less than 10°</p> <p>D₃D₄D₅Lo (four characters) is longitude of centre in degrees, and Lo whether east (E) or west (W) of the prime meridian. One or two leading zeros should be used for longitudes less than 100°</p> <p>R₁R₂R₃ (three characters) is radius of circle in nautical miles, up to 999. One or two leading zeros should be used for radius less than 100 nm</p>
<p>Example: A circle centred at latitude 26°S longitude 54°W with radius of 70 nautical miles is coded as: 26S054W070</p>	
<p>C₃ = two digits XX</p>	<p>When C₂ = 31, for meteorological warnings or forecasts to a METAREA then:</p> <p>C₃ = the two digits of the METAREA number (with a leading zero where necessary in the range 01 – 21)</p>
<p>C₃ = four alphanumeric characters X₁X₂B₁B₂</p>	<p>When C₂ = 13 for meteorological warnings or forecasts to available predefined coastal warning areas, then:</p> <p>X₁X₂ are the two digits of the METAREA number (with a leading zero where necessary in the range 01 – 21).</p> <p>B₁ is the coastal warning area A to Z</p> <p>B₂ is the subject indicator and must always be B or E, where:</p> <p>B = Meteorological warnings</p> <p>E = Meteorological forecasts</p>
<p>C₃ = twelve alphanumeric characters D₁D₂LaD₃D₄D₅LoD₆D₇D₈D₉D₁₀</p>	<p>When C₂ = 04 for meteorological warnings or forecasts within a rectangular area</p> <p>D₁D₂ is latitude of south-west corner of the rectangle in degrees La is hemisphere N or S. D₃D₄D₅ is longitude of south-west corner of rectangle in degrees, with leading zeros if required Lo is longitude E or W D₆D₇ is extent of rectangle in latitude (degrees) D₈D₉D₁₀ is extent of rectangle in longitude (degrees)</p>

Example: To cover Arctic METAREA XVIII, use a rectangle whose south-west corner is 67°N and 120°W, extending 23° north and 85° east, coded as: 67N120W23085
Note: Latitude and longitude are limited by values from 00° to 90° latitude and 000° to 180° longitude.

3.4 C₄ – Repetition code

Category (a) repetition codes are used for meteorological services as follows:	
C ₄ = 01	Use for meteorological forecast (transmit once on receipt, one hour expiry)
C ₄ = 11	Use for meteorological warning (transmit on receipt, one hour expiry)
C ₄ = 66	Owing to the update frequency of 12-hour intervals for meteorological forecasts and warnings, an expiry period of 12 hours may also be appropriate (transmit once on receipt, 12-hour expiry)

3.5 C₅ – Presentation code

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

Part C – Search and Rescue services

1 The following guidelines set out the arrangements to be used by Rescue Coordination Centres (RCCs) for initiating transmission of shore-to-ship distress alert relays and shore-to-ship SAR information. Transmissions should be in accordance with the relevant procedures of the International Telecommunication Union (ITU) Radio Regulations (RR), the International Convention on Maritime Search and Rescue, 1979 and the IAMSAR Manual.

2 In order to ensure uniformity of the SAR broadcast product throughout the world, C codes should be used as described in this part.

3 Shore-to-ship distress alert relays

3.1 As a general principle, distress alert relays should be addressed to a circular area around the estimated or known position of the distressed vessel. The radius of the circle should be chosen to take account of the accuracy of the datum position, the expected density of shipping in the vicinity and the fact that the position can only be defined in the message address to the nearest whole degree of latitude and longitude. The distress alert relay message is automatically broadcast via all satellites which cover the area concerned. Shore-to-ship distress alert relays sent through the International EGC Service should contain the identification of the unit in distress, its approximate position and other information which might facilitate rescue. C codes should be as follows:

3.2 C₁ – Message priority

C₁ = 3 (distress)

3.3 C₂ – Service code

C ₂ = 14 (shore-to-ship distress alert relay to circular areas)	Messages addressed to circular areas will only be received and printed out by EGC receivers that are located inside the circle
--	--

3.4 C₃ – Address code

C ₃ = ten alphanumeric characters D ₁ D ₂ LaD ₃ D ₄ D ₅ LoR ₁ R ₂ R ₃	<p>When C₂ = 14 for distress alert relay to user-defined circular area, then:</p> <p>D₁D₂La (three characters) is latitude of vessel in distress in degrees (two digits) and whether north (N) or south (S): e.g. 39N (three characters total). A leading zero should be included for latitudes less than 10°</p> <p>D₃D₄D₅Lo (four characters) is longitude of vessel in distress in degrees (three digits) and whether east (E) or west (W) of the prime meridian: e.g. 059W. A leading zero or zeros should be included for longitudes less than 100° or 10° as appropriate: e.g. use 099 for 99° and 008 for 8°</p> <p>R₁R₂R₃ (three characters) is alert relay radius around distressed vessel in nautical miles. To ensure that position inaccuracies of both the distressed vessel and nearby vessels to which the message is intended do not affect receipt of messages, radius values of 200 nautical miles or larger should normally be used.</p>
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3.5 C₄ – Repetition code

C ₄ = 11	Use for distress alert relays (transmit on receipt, one hour expiry)
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3.6 C₅ – Presentation code

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

4 General (all ships) call

4.1 When the RCC has no indication of the position of the vessel in distress, shore-to-ship distress alert relays may be sent as general call. This will be printed in every vessel within the Ocean Region.

Note: This method of alert relay should rarely be used.

The C₀:C₁:C₂:C₃:C₄:C₅ codes for general calls are always as follows:

- C₀ = 0 (1, 2 or 3) (if required)
- C₁ = 3 (distress) or 2 (urgency)
- C₂ = 00
- C₃ = 00
- C₄ = 11
- C₅ = 00

5 Search and Rescue coordination traffic

5.1 SAR coordination messages should be addressed to user-defined circular or rectangular areas for the intent of coordinating the search and rescue of a vessel in distress. Priority of the message will be determined by the phase of the emergency.

5.2 C₁ – Message priority

C₁ = 3 (distress), 2 (urgency) or 1 (safety)

5.3 C₂ – Service code

C ₂ = 34	Search and Rescue coordination to a rectangular area
C ₂ = 44	Search and Rescue coordination to a circular area

5.4 C₃ – Address code

C ₃ = twelve alphanumeric characters D ₁ D ₂ LaD ₃ D ₄ D ₅ LoD ₆ D ₇ D ₈ D ₉ D ₁₀	When C ₂ = 34 Search and Rescue coordination to a rectangular area Note: The definition of 12 characters for a rectangular address is given in part A, paragraph 5.3
C ₃ = ten alphanumeric characters D ₁ D ₂ LaD ₃ D ₄ D ₅ LoR ₁ R ₂ R ₃	When C ₂ = 44 Search and Rescue coordination to a circular area Note: The definition of 10 characters for a circular address is given in part B, paragraph 3.3

5.5 C₄ – Repetition code

C₄ = 11 Use for distress alert relays (transmit on receipt, one hour expiry)

