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INTERNATIONAL STANDARD

Global maritime distress and safety system (GMDSS) – Part 4: Inmarsat-C ship earth station and Inmarsat enhanced group call (EGC) equipment – Operational and performance requirements, methods of testing and required test results



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GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 4: Inmarsat-C ship earth station and Inmarsat enhanced group call (EGC) equipment – Operational and performance requirements, methods of testing and required test results

FOREWORD

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IEC 61097-4 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2012, Amendment 1:2016 and Amendment 2:2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the addition of a technical requirement in 5.5 for operation in the presence of an interfering signal, with associated test, resulting from new IMO performance standards given in resolution MSC.513(105).

The text of this International Standard is based on the following documents:

Draft	Report on voting
80/1102/FDIS	80/1113/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61097 series, published under the general title *Global maritime distress and safety system (GMDSS)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 4: Inmarsat-C ship earth station and Inmarsat enhanced group call (EGC) equipment – Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 61097 specifies the performance requirements and methods of testing for Inmarsat-C ship earth stations (SES) capable of transmitting and receiving direct-printing communications, and for enhanced group call (EGC) receivers, for use in the GMDSS and for use for long-range identification and tracking (LRIT). The available variants are:

Class 0: An EGC receiver, either stand-alone or an element of a GMDSS installation in accordance with the Inmarsat design and installation guidelines (DIGs) for GMDSS installations.

Class 1: A basic SES providing shore-to-ship and ship-to-shore message transfer only.

Class 2: As class 1 but with EGC as an alternative to shore-to-ship transfer using a shared receiver.

Class 3: As class 1 but with EGC using an independent receiver.

NOTE 1 The 34th session of the IMO Sub-Committee on Radiocommunications decided that class 2 equipment would be adequate to provide sufficient availability for the reception of maritime safety information for the GMDSS.

This document complies with IMO performance requirements stated in the normative references, Inmarsat technical characteristics and test procedures, and IEC 60945 general requirements except where modifications are explicitly stated in this document. Technical characteristics essential to GMDSS and LRIT operation as defined by the IMO are identified.

All text of this document, whose wording is identical to that in IMO SOLAS Convention 1974 as amended in 1988 and Resolutions MSC.513(105), MSC.263(84) and MSC.306(87) is printed in *italics* and reference made to the Resolution/Recommendation and subclause number.

This document covers equipment construction and testing. Matters relating to installation can be found in the Inmarsat Maritime design and installation guidelines (see Bibliography). Those to be found in IMO Resolutions MSC.513(105), MSC.263(84) and MSC.306(87) are reproduced in Annex A.

Responsibility for type approval of Inmarsat-C and Inmarsat-EGC is vested in Inmarsat by IMO Resolutions MSC.513(105) and MSC.306(87) (see 4.2.1). Therefore, this document does not reproduce Inmarsat test procedures in full but refers to where they are given in Inmarsat documentation cited in the normative references to this document (Annex C).

NOTE 2 For the purposes of this document the terms Inmarsat C, Inmarsat-C, Inmarsat Standard-C, Standard-C refer to the same equipment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60945:2002, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 61108 (all parts), *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS)*

IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

IEC 62923-1, *Maritime navigation and radiocommunication equipment and systems – Bridge alert management – Part 1: Operational and performance requirements, methods of testing and required test results*

IEC 62923-2, *Maritime navigation and radiocommunication equipment and systems – Bridge alert management – Part 2: Alert and cluster identifiers and other additional features*

IMO, *International Convention for the safety of life at sea (SOLAS),1974 as amended*

IMO Resolution A.694(17):1991, *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*

IMO Resolution MSC.263(84):2008, *Revised performance standards and functional requirements for the long-range identification and tracking of ships.*

IMO Resolution MSC.302(87):2010, *Performance standards for bridge alert management*

IMO Resolution MSC.306(87):2010, *Revised performance standards for enhanced group call (EGC) equipment as amended by resolution MSC.431(98):2017*

IMO Resolution MSC.513(105), *Performance standards for INMARSAT-C ship earth stations capable of transmitting and receiving direct-printing communications*

Inmarsat, *Inmarsat C System definition manual (SDM) Volume 2 – Part 2, Application Note 2, Position reporting service*

Inmarsat, *Inmarsat C System definition manual (SDM) Volume 2 – Part 2, Application Note 3, Application developers guide to data reporting and polling*

Inmarsat, *Inmarsat C System definition manual (SDM) Volume 3 – Part 2, Chapter 2, Mobile earth station technical requirements*

Inmarsat, *Inmarsat C System definition manual (SDM) Volume 3 – Part 2, Chapter 5, Ship earth station technical requirements*

Inmarsat, *Inmarsat C System definition manual (SDM) Volume 3 – Part 2, Chapter 8, Technical requirements for an EGC receiver*

Inmarsat, *Inmarsat C System definition manual (SDM) Change Notice CN150, ATCt signals and other adjacent interferers*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

4 Performance requirements

4.1 Overview

Subclauses 4.2 through 4.4 of this document describe performance requirements directly attributable to IMO Resolutions MSC.306(87) as amended by MSC.431(98) and MSC.513(105) as listed in the normative references. Subclause 4.5 is provided to highlight those requirements of IMO Resolution A.694(17) which are not included in the normal Inmarsat requirements for Inmarsat-C SES type approval. Subclause 4.6 describes other requirements which are required to make the equipment suitable for GMDSS applications. Subclause 4.7 describes performance requirements attributable to IMO Resolution MSC.263(84) for long-range identification and tracking.

4.2 Non-operational requirements

4.2.1 General

(MSC.306(87) A1.1) The enhanced group call equipment to be used in the GMDSS shall *comply with the general requirements set out in Assembly resolution A.694(17)* as detailed in IEC 60945 and this document.

(MSC.513(105) A1.1) The Inmarsat-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 shall *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* shall *conform to the following minimum requirements.*

(MSC.513(105) A1.2) The performance of any enhanced group call facility provided by the ship earth station shall *be in accordance with the performance standards for enhanced group call equipment set out in resolution MSC.306(87) as amended by resolution MSC.431(98) and with the following minimum performance requirements.*

(MSC.513(105) A2.1)/MSC.306(87) 2) The ship earth station and the EGC equipment shall *be type-approved by Inmarsat and* shall *comply with the environmental conditions and electromagnetic compatibility requirements specified in IEC 60945.*

4.2.2 Warning of radiation hazard

(MSC.513(105) A4) In order to permit a warning of potential radiation hazards to be displayed in appropriate locations, a label shall *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 the radome need not be indicated.*