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Global maritime distress and safety system (GMDSS) – Part 2: Cospas-Sarsat EPIRB – Emergency position indicating radio beacon operating on 406 MHz – Operational and performance requirements, methods of testing and required test results

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GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 2: Cospas-Sarsat EPIRB – Emergency position indicating radio beacon operating on 406 MHz – Operational and performance requirements, methods of testing and required test results

FOREWORD

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IEC 61097-2 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 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) revision of the Scope to incorporate new IMO performance standards published in 2019;
b) addition of requirements and tests for second generation beacons designed for operation with the Cospas-Sarsat medium earth orbit (MEO) satellite constellation;
c) addition of an AIS locating device, a night vision light and an optional return link service (RLS);

d) reduction of the minimum duty cycle of the 121,5 MHz homing signal;

e) addition of requirements for an internal GNSS receiver including a related range of additional GNSS tests in Annex B;

f) inclusion of a new Clause 3 for terms, definitions and abbreviated terms;

g) addition of a new Annex E for the AIS locating signal specification, a new Annex F for symbols and a new Annex G for IEC 61162-1 RLM sentence notes;

h) deletion of the original Annex E which is now of historic interest.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
80/999/FDIS	80/1002/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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/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 in the data related to the specific document. At this date, the document will be

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- withdrawn,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

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 2: Cospas-Sarsat EPIRB – Emergency position indicating radio beacon operating on 406 MHz – Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 61097 specifies the minimum performance requirements, technical characteristics and type-testing requirements of the emergency position-indicating radio beacon used in the Cospas-Sarsat satellite system (EPIRB), as required by the International Convention for Safety of Life at Sea (SOLAS) as amended, and which is associated with IEC 60945. When a requirement in this document is different from the requirements in IEC 60945 or other standards, the requirement in this document takes precedence.

This document incorporates the performance standards of IMO Resolution MSC.471(101), the International Telecommunication Union (ITU) Radio Regulations as well as the technical characteristics for such transmitters contained in Recommendation ITU-R M.633, and takes account of the general requirements contained in IMO Resolution A.694(17).

This document also includes minimum performance standards for a non-float-free EPIRB without float-free release mechanism (see Annex C).

NOTE 1 Although a number of the requirements and tests can be similar, this document is not intended to be used with 406 MHz ship security alert system (SSAS) beacons.

All texts of this document, whose wording is identical to that in the IMO Resolutions A.662(16), A.694(17), and MSC.471(101) will be printed in *italics* and the Resolution/Recommendation and paragraph number indicated between brackets.

NOTE 2 Classes of EPIRBs considered in this document are:

– Class 0: Category 1 Float-free (−55 °C to +70 °C). The float-free release mechanism (A.662(16)) is capable of operating throughout the temperature range of −30 °C to +65 °C and of surviving a stowage temperature range of −55 °C to +70 °C.

– Class 1: Category 1 Float-free (−40 °C to +55 °C). The float-free release mechanism (A.662(16)) is capable of operating throughout the temperature range of −30 °C to +65 °C and of surviving a stowage temperature range of −40 °C to +65 °C.

  These classes are not required by IMO Resolutions but can be applied at the discretion of each Administration.

– Class 2: Category 1 Float-free (−20 °C to +55 °C). The float-free release mechanism (A.662(16)) is capable of being stowed and of operating throughout the temperature range of −30 °C to +65 °C.

NOTE 3 Category 2 Non float-free, EPIRBs in all classes are considered in Annex C.

NOTE 4 All classes include a 121,5 MHz homing device, described in Annex D.

NOTE 5 All classes include an AIS locating signal, described in Annex E.

NOTE 6 All classes include beacon position data, obtained from a navigation device internal to the EPIRB and can also provide an external navigation input as described in Annex B.

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 61097-14:2010, *Global maritime distress and safety system (GMDSS) – Part 14: AIS search and rescue transmitter (AIS-SART) – Operational and performance requirements, methods of testing and required test results*

IEC 61108-1, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 1: Global positioning system (GPS) – Receiver equipment – Performance standards, methods of testing and required test results*

IEC 61108-2, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 2: Global navigation satellite system (GLONASS) – Receiver equipment – Performance standards, methods of testing and required test results*

IEC 61108-3, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 3: Galileo receiver equipment – Performance requirements, methods of testing and required test results*

IEC 61108-5:2020, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 5: BeiDou navigation satellite system (BDS) – Receiver equipment – Performance requirements, methods of testing and required test results*

ISO 15734, *Ships and marine technology – Hydrostatic release units*

IMO Resolution A.658(16), *Use and fitting of retro-reflective materials on life-saving appliances*

IMO Resolution A.662(16), *Performance standards for float-free release and activation arrangements for emergency radio equipment*

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 MSC.48(66):1996, *Adoption of the International life-saving appliance (LSA) code, as amended by IMO Resolutions MSC.207(81), MSC.218(82) and MSC.272(85)*

IMO Resolution MSC.471(101):2019, *Performance standards for float-free emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz*

ITU Radio Regulations

ITU-R Recommendation M.585, *Assignment and use of identities in the maritime mobile service*

ITU-R Recommendation M.1371-5:2014, *Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band*

Cospas-Sarsat
C/S T.001, *Specification for Cospas-Sarsat 406 MHz Distress Beacons*
C/S T.007, *Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard*
C/S T.012, *Cospas-Sarsat 406 MHz Frequency Management Plan*
C/S T.018, *Specification for Second-Generation Cospas-Sarsat 406 MHz Distress Beacons*
C/S T.021, *Cospas-Sarsat Second Generation 406 MHz Distress Beacon Type Approval Standard*

United Nations, *Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria, 7th Revised Edition, PART III, Section 38.3 (ST/SG/AC.10/11/Rev.7)*, as amended