5.6 C₅ – Presentation code

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

6 Shore-to-ship urgency and safety traffic

6.1 As a general principle, only the minimum information consistent with the safety of navigation should be broadcast. However, where such information is deemed essential, shore-to-ship information other than distress alert relays should be broadcast to a NAVAREA using C codes as follows:

6.2 C₁ – Message priority

C₁ = 2 (urgency) or 1 (safety)

6.3 **C₂ – Service code**

C₂ = 31

6.4 **C₃ – Address code**

C ₃ = two digits X ₁ X ₂	When C ₂ = 31, then: X ₁ X ₂ are the two digits of the NAVAREA number (with a leading zero where necessary in the range 01-21)
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6.5 **C₄ – Repetition code**

C ₄ = 11	Use for unscheduled broadcasts of urgency and safety traffic (transmit on receipt, one hour expiry)
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6.6 **C₅ – Presentation code**

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

7 SAR broadcast for overlapping satellite Ocean Regions

7.1 SAR distress and urgency broadcasts should be promulgated through all satellites serving the area surrounding the vessel in distress. This is to ensure that vessels with receivers tuned to any Ocean Region satellite serving the area will receive the message.

Part D – Piracy countermeasures broadcast messages

1 On receiving a message of alert or any other information concerning a threat of attack (from the Security Forces Authority responsible for the operational application of the urgency plans (countermeasures) in the region or another RCC, for example), the RCC should ask the NAVAREA coordinator (or any other competent authority in accordance with local arrangements), to send out a warning through the appropriate MSI network (NAVTEX or satellite) and other broadcasting networks for warnings to shipping, if these exist.

2 There are two kinds of MSI messages promulgated with respect to piracy countermeasures: the daily situation report (SITREP) and a piracy attack warning. Specific guidance on drafting and broadcasting these messages is given below.

3 The daily situation report should be broadcast at a regular time around 0800 local time daily. The following paragraphs provide specific guidance on broadcast procedures.

4 The daily situation report should be broadcast to a rectangular area enclosing the region of probable piracy attacks (based on historical data) plus a margin of 700 nautical miles (24 hours steaming by a fast ship) in every direction.

5 The following C codes illustrate those to be used for broadcasts of the daily SITREP:

5.1 **C₁ – Message priority**

C₁ = 1 (safety)

5.2 **C₂ – Service code**

C ₂ = 04	SITREP to a rectangular area
C ₂ = 24	SITREP to a circular area

5.3 **C₃ – Address code**

C ₃ = twelve alphanumeric characters D ₁ D ₂ LaD ₃ D ₄ D ₅ LoD ₆ D ₇ D ₈ D ₉ D ₁₀	When C ₂ = 04 SITREP to a rectangular area Note: The definition of 12 characters for a rectangular address is given in part A, paragraph 5.3
C ₃ = ten alphanumeric characters D ₁ D ₂ LaD ₃ D ₄ D ₅ LoR ₁ R ₂ R ₃	When C ₂ = 24 SITREP to a circular area Note: The definition of 10 characters for a circular address is given in part B, paragraph 3.3

5.4 **C₄ – Repetition code**

C ₄ = 18	Message available until cancelled
---------------------	-----------------------------------

5.5 **C₅ – Presentation code**

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

6 A piracy attack warning shall be broadcast as an "URGENT" NAVAREA or coastal warning immediately on receipt of the source information and at least at the next scheduled broadcast or for as long as the information remains valid. Subject indicator character B₂ = L should be used in coastal warning areas. The specific area in which the attack has taken place is to be quoted in the first line of the text, using no more detail than is necessary to indicate the probable location of further attacks, e.g. WESTERN PHILIP CHANNEL or VICINITY HORSBURGH LIGHT. The description of the pirate vessel and its last observed movements are to be kept as brief as possible and should give only those details which are of significance in avoiding other attacks.

7 The following C codes illustrate those to be used for broadcast of piracy attack warnings:

7.1 **C₁ – Message priority**

C₁ = 2 (urgency)

7.2 **C₂ – Service code**

C ₂ = 13	Coastal warning
C ₂ = 31	NAVAREA warning

7.3 C₃ – Address code

C ₃ = two digits X ₁ X ₂	When C ₂ = 31 then: X ₁ X ₂ are the two digits of the NAVAREA number (with a leading zero where necessary in the range 01 to 21)
C ₃ = four alphanumeric characters X ₁ X ₂ B ₁ B ₂	When C ₂ = 13 for coastal warnings then: X ₁ X ₂ are the two digits of the NAVAREA number (with a leading zero where necessary in the range 01 to 21) B ₁ is the coastal warning area A to Z B ₂ is the subject indicator and must always be A or L, where: A = Navigational warnings L = Other navigational warnings

7.4 C₄ – Repetition code

C ₄ = 16	Message available until cancelled
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7.5 C₅ – Presentation code

C₅ = 00 The code 00 for International Alphabet Number 5 is normally used

8 Date/time should always be quoted in the form:

DDHHMM UTC MoMoMo YY
as in the example: 251256 UTC JUN 17

Note: UTC (Coordinated Universal Time) is the same time-zone as GMT (Z).

9 Geographical positions should be quoted in the standard format:

D₁D₂M₁M₂LaD₃D₄D₅M₃M₄Lo

where:

D₁D₂ = degrees latitude (with leading zero if required)

M₁M₂ = minutes latitude

La = hemisphere (N or S)

D₃D₄D₅ = degrees longitude (with leading zeros if required)

M₃M₄ = minutes longitude

Lo = longitude (E or W)

as in the example: 5419N10327E

Notes:

- 1 Examples of format and drafting guidance for piracy warnings is contained in the *Joint IMO/IHO/WMO Manual on Maritime Safety Information* (MSC.1/Circ.1310, as amended, and IHO Publication No. S-53).
- 2 Decimals of minutes will seldom be necessary or appropriate for reports of this kind.
- 3 Where the name of a geographical feature is used instead of a geographical position, a name should be chosen that appears on all commonly used charts of the area. Local knowledge should not be required for understanding the message.

Part E – Iridium SafetyCast interpretation of repetition codes (C₄)

- 1 The C₄ repetition codes are divided into two categories:
 - .1 Category (a) for messages that have an expiry time; and
 - .2 Category (b) for messages that are available until cancelled by the registered information provider up to a maximum of one year.

Note: The Iridium SafetyCast service uses a simplified interpretation of these repetition codes.

1.1 Category (a) repetition codes:

Code	Instruction
01	One hour expiry
11	One hour expiry
61	One hour expiry
62	Two hours expiry
63	Three hours expiry
64	Four hours expiry
66	12 hours expiry
67	24 hours expiry
70	24 hours expiry
71	48 hours expiry

1.2 Category (b) repetition codes:

A category (b) repetition code allows a message to be available until cancelled by the registered information provider up to a maximum of one year.

