IEC 61097-15

Edition 1.0 2012-05

INTERNATIONAL STANDARD

Global maritime distress and safety system (GMDSS) – Part 15: Inmarsat FB500 ship earth station – Operational and performance requirements, methods of testing and required test results

IEC 61097-15:2012(E)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE T

ICS 47.020.70

ISBN 978-2-83220-109-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 61097-15 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

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

FDIS	Report on voting
80/660/FDIS	80/667/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 stability 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- withdrawn,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.

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 15: Inmarsat FB500 ship earth station – Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 61097 specifies the minimum operational and performance requirements, technical characteristics, methods of testing and required test results for Inmarsat FB500 ship earth stations (SES), capable of transmitting and receiving distress and safety communications, initiating and receiving distress priority calls and transmitting and receiving general radiocommunications, using radiotelephony (voice), as required within Regulation IV/10.1 and 14.1 of the 1988 amendments to the 1974 International Convention for the Safety of Life at Sea (SOLAS), for use in the GMDSS.

This standard covers equipment construction and testing. Matters relating to installation are reproduced in Annex A.

NOTE The Inmarsat FB500 is intended to meet the voice requirements of IMO Resolution A.1001(25). In order to meet the GMDSS carriage requirements of SOLAS in respect of receipt of SafetyNET broadcasts and direct printing telegraphy, it is necessary to install a combined Inmarsat C/EGC transceiver in addition to the Inmarsat FB500 equipment. Annex B provides more information.

This standard incorporates the performance standards of IMO Resolution MSC.130(75) and also takes into account the priority access (voice pre-emption) requirements of IMO Resolution A.1001(25). This standard takes account of IMO Resolution A.694(17) associated with IEC 60945. When a requirement in this standard is different from IEC 60945, the requirement in this standard takes precedence.

All text of this standard, whose wording is identical to that in the IMO Resolutions is printed in italics and the Resolution and paragraph number indicated between brackets.

Responsibility for type approval of Inmarsat FB500 is vested in Inmarsat by IMO Resolution MSC.130(75) (see 4.2). Therefore, this standard does not reproduce Inmarsat test procedures in full, but refers to the relevant tests in Annex C. It is recommended that equipment manufacturers rationalize the test requirements of this standard and those of Inmarsat before embarking on the approval process.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

IEC 61162 (all parts), *Maritime navigation and radio communication equipment and systems – Digital interfaces*

IEC 61162-1:2010, *Maritime navigation and radio communication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

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

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

IMO Resolution A.1001(25), *Criteria for the provision of mobile-satellite communication systems in the Global Maritime Distress and Safety System (GMDSS)*

IMO Resolution MSC.130(75), *Performance standards for Inmarsat ship earth stations capable of two-way communications*

Inmarsat *BGAN System Definition Manual*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1.1
BGAN on the bench
BOB
item of test equipment (test set) designed to simulate the combined operation of an Inmarsat satellite and an Inmarsat FB500 voice transmission path

3.1.2
Inmarsat priorities
priority 3 = distress priority,
priority 2 = urgency priority,
priority 1 = safety priority,
priority 0 = routine

3.1.3
Inmarsat type approval
testing of a ship earth station design by Inmarsat

Note 1 to entry: This approval is required for access to the Inmarsat space segment and is essential before approvals can be granted by national administrations.

3.1.4
L-band
frequency band in the range 1,4 GHz to 1,7 GHz allocated to the mobile satellite service and in which the EUT transmits and receives

3.1.5
performance check
for the purposes defined in IEC 60945, check comprising standard tests A and B

3.1.6
performance test
for the purposes defined in IEC 60945, test comprising standard tests A and B, carried out for both distress and safety priorities

3.1.7
pre-emption
automatic clearance of an ongoing call to enable a call of higher priority to be established

3.1.8
radio frequency hazards
hazards caused by electromagnetic radiofrequency radiation, whose level would require safety rules to be applied in the vicinity of the radiating equipment

3.1.9
radome
radiofrequency transparent cover placed over an antenna system

3.1.10
SafetyNET
service provided over a dedicated Inmarsat C carrier, for the dissemination of maritime safety information, such as distress alerts, weather forecasts and coastal warnings

3.1.11
standard tests
two tests defined in this standard as Test A – Duplex telephone test (ship-originated) and Test B – Duplex telephone test (shore-originated) which together form the performance test required by IEC 60945

3.2 Abbreviations

EGC	Enhanced Group Call
EIRP	Effective Isotropic Radiated Power
EUT	Equipment Under Test
GMDSS	Global Maritime Distress and Safety System
IMO	International Maritime Organization
Inmarsat	Inmarsat Global Ltd.
ISO	International Organization for Standardization
ITU	International Telecommunications Union
MSI	Maritime Safety Information
NAS	Non-Access Stratum (a third generation partnership project standard)
RAN	Radio Access Network
RCC	Rescue Coordination Centre
SDM	System Definition Manual (published by Inmarsat)
SES	Ship Earth Station
SOLAS	International convention for the Safety Of Life At Sea
UT	User Terminal

4 General and operational requirements

4.1 General

(See 6.2)

(MSC.130/A.1) *The ship earth station installation capable of telephony and data communications* shall *comply with the general requirements set out in resolution A.694(17) and with the following minimum requirements.*

An Inmarsat FB500 ship earth station, which is defined in the Inmarsat BGAN SDM, is capable of

- transmitting and receiving distress and safety communications,
- initiating and receiving distress priority calls, and
- transmitting and receiving general radio communications, using radiotelephony.

The equipment shall comply with the general requirements of IEC 60945, as applicable to the equipment category, for example “protected”, “exposed”.

4.2 Inmarsat type approval

(MSC.130/A.2) *The equipment* shall *be type approved by Inmarsat and* shall *comply with the environmental conditions specified in its technical requirements for Inmarsat ship earth stations capable of two-way communications.*

NOTE Inmarsat type approval is required for access to the Inmarsat space segment and is essential before approvals are granted by national administrations.

4.3 Prevention of alteration of ship earth station identity

(See 6.3)

(MSC.130/A3.1) *No control external to the equipment* shall *be available for alteration of the ship station identity.*

4.4 Initiation of distress alerts

(See 6.4)

(MSC.130/A.3.2) *It* shall *be possible to initiate and make distress calls by telephony or data communications from the position at which the ship is normally navigated and from any position designated for distress alerting. In addition, where a room is provided for radio communications, means to initiate distress calls* shall *also be fitted in that room.*

A suitable interface on the EUT to enable these two requirements to be achieved shall be provided by the equipment manufacturer.

4.5 Dedicated distress button

(See 6.4)

(MSC.130/A3.5) *A distress call* 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.*

(MSC.130/A3.6) *The dedicated distress button* shall*:*