

# INTERNATIONAL STANDARD



**Maritime navigation and radiocommunication equipment and systems –  
Shipborne equipment for long-range identification and tracking (LRIT) –  
Performance requirements**

IEC 62729:2012

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>



**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](mailto:info@iec.ch)  
[www.iec.ch](http://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](http://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It also gives information on projects, replaced and withdrawn publications.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](http://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](http://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](http://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](mailto:csc@iec.ch).

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f1-f767c96e7583/iec-62729-2012>

# INTERNATIONAL STANDARD



**Maritime navigation and radiocommunication equipment and systems –  
Shipborne equipment for long-range identification and tracking (LRIT) –  
Performance requirements**

IEC 62729:2012

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**S**

ICS 47.020.70

ISBN 978-2-83220-148-0

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

## CONTENTS

|  |    |
|--|----|
| FOREWORD.....  | 4  |
| 1 Scope.....   | 6  |
| 2 Normative references .....   | 6  |
| 3 Abbreviations .....  | 7  |
| 4 Performance requirements .....                                     | 7  |
| 4.1 General.....   | 7  |
| 4.1.1 General requirements.....                                      | 7  |
| 4.1.2 Additional facilities .....                                    | 7  |
| 4.2 Transmission of information.....                                 | 7  |
| 4.3 Remote configuration .....                                       | 8  |
| 4.4 On-demand reports .....  | 8  |
| 4.5 Functionality.....   | 8  |
| 4.6 Coverage .....   | 9  |
| 4.7 User controls.....   | 9  |
| 4.8 Remote switching.....  | 10 |
| 5 Technical requirements.....  | 10 |
| 5.1 Interfacing.....   | 10 |
| 5.2 Environmental requirement.....                                   | 10 |
| 5.3 Electromagnetic compatibility requirement.....                   | 10 |
| 5.4 Recovery after power outage.....                                 | 10 |
| 5.5 Radiated spurious emissions.....                                 | 11 |
| 6 Methods of testing and required test results .....                 | 11 |
| 6.1 General.....   | 11 |
| 6.2 General.....   | 11 |
| 6.2.1 General requirements.....                                      | 11 |
| 6.2.2 Additional facilities .....                                    | 12 |
| 6.3 Performance requirements .....                                   | 12 |
| 6.3.1 Transmission of information.....                               | 12 |
| 6.3.2 Remote configuration .....                                     | 12 |
| 6.3.3 On demand reports.....   | 12 |
| 6.3.4 Functionality.....   | 12 |
| 6.3.5 Coverage.....  | 13 |
| 6.3.6 User controls.....   | 13 |
| 6.3.7 Remote switching .....   | 13 |
| 6.4 Technical requirements .....                                     | 13 |
| 6.4.1 Interfacing.....   | 13 |
| 6.4.2 Recovery after power outage.....                               | 14 |
| 6.4.3 Radiated spurious emissions .....                              | 14 |
| Annex A (informative) Introduction to the LRIT system.....           | 15 |
| Annex B (normative) Requirements relating to installation .....      | 18 |
| Annex C (informative) LRIT shipborne equipment conformance test..... | 19 |
| Bibliography.....  | 22 |

ITeH STANDARD PREVIEW

(standards.iteh.ai)

IEC 62729:2012

[https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-](https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f67c96e7583/iec-62729-2012)

[f67c96e7583/iec-62729-2012](https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f67c96e7583/iec-62729-2012)

|  |    |
|--|----|
| Figure A.1 – Schematic of information transfer from ship to LRIT data centre ..... | 15 |
| Figure A.2 – Schematic of information transfer in the LRIT system .....            | 16 |
| Table 1 – Data to be transmitted from the shipborne equipment.....                 | 9  |
| Table C.1 – Shipborne equipment test requirements .....                            | 19 |

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[IEC 62729:2012](#)

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MARITIME NAVIGATION AND RADIOCOMMUNICATION  
EQUIPMENT AND SYSTEMS –  
SHIPBORNE EQUIPMENT FOR LONG-RANGE  
IDENTIFICATION AND TRACKING (LRIT) –  
PERFORMANCE REQUIREMENTS**

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 62729 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 |
|-------------|------------------|
| 80/663/FDIS | 80/668/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.

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.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication 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.**

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[IEC 62729:2012](#)

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>

# MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – SHIPBORNE EQUIPMENT FOR LONG-RANGE IDENTIFICATION AND TRACKING (LRIT) – PERFORMANCE REQUIREMENTS

## 1 Scope

International Standard IEC 62729 specifies the performance requirements and methods of testing for shipborne equipment for use for long-range identification and tracking (LRIT). Long-range identification and tracking of ships is a requirement of regulation V/19-1 of SOLAS 1974 as amended. An introduction to the system is given in Annex A. The standard results from observations made at the IMO meeting of MSC 88 in November 2010 that some LRIT equipment in practice was not operating in accordance with the provisions of SOLAS and the IMO performance standards.

The standard takes account of the general requirements given in IMO resolution A.694(17) and is associated with IEC 60945. When a requirement in this International Standard is different from IEC 60945, the requirement in this standard takes precedence.

This standard incorporates the parts of the performance standards included in IMO resolution MSC.263(84), Revised performance standards and functional requirements for the long-range identification and tracking of ships.

Equipment tested to this standard will demonstrate compliance with the SOLAS regulation as indicated below and the test results will assist Administrations in granting type approval:

*(SOLAS V/19-1.6) Systems and equipment used to meet the requirements of this regulation shall conform to performance standards and functional requirements not inferior to those adopted by the IMO. Any shipboard equipment shall be type approved by the Administration.*

Shipboard installations are not covered by this standard but matters relating to the installation of the shipboard equipment are reproduced in Annex B. The IMO conformance test of shipborne installations is not covered by this standard but details are given, for information, in Annex C.

NOTE All text of this standard, whose wording is identical to that of IMO resolution MSC.263(84) and the SOLAS Convention, is printed in italics, and the resolution and associated performance standard paragraph numbers or regulation are indicated in brackets.

## 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 60945:2002, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

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*

ITU Radio Regulations, *Appendix 3, Tables of maximum permitted power levels for spurious or spurious domain emissions*

### 3 Abbreviations

|       |  |
|-------|--|
| ASP   | Application Service Provider                           |
| CSP   | Communication Service Provider                         |
| GMDSS | Global Maritime Distress and Safety System             |
| GNSS  | Global Navigation Satellite System                     |
| IMO   | International Maritime Organization                    |
| LRIT  | Long-Range Identification and Tracking                 |
| MMSI  | Maritime Mobile Service Identity                       |
| RAIM  | Receiver Autonomous Integrity Monitoring               |
| SOLAS | International Convention for the Safety Of Life At Sea |
| SSAS  | Ship Security Alert System                             |

NOTE The meaning and usage of certain LRIT terms can be found in Annex A.

### 4 Performance requirements

[IEC 62729:2012](https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012)

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>

#### 4.1 General

##### 4.1.1 General requirements

(See 6.2.1)

(MSC.263(84) A4.1) *In addition to the general requirements contained in resolution A.694(17) on Recommendations on general requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids, the shipborne equipment should comply with the following minimum requirements.*

The equipment shall comply with the general requirements described in IEC 60945.

In addition to the requirements of IEC 60945 for equipment manuals, the equipment handbooks shall state the areas in which the equipment will operate (see 4.6) and information on installation as described in Annex B.

##### 4.1.2 Additional facilities

(See 6.2.2)

If the equipment incorporates facilities additional to the minimum requirements of this standard (for instance for GMDSS or SSAS) the operation of such additional facilities shall not degrade the performance of the equipment and the required performance requirements for LRIT shall be met. However, communications for distress, urgency and safety take priority over the transmission of LRIT information.

#### 4.2 Transmission of information

(See 6.3.1)

(MSC.263(84) A4.1.1) The shipborne equipment shall *be capable of automatically and without human intervention on board the ship transmitting the ship's LRIT information at 6-hour intervals to an LRIT Data Centre.*

NOTE LRIT data centres are described in Annex A. The LRIT information is described in Table 1.

Means shall be provided to enable the shipborne equipment to be remotely programmed to transmit the LRIT information to the selected LRIT data centre.

There shall be no control available to the shipborne user to set up or remove the programming information (however, see 4.7).

The default transmission interval shall be 6 h.

### 4.3 Remote configuration

(See 6.3.2)

(MSC.263(84) A4.1.2) The shipborne equipment shall *be capable of being configured remotely to transmit LRIT information at variable intervals (Pre-scheduled position reports).*

The equipment shall be capable of being remotely configured to transmit LRIT information at intervals ranging from a minimum of 15 min to periods of 6 h to the LRIT data centre, irrespective of where the ship is located and without human interaction on board the ship.

Means shall be provided to enable a request from an LRIT data centre to program the equipment with the desired interval between transmissions

### 4.4 On-demand reports

(See 6.3.3)

<https://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012>

(MSC.263(84) A4.1.3) The shipborne equipment shall *be capable of transmitting LRIT information following receipt of polling commands (On-demand position reports)*

NOTE 1 *On-demand position reports* means transmission of LRIT information as a result of either receipt of polling command or of remote configuration of the equipment so as to transmit at intervals other than the preset ones.

The equipment shall be capable of responding to a request to transmit LRIT information on demand without human interaction on board the ship, irrespective of where the ship is located.

Means shall be provided for the equipment to respond to a polling command.

The equipment shall transmit the LRIT information within 8 min of receiving the polling command.

NOTE 2 MSC.263(84) A13.2 requires that on-demand information should be provided to an LRIT data user within 30 min of the time that the LRIT data user requested the information. MSC.263(84) A13.1 requires that data should be available to an LRIT data user within 15 min of the time it is transmitted by the ship.

### 4.5 Functionality

(See 6.3.4)

(MSC.263(84)A4.2) *In addition to the previous provisions, the shipborne equipment shall provide the functionality specified in Table 1.*

**Table 1 – Data to be transmitted from the shipborne equipment**

| Parameter                                     | Comments  |
|---|---|
| Identity of the ship                          | The identifier used by the shipborne equipment.   |
| Position of the ship (latitude and longitude) | The Global Navigation Satellite System (GNSS) position (latitude and longitude) of the ship (based on the WGS 84 datum) without human interaction on board the ship.  |
| Date and time of the position provided        | The date and time, indicated as Universal Coordinated Time (UTC), associated with the GNSS position. In the LRIT system this is known as Time Stamp 1. The equipment should be capable of transmitting the time associated with the GNSS position with each transmission of LRIT information. |

The identifier used by the shipborne equipment shall be suitable to be translated into the identity of the ship (MMSI, IMO number and name).

The latitude and longitude of the position shall be coded to an precision of not less than 0,04'.

The date and time of the position shall be coded to an precision of not less than 2 min.

#### 4.6 Coverage

(See 6.3.5)

*(MSC.263(84)A4.3) The shipborne equipment shall transmit the LRIT information using a communication system which provides coverage in all areas where the ship operates.*

The equipment handbook shall state the areas in which the equipment will operate.

Means shall be provided to continue transmitting after a change of area if appropriate to the communication system.

#### 4.7 User controls

(See 6.3.6)

*(SOLAS V/19-1.7) Systems and equipment used to meet the requirements of this regulation shall be capable of being switched off on board or be capable of ceasing the distribution of long-range identification and tracking information:*

- 1) *where international agreements, rules or standards provide for the protection of navigational information; or*
- 2) *in exceptional circumstances and for the shortest duration possible where the operation is considered by the master to compromise the safety or security of the ship. In such a case, the master shall inform the Administration without undue delay and make an entry in the record of navigational activities and incidents setting out the reasons for the decision and indicating the period during which the system or equipment was switched off.*

*(MSC.263(84)A4.4.1) When a ship is undergoing repairs, modifications or conversions in dry-dock or in port or is laid up for a long period, the master or the Administration may reduce the frequency of the transmission LRIT information to one transmission every 24-hour period, or may temporarily stop the transmission of such information.*

Facilities shall be provided for the shipborne user to stop the transmission of LRIT information.

Facilities shall also be provided to increase the intervals between transmissions to 24 h.