The various codes available, are shown in the table below:

Code	Instruction
12	Message available until cancelled
13	
22	
23	
32	
33	

Code	Instruction
42	
43	
52	
53	
14	
15	
16	
(or 24)	
17	
(or 25)	
34	
35	
18	
(or 26;	
or 44)	
19	
(or 27;	
or 45)	
54	
55	
36	
37	
28	
(or 46)	
29	
(or 47)	
56	
57	
38	
39	
48	
49	
58	
59	

APPENDIX 3

PROCEDURE FOR AMENDING THE IRIDIUM SAFETYCAST SERVICE MANUAL

1 Proposals for amendment or enhancement of the Iridium SafetyCast service manual should be submitted for evaluation by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR). Amendments should only be implemented after consideration and approval by the Maritime Safety Committee.

2 Amendments to the Manual should normally be approved at intervals of approximately two years or at such longer periods as may be determined by the Maritime Safety Committee at the time of approval. Amendments approved by the Maritime Safety Committee will be notified to all concerned, will provide at least 12 months notification and will become effective on 1 January of the following year, or at another date as decided by the Committee.

3 The agreement of the International Hydrographic Organization, the World Meteorological Organization, the International Mobile Satellite Organization and the active participation of other bodies should be sought, according to the nature of the proposed amendments.

ANNEX 3

DRAFT IMO POSITION ON RELEVANT WRC-23 AGENDA ITEMS CONCERNING MATTERS RELATING TO MARITIME SERVICES

General

Shipping plays a vital role in ensuring the flow of critical goods across supply chains and keeping world trade moving – over 80% of the world trade is transported by sea. Despite the disruption caused by the COVID-19 pandemic, the total volume of goods transported by the international maritime trade stands strong at 11 billion tonnes per year. Dry cargo (bulk, container or packaged) accounts for about 73% of these goods while crude oil and other petroleum products (e.g. gas and chemicals) claim 27%. The international maritime industry employs about 1.89 million seafarers working on approximately 103,000 ships of 100 gross tons and above. On the other hand, some specific incidents during the last two years that caused global supply chain crises have shown the high degree of the world's dependency on a functioning maritime trade.

While facilitating global trade, the safety and security of ships and protection of the marine environment remain core principles of the maritime industry. In this context, radiocommunication services are essential to ensure safe, secure and sustainable shipping. For this very reason, maritime spectrum should be maintained, protected and expanded further based on the needs of the maritime industry.

Agenda item 1.1

1.1 To consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No.5.441B in accordance with resolution **223 (Rev.WRC-19)**;

Background

This agenda item addresses possible measures to ensure the protection of aeronautical and maritime mobile services, located either in international waters or airspace, from other stations located within national territories and operating in the frequency band 4 800-4 990 MHz. Additionally, the agenda item calls for the review of the pfd criteria contained in No.5.441B.

The frequency band 4 800-4 990 MHz is allocated to the maritime mobile service worldwide, as a subset of the mobile service, in accordance with the Table of Frequency Allocations.

Within the mobile services, this band could be used for some maritime applications.

Draft IMO position

To ensure that any change to the regulatory provisions and technical conditions resulting from this agenda item do not adversely impact maritime communications.

Agenda item 1.2

1.2 To consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with resolution **245 (WRC-19)**;

Background

Parts of the frequency bands 3 600-3 800 MHz (space-to-Earth) and 6 425-7 025 MHz (Earth-to-space) are used by one of the recognized mobile satellite service operators for the feeder links to support L-band maritime services, including those parts of the frequency bands which are used for the communications within the Global Maritime Distress and Safety System (GMDSS). There is a potential risk for interference from terrestrial IMT systems to receiving land earth stations using the frequency band 3 600-3 800 MHz, and to receiving space stations of one of the recognized mobile satellite service operators using the band 6 425-7 025 MHz. Interference to the space station could be received from multiple base stations deployed in many countries, and hence would be particularly challenging to resolve. Interference could harm the reliability of L-band services used daily on thousands of vessels for operational and welfare communications and could harm the reliability of GMDSS services to vessels.

Draft IMO position

To ensure that any use of the frequency bands 3 600-3 800 MHz in Region 2 and 6 425-7 075 MHz in Region 1 by IMT would not affect the satellites and earth station receivers for the provision of mobile satellite service feeder links used by the GMDSS.

Agenda item 1.3

1.3 To consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with resolution **246 (WRC-19)**;

Background

Part of the frequency band 3 600-3 800 MHz (space-to-Earth) is used in MSS by a recognized mobile satellite service operator for the feeder links to support L-band maritime services, including the services used for the GMDSS. There is potential for interference from new mobile systems to receiving land earth stations using the frequency band 3 600-3 800 MHz. Interference could harm the reliability of L-band services used daily on thousands of vessels for operational and welfare communications and could harm the reliability of GMDSS services to vessels.

Inmarsat provides distress and safety satellite services as part of the GMDSS and has C-band feeder links in the frequency bands 3 550-3 700 MHz in all regions.

Draft IMO position

To ensure that any use of the frequency band 3 600-3 800 MHz by the mobile service in Region 1 would not affect land earth stations using the same band for the provision of mobile satellite service feeder links used by the GMDSS.

To ensure protection of those services within the frequency band 3 600-3 800 MHz to which the frequency band is allocated on a primary basis and not to impose undue constraints on the existing services and their future development.

Agenda item 1.7

1.7 To consider a new aeronautical mobile-satellite (R) service (AMS(R)S) allocation in accordance with resolution **428 (WRC-19)** for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands;

Background

In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies, based on the conditions in article 31 of the Radio Regulations, for distress and safety purposes with stations of the aeronautical mobile service. These frequencies are listed in appendix 15 to the Radio Regulations.

Draft IMO position

To ensure that any change to the regulatory provisions and spectrum allocation resulting from this agenda item do not adversely impact the use of the frequencies 123.1 MHz and 121.5 MHz for distress and safety communications for the GMDSS.

Agenda item 1.11

1.11 To consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System and the implementation of e-navigation, in accordance with resolution **361 (Rev.WRC-19)**;

Background

IMO efforts to implement the GMDSS modernization, including the introduction of additional mobile satellite systems, and e-navigation may need the cooperation of ITU in considering whether consequential modifications of the relevant parts in the Radio Regulations would be needed in order to accommodate advanced maritime communication systems and, if found necessary, how to implement them.

The Maritime Safety Committee, at its 105th session, completed the modernization of the GMDSS by adopting amendments to the 1974 SOLAS Convention, including consequential and related amendments to existing instruments, for their entry into force on 1 January 2024. In this regard, the use of HF NBDP and VHF EPIRB for distress communications is removed from SOLAS chapter IV and necessary flexibility for using new systems in the future (e.g. NAVDAT) is inserted into chapter IV.

The Maritime Safety Committee, at its ninety-ninth session, considered an application by China for the recognition of the BeiDou Message Service System (BDMSS) for use in the GMDSS, and consequently referred the application to the NCSR Sub-Committee for evaluation of the detailed information to be provided in due course and authorized the Sub-Committee to invite IMSO to conduct the technical and operational assessment, as appropriate. NCSR 7 considered information provided by China on pre-assessment of BDMSS and invited IMSO to conduct the technical and operational assessment of BDMSS.

After evaluation of the application, the Committee, at its 106th session, adopted resolution MSC.529(106) on *Statement of Recognition of Maritime Mobile Satellite Services Provided by CTTIC through BDMSS*, subject to completion of identified implementation issues, including matters within the purview of WRC-23.

