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INTERNATIONAL STANDARD

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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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CONTENTS

FOREWORD 9
INTRODUCTION 11
1 Scope 12
2 Normative references 12
3 Abbreviations 13
4 General requirements 14
4.1 General 14
4.1.1 Overview 14
4.1.2 General requirements 14
4.1.3 Capabilities of the AIS 15
4.1.4 Additional requirements 15
4.1.5 Transmitter shutdown procedure 15
4.1.6 Quality assurance 15
4.2 Modes of operation 15
4.3 Manuals 15
4.4 Marking and identification 16
5 Other requirements 16
5.1 Environmental, power supply, special purpose and safety requirements 16
5.2 Display of information 16
6 Performance requirements 16
6.1 Composition 16
6.2 Time and position 17
6.2.1 Source for UTC 17
6.2.2 Source for AIS position reporting 17
6.3 User interface 17
6.4 Identification 18
6.5 Information 18
6.5.1 Information provided by the AIS 18
6.5.2 Information reporting intervals 19
6.5.3 Ship reporting capacity 19
6.6 Event log 20
6.7 Permissible initialization period 20
6.8 Power supply 20
6.9 Technical characteristics 20
6.10 Alarms and indications, fall-back arrangements 20
6.10.1 Built-in test equipment 20
6.10.2 Alarm messages 21
6.10.3 Status messages 23
6.11 Display, input and output 26
6.11.1 Minimum keyboard and display (MKD) 26
6.11.2 Communication test 28
6.11.3 Alarms and status information 29
6.11.4 Data protection 29
6.11.5 Distance calculation 29
6.12 Protection from invalid controls 30
7 Technical requirements 30

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7.1 General 30
7.2 Physical layer 30
7.2.1 General 31
7.2.2 Transmitter parameters 31
7.2.3 Receiver parameters 32
7.3 Link layer 32
7.3.1 General 32
7.3.2 Link sublayer 1: Medium Access Control (MAC) 33
7.3.3 Link sublayer 2: Data Link Service (DLS) 33
7.3.4 Link sublayer 3 – Link Management Entity (LME) 33
7.4 Network layer 35
7.4.1 General 35
7.4.2 Management of regional operating settings 35
7.5 Transport layer 37
7.6 Presentation interface 37
7.6.1 General 37
7.6.2 Automatic input of sensor data 38
7.6.3 High speed input/output ports 38
7.6.4 Long-range communication ports 41
7.6.5 BIIT alarm output 43
8 Long-range applications 43
8.1 General 43
8.2 Long-range application by two-way interface 43
8.2.1 General 43
8.2.2 Interrogations and responses 44
8.2.3 Manual and automatic response 44
8.2.4 Data formats and contents 44
8.2.5 Addressing AIS-units 44
8.3 Long-range application by broadcast 45
9 Test conditions 45
9.1 Normal and extreme test conditions 45
9.1.1 Normal test conditions 45
9.1.2 Extreme test conditions 45
9.2 Standard test environment 46
9.3 Additional test arrangements 46
9.3.1 Arrangements for test signals applied to the receiver input 46
9.3.2 Encoder for receiver measurements 46
9.3.3 Waiver for receivers 46
9.3.4 Impedance 47
9.3.5 Artificial antenna (dummy load) 47
9.3.6 Facilities for access 47
9.3.7 Modes of operation of the transmitter 47
9.4 Common test conditions for protection from invalid controls 47
9.5 Measurement uncertainties 47
10 Test signals 48
10.1 Standard test signal number 1 (DSC) 48
10.2 Standard test signal number 2 (TDMA) 48
10.3 Standard test signal number 3 (TDMA) 48
10.4 Standard test signal number 4 (PRBS) 48

