STD.IEC 61097-10-ENGL 1999 ■ 4844891 0704343 751 ■

INTERNATIONAL STANDARD

IEC 61097-10

First edition
1999-06

Global maritime distress and safety system (GMDSS) –

Part 10: Inmarsat-B ship earth station equipment – Operational and performance requirements, methods of testing and required test results

Système mondial de détresse et de sécurité en mer (SMDSM) –

Partie 10: Matériel destiné aux stations terrestres des navires de type Inmarsat-B – Exigences d'exploitation et de fonctionnement, méthodes d'essai et résultats d'essai exigés



Reference number
IEC 61097-10:1999(E)

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site***
- **Catalogue of IEC publications**
  Published yearly with regular updates
  (On-line catalogue)*
- **IEC Bulletin**
  Available both at the IEC web site* and as a printed periodical

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

* See web site address on title page.

INTERNATIONAL STANDARD

IEC 61097-10

First edition
1999-06

Global maritime distress and safety system (GMDSS) –

Part 10: Inmarsat-B ship earth station equipment – Operational and performance requirements, methods of testing and required test results

Système mondial de détresse et de sécurité en mer (SMDSM) –

Partie 10: Matériel destiné aux stations terrestres des navires de type Inmarsat-B – Exigences d'exploitation et de fonctionnement, méthodes d'essai et résultats d'essai exigés

© IEC 1999 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland
Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site http://www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE J

For price, see current catalogue

CONTENTS

Page

FOREWORD 3

Clause

1 Scope 4
2 Normative references 4
3 Definitions and abbreviations 5
3.1 Definitions 5
3.2 Abbreviations 6
4 General and operational requirements 6
4.1 General 6
4.2 General requirements 6
4.3 Operational requirements for Inmarsat-B maritime class 1 SES 7
4.4 Inter-operability 8
4.5 Interfaces 8
4.6 Safety 8
4.7 Equipment manual 8
4.8 Marking and identification 9
4.9 Maintenance 9
5 Technical characteristics 9
5.1 Purpose 9
5.2 General 9
5.3 Power supply 10
6 Methods of testing and required test results 10
6.1 General 10
6.2 Performance testing 10
6.3 Environmental testing 12
6.4 Electromagnetic compatibility 12
6.5 General tests 13
6.6 Operational tests 13
6.7 Power supply 14

Annex A (normative) Requirements relating to installation 15
Annex B (informative) Reception of maritime safety information (MSI) 16
Annex C (informative) Inmarsat-B spot beam scanning 18

INTERNATIONAL ELECTROTECHNICAL COMMISSION

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 10: Inmarsat-B ship earth station equipment – Operational and performance requirements, methods of testing and required test results

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61097-10 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
80/216/FDIS	80/231/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.

Annex A forms an integral part of this standard.

Annexes B and C are for information only.

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

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 10: Inmarsat-B ship earth station equipment – 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-B maritime class 1 ship earth stations (SES), capable of transmitting and receiving distress and safety communications using telephony and direct-printing telegraphy, as required by 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.

In order to meet the carriage requirements of the GMDSS in respect of receipt of SafetyNET broadcasts, it is necessary to install an additional EGC receiver or a combined Inmarsat-C/EGC receiver.

This standard takes account of IMO Resolution A.694, to which IEC 60945 is associated. When a requirement in this standard is different from IEC 60945, the requirement in this standard takes precedence.

This standard incorporates the performance standards of IMO Resolution A.808. It also incorporates the relevant ITU Radio regulations.

This standard does not incorporate the Inmarsat system requirements needed for Inmarsat type approval. For these, the latest edition of the Inmarsat-B system definition manual (SDM) shall be consulted. When a requirement in this standard is different from one in the Inmarsat-B SDM, reference shall be made to the most recent IMO and ITU applicable documents to resolve the difficulty.

NOTE – All text of this standard, the wording of which is identical to that in the IMO SOLAS Convention 1974 as amended and IMO Resolution A.808, is printed in *italics* and it is followed by the resolution or recommendation and paragraph number indicated between brackets.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61097. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61097 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60945:1996, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 61162-1:1995, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

IMO International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended

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

IMO Resolution A.808:1995, *Performance standards for ship earth stations capable of two-way communications*

IMO MSC Circular 862:1998, *Clarifications of certain requirements in IMO performance standards for GMDSS equipment*

ITU:1997, *Radio Regulations*

ITU-R SM.329-7:1997, *Spurious emissions*

Inmarsat:1997, *Inmarsat-B system definition manual (SDM) – Issue 3.0 including change note CN 13 – technical performance requirements (module 2, part I) and type approval procedures (module 2, part II)*

Inmarsat:1997, *Inmarsat-B design and installation guidelines (DIGS)*

3 Definitions and abbreviations

3.1 Definitions

For the purpose of this standard, the following definitions apply:

3.1.1
L-band
the 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

3.1.2
LES simulator
an item of test equipment designed to simulate the combined operation of an Inmarsat satellite and an Inmarsat-B land earth station. The LES simulator interfaces to the EUT at L-band, either by means of a small antenna or via a coaxial cable. It permits voice and telex calls to be set up in accordance with the relevant Inmarsat-B protocols

3.1.3
SafetyNET
a service provided over a dedicated Inmarsat-C carrier, for the dissemination of maritime safety information, such as distress alerts, weather forecasts and coastal warnings

3.1.4
carrier to noise density ratio
the ratio of unmodulated carrier power to noise power normalised to a 1 Hz bandwidth

3.1.5
performance check
in this standard, a performance check for the purpose defined in IEC 60945, comprises standard tests A and D in 6.2.2, carried out under normal test conditions for distress priority only

3.1.6
performance test
a performance test for the purpose defined in IEC 60945, comprises standard tests A, B, C, D and E in 6.2.2, carried out for both distress and safety priorities