
Maritime navigation and radiocommunication equipment and systems - Automatic identification systems (AIS) - Part 2: Class A shipborne equipment of the universal automatic identification system (AIS) - Operational and performance requirements, methods of test and required test results (IEC 61993-2:2001)

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English version

**Maritime navigation and radiocommunication equipment and systems -
Automatic identification systems (AIS)
Part 2: Class A shipborne equipment
of the universal automatic identification system (AIS) -
Operational and performance requirements,
methods of test and required test results
(IEC 61993-2:2001)**

Matériels et systèmes de navigation
et de radiocommunications maritimes -
Systèmes d'identification automatique (AIS)
Partie 2: Equipements AIS
de type Classe A embarqués -
Exigences d'exploitation et de
fonctionnement, méthodes d'essai
et résultats d'essai exigés
(CEI 61993-2:2001)

Navigations- und Funkkommunikations-
geräte und -systeme für die Seeschifffahrt -
Automatische Identifikationssysteme (AIS)
Teil 2: Geräte der Klasse A
des universalen automatischen
Identifikationssystems (AIS) für Schiffe -
Betriebs- und Leistungsanforderungen,
Prüfverfahren und geforderte
Prüfergebnisse
(IEC 61993-2:2001)

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This European Standard was approved by CENELEC on 2002-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 80/315/FDIS, future edition 1 of IEC 61993-2, prepared by IEC TC 80, Maritime navigation and radiocommunication equipment and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61993-2 on 2002-02-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-02-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes D and ZA are normative and annexes A, B, C and E are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61993-2:2001 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60945	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	1997 ²⁾
IEC 61108-1	- 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	EN 61108-1	1996 ²⁾
IEC 61108-2	- ¹⁾	Part 2: Global navigation satellite system (GLONASS) - Receiver equipment - Performance standards, methods of testing and required test results	EN 61108-2	1998 ²⁾
IEC 61108-4	- ³⁾	Part 4: Shipborne DGPS and DGLONASS maritime radio beacon receiver equipment - Performance requirements, methods of testing and required test results	-	-
IEC 61162-1	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - Digital interfaces Part 1: Single talker and multiple listeners	EN 61162-1	2000 ²⁾
IEC 61162-2	- ¹⁾	Part 2: Single talker and multiple listeners, high-speed transmission	EN 61162-2	1998 ²⁾
IEC 61162-3	- ³⁾	Part 3: Serial data instrument network	-	-

¹⁾ Undated reference.

²⁾ Valid edition at time of issue.

³⁾ To be printed.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61993-1	- ¹⁾	Maritime navigation and radiocommunication equipment and systems Part 1: Shipborne automatic transponder system installation using VHF digital selective calling (DSC) techniques - Operational and performance requirements, methods of testing and required test results	EN 61993-1	1999 ²⁾
ISO/IEC 3309	- ¹⁾	Information technology – Telecommunications and information exchange between systems - High-level data link control (HDLC) procedures - Frame structure	-	-
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.815(19)	1995	Worldwide radionavigation system	-	-
IMO Resolution A.851(20)	1997	General principles for ship reporting systems and ship reporting requirements, including guidelines for reporting incidents involving dangerous goods, harmful substances and/or marine pollutants	-	-
IMO Resolution MSC.43(64)	- ¹⁾	Guidelines and Criteria for Ship Reporting Systems (as amended by MSC.111(73))	-	-
IMO Resolution MSC.74(69)	- ¹⁾	Performance standards for an Universal shipborne automatic identification systems (AIS)	-	-
IMO Guidelines	- ¹⁾	Guidelines on the operational use of AIS (provisional)	-	-
ITU-R Recommendation M.489-2	- ¹⁾	Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz	-	-
ITU-R Recommendation M.825-3	- ¹⁾	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.1084-4	- ¹⁾	Interim solutions to improve efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ITU-R Recommendation M.1371-1	- ¹⁾	Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band	-	-
-	- ¹⁾	IALA Technical clarifications to recommendation ITU-R M.1371-1	-	-

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Part 2:

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61993-2 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
80/315/FDIS	80/328/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 3.

The committee has decided that the contents of this publication will remain unchanged until 2006-07. At this date, the publication will be

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

INTRODUCTION

Following the adoption by the International Maritime Organisation (IMO) of Resolution MSC.74(69) Annex 3, Performance Standard for a Universal Shipborne Automatic Identification System, TC 80 established Working Group 8A to develop IEC 61993-2. Technical requirements were provided in ITU-R M.1371 "Technical characteristics for a universal shipborne Automatic Identification System (AIS) using TDMA (Self-Organising Time Division Multiple Access) in the VHF maritime mobile band". Carriage requirements for SOLAS ships have been adopted by IMO for entry into force starting on July 1st 2002.

It was brought to the attention of WG8A that patents and patents pending pertaining to AIS have been made freely available. TC 80 WG8A considers the technical implementation specified by this International Standard to be in full accordance with the requirements of Recommendation ITU-R M.1371-1 and as such to be free from claims of intellectual property rights.

The provision of a high-speed network connection IEC 61162-3 is optional. It may become a requirement in a later revision of this standard, when the relevant standard (IEC 61162-3) has been adopted.

The IMO Resolution MSC.74(69) Annex 3, Performance Standard for an Universal Shipborne Automatic Identification System, requires that the AIS has a means of processing data from an electronic position fixing system that provides a resolution of one ten-thousandth of a minute of arc and uses the WGS 84 datum. Resolution A.815(19) requires an accuracy of position information better than 10 m in confined waters. This does not require but implies that if the ship is not equipped with a DGNSS, the GNSS sensor internal to the AIS should be a DGNSS and should be used as source of position information.

Moreover, Resolution MSC.74(69) Annex 3 does not include any requirement for backup arrangements of the position information. However, a GNSS sensor is included in the AIS equipment as the source of UTC. It is felt by IEC TC 80 that this GNSS sensor also can be used as a back-up arrangement for the position information obtained from the ships DGNSS. This would ensure the availability of the AIS system in case of failure of the ship's EPFS.

Therefore, IEC TC 80 strongly recommends that manufacturers of AIS equipment implement such an arrangement in accordance with table 4 of this International Standard.

Note that an IEC standard detailing class B AIS is being prepared as IEC 62287.

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

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

1 Scope

This International Standard 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, Universal Shipborne Automatic Identification System. This standard incorporates the technical characteristics of Class A shipborne equipment included in Recommendation ITU-R M.1371-1 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.

This International Standard 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 and IMO resolution A.694(17) or to that in ITU-R M.1371-1 is printed in *italics* and the resolution (abbreviated to – A3 or – A694 respectively) or the recommendation (abbreviated to – M.1371-1) and paragraph numbers are indicated in parentheses i.e. (A3/3.3) or (M.1371-1/3.3) respectively.

2 Normative references

The following referenced documents are indispensable for the application 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 61108-1, *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 61108-4¹, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 4: Shipborne DGPS and DGLONASS maritime radio beacon receiver equipment*

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

¹ To be printed.