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INTERNATIONAL STANDARD



**Maritime navigation and radiocommunication equipment and systems – Class B
shipborne equipment of the automatic identification system (AIS) –
Part 1: Carrier-sense time division multiple access (CSTDMA) techniques**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MARITIME NAVIGATION AND RADIOCOMMUNICATION
EQUIPMENT AND SYSTEMS –
CLASS B SHIPBORNE EQUIPMENT OF
THE AUTOMATIC IDENTIFICATION SYSTEM (AIS) –
Part 1: Carrier-sense time division multiple access
(CSTDMA) techniques**

FOREWORD

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International Standard IEC 62287-1 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 2006, and constitutes a technical revision.

The major technical changes with respect to the first edition are the following. The reference to the relevant recommendation of the ITU has been updated from M.1371-1 to M.1371-4 with some consequential small changes. A previous option of providing short safety-related messages in 6.5.1.5 has been removed on advice from the IMO. A new requirement for a default MMSI has been added in 6.4 and a further new requirement for protection from invalid control commands has been added in 6.8. Some test methods have been updated and, in

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particular, small revisions have been made to the frequencies used for testing in some of the test methods. The introduction has been deleted since it is only of historic interest.

Some editorial rearrangement has been made.

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

| | |
|-------------|------------------|
| FDIS | Report on voting |
| 80/605/FDIS | 80/608/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 2.

A list of all parts of the IEC 62287 series published under the general title *Maritime navigation and radiocommunication equipment and systems – Class B shipborne equipment of the automatic identification system (AIS)*, can be found on the IEC website.

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.

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**MARITIME NAVIGATION AND RADIOCOMMUNICATION
EQUIPMENT AND SYSTEMS –
CLASS B SHIPBORNE EQUIPMENT OF
THE AUTOMATIC IDENTIFICATION SYSTEM (AIS) –**

**Part 1: Carrier-sense time division multiple access
(CSTDMA) techniques**

1 Scope

This part of IEC 62287 specifies the minimum operational and performance requirements, methods of testing and required test results for Class B shipborne AIS equipment using CSTDMA techniques. This standard takes into account other associated IEC International Standards and existing national standards, as applicable.

It is applicable for AIS equipment used on craft that are not covered by the mandatory carriage requirement of AIS under SOLAS Chapter V.

An AIS station intended to operate in receive-only mode is not considered a Class B shipborne mobile AIS station.

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 60945:2002, *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 (all parts), *Maritime navigation and radiocommunication equipment and systems – Digital interfaces*

IEC 61993-2, *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 62320-1, *Maritime navigation and radiocommunication equipment and systems – Automatic identification systems (AIS) – Part 1: AIS Base Stations – Minimum operational and performance requirements, methods of testing and required test results*

IMO MSC.140(76), *Recommendation for the protection of the AIS VHF data link*

ITU-R Recommendation M.493-13, *Digital selective-calling system for use 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*

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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*

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

ITU Radio Regulations, Appendix 18, <http://www.itu.int/publ/R-REG-RR/en>

3 Abbreviations

| | |
|--------|---|
| AIS | Automatic Identification System |
| BER | Bit Error Rate |
| BT | Bandwidth Time product |
| COG | Course Over Ground |
| CP | Candidate Period |
| CPU | Central Processing Unit |
| CRC | Cyclic Redundancy Check |
| CS | Carrier-Sense |
| CSTDMA | Carrier-Sense Time Division Multiple Access |
| DGNSS | Differential Global Navigation Satellite System |
| DLS | Data Link Service |
| DSC | Digital Selective Calling |
| ECDIS | Electronic Chart Display and Information System |
| EPFS | Electronic Position Fixing System |
| ETA | Estimated Time of Arrival |
| EUT | Equipment Under Test |
| FCS | Frame Check Sequence |
| FM | Frequency Modulation |
| GMSK | Gaussian Minimum Shift Keying |
| GNSS | Global Navigation Satellite System |
| HDG | Heading |
| HDLC | High level Data Link Control |
| HSC | High Speed Craft |
| IHO | International Hydrographic Office |
| IMO | International Maritime Organization |
| Lat | Latitude |
| LME | Link Management Entity |
| Lon | Longitude |
| LR | Long Range |
| MAC | Medium Access Control |
| MMSI | Maritime Mobile Service Identity |
| NM | Nautical Miles (1 NM = 1 852 m) |
| NRZI | Non Return to Zero Inverted |
| NTT | Nominal Transmission Time |