ANNEX 20

RESOLUTION MSC.513(105)
(adopted on 28 April 2022)

PERFORMANCE STANDARDS FOR INMARSAT-C SHIP EARTH STATIONS CAPABLE OF TRANSMITTING AND RECEIVING DIRECT-PRINTING COMMUNICATIONS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.807(19), by which the Assembly, at its nineteenth session, adopted the *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications*, which was subsequently amended by resolution MSC.68(68), annex 4,

RECALLING FURTHER resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

TAKING INTO ACCOUNT the amendments to the International Convention for the Safety of Life at Sea, 1974 ("the Convention") adopted by resolution MSC.496(105),

NOTING, in particular, regulations IV/8.1.4, 9.1.3.3, 9.4.2, 10.1.1 and 10.1.4.3 of the Convention concerning radiocommunications for the Global Maritime Distress and Safety System (GMDSS), which require that ships be provided with recognized mobile satellite service ship earth station capable of transmitting and receiving direct-printing communications and that such ship earth stations shall conform to appropriate performance standards not inferior to those adopted by the Organization,

RECOGNIZING the need to revise the performance standards for Inmarsat-C ship earth stations operating through the geostationary Inmarsat satellite system to be used in the GMDSS in order to ensure the operational reliability of such equipment and to avoid, as far as practicable, adverse interaction between such equipment and other communication and navigation equipment on board ship,

HAVING CONSIDERED, at its 105th session, the recommendation made by the Sub-Committee on Navigation, Communications and Search and Rescue at its eighth session,

1 ADOPTS the revised *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications*, set out in the annex to the present resolution;

2 NOTES that the Inmarsat-C design and installation guidelines are similar to the present performance standards for lnmarsat-C ship earth stations and to the general requirements for shipborne radio equipment set out in resolution A.694(17);

3 RECOMMENDS Governments to ensure that every Inmarsat-C ship earth station which forms part of the GMDSS:

.1 if installed on or after 1 January 2024 conforms to performance standards not inferior to those specified in the annex to the present resolution; and

.2 if installed before 1 January 2024 conforms to performance standards not inferior to those specified in the annex to resolution A.807(19), as amended, or conforms to performance standards not inferior to those specified in the annex to the present resolution,

and is installed in accordance with the Inmarsat design and installation guidelines;

4 INVITES Inmarsat to ensure that any amendments to the Inmarsat-C design and installation guidelines are agreed with the Organization prior to their adoption.

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3 RECOMMENDS Governments to ensure that every Inmarsat-C ship earth station which forms part of the GMDSS:

.1 if installed on or after 1 January 2024 conforms to performance standards not inferior to those specified in the annex to the present resolution; and

.2 if installed before 1 January 2024 conforms to performance standards not inferior to those specified in the annex to resolution A.807(19), as amended, or conforms to performance standards not inferior to those specified in the annex to the present resolution,

and is installed in accordance with the Inmarsat design and installation guidelines;

4 INVITES Inmarsat to ensure that any amendments to the Inmarsat-C design and installation guidelines are agreed with the Organization prior to their adoption.

4 RADIO FREQUENCY HAZARDS

In order to permit a warning of potential radiation hazards to be displayed in appropriate locations, a label should be attached to the radome indicating the distances external to the radome at which radiation levels of 100 W/m^2, 25 W/m^2 and 10 W/m^2 exist. However, the distances which are within a radome need not be indicated.

5 POWER SUPPLY

5.1 The ship earth station should normally be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the ship earth station and all equipment necessary for its normal functioning, including the antenna tracking system, where provided, from an alternative source of energy.

5.2 Changing from one source of supply to another or any interruption of up to 60 seconds' duration of the supply of electrical energy should not require the equipment to be manually re-initialized and should not result in loss of received messages stored in the memory.

6 ANTENNA SITING

6.1 Where an omnidirectional antenna is used it should, if practicable, be sited in such a position that no obstacle likely to degrade significantly the performance of the equipment appears in the fore and aft directions down to -5° and in the port and starboard directions down to -15°. For omnidirectional antennas, objects, especially those within 1 m of the antenna, which cause a shadow sector of greater than 2° are likely to degrade significantly the performance of the equipment.

6.2 Where a stabilized directive antenna is used it should, if practicable, be sited in such a position that no obstacle likely to degrade significantly the performance of the equipment appears in any azimuth down to -5°. For directive antennas with a gain of approximately 20 dB, objects, especially those within 10 m of the antenna, which cause a shadow sector of greater than 6° are likely to degrade significantly the performance of the equipment.

