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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

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

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FOREWORD

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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- withdrawn;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 a 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.819 (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 covering class B AIS is being prepared as IEC 62287.

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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 M1371-1 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 61108-4[1], *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*

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[1] To be printed.

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

IEC 61162-3[2]: *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 3: Multiple Talker and multiple listeners – High speed network bus*

IEC 61993-1, *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*

ISO/IEC 3309, *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), 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*

IMO Guidelines on the operational use of AIS (provisional)

ITU-R Recommendation M.489-2, *Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz*

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.1084-4, *Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service*

NOTE ITU-R M.1371-1 references ITU-R M.1084-3, Annex 3. A Draft Revision of Recommendation ITU-R M.1084-3, consequentially leading to ITU-R M.1084-4, has been approved in parallel to the approval of ITU-R M.1371-1.

ITU-R Recommendation M.1371-1, *Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band*

IALA Technical clarifications to recommendation ITU-R M.1371-1

[2] To be printed.