This document is a preview generated by EVS

10.5 Standard test signal number 5 (PRBS) 48
11 Power supply, special purpose and safety tests 49
12 Environmental tests 49
13 EMC tests 50
14 Operational tests 50
14.1 Identification and operating modes 50
14.1.1 Autonomous mode 50
14.1.2 Assigned mode 51
14.1.3 Polled mode 51
14.1.4 Addressed operation 52
14.1.5 Broadcast operation 52
14.1.6 Multiple slot messages 53
14.2 Information 53
14.2.1 Information provided by the AIS 54
14.2.2 Reporting intervals 54
14.3 Event log 55
14.3.1 Method of measurement 56
14.3.2 Required results 56
14.4 Initialization period 56
14.4.1 Method of measurement 56
14.4.2 Required results 56
14.5 Technical characteristics 56
14.5.1 Channel selection 56
14.5.2 Transceiver protection 57
14.5.3 Automatic power setting 57
14.6 Alarms and indicators, fall-back arrangements 57
14.6.1 Loss of power supply 57
14.6.2 Monitoring of functions and integrity 57
14.6.3 Monitoring of sensor data 59
14.7 Display, input and output 62
14.7.1 Data input/output facilities 62
14.7.2 Initiate message transmission 62
14.7.3 Communication test 63
14.7.4 System control 63
14.7.5 Display of received targets 64
14.7.6 Display of position quality 65
14.7.7 Display of targets if optional filter is implemented 65
14.7.8 Display of received safety related messages 66
14.7.9 Presentation of navigation information 66
15 Physical tests 66
15.1 TDMA transmitter 67
15.1.1 Frequency error 67
15.1.2 Carrier power 67
15.1.3 Slotted transmission spectrum 68
15.1.4 Modulation accuracy 69
15.1.5 Transmitter output power characteristics 69
15.2 TDMA receivers 70
15.2.1 Sensitivity 70

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15.2.2 Error behaviour at high input levels 71
15.2.3 Co-channel rejection 71
15.2.4 Adjacent channel selectivity 72
15.2.5 Spurious response rejection 72
15.2.6 Intermodulation response rejection and blocking 75
15.2.7 Transmit to receive switching time 76
15.2.8 Immunity to out-of-band energy 77
15.3 Conducted spurious emissions 77
15.3.1 Spurious emissions from the transmitter 77
15.3.2 Spurious emissions from the receiver 78
16 Specific tests of link layer 78
16.1 TDMA synchronisation 78
16.1.1 Synchronisation test using UTC 78
16.1.2 Synchronisation test using UTC with repeated messages 79
16.1.3 Synchronisation test without UTC, semaphore 79
16.1.4 Synchronisation test without UTC 80
16.1.5 Reception of un-synchronised messages 80
16.2 Time division (frame format) 80
16.2.1 Method of measurement 80
16.2.2 Required results 80
16.3 Synchronisation and jitter accuracy 81
16.3.1 Definition 81
16.3.2 Method of measurement 81
16.3.3 Required results 81
16.4 Data encoding (bit stuffing) 81
16.4.1 Method of measurement 81
16.4.2 Required results 81
16.5 Frame check sequence 81
16.5.1 Method of measurement 81
16.5.2 Required results 81
16.6 Slot allocation (channel access protocols) 82
16.6.1 Network entry 82
16.6.2 Autonomous scheduled transmissions (SOTDMA) 82
16.6.3 Autonomous scheduled transmissions (ITDMA) 82
16.6.4 Safety related/binary message transmission 83
16.6.5 Transmission of Message 5 (ITDMA) 83
16.6.6 Assigned operation 83
16.6.7 Group assignment 84
16.6.8 Fixed allocated transmissions (FATDMA) 88
16.6.9 Randomisation of message transmissions 88
16.7 Message formats 88
16.7.1 Received messages 88
16.7.2 Transmitted messages 89
17 Specific tests of network layer 89
17.1 Dual channel operation – Alternate transmissions 89
17.1.1 Method of measurement 89
17.1.2 Required results 89
17.2 Regional area designation by VDL message 89
17.2.1 Method of measurement 89

This document is a preview generated by EVS

17.2.2 Required results 90
17.3 Regional area designation by serial message 90
17.4 Regional area designation with lost position 91
17.4.1 Method of measurement 91
17.4.2 Required results 91
17.5 Power setting 91
17.5.1 Method of measurement 91
17.5.2 Required results 91
17.6 Message priority handling 91
17.6.1 Method of measurement 91
17.6.2 Required results 91
17.7 Slot reuse and FATDMA reservations 91
17.7.1 Method of measurement 91
17.7.2 Required results 92
17.8 Management of received regional operating settings 92
17.8.1 Test for replacement or erasure of dated or remote regional operating settings 92
17.8.2 Test of correct input via presentation interface or MKD 93
17.8.3 Test of addressed telecommand 94
17.8.4 Test for invalid regional operating areas 94
17.9 Continuation of autonomous mode reporting interval 95
17.9.1 Method of test 95
17.9.2 Required results 95
18 Specific tests of transport layer 95
18.1 Addressed messages 95
18.1.1 Transmission 95
18.1.2 Acknowledgement 95
18.1.3 Transmission retry 95
18.1.4 Acknowledgement of addressed safety related messages 96
18.1.5 Behaviour of NavStatus 14 reception 96
18.2 Interrogation responses 96
18.2.1 Method of measurement 96
18.2.2 Required results 96
19 Specific presentation interface tests 97
19.1 General 97
19.2 Checking manufacturer's documentation 97
19.3 Electrical test 97
19.3.1 Method of test 97
19.3.2 Required results 97
19.4 Test of input sensor interface performance 97
19.4.1 Method of measurement 97
19.4.2 Required results 98
19.5 Test of sensor input 98
19.5.1 Test of GNS input 98
19.5.2 Test of RMC input 98
19.5.3 Test of DTM input 99
19.5.4 Test of GBS input 99
19.5.5 Test of VBW input 100
19.5.6 Test of VTG input 100

