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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

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

This second edition cancels and replaces the first edition published in 1994. This edition constitutes a technical revision.

The main changes with respect to the previous edition are:

– the IMO references and requirements have been updated to the new performance standards for Inmarsat-C ship earth stations adopted in 1995;
– the requirements for interfaces have been updated to the current version of IEC 61162-1;
– the general requirements have been updated to the current version of IEC 60945;

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– Annex B concerning radiated unwanted emissions has been updated to current requirements.

The text of this standard is based on the following documents:

FDIS	Report on voting
80/487/FDIS	80/497/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of 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 publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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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

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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) equipment, for use in the GMDSS. 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.

The standard 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 standard. Technical characteristics essential to GMDSS operation as defined by the IMO are identified.

All text of this standard, whose wording is identical to that in IMO SOLAS Convention 1974 as amended in 1988 and Resolutions A.807(19), A.664(16), and A.694(17) is printed in *italics* and reference made to the Resolution/Recommendation and subclause number.

This standard covers equipment construction and testing. Matters relating to installation may also be found in the normative references listed in clause 2. Those to be found in IMO Resolutions A.807(19) and A.664(16) are reproduced in annex A.

Responsibility for type approval of INMARSAT-C and INMARSAT-EGC is vested in INMARSAT by IMO Resolutions A.807(19) and A.664(16). Therefore, this standard 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 standard.

NOTE For the purposes of this standard the terms INMARSAT-C, INMARSAT Standard-C and Standard-C refer to the same equipment.

2 Normative references

The following referenced documents are indispensable for the application 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*

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ISO 2022, *Information technology – Character code structure and extension techniques*

International Convention for the safety of life at sea (SOLAS), Regulations IV/7, IV/8, IV/9 and IV/10 of the 1988 amendments concerning radiocommunications for the GMDSS

IMO Resolution A.807(19):1995, *Performance Standards for INMARST--C ship earth stations capable of transmitting and receiving direct-printing communications as amended by Resolution MSC.68(68) Annex 4*

IMO Resolution A.664(16):1989, *Performance standards for enhanced group call equipment*

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: *NAVTEX Manual*

INMARSAT-C System definition manual (SDM):

– Volume 3, *Part 2, Chapter 2, Mobile earth station technical requirements*
– Volume 3, *Part 2, Chapter 5, Ship earth station technical requirements*
– Volume 3, *Part 2, Chapter 8, Technical requirements for an EGC receiver*

INMARSAT: *Recommended test procedures (RTP) for the type approval of INMARSAT-C mobile earth stations*

INMARSAT: *Design and installation guidelines (DIGs) for INMARSAT-C ship earth stations and enhanced group call receivers*

Recommendation ITU-R M.540-2[1]:1990, *Operational and technical characteristics for an automated direct-printing telegraph system for promulgation of navigational and meteorological warnings and urgent information to ships*

3 Performance requirements

3.1 Introduction

Subclauses 3.2 through 3.4 of this part of IEC 61097 describe performance requirements directly attributable to IMO Resolutions A.807(19), A.664(16) and A.694(17) as listed in the normative references. Subclause 3.5 is provided to highlight those requirements of IEC 60945 which are not included in the normal INMARSAT requirements for INMARSAT-C SES type approval. Subclause 3.6 describes other requirements, additional to the normal INMARSAT-C type approval requirements, which are required to make the equipment suitable for GMDSS applications.

3.2 Non-operational requirements common to all classes of INMARSAT-C SES and INMARSAT-EGC

3.2.1 General requirements

3.2.1.1 *(A.807(19) A1.1/A.664(16) A1.1) The INMARSAT Standard-C ship earth station installation capable of transmitting and receiving direct-printing communications, and the enhanced group call equipment to be used in the INMARSAT system* shall *comply with the general requirements set out in Assembly resolution A.694(17)* as detailed in IEC 60945.

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[1] Formerly CCIR Recommendation 540-2.

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3.2.1.2 *(A.807(19) 2/A.664(16) 2) The ship earth station and the EGC equipment* shall *be type-approved by INMARSAT and* shall *comply with the environmental conditions specified in its technical requirements for INMARSAT Standard-C ship earth stations* except as detailed in IEC 60945.

3.2.1.3 *(A.807(19) 4) 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.*

3.2.1.4 *(A.807(19) A5.2/A.664(16) A4.2) Changing from one source of supply to another or any interruption of up to 60 s duration of the supply of electrical energy* shall *not require the equipment to be manually re-initialized and* shall *not result in loss of received messages stored in the memory.*

3.3 Operational requirements for all classes of INMARSAT-C SES including those with INMARSAT-EGC

The equipment shall comply with regulations IV/8 through IV/10 of SOLAS 1974, as amended, which prescribe the capabilities of INMARSAT ship earth stations to meet the GMDSS requirements for ships in the various sea areas. The four capabilities are:

3.3.1 *(IV/8.1.5.1/IV/9.1.3.3 and IV/10.1.4.3): Means of initiating the transmission of ship-to-shore distress alerts.*

3.3.2 *(IV/10.1.1.1): Transmitting and receiving distress and safety communications using direct-printing telegraphy.*

3.3.3 *(IV/10.1.1.2): Initiating and receiving distress priority calls.*

3.3.4 *(IV/9.3.2/IV/10.1.1.4): Transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy.*

NOTE In the case of this equipment only direct-printing telegraphy applies.

3.3.5 In addition, classes 2 and 3 INMARSAT-C SES shall comply with the operational requirements for INMARSAT-EGC receivers (see 3.4).

Operational requirements common to INMARSAT-C equipment are:

3.3.6 *(A.807(19) 3.1): No control external to the equipment* shall *be available for alteration of the ship station identity.*

3.3.7 *(A.807(19) 3.2): It* shall *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.*

3.3.7.1 *(A.807(19) 3.3): A distress alert* shall *be activated only by means of a dedicated distress button. This button* shall *not be any key of an ITU-T digital input panel or an ISO keyboard provided on the equipment.*

3.3.7.2 *(A.807(19) 3.4): The dedicated distress button* shall*:*

1 *be clearly identified; and*

2 *be protected against inadvertent operation.*

3.3.7.3 *(A.807(19) 3.5): The distress alert initiation* shall *require at least two independent actions.*

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