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INTERNATIONAL **STANDARD**

NORME INTERNATIONALE



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

(standards.iteh.ai)

Matériels et systèmes de navigation et de radiocommunication maritimes -Matériels de bord destinés à l'identification et au suivi à grande distance (LRIT) -Exigences de fonctionnementiteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012





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Maritime navigation and radiocommunication equipment and systems – Shipborne equipment for long-range identification and tracking (LRIT) – Performance requirements (Standards.iteh.ai)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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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.

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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:

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(SOLAS V/19-1.6) hSystems 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 ndards.iteh.ai)

4.1 General

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4.1.1 General requirements 621-43c5-94f4-f767c96e7583/iec-62729-2012

(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

(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 (standards.iteh.ai)

(See 6.3.3)

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(MSC.263(84) A4.1/13)s: Then shipborne acquipment ashalld be scapabled 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

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 fror | n 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.

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

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4.7 User controlstps://standards.iteh.ai/catalog/standards/sist/d490dd60-9e2f-45c5-94f4-f767c96e7583/iec-62729-2012

(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.

Facilities shall also be provided to re-enable the transmissions at 6 h intervals.

These facilities provided for the shipborne user shall be security protected so that access to these controls can be restricted to the master only.

4.8 Remote switching

(See 6.3.7)

Means shall be provided to enable the shipborne equipment to be remotely programmed to stop the transmission of LRIT information.

NOTE The conditions under which this facility is used is described in 4.7.

5 Technical requirements

5.1 Interfacing

(See 6.4.1)

(MSC.263(84) A4.1.4) The shipborne equipment shall interface directly to the shipborne global navigation satellite system equipment, or have internal positioning capability.

If the equipment does not have internal positioning capability, the interface shall, as a minimum, support the sentences GNS, RMC and ZDA described in IEC 61162-1.

If the equipment includes a global navigation satellite system receiver, then this receiver shall meet the following requirements of the applicable part of the IEC 61108 series:

- position accuracy; static and dynamic;
- COG / SOG accuracy (standards.iteh.ai)
- position update;
- Interference susceptibility;

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- status indications (RAIM optional); and 9e2f-45c3-94f4-1767c96e7583/iec-62729-2012
- WGS-84 datum positions.

5.2 Environmental requirement

The equipment shall comply with the environmental requirements detailed in the tests in IEC 60945:2002, Clause 8 (see 4.1).

The manufacturer shall state whether the equipment, or parts of the equipment, are

- protected from the weather,
- exposed to the weather.

5.3 Electromagnetic compatibility requirement

(MSC.263(84) A4.1.6) The shipborne equipment shall be tested for electromagnetic compatibility taking into account the recommendations developed by the IMO.

The equipment shall comply with the electromagnetic compatibility requirements detailed in the tests in IEC 60945:2002, Clauses 9 and 10 (see 4.1).

5.4 Recovery after power outage

(See 6.4.2)

The equipment shall automatically resume the transmission of LRIT information after a power outage.

The necessary configuration information shall be stored in non-volatile memory.

5.5 Radiated spurious emissions

(See 6.4.3)

The equipment shall conform to the appropriate requirements for radiated spurious emissions given in Appendix 3 of the ITU Radio Regulations.

6 Methods of testing and required test results

6.1 General

IMO provides guidance to Administrations in MSC.1/Circ.1307 on methods of demonstrating compliance with the SOLAS requirement for type approval of the shipborne equipment given in SOLAS regulation V/19-1.6. In addition to conformance testing (see Annex C) the methods are as follows for equipment being:

- a) of a type approved by the Administration in accordance with the provisions of SOLAS regulation V/19-1; or
- b) of a type approved by the Administration in accordance with the provisions of SOLAS regulation IV/14 (GMDSS) IMO resolution A.694(17); or
- c) certified by the Administration as meeting the requirements of IEC 60945; or
- d) certified by the Administration as meeting the requirements of the provisions of SOLAS regulation XI-2/6 and the performance standards given in IMO resolutions MSC.136(76) or MSC.147(77) (Ship security alert system).

Successful completion of the tests below will demonstrate compliance with the provisions of SOLAS regulation V/19-1 together with IEC 60945 and the performance standards given in section 4 of IMO resolution MSC.263(84).

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Some equipment mays have daire adv been tested atolasome stor the dests below for other purposes. These test results will be acceptable in lieu of the lests below.

Some tests below require measurements of the equipment performance. These tests may be conducted using a suitable simulator or over the LRIT system under the control of an application service provider (see Annex A).

Some of the tests below may be combined with IMO conformance tests. Annex C provides a cross reference of the tests which are equivalent to the conformance tests.

NOTE IEC 61097-4 contains test requirements for Inmarsat-C equipment used in the GMDSS.

6.2 General

6.2.1 General requirements

(See 4.1.1)

The equipment shall be tested against the general requirements contained in IEC 60945 for the equipment category "protected" or "exposed", as applicable.

If a performance test and performance check is not otherwise defined, the following definition applies:

Performance test/check – receipt of a polling command and successful transmission of a response.

6.2.2 Additional facilities

(See 4.1.2)

If the equipment incorporates additional facilities, these shall be operated while the tests below are carried out. It may be necessary to repeat tests that might be affected by additional facilities.

6.3 Performance requirements

6.3.1 Transmission of information

(See 4.2)

Confirm by inspection of the manufacturer's documentation that facilities exist to remotely programme the equipment with the details of a LRIT Data Centre to which transmissions can be made.

Confirm by observation of the equipment that no user control is available to set up or remove details of LRIT Data Centres.

Using a simulator or the LRIT system, instruct the equipment to transmit LRIT information to a LRIT data centre. Confirm that the equipment transmits the LRIT data at intervals of 6 h (see also 6.3.4).

6.3.2 Remote configuration

PREVIEW

(See 4.3)

Confirm by inspection of manufacturer's documentation that facilities exist to remotely configure the equipment to transmit LRIT information at intervals ranging from 15 min to 6 h.

Using a simulator or the LRIT system, instruct the equipment to transmit LRIT information at 15 min intervals. Confirm that the equipment transmits at 15 min intervals.

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Using a simulator or the LRIT system, instruct the equipment to transmit LRIT information at 60 min intervals. Confirm that the equipment transmits at 60 min intervals.

NOTE This test may be combined with conformance test numbers 9a and 9b (Annex C).

6.3.3 On demand reports

(See 4.4)

Confirm by inspection of manufacturer's documentation that the equipment will transmit LRIT information following receipt of a polling command.

Using a simulator or the LRIT system, instruct the equipment with a polling command. Confirm by that the equipment transmits the LRIT information within 8 min of receiving the polling command.

6.3.4 Functionality

(See 4.5)

Confirm by inspection of manufacturer's documentation that the equipment will transmit the data given in Table 1 with the required accuracies.

Confirm by inspection of the manufacturer's documentation that the identifier used by the equipment can be translated into the identity of the ship by an application service provider.