Draft IMO position

To support regulatory actions that assist in the modernization of GMDSS (e.g. future digital data broadcasting by NAVDAT and continued use of the L-Band frequencies for maritime operations and GMDSS following removal of L-band EPIRBs) and implementation of e-navigation.

To support the introduction of additional satellite systems into the GMDSS and to safeguard the availability and full protection of the spectrum used by new and existing GMDSS satellite service providers.

Agenda item 1.15

1.15 To harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with resolution **172 (WRC-19)**;

Background

This band is increasingly being used for maritime communications and expected to be used for safety-related communications.

Draft IMO position

To support the development of regulations to avoid any interferences to this band.

Agenda item 1.16

1.16 To study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-GSO FSS earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with resolution **173 (WRC-19)**;

Background

Earth stations in motion (ESIMs) operating in these bands are used by large numbers of vessels for broadband connectivity at sea. Regulations exist to facilitate ESIMs operating in geostationary FSS networks in these bands. This agenda item aims to facilitate ESIMs operating in non-GSO FSS systems, which would benefit the provision of broadband services on ships, including those operating in the polar regions which may have no connection to GSO FSS satellites.

ESIMs are expected to be used for safety-related services such as the Fleet Data Automated Safety (FADS).

Draft IMO position

To support the development of regulations for ESIMs operating in non-GSO systems while maintaining compatibility with GSO networks in the same bands.

Agenda item 1.17

1.17 To determine and carry out, on the basis of the ITU-R studies in accordance with resolution **773 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate;

Background

This agenda item addresses possible use of the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz for inter-satellite links. The bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz are used by ESIMs to provide broadband connectivity at sea to large numbers of vessels.

The frequency bands 19.3-19.7 GHz (space-to-Earth) and 29.1-29.5 GHz (Earth-to-space) are used by a recognized mobile-satellite service operator for the feeder links to support L-band maritime services, including the services used for the GMDSS. The ITU-R is studying whether inter-satellite service use, if permitted in the bands 19.3-19.7 GHz and 29.1-29.5 GHz, would cause interference to mobile-satellite service feeder links operations.

Iridium provides L-band distress and safety satellite services as part of the GMDSS. To support its L-band GMDSS and maritime mobile-satellite services (MMSS), Iridium operates Ka-band feeder links in the frequency bands 19.1-19.3 GHz and 29.1-29.5 GHz in all three ITU regions. Interference to mobile-satellite service (MSS) feeder links from inter-satellite service space stations communicating with fixed-satellite service systems in the Ka-band could harm the reliability of L-band GMDSS and MMSS to vessels.

Draft IMO position

To ensure that systems providing service to maritime ESIMs and the inter-satellite link are not impacted by the use of the bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz for inter-satellite links.

To ensure that if the frequency bands 19.3-19.7 GHz and 29.1-29.5 GHz are identified for inter-satellite links, the use of the bands for inter-satellite links would not affect the satellites and earth station receivers for the provision of mobile-satellite service feeder links used to support the GMDSS and other maritime mobile-satellite services.

Agenda item 2

2 To examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with further resolves of resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in resolves of that resolution;

Background

There are a number of Recommendations incorporated by reference in the Radio Regulations. IMO has reviewed all these Recommendations.

Draft IMO position

- 1 IMO has studied the Recommendations of relevance and commented on each as given at annex 1.
- 2 Incorporation by reference is of importance to IMO because of the close relationship between many of the ITU-R Recommendations related to GMDSS equipment and its operation, to IMO performance standards.
- 3 IMO requests early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated Recommendations.

Agenda item 4

4 In accordance with resolution **95 (Rev.WRC-19)**, to review the resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

Background

There are number of Resolutions and Recommendations in the Radio Regulations. IMO has reviewed all these Resolutions and Recommendations.

Draft IMO position

IMO has studied the Resolutions and Recommendations of relevance and commented on each as given in annex 2.

Agenda item 9

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with article 7 of the Convention:

- .1 on the activities of the Radiocommunication Sector since WRC-19;

- .2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
- .3 on action in response to resolution **80 (Rev.WRC-07)**.

Agenda item 9.1, topic b)

Background

Under agenda item 9.1, topic b ITU-R is invited to review the amateur service and the amateur-satellite service allocations in the frequency band 1 240-1 300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service (RNSS) operating in the same band in accordance with resolution **774 (WRC-19)**. The frequency band 1 240-1 300 MHz is used by the Global Navigation Satellite Systems (GNSS), recognized by IMO as components of the World-Wide Radio Navigation System (WWRNS) that provide World-wide Position, Navigation and Timing (PNT) determination services for ships.

Draft IMO position

To ensure that the protection of RNSS (space-to-Earth) receivers is guaranteed after the possible technical and operational measures envisaged under this agenda item.

Agenda item 10

10 To recommend to the Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences, in accordance with article 7 of the Convention and resolution **804 (Rev.WRC-19)**,

Background information on digital voice in Radio Regulations appendix 18

Resolution 812 (Rev.WRC-19) on Preliminary agenda for the 2027 World Radio Conference included, inter alia, the following item: "to consider improving the utilization of the VHF maritime frequencies in appendix 18, in accordance with resolution 363 (WRC-19)".

Digital technology is already widely used in land mobile communication. It is an established technology with known technical properties. Digital technology has the potential to accommodate more voice communication channels in the same amount of radio frequency spectrum than the currently established analogue technology. Digital technology may also offer new functionalities to improve safety. It is not expected that ship-to-ship communication by (digital) voice communication will be completely replaced by (written) data communication.

A transition scheme has to be developed to guarantee the smooth introduction of digital technology for voice communication and the envisaged entry into force of the amendments between 2035 and 2045.

However, the VHF channels 06, 13, 16, 70, AIS 1 (AIS-SART) and AIS 2 (AIS-SART) are used for GMDSS based on SOLAS and the ITU Radio Regulations. These channels and any other relevant channels could retain their current functionality. This is due to the operational and safety needs especially when navigating close to coastal waters or in-port areas, and considers the substantial number of non-SOLAS ships participating in the GMDSS.

In order to obtain the maximum benefit from a move towards digital technology for voice communication, IMO commits itself to the revision of the relevant regulatory framework, in particular, with a view to enhancing maritime safety by implementing new functionalities that may not be available with the current analogue voice communication technology and with DSC.

Background information on VDES R-Mode

Global shipping now heavily relies on global navigation satellite systems (GNSSs) for positioning, navigation and timing (PNT), however GNSS is vulnerable to natural or artificial interference such as solar flares, jamming and spoofing.

Draft IMO position on digital voice in Radio Regulations appendix 18

IMO supports the introduction of digital technology for voice communication in the maritime mobile service, noting the need for a considered transition scheme, and related changes in appendix 18 and other relevant parts in the Radio Regulations in the agenda of WRC-31.

Draft IMO position on VDES R-Mode

IMO supports the ranging mode using the VHF Data Exchange System (VDES R-Mode) as an independent resilient terrestrial PNT system for the backup of GNSS. IMO invites ITU to consider possible changes to the Radio Regulations for implementation of VDES R-Mode as a new maritime radionavigation service in the agenda of WRC-31.

