



IEC 61097-4

Edition 4.0 2024-02  
COMMENTED VERSION

# 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**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

ICS 47.020.70

ISBN 978-2-8322-8342-4

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

## CONTENTS

FOREWORD .....	4
<del>INTRODUCTION to Amendment 2 .....</del>	<del>4</del>
1 Scope .....	7
2 Normative references .....	8
3 Terms and definitions .....	9
4 Performance requirements .....	9
4.1 Overview .....	9
4.2 Non-operational requirements .....	9
4.2.1 General .....	9
4.2.2 Warning of radiation hazard .....	10
4.2.3 Power supply changeover .....	10
4.2.4 Installation .....	10
4.3 Operational requirements for ship earth stations .....	10
4.3.1 Capabilities .....	10
4.3.2 Ship station identity .....	10
4.3.3 Distress alerting .....	10
4.3.4 Position updating .....	11
4.4 Operational requirements for EGC receivers .....	12
4.4.1 Capabilities .....	12
4.4.2 General .....	12
4.4.3 Position and area code updating .....	13
4.4.4 Indication of receipt of priority message .....	13
4.4.5 Indication of tuning and synchronisation .....	13
4.4.6 Printing selection .....	13
4.4.7 Printing device .....	14
4.5 Performance related requirements from IEC 60945 .....	14
4.6 Other requirements .....	14
4.7 Long-range identification and tracking .....	15
4.7.1 General .....	15
4.7.2 Capabilities .....	15
4.7.3 Functionality .....	16
4.7.4 Communication system .....	17
5 Technical characteristics .....	17
5.1 Overview .....	17
5.2 Environmental and electromagnetic compatibility requirement .....	17
5.3 Radiated spurious emissions .....	18
5.4 Interfaces .....	18
5.5 Interfering signals .....	19
6 Methods of testing and required test results .....	19
6.1 Overview .....	19
6.1.1 General .....	19
6.1.2 Performance requirements .....	19
6.1.3 Technical characteristics .....	19
6.2 Tests of non-operational requirements .....	19
6.3 Tests of operational requirements for ship earth stations .....	19
6.3.1 Capabilities .....	19

6.3.2	Ship station identity .....	20
6.3.3	Distress alerting .....	20
6.3.4	Position updating.....	20
6.4	Tests of operational requirements for EGC receivers .....	21
6.4.1	Capabilities .....	21
6.4.2	General.....	21
6.4.3	Position and area code updating .....	21
6.4.4	Indication of receipt of priority message .....	21
6.4.5	Indication of tuning and synchronisation .....	21
6.4.6	Printing selection.....	21
6.4.7	Printing device .....	22
6.5	Tests of performance related requirements from IEC 60945 .....	22
6.6	Tests of other requirements .....	22
6.7	Long-range identification and tracking .....	22
6.7.1	General.....	22
6.7.2	Capabilities .....	22
6.7.3	Functionality.....	23
6.7.4	Communication system.....	23
6.8	Tests of technical characteristics.....	24
6.8.1	Inmarsat tests .....	24
6.8.2	Tests for environmental and electromagnetic compatibility .....	24
6.8.3	Interfaces.....	24
6.8.4	Interfering signals.....	24
Annex A	(normative) Requirements relating to installation .....	26
A.1	General.....	26
A.2	Source of electrical energy.....	26
A.3	Siting of antennas.....	26
A.4	Long-range identification and tracking .....	26
A.5	Requirements .....	26
Annex B	(normative) Radiated unwanted emissions.....	27
B.1	Unwanted emissions 30 MHz to 1 000 MHz .....	27
B.2	Unwanted emissions above 1 000 MHz .....	27
B.3	Unwanted emissions within the bands with carrier-on.....	28
B.4	Unwanted emissions within the bands with carrier-off .....	29
Annex C	(informative) Inmarsat RTP schedule of tests .....	30
Bibliography	.....	34
List of comments	.....	35
Table 1	– Data to be transmitted from the shipborne equipment.....	16
Table 2	– Environmental conditions .....	17
Table B.1	– Limits of unwanted emissions up to 1 000 MHz.....	27
Table B.2	– Limits of unwanted emissions above 1 000 MHz .....	28
Table B.3	– Limits of unwanted emission within the operating band with carrier-on.....	29
Table C.1	– Phase I Inmarsat-C schedule of tests .....	30
Table C.2	– Phase I EGC receiver schedule of tests.....	32
Table C.3	– Phase II schedule of tests.....	33

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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

- 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

**This commented version (CMV) of the official standard IEC 61097-4:2024 edition 4.0 allows the user to identify the changes made to the previous IEC 61097-4:2012+AMD1:2016+AMD2:2019 CSV edition 3.2. Furthermore, comments from IEC TC 80 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.**