This document is a preview generated by EVS

19.5.7 Test of HDT/THS input 101
19.5.8 Test of ROT input 101
19.5.9 Test of different inputs 102
19.5.10 Test of multiple inputs 102
19.6 Test of high speed output 103
19.6.1 Method of measurement 103
19.6.2 Required results 103
19.7 High speed output interface performance 103
19.7.1 Method of measurement 103
19.7.2 Required results 103
19.8 Output of undefined VDL messages 103
19.8.1 Method of measurement 103
19.8.2 Required results 103
19.9 Test of high speed input 103
19.9.1 Method of measurement 103
19.9.2 Required results 104
20 Long-range functionality tests 104
20.1 Long-range application by two-way interface 104
20.1.1 LR interrogation 104
20.1.2 LR "all ships" interrogation 104
20.1.3 Consecutive LR “all ships” interrogations 105
20.2 Long-range application by broadcast 105
20.2.1 Long-range broadcast 105
20.2.2 Multiple assignment operation 106
Annex A (informative) Block diagram of AIS 108
Annex B (normative) AIS interface overview (see Table 13) 109
Annex C (informative) Block diagram of standard test environment 110
Annex D (normative) DSC functionality 111
Annex E (informative) Optional PI port sentences 117
Annex F (informative) Alarm handling 121
Annex G (normative) Calculation of area size and distance 122
Annex H (normative) Transmission of binary Messages 25 and 26 125
Bibliography 129

Figure 1 – OSI layer model 30
Figure 2 – Power versus time characteristics 31
Figure 3 – Format for repeating four-packet cluster 48
Figure 4 – Measurement arrangement for frequency error 67
Figure 5 – Measurement arrangement for carrier power 67
Figure 6 – Emission mask for slotted transmission 68
Figure 7 – Measurement arrangement for modulation accuracy 69
Figure 8 – Measurement arrangement 70
Figure 9 – Measurement arrangement with two generators 71
Figure 10 – SINAD or PER/BER measuring equipment 74
Figure 11 – Test set-up 75
Figure 12 – Transmit to receive switching time measurement setup 76

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Figure 13 – Regional area scenario 90
Figure D.1 – Measurement arrangement for inter-modulation 114

Table 1 – Information reporting intervals for autonomous mode 19
Table 2 – Integrity alarm conditions signalled using ALR sentence formatter 22
Table 3 – Sensor status indications signalled using TXT sentence formatter 23
Table 4 – Position sensor fallback conditions 24
Table 5 – Use of accuracy (PA) flag 25
Table 6 – ROT sensor fallback conditions 26
Table 7 – Message display on MKD 27
Table 8 – Position quality 28
Table 9 – Transmitter parameters 31
Table 10 – Power versus time characteristics 32
Table 11 – Receiver parameters 32
Table 12 – Use of VDL messages 33
Table 13 – Presentation interface access 37
Table 14 – IEC 61162-1 sensor sentences 38
Table 15 – AIS High-speed input data and formats 39
Table 16 – AIS high-speed output data and formats 40
Table 17 – AIS Long-range communications input data and formats 42
Table 18 – LR output data formats 43
Table 19 – LR data types 44
Table 20 – Content of first two packets 49
Table 21 – Fixed PRS data derived from Recommendation ITU-T O.153 49
Table 22 – Peak frequency deviation versus time 69
Table 23 – Tests to be performed 76
Table 24 – Primary channels for each region 90
Table E.1 – Property identifier 118
Table G.1 – Coordinate points 122

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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 automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results

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FOREWORD

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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.

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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.

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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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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*

3 Abbreviations

AIS	automatic identification system
AIS-SART	AIS search and rescue transmitter
BIIT	built-in integrity tests
BT	bandwidth-