Draft IMO position on digital voice in Radio Regulations appendix 18 and VDES R-Mode

In light of the complexity of the aforementioned matters and direct involvement of IMO in addressing them, it is essential to establish two new work outputs under the IMO framework. Due to its programme of meetings, IMO's NCSR Sub-Committee is not expected to begin considering these matters until 2025. This time frame should provide sufficient opportunity to thoroughly study these issues, particularly the required transition scheme, prior to WRC-31.

To initiate work within ITU on the consideration of the relevant technical and regulatory implications of these two issues in a timely manner, IMO considers it necessary to propose two study questions in ITU-R Study Group 5 for the 2024-2027 study cycle and to suggest at WRC-23 the inclusion of the following items in the preliminary agenda for WRC-31:

- .1 to consider the introduction of digital technology for VHF voice communications in the maritime mobile service and related changes to RR appendix 18 and other relevant provisions of the Radio Regulations; and
- .2 to consider possible changes to the Radio Regulations for implementation of VDES R-Mode as a new application in the maritime radionavigation service.

IMO encourages ITU administrations and ITU-R sector members to support the establishment of these study questions, to actively contribute to the related studies and to support the inclusion of these issues in the preliminary agenda for WRC-31.

ANNEX 1

RECOMMENDATION ITU-R M.476-5

Direct-printing telegraph equipment in the maritime mobile service
(Question ITU-R 5/8)

(1970-1974-1978-1982-1986-1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.489-2

Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz

(1974-1978-1995)

Needed by IMO to support the carriage requirements of SOLAS chapter IV and needed by the maritime community in general. Will likely be needed into the foreseeable future.

RECOMMENDATION ITU-R M.492-6

Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service
(Question ITU-R 5/8)

(1974-1978-1982-1986-1990-1992-1995)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.541-10

Operational procedures for the use of digital selective-calling equipment in the maritime mobile service
(Question ITU-R 9/8)

(1978-1982-1986-1990-1992-1994-1995-1996-1997-2004-2015)

Needed by IMO. Likely to be needed into the foreseeable future.

RECOMMENDATION ITU-R M.585-8

Assignment and use of identities in the maritime mobile service

(1982-1986-1990-2003-2007-2009-2012-2015)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.625-4

Direct-printing telegraph equipment employing automatic identification in the maritime mobile service

(1986-1990-1992-1995-2012)

Currently needed by IMO to support the NBDP carriage requirement in SOLAS chapter IV, although the system is little used.

RECOMMENDATION ITU-R M.633-4

Transmission characteristics of a satellite emergency position-indicating radio beacon (satellite EPIRB) system operating through a satellite system in the 406 MHz band

(1986-1990-2000-2004-2010)

Used by IMO to support the performance standards for EPIRBs.

RECOMMENDATION ITU-R M.690-3

Technical characteristics of emergency position-indicating radio beacons (EPIRBs) operating on the carrier frequencies of 121.5 MHz and 243 MHz

(1990-1995-2012-2015)

Required by IMO to define the homing signal characteristics for the satellite EPIRB required by SOLAS chapter IV. Likely to be used by the maritime community for some time to come for EPIRBs and man overboard devices.

RECOMMENDATION ITU-R M.1084-5

Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service

(1994-1995-1997-1998-2001-2012)

Used by IMO for the description of VHF channels.

RECOMMENDATION ITU-R M.1171-0

Radiotelephony procedures in the maritime mobile service

(1995)

Required by IMO and the maritime community as long as coast stations offer a public correspondence service. The number of such coast stations is however declining.

RECOMMENDATION ITU-R M.1172-0

Miscellaneous abbreviations and signals to be used for radiocommunications in the maritime mobile service

(1995)

Required by the maritime community.

RECOMMENDATION ITU-R M.1173-1

Technical characteristics of single-sideband transmitters used in the maritime mobile service for radiotelephony in the bands between 1 606.5 kHz (1 605 kHz Region 2) and 4 000 kHz and between 4 000 kHz and 27 500 kHz

(1995 -2012)

Required by IMO and the maritime community and likely to be required into the foreseeable future.

RECOMMENDATION ITU-R M.1174-4

Technical characteristics of equipment used for onboard vessel communications in the bands between 450 and 470 MHz

(1995-1998- 2004-2015-2019)

Required by the maritime community and useful to IMO.

RECOMMENDATION ITU-R M.1638-1

Characteristics of and protection criteria for sharing studies for radiolocation, aeronautical radionavigation and meteorological radars operating in the frequency bands between 5 250 and 5 850 MHz

(2003-2015)

Not required by IMO, but may be required by the maritime community where radars in this band are used.

ANNEX 2

RESOLUTION 13 (REV.WRC-97)

Formation of call signs and allocation of new international series

Retain.

RESOLUTION 18 (REV.WRC-15)

Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict

Retain.

RESOLUTION 205 (REV.WRC-19)

Protection of the systems operating in the mobile-satellite service in the frequency band 406-406.1 MHz

Retain.

RESOLUTION 207 (REV.WRC-15)

Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service

Retain.

RESOLUTION 222 (REV.WRC-12)

Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service

Retain.

RESOLUTION 223 (REV.WRC-19)

Additional frequency bands identified for International Mobile Telecommunications

Retain.

RESOLUTION 331 (REV.WRC-12)

Operation of the Global Maritime Distress and Safety System

Retain.

RESOLUTION 339 (REV.WRC-07)

Coordination of NAVTEX services

Retain.

RESOLUTION 343 (REV.WRC-12)

Maritime certification for personnel of ship stations and ship earth stations for which a radio installation is not compulsory

Retain to ensure common operations between convention and non-convention ships.

RESOLUTION 344 (REV.WRC-19)

Management of the maritime identity numbering resource

Retain.

RESOLUTION 349 (REV.WRC-19)
**Operational procedures for cancelling false distress alerts in the
Global Maritime Distress and Safety System**

Retain.

RESOLUTION 352 (WRC-03)
**Use of the carrier frequencies 12 290 kHz and 16 420 kHz for
safety-related calling to and from rescue coordination centres**

Retain.

RESOLUTION 354 (WRC-07)
Distress and safety radiotelephony procedures for 2 182 kHz

Retain.

RESOLUTION 356 (REV. WRC-19)
ITU maritime service information registration

Retain.

RESOLUTION 361 (REV. WRC-19)
**Consideration of regulatory provisions for modernization of the
Global Maritime Distress and Safety System and
related to the implementation of e-navigation**

Subject of agenda item 1.11.

RESOLUTION 363 (WRC-19)
**Considerations to improve utilization of the VHF maritime
frequencies in appendix 18**

In the preliminary agenda for WRC-27.

RESOLUTION 612 (REV.WRC-12)
**Use of the radiolocation service between 3 and 50 MHz to
support oceanographic radar operations**

Retain.

RECOMMENDATION 7 (REV.WRC-97)
**Adoption of standard forms for ship station and ship earth station licences and
aircraft station and aircraft earth station licences**

Retain.