**A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.**

**This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.**

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

**IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## **INTRODUCTION to Amendment 2**

~~NOTE This amendment adds a requirement for an interface for alert management and removes the requirement to produce a printed copy of received safety information providing there is an interface to other navigation display equipment. This results from amendments to the performance standards for enhanced group call equipment agreed by the International Maritime Organization in resolution MSC.431(98) in 2017. It can be noted that the technical provisions for the interface for the transfer of received data to other navigation display equipment were included in IEC 61097-4:2012/AMD1:2016.~~

## 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 34<sup>th</sup> 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 ~~A.807(19)~~ 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 ~~may also~~ can be found in the Inmarsat Maritime design and installation guidelines (see Bibliography). Those to be found in IMO Resolutions ~~A.807(19)~~ 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 ~~A.807(19)~~ 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 A.807(19):1995, *Performance Standards for INMARSAT-C ship earth stations capable of transmitting and receiving direct-printing communications as amended by Resolution MSC.68(68) Annex 4*~~

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, *Recommended test procedures (RTP) for the type approval of Inmarsat C mobile earth stations*~~

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

# 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**

## CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	7
3 Terms and definitions .....	8
4 Performance requirements.....	8
4.1 Overview.....	8
4.2 Non-operational requirements .....	8
4.2.1 General .....	8
4.2.2 Warning of radiation hazard.....	8
4.2.3 Power supply changeover.....	9
4.2.4 Installation .....	9
4.3 Operational requirements for ship earth stations .....	9
4.3.1 Capabilities.....	9
4.3.2 Ship station identity .....	9
4.3.3 Distress alerting .....	9
4.3.4 Position updating .....	10
4.4 Operational requirements for EGC receivers .....	10
4.4.1 Capabilities.....	10
4.4.2 General .....	11
4.4.3 Position and area code updating.....	11
4.4.4 Indication of receipt of priority message.....	11
4.4.5 Indication of tuning and synchronisation .....	12
4.4.6 Printing selection .....	12
4.4.7 Printing device.....	12
4.5 Performance related requirements from IEC 60945 .....	12
4.6 Other requirements .....	13
4.7 Long-range identification and tracking.....	13
4.7.1 General .....	13
4.7.2 Capabilities.....	13
4.7.3 Functionality .....	15
4.7.4 Communication system.....	15
5 Technical characteristics .....	15
5.1 Overview.....	15
5.2 Environmental and electromagnetic compatibility requirement.....	15
5.3 Radiated spurious emissions .....	16
5.4 Interfaces.....	16
5.5 Interfering signals .....	17
6 Methods of testing and required test results .....	17
6.1 Overview.....	17
6.1.1 General .....	17
6.1.2 Performance requirements.....	18
6.1.3 Technical characteristics .....	18
6.2 Tests of non-operational requirements .....	18
6.3 Tests of operational requirements for ship earth stations .....	18
6.3.1 Capabilities.....	18
6.3.2 Ship station identity .....	18

6.3.3	Distress alerting .....	18
6.3.4	Position updating .....	19
6.4	Tests of operational requirements for EGC receivers .....	19
6.4.1	Capabilities.....	19
6.4.2	General .....	19
6.4.3	Position and area code updating.....	19
6.4.4	Indication of receipt of priority message.....	20
6.4.5	Indication of tuning and synchronisation .....	20
6.4.6	Printing selection .....	20
6.4.7	Printing device.....	20
6.5	Tests of performance related requirements from IEC 60945.....	20
6.6	Tests of other requirements .....	20
6.7	Long-range identification and tracking.....	21
6.7.1	General .....	21
6.7.2	Capabilities.....	21
6.7.3	Functionality .....	21
6.7.4	Communication system.....	21
6.8	Tests of technical characteristics .....	22
6.8.1	Inmarsat tests.....	22
6.8.2	Tests for environmental and electromagnetic compatibility.....	22
6.8.3	Interfaces .....	23
6.8.4	Interfering signals.....	23
Annex A	(normative) Requirements relating to installation .....	24
A.1	General.....	24
A.2	Source of electrical energy .....	24
A.3	Siting of antennas .....	24
A.4	Long-range identification and tracking.....	24
A.5	Requirements .....	24
Annex B	(normative) Radiated unwanted emissions .....	25
B.1	Unwanted emissions 30 MHz to 1 000 MHz.....	25
B.2	Unwanted emissions above 1 000 MHz .....	25
B.3	Unwanted emissions within the bands with carrier-on.....	26
B.4	Unwanted emissions within the bands with carrier-off .....	27
Annex C	(informative) Inmarsat RTP schedule of tests.....	28
Bibliography	.....	32
Table 1	– Data to be transmitted from the shipborne equipment.....	15
Table 2	– Environmental conditions .....	16
Table B.1	– Limits of unwanted emissions up to 1 000 MHz .....	25
Table B.2	– Limits of unwanted emissions above 1 000 MHz .....	26
Table B.3	– Limits of unwanted emission within the operating band with carrier-on .....	27
Table C.1	– Phase I Inmarsat-C schedule of tests.....	28
Table C.2	– Phase I EGC receiver schedule of tests .....	30
Table C.3	– Phase II schedule of tests.....	31

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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

- 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://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](http://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 34<sup>th</sup> 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*