

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**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2012 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

Useful links:

IEC publications search - www.iec.ch/searchpub

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,...).

It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

Copyrighted preview generated by EVS



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**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

ICS 47.020.70

ISBN 978-2-83220-109-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions	7
3.2 Abbreviations	8
4 General and operational requirements.....	9
4.1 General.....	9
4.2 Inmarsat type approval.....	9
4.3 Prevention of alteration of ship earth station identity	9
4.4 Initiation of distress alerts	9
4.5 Dedicated distress button.....	9
4.6 Alarm on reception of shore-originated duplex calls with distress priority.....	10
4.7 Radio frequency hazards.....	10
4.8 Equipment manual.....	10
5 Technical requirements	11
5.1 General.....	11
5.2 Pre-emption by distress calls (ship originated)	11
5.3 Power supply interruption	11
5.4 Interfaces	11
6 Methods of testing and required test results	11
6.1 General.....	11
6.1.1 Test arrangements	11
6.1.2 Measurement uncertainties.....	12
6.1.3 Definition of standard tests.....	12
6.1.4 Required results from standard tests	13
6.2 General requirements.....	13
6.3 Prevention of alteration of ship earth station identity	13
6.4 Distress alerts	13
6.4.1 Distress initiation.....	13
6.4.2 Test using local distress button	14
6.4.3 Test using remote distress button	14
6.5 Distress priority alarm	14
6.6 Labels and manual	14
6.7 Operational tests (without pre-emption).....	14
6.7.1 Purpose.....	14
6.7.2 Method of test	14
6.7.3 Required results	15
6.8 Operational tests (with pre-emption).....	15
6.8.1 Purpose.....	15
6.8.2 Method of test	15
6.8.3 Required results	16
6.9 Power supply.....	19
6.9.1 Purpose.....	19
6.9.2 Method of test	19

6.9.3 Result required	19
6.10 Interfaces	19
Annex A (normative) Requirements relating to installation	21
Annex B (informative) Reception of maritime safety information (MSI)	22
Annex C (informative) List of Inmarsat FB500 type-approval tests	23
Bibliography.....	24
Table 1 – Testing with different priorities	15
Table 2 – Pre-emption of telephone call set up from ship	16
Table 3 – Pre-emption of telephone call set up from shore.....	17
Table 4 – Pre-emption of facsimile call set up from ship.....	17
Table 5 – Pre-emption of facsimile call set up from shore	17
Table 6 – Pre-emption of 64 kbit/s call set up from ship	17
Table 7 – Pre-emption of 64 kbit/s call set up from shore.....	18
Table 8 – Pre-emption of 3,1 kHz audio call set up from ship	18
Table 9 – Pre-emption of 3,1 kHz audio call set up from shore.....	18
Table 10 – Non-pre-emption of high-priority ship-originated telephone call by subsequent lower priority ship-originated calls	18
Table 11 – Non-pre-emption of high-priority shore-originated telephone call by subsequent lower priority ship-originated calls.....	19
Table C.1 – List of Inmarsat tests	23

Review generated by EVS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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.

This document is a preview generated by EVS

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