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# INTERNATIONAL STANDARD



## Maritime navigation and radiocommunication equipment and systems – Automatic identification systems (AIS)
## Part 2: Class A shipborne equipment of the automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results

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# MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – AUTOMATIC IDENTIFICATION SYSTEMS (AIS)

## Part 2: Class A shipborne equipment of the automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results



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International Standard IEC 61993-2 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This second edition cancels and replaces the first edition, published in 2001. This edition constitutes a technical revision.

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

It incorporates the technical characteristics included in Recommendation ITU-R M.1371-4 which was published in 2010. New technical characteristics result in sundry clarifications to the requirements and the ability to handle five new messages – Messages 23, 24, 25, 26 and 27.

The significant changes in this edition include:

- a new requirement in 6.9 for vessels of type “tanker” to use a low power setting;
- expanded requirements for the functionality of the minimum keyboard and display in 6.11 including new requirements for display of AIS-SART together with an AIS-SART alarm and new requirements for the protection of the static data of the ship;
- expanded requirements for the transmitters and receivers in 7.2 but with the removal of the previous requirement for 12,5 kHz channel operation which has not been used in practice;
- expanded requirements for long-range applications in Clause 8 to add a broadcast method;
- a definition of the pilot plug pin out in 7.6 together with some new requirements for interfaces;
- extensively revised test methods in Clauses 14 to 19 based on the experience of testing AIS equipment;
- expanded test methods in Annex D for DSC functionality but the removal of the previous requirement for DSC polling which is no longer used.

The text of this standard is based on the following documents:

| CDV | Report on voting |
|---|---|
| 80/656/CDV | 80/675/RVC |

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.

# INTRODUCTION

In comparison with the previous edition of this Standard, the structural changes to the document are that the original Clause 8 on DSC compatibility together with the corresponding tests in Clause 20 have been moved into a new Annex D. A new Clause on test signals has been added as Clause 10. The original Annex B detailing IEC 61162 sentences has been deleted and replaced with a new Annex H, noting that much of this information is now included in IEC 61162-1. The original Annex C describing long-range applications has also been deleted as IMO has decided to adopt a different system for long-range identification and tracking. A new Annex E has been added to describe optional presentation interface port sentences, a new Annex F has been added on alarm handling and a new Annex G has been added on calculation of area size and distance.

# MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – AUTOMATIC IDENTIFICATION SYSTEMS (AIS)

## Part 2: Class A shipborne equipment of the automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results

## 1 Scope

This part of IEC 61993 specifies the minimum operational and performance requirements, methods of testing and required test results conforming to performance standards adopted by the IMO in Resolution MSC.74(69), Annex 3, Shipborne Automatic Identification System. This standard incorporates the applicable technical characteristics of Class A shipborne equipment included in Recommendation ITU-R M.1371-4 and takes into account the ITU Radio Regulations, where applicable. In addition, it takes account of IMO Resolution A.694(17) to which IEC 60945 is associated. When a requirement in this standard is different from IEC 60945, the requirement of this standard takes precedence.

This part of IEC 61993 also specifies the minimum requirements both for the means to input and display data and for the interfaces to other equipment suitable to be used as means of input and display data.

NOTE All text of this standard, that is identical to that in IMO resolution MSC.74(69), Annex 3 or to that in ITU-R Recommendation M.1371-4 is printed in *italics* and references to the resolution (abbreviated to "A3") or the recommendation (abbreviated to "M.1371") and paragraph numbers are indicated in parentheses, for instance (A3/3.3) or (M.1371/A2-3.3) respectively.

## 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*

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

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 62388, *Maritime navigation and radiocommunication equipment and systems – Shipborne radar – Performance requirements, methods of testing and required test results*

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.43(64), as amended by MSC.111(73), *Guidelines and Criteria for Ship Reporting Systems*

IMO Resolution MSC.74(69) Annex 3, *Recommendation on performance standards for AIS*

ITU-R Recommendation M.493-13, *Digital selective-calling system for the use in the maritime mobile service*

ITU-R Recommendation M.541-9, *Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service*

ITU-R Recommendation M.825-3, *Characteristics of a transponder system using digital selective calling techniques for use with vessel traffic services and ship-to-ship identification*

ITU-R Recommendation M.1084-5, *Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service*

ITU-R Recommendation M.1371-4, *Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile band*

ITU-T Recommendation O.153, *Basic parameters for the measurement of error performance at bit rates below the primary rate*