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ANNEX

PERFORMANCE STANDARDS FOR INMARSAT-C SHIP EARTH STATIONS CAPABLE OF TRANSMITTING AND RECEIVING DIRECT-PRINTING COMMUNICATIONS

1 INTRODUCTION

1.1 The lnmarsat-C ship earth station installation provided to meet a requirement for a ship earth station in SOLAS regulations IV/8.1.4, 9.1.3.3, 9.4.2, 10.1.1 or 10.1.4.3 should comply with the general requirements set out in resolutions A.694(17). It should be capable of transmitting and receiving automated telegraphy communications in compliance with the relevant ITU-R recommendation on direct-printing telegraphy. In addition, the Inmarsat-C ship earth station should conform to the following minimum requirements.

1.2 The performance of any enhanced group call facility provided by the ship earth station should be in accordance with the performance standards for enhanced group call equipment set out in:

.1 resolution A.664(16) for equipment installed before 1 July 2012;

.2 resolution MSC.306(87) for equipment installed on or after 1 July 2012 and before 1 July 2019; and

.3 resolution MSC.431(98) for equipment installed on or after 1 July 2019,

and with the following minimum performance requirements.

2 TECHNICAL REQUIREMENTS

2.1 The ship earth station should be type-approved by lnmarsat for connection to and operation in the Inmarsat GMDSS satellite service, and should comply with its technical requirements for Inmarsat-C ship earth stations.

2.2 In addition to the above, the Inmarsat-C receiver should be capable of operating in the presence of an interfering signal with the following characteristics: a wideband signal of bandwidth 5 MHz, occupying the band 1 512-1 517 MHz, at a power level of -30 dBm measured at the receiver input.

3 OPERATION

3.1 No control external to the equipment should be available for alteration of the ship station identity.

3.2 It should be possible to initiate and make distress calls from the position from which the ship is normally navigated and from at least one other position designated for distress alerting.

3.3 A distress alert should be activated only by means of a dedicated distress button. This button should not be any key of an ITU-T digital input panel or an ISO keyboard associated with the equipment and should be physically separated from functional buttons/keys used for normal operation. This button should be a single button for no other purpose than to initiate a distress alert.

3.4 The dedicated distress button should:

.1 be clearly identified, red in colour and marked "DISTRESS". Where a non-transparent protective lid or cover is used, it should also be marked "DISTRESS; and

.2 be protected against inadvertent operation. The required protection of the distress button should consist of a spring-loaded lid or cover permanently attached to the equipment by, for example, hinges. It should not be necessary for the user to remove additional seals or to break the lid or cover in order to operate the distress button. The operation of the distress button should generate a visible and audible indication. The distress button should be kept pressed for at least three seconds. A flashing light and an intermittent acoustic signal should start immediately. After the three seconds, the transmission of the distress alert is initiated and the indication should become steady and the acoustic signal should stop.

3.5 The distress alert initiation should require at least two independent actions. Lifting of the protective lid or cover is considered as the first action. Pressing the distress button as specified above is considered as the second independent action.

3.6 The equipment should indicate the status of the distress alert transmission.

3.7 It should be possible to interrupt and initiate distress messages at any time. It should be possible to interrupt repetitive transmissions of distress messages. Such operation should not interrupt the transmission of a distress alert or distress message in progress but should prevent repetitive transmissions of a distress message.

3.8 To enable updating of the position:

.1 the status of the position update should be visible to the operator (e.g. offline, manual or automatic);

.2 if position data is being updated automatically, a caution should be raised if no update has been performed for a period of 10 minutes. The caution should be removed by receiving new position data;

.3 if an integral electronic position-fixing aid is not provided, the equipment should have an interface conforming to the appropriate international standard;*

.4 the equipment should have facilities for manually entering the ship's position and the time of the position fix;

.5 if the ship's manually-set position is older than four hours, a caution should be raised. The caution should be removed by inputting or receiving new position data; and

.6 if the ship's position is older than 24 hours, the position is clearly identified with date and time of the fix in UTC for distress alerting purposes.

* Refer to IEC 61162.

4 RADIO FREQUENCY HAZARDS

In order to permit a warning of potential radiation hazards to be displayed in appropriate locations, a label should be attached to the radome indicating the distances external to the radome at which radiation levels of 100 W/m^2, 25 W/m^2 and 10 W/m^2 exist. However, the distances which are within a radome need not be indicated.

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6.2 Where a stabilized directive antenna is used it should, if practicable, be sited in such a position that no obstacle likely to degrade significantly the performance of the equipment appears in any azimuth down to -5°. For directive antennas with a gain of approximately 20 dB, objects, especially those within 10 m of the antenna, which cause a shadow sector of greater than 6° are likely to degrade significantly the performance of the equipment.

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