RECOMMENDATION 37 (WRC-03)
**Operational procedures for earth stations
on board vessels (ESVs) use**

Retain.

RECOMMENDATION 316 (REV. WRC-19)
**Use of ship earth stations within harbours and other waters
under national jurisdiction**

Retain.

ANNEX 4

DRAFT MSC CIRCULAR

DELAYS AFFECTING THE AVAILABILITY OF NEW GMDSS EQUIPMENT COMPLIANT WITH THE REVISED PERFORMANCE STANDARDS SET OUT IN RESOLUTIONS MSC.511(105), AND MSC.512(105) AND MSC.513(105)*

1 The Maritime Safety Committee, at its 105th session (20 to 29 April 2022), adopted amendments to:

- .1 the International Convention for the Safety of Life at Sea (SOLAS), 1974 (resolution MSC.496(105));
- .2 the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol) (resolution MSC.497(105));
- .3 the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code) (resolution MSC.498(105)) and the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code) (resolution MSC.499(105)); and
- .4 the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1979 (1979 MODU Code) (resolution MSC.504(105)), the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 (1989 MODU Code) (resolution MSC.505(105)) and the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code) (resolution MSC.506(105)),

which are expected to enter into force on 1 January 2024.

2 The Committee also adopted, inter alia, resolutions MSC.511(105) on *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling*, and MSC.512(105) on *Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information*, and MSC.513(105) on *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications*, which recommend Governments to ensure that equipment installed on or after 1 January 2024 conform to performance standards not inferior to those adopted at the session.

3 The Committee, at its [107th session (31 May to 9 June 2023)], having considered information provided by IEC and CIRM on the availability of GMDSS equipment after 1 January 2024, noted that considerable work has been carried out by the radio manufacturing industry and the standards organizations to develop the new equipment required. However, some of the **new** performance standards incorporate new features which **still** require specification from other organizations.

4 The Committee, therefore, concluded that it was unrealistic for new shipborne VHF radio installations, **or** shipborne MF and MF/HF radio installations **or** Inmarsat-C ship earth stations to be available for installation from 1 January 2024.

* Grey shading indicates changes to the proposed draft MSC circular in document MSC 107/15, annex.

5 The Committee invited Member States to, until [1 January ~~2026~~ 2028], consider permitting continued installation of:

- .1 shipborne VHF radio installations conforming to performance standards not inferior to those specified in the annex to resolution A.803(19), as amended; ~~and~~
- .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.

6 Member States are invited to bring this information to the attention of the appropriate national authorities and all other parties concerned.

ANNEX 5

BIENNIAL STATUS REPORT 2022-2023

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.3	Revision of the criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS) (resolution A.1001(25))	2023	MSC	NCSR		In progress	In progress	MSC 101/24, paragraph 21.33; NCSR 9/24, section 11 NCSR 10/22, section 11
Note: Noting that further work was still required, NCSR 10 invited MSC 107 to extend the target completion year of this output to 2024.									
1. Improve implementation	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC/MEPC	HTW/PPR/NCSR	III	No work requested	No work requested	MSC 101/24, paragraph 21.48; MEPC 75/18, paragraphs 11.10 and 11.11; MSC 104/18, paragraph 13.7.1
1. Improve implementation	1.20	Revision of the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23))	2022	MSC	NCSR		Completed		MSC 100/20, paragraph 17.1; MSC 104/18, paragraph 15.19; MSC 106/19, paragraph 13.12
Note: MSC 106 approved the draft Assembly resolution with a view to concurrent approval by LEG and MEPC, and adoption by A 33.									
1. Improve implementation	1.34	Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures	Continuous	MSC	NCSR		Ongoing	Completed	NCSR 9/24, section 13; SAR.7/Circ.15; COMSAR/Circ.60; NCSR 10/22, section 13

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2.1	Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference	Continuous	MSC	NCSR		Ongoing	Completed	MSC 106/19, paragraphs 13.28 to 13.33; NCSR 9/24, section 12 and annexes 18 to 20; NCSR 10/22, section 12 and annexes [...] to [...]
2. Integrate new and advancing technologies in the regulatory framework	2.9	Development of amendments to VDR performance standards and carriage requirements	2023	MSC	III	NCSR	In progress	[Completed]	MSC 101/24, paragraphs 21.39 to 21.44; NCSR 9/24, section 17; NCSR 10/22, section 15
Note: Noting that no documents had been received under this output for two consecutive sessions, NCSR 10 invited MSC 107 to delete the output from the biennial agenda.									

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2.10	Development of revisions and amendments to existing instruments relating to the amendments to the 1974 SOLAS Convention for modernization of the GMDSS	2022	MSC	HTW/SSE	NCSR	Completed		MSC 105/20, paragraphs 3.42, 3.52 to 3.55, 3.60 to 3.62, 3.63.1 and 3.63.2; resolutions MSC.496(105), MSC.498(105), MSC.499(105), MSC.497(105), MSC.502(105), MSC.503(105), MSC.504(105), MSC.505(105), MSC.506(105), MSC.507(105), MSC.508(105), MSC.509(105), MSC.510(105), MSC.511(105), MSC.512(105), MSC.513(105), MSC.514(105), MSC.515(105), MSC.516(105), MSC.517(105); MSC.1/Circ.803/Rev.1 and MSC.1/Circ.1645; MSC 106/19, paragraph 13.17; MSC.1/Circ.1656; MSC.1/Circ.1657; MSC.1/Circ.1658 and MSC.1/Circ.892/Rev.1
2. Integrate new and advancing technologies in the regulatory framework	2.11	Consideration of descriptions of Maritime Services in the context of e-navigation	2023	MSC	FAL/NCSR		In progress	[Completed]	FAL 43/20, paragraph 7.21; MSC 101/24, paragraphs 11.10 and 11.11; resolution MSC.467(101); MSC.1/Circ.1610; MSC 104/18, paragraph 15.19; FAL 46/24, section 8; MSC 106/19, paragraph 16.47.2.1; NCSR 9/24, section 7; NCSR 10/22, section 7 and annex [...]

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Note: NCSR 10, having completed a draft revision of MSC.1/Circ.1610, invited MSC 107 to relocate this output to the post-biennial agenda of the Committee for future consideration.									
2. Integrate new and advancing technologies in the regulatory framework	2.12	Development of generic performance standards for shipborne satellite navigation system receiver equipment	2023	MSC	NCSR		In progress	In progress	MSC 104/18, paragraph 15.19; MSC 106/19, paragraph 16.47.2.2; NCSR 9/24, section 5; NCSR 10/22, section 5 and annex [...]
Note: NCSR 10 invited MSC 107 to extend the target completion year of this output to 2024 and to agree with a new scope.									
2. Integrate new and advancing technologies in the regulatory framework	2.14	Development of SOLAS amendments for mandatory carriage of electronic inclinometers on container ships and bulk carriers	2022	MSC	NCSR		Completed		MSC 101/24, paragraphs 21.20 and 21.21; MSC 104/18, paragraph 15.19; MSC 105/20, paragraphs 13.7 and 13.8; MSC 106/19, paragraph 13.46
2. Integrate new and advancing technologies in the regulatory framework	2.27	Development of performance standards for a digital navigational data system (NAVDAT)	2024	MSC	NCSR			In progress	MSC 103/21, paragraph 18.18 ; MSC 106/19, paragraph 16.47.1.2; NCSR 10/22, section 8
2. Integrate new and advancing technologies in the regulatory framework	2.28	Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES)	2024	MSC	NCSR			In progress	MSC 103/21, paragraph 18.12; MSC 106/19, paragraph 16.47.1.1; NCSR 10/22, section 6

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
4. Engage in ocean governance	4.1	Identification and protection of Special Areas, Emission Control Areas and PSSAs and associated protective measures	Continuous	MEPC	NCSR		No work requested	[Completed]	MEPC 79/15, paragraph 10.10; NCSR 10/22, section 3 and annex [...]
4. Engage in ocean governance	4.4	Development of measures regarding the detection and mandatory reporting of containers lost at sea that may enhance the positioning, tracking and recovery of such containers	2023	MSC	NCSR	CCC	No work requested	No work requested	MSC 103/21, paragraph 18.34
6. Address the human element	6.1	Role of the human element	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW	Ongoing	Completed	MSC 89/25, paragraphs 10.10, 10.16 and 22.39 and annex 21; NCSR 9/24, paragraphs 23.6 and 23.7; NCSR 10/22, paragraphs [...] to [...] and annex [...]
6. Address the human element	6.2	Validated model training courses	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW	Ongoing	Completed	MSC 100/20, paragraphs 10.3 to 10.6 and 17.28; MSC 105/20, section 16; NCSR 7/23, section 19; NCSR 9/24, section 20; NCSR 10/22, section 18 and annexes [...] and [...]
7. Ensure regulatory effectiveness	7.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Continuous	MSC/MEPC/FAL/LEG	III/PPR/CCC/SDC/SSE/NCSR		Ongoing	Completed	MSC 76/23, paragraph 20.3; MSC 78/26, paragraph 22.12; NCSR 7/23, section 18; NCSR 9/24, section 19; NCSR 10/22, section 17

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
7. Ensure regulatory effectiveness	7.2	Developments in GMDSS services, including guidelines on maritime safety information (MSI)	Continuous	MSC	NCSR		Ongoing	Completed	MSC 104/18, paragraph 15.19; MSC 106/19, paragraphs 13.24.3, 13.25 and 13.27; resolution MSC.529(106), MSC.1/Circ.1659 and MSC.1/Circ.1403/Rev.2; NCSR 9/24, section 10 and annexes 15 to 17; NCSR 10/22, section 10 and annexes [...] to [...]
7. Ensure regulatory effectiveness	7.14	Revision of ECDIS Guidance for good practice (MSC.1/Circ.1503/Rev.1) and amendments to ECDIS performance standards (resolution MSC.232(82))	2023	MSC	III	NCSR	Completed		MSC 100/20, paragraph 17.9; MSC 102/24, paragraph 21.14; MSC 104/18, paragraph 15.19; MSC 106/19, paragraphs 13.36 and 13.43; MSC.1/Circ.1503/Rev.2 and resolution MSC.530(106)
7. Ensure regulatory effectiveness	7.20	Amendments to the IAMSAR Manual	Continuous	MSC	NCSR		Ongoing	Completed	NCSR 9/24, section 14; NCSR 10/22, section 14
7. Ensure regulatory effectiveness	7.22	Routeing measures and mandatory ship reporting systems	Continuous	MSC	NCSR		Ongoing	Completed	MSC 106/19, paragraphs 13.3 and 13.4; COLREG.2/Circ.78 and SN.1/Circ.342; NCSR 9/24, section 3 and annexes 1 and 2; NCSR 10/22, section 3 [and annex [...]]

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
7. Ensure regulatory effectiveness	7.23	Updates to the LRIT system	Continuous	MSC	NCSR		Ongoing	Completed	MSC 106/19, paragraphs 13.5 and 13.6; resolution MSC.263(84)/Rev.1; MSC.1/Circ.1259/Rev.9, MSC.1/Circ.1307/Rev.1 and MSC.1/Circ.1376/Rev.5; NCSR 9/24, section 4 and annexes 3 to 6; NCSR 10/22, section 4
7. Ensure regulatory effectiveness	7.35	Safety measures for non-SOLAS ships operating in polar waters	2023	MSC	NCSR	SDC	Completed		MSC 98/23, paragraphs 10.29, 20.31.1 and 20.31.2, and annex 38; MSC 99/22, paragraphs 7.16 and 20.13.1; MSC 101/24, paragraphs 7.6 and 7.9; MSC 102/24, paragraphs 17.5 to 17.8; MSC 103/21, paragraphs 15.1 to 15.4; MSC 105/20, paragraph 18.54; MSC 106/19, paragraph 13.9

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
7. Ensure regulatory effectiveness	7.37	Consequential work related to the new International Code for Ships Operating in Polar Waters	2022	MSC	SSE/NCSR	SDC	No work requested	No work requested	MSC 93/22, paragraphs 10.44, 10.50 and 20.12; MSC 96/25, paragraph 3.77; MSC 97/22, paragraphs 8.32 and 19.25; MSC 101/24, paragraphs 7.9 and 11.18, and annex 31; MSC.1/Circ.1612; MSC 102/24, paragraph 19.3; SSE 8/20, section 4; MSC 106/19, section 11; MSC.1/Circ.1614/Rev.1
7. Ensure regulatory effectiveness	7.44	Revision of SOLAS regulation V/23 and associated instruments to improve the safety of pilot transfer arrangements	2024	MSC	NCSR			In progress	MSC 106/19, paragraphs 16.12 to 16.14; NCSR 10/22, section 16
7. Ensure regulatory effectiveness	7.46	Amendments to ECDIS performance standards (resolution MSC.530(106)) to facilitate a standardized digital exchange of ships' route plans	2024	MSC	NCSR			[Completed]	MSC 105/20, paragraphs 18.20 and 18.21; MSC 106/19, paragraph 16.49; NCSR 10/22, section 9 and annex [...]
OW. Other work	OW 12	Guidance on the training on and operation of Emergency Personal Radio Devices in multiple casualty situations	2022	MSC	NCSR		Completed		MSC 100/20, paragraph 17.5; MSC 106/19, paragraph 13.35; MSC.1/Circ.1660

OUTPUTS ON THE COMMITTEE'S POST-BIENNIAL AGENDA THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE

Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)								
Number	Biennium (when the output was placed on the post-biennial agenda)	Reference to Strategic Direction, if applicable	Description	Parent organ(s)	Associated organs(s)	Coordinating organ(s)	Timescale (sessions)	References
42	2012-2013	OW	Review of the 2009 Code on Alerts and Indicators	MSC	NCSR	SSE	2	MSC 89/25, paragraph 22.25
188	2022-2023	7	Development of guidelines for the use of electronic nautical publications (ENP)	MSC	NCSR		2	MSC 105/20, paragraph 18.11
<i>Note: Output 188 is proposed to be included in the biennial agenda of the Sub-Committee for 2024-2025 and in the provisional agenda for NCSR 11.</i>								
190	2022-2023	2	Revision of SOLAS chapters II-1 (part C) and V, and related instruments regarding steering and propulsion requirements, to address both traditional and non-traditional propulsion and steering systems	MSC	SDC/NCSR	SSE	2	MSC 105/20, paragraphs 18.23 and 18.24
196	2022-2023	1	Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)	MSC	NCSR		2	MSC 106/19, paragraph 16.37
<i>Note: Output 196 is proposed to be included in the biennial agenda of the Sub-Committee for 2024-2025 and in the provisional agenda for NCSR 11.</i>								

ANNEX 6

PROPOSED BIENNIAL AGENDA FOR THE 2024-2025 BIENNIUM

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ
1. Improve implementation	1.3	Revision of the criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS) (resolution A.1001(25))	2023 <u>2024</u>	MSC	NCSR	
1. Improve implementation	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC/MEPC	HTW/PPR/NCSR	III
1. Improve implementation	1.20	Revision of the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23))	2022	MSC	NCSR	
1. Improve implementation	1.34	Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures [and amendments to the IAMSAR Manual]	Continuous	MSC	NCSR	
Note: Recognizing the interrelation between outputs 7.20 and 1.34, NCSR 10 invited MSC 107 to combine both outputs into one.						
1. Improve implementation	1.[...]	<u>Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)</u>	<u>2025</u>	<u>MSC</u>	<u>NCSR</u>	
Note: Included from the post-biennial agenda (number 196).						
1. Improve implementation	1.[...]	<u>Identification of measures to improve the security and integrity aspects of AIS</u>	<u>[2025]</u>	<u>MSC</u>	<u>NCSR</u>	
Note: NCSR 10 invited MSC 107 to approve this new output.						

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ
2. Integrate new and advancing technologies in the regulatory framework	2.1	Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference	Continuous	MSC	NCSR	
2. Integrate new and advancing technologies in the regulatory framework	2.9	Development of amendments to VDR performance standards and carriage requirements	2023	MSC	III	NCSR
2. Integrate new and advancing technologies in the regulatory framework	2.10	Development of revisions and amendments to existing instruments relating to the amendments to the 1974 SOLAS Convention for modernization of the GMDSS	2022	MSC	HTW/SSE	NCSR
2. Integrate new and advancing technologies in the regulatory framework	2.11	Consideration of descriptions of Maritime Services in the context of e-navigation	2023	MSC	FAL/NCSR	
2. Integrate new and advancing technologies in the regulatory framework	2.12	[Development of generic performance standards for shipborne satellite navigation system receiver equipment]	[2024]	MSC	NCSR	
Note: Subject to approval of extension of the target completion year and changes to the scope of the output.						
2. Integrate new and advancing technologies in the regulatory framework	2.14	Development of SOLAS amendments for mandatory carriage of electronic inclinometers on container ships and bulk carriers	2022	MSC	NCSR	
2. Integrate new and advancing technologies in the regulatory framework	2.27	Development of performance standards for a digital navigational data system (NAVDAT)	2024	MSC	NCSR	

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ
2. Integrate new and advancing technologies in the regulatory framework	2.28	Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES)	2024	MSC	NCSR	
4. Engage in ocean governance	4.1	Identification and protection of Special Areas, Emission Control Areas and PSSAs and associated protective measures	Continuous	MEPC	NCSR	
4. Engage in ocean governance	4.4	Development of measures regarding the detection and mandatory reporting of containers lost at sea that may enhance the positioning, tracking and recovery of such containers	2023	MSC	NCSR	CCC
6. Address the human element	6.1	Role of the human element	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW
6. Address the human element	6.2	Validated model training courses	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW
7. Ensure regulatory effectiveness	7.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Continuous	MSC/MEPC/FAL/LEG	III/PPR/CCC/SDC/SSE/NCSR	
7. Ensure regulatory effectiveness	7.2	Developments in GMDSS services, including guidelines on maritime safety information (MSI)	Continuous	MSC	NCSR	
7. Ensure regulatory effectiveness	7.14	Revision of ECDIS Guidance for good practice (MSC.1/Circ.1503/Rev.1) and amendments to ECDIS performance standards (resolution MSC.232(82))	2023	MSC	III	NCSR

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ
7. Ensure regulatory effectiveness	7.20	Amendments to the IAMSAR Manual	Continuous	MSC	NCSR	
Note: Recognizing the interrelation between outputs 7.20 and 1.34, NCSR 10 invited MSC 107 to combine both outputs into one.						
7. Ensure regulatory effectiveness	7.22	Routeing measures and [mandatory] ship reporting systems	Continuous	MSC	NCSR	
Note: NCSR 10 invited MSC 107 to remove the term "mandatory" from the title of this output.						
7. Ensure regulatory effectiveness	7.23	Updates to the LRIT system	Continuous	MSC	NCSR	
7. Ensure regulatory effectiveness	7.35	Safety measures for non-SOLAS ships operating in polar waters	2023	MSC	NCSR	SDG
7. Ensure regulatory effectiveness	7.37	Consequential work related to the new International Code for Ships Operating in Polar Waters	2022	MSC	SSE/NCSR	SDG
7. Ensure regulatory effectiveness	7.44	Revision of SOLAS regulation V/23 and associated instruments to improve the safety of pilot transfer arrangements	2024	MSC	NCSR	
7. Ensure regulatory effectiveness	7.46	Amendments to ECDIS performance standards (resolution MSC.530(106)) to facilitate a standardized digital exchange of ships' route plans	2024	MSC	NCSR	
7. Ensure regulatory effectiveness	7.[...]	Development of guidelines for the use of electronic nautical publications (ENP)	2025	MSC	NCSR	
Note: Included from the post-biennial agenda (number 188).						
OW. Other work	OW 12 (New)	Guidance on the training on and operation of Emergency Personal Radio Devices in multiple casualty situations	2022	MSC	NCSR	

ANNEX 7

PROPOSED PROVISIONAL AGENDA FOR NCSR 11

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Routeing measures and [mandatory] ship reporting systems (7.22)
- 4 Updates to the LRIT system (7.23)
- 5 Developments in GMDSS services, including guidelines on maritime safety information (MSI) (7.2)
- 6 Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference (2.1)
- 7 Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures [and amendments to the IAMSAR Manual] (1.34)
- 8 Development of performance standards for a digital navigational data system (NAVDAT) (2.27)
- 9 Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES) (2.28)
- 10 [Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)(1.[...])]
- 11 Revision of the *Criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS)* (resolution A.1001(25)) (1.3)
- 12 [Development of guidelines for the use of electronic nautical publications (ENP) (7.[...])]
- 13 Revision of SOLAS regulation V/23 and associated instruments to improve the safety of pilot transfer arrangements (7.44)
- 14 [Development of generic performance standards for shipborne satellite navigation system receiver equipment (2.12)]
- 15 [Identification of measures to improve the security and integrity aspects of AIS (1.[...])]
- 16 Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions (7.1)
- 17 Biennial status report and provisional agenda for NCSR 12
- 18 Election of Chair and Vice-Chair for 2025
- 19 Any other business
- 20 Report to the Maritime Safety Committee