

# INTERNATIONAL STANDARD

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**Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) –  
Part 6: Navigation with Indian constellation (NavIC)/Indian regional navigation satellite system (IRNSS) – Receiver equipment – Performance requirements, methods of testing and required test results**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT  
AND SYSTEMS – GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) –****Part 6: Navigation with Indian constellation (NavIC)/Indian regional  
navigation satellite system (IRNSS) – Receiver equipment – Performance  
requirements, methods of testing and required test results**

## FOREWORD

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IEC 61108-6 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems. It is an International Standard.

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

Draft	Report on voting
80/1055/FDIS	80/1058/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 61108 series, published under the general title *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS)*, 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- withdrawn,
- replaced by a revised edition, or
- amended.

# **MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) –**

## **Part 6: Navigation with Indian constellation (NavIC)/Indian regional navigation satellite system (IRNSS) – Receiver equipment – Performance requirements, methods of testing and required test results**

### **1 Scope**

This part of IEC 61108 specifies the minimum performance requirements, methods of testing and required test results for the Indian regional navigation satellite system (IRNSS), also known as Navigation with Indian Constellation (NavIC), shipborne receiver equipment, based on IMO resolution MSC.449(99), which uses the signals from NavIC/IRNSS in order to determine position.

This document takes account of the general requirements given in IMO resolution A.694(17) and is associated with IEC 60945. When a requirement in this document is different from IEC 60945, the requirement in this document takes precedence. This document also takes into account, as appropriate, requirements for the presentation of navigation-related information on shipborne navigational displays given in IMO resolution MSC.191(79) and is associated with IEC 62288. This document further takes into account, as appropriate, requirements for bridge alert management given in IMO resolution MSC.302(87) and is associated with IEC 62923-1.

This document applies to navigation in ocean waters for the standard positioning service and harbour entrances, harbour approaches and coastal waters, as defined in IMO resolution A.1046(27) within IRNSS/NavIC coverage area as given in IMO resolution MSC 449(99).

All text of this document whose meaning is identical to that in IMO resolution MSC. 449(99) is printed in italics and the resolution and paragraph number indicated between brackets, i.e. "(M.449(99)/A1.2)".

The requirements in Clause 4 are cross-referenced to the tests in Clause 5 and vice versa.

NOTE 1 A description of the IRNSS standard positioning service can be found in the interface control documents which were officially released in 2017 in the public domain (see ISRO-IRNSS-ICD-SPS-1.1).

NOTE 2 The IRNSS constellation was renamed as "NavIC" (navigation with Indian constellation) in 2016.

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

IEC 61108-4, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 4: Shipborne DGPS and DGLONASS maritime radio beacon 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*

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

IEC 61162-2, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 2: Single talker and multiple listeners, high-speed transmission*

IEC 61162-450, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 450: Multiple talkers and multiple listeners – Ethernet interconnection*

IEC 62288, *Maritime navigation and radiocommunication equipment and systems – Presentation of navigation-related information on shipborne navigational displays – General requirements, methods of testing and required test results*

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 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.915(22), *Revised maritime policy and requirements for a future Global Navigation Satellite System (GNSS)*

IMO resolution A.1046(27), *Worldwide radio navigation system*

IMO resolution MSC.302(87), *Performance standards for bridge alert management*

IMO resolution MSC.449(99), *Performance Standards for Shipborne IRNSS Receiver Equipment*

ITU-R Recommendation M.823-3, *Technical characteristics of differential transmissions for global navigation satellite systems from maritime radio beacons in the frequency band 283.5-315 kHz in Region 1 and 285-325 kHz in Regions 2 and 3*

ISRO-IRNSS-ICD-SPS-1.1, *Navigation with Indian Constellation System – Signal in Space Interface Control Document for Standard Positioning Service V 1.1*, Aug 2017 [viewed 2022-11-11]. Available at [https://www.isro.gov.in/media\\_isro/pdf/Publications/Vispdf/Pdf2017/irnss\\_sps\\_icd\\_version1.1-2017.pdf](https://www.isro.gov.in/media_isro/pdf/Publications/Vispdf/Pdf2017/irnss_sps_icd_version1.1-2017.pdf)

RTCM 10402, *RTCM Recommended Standards for Differential GNSS (Global Navigation Satellite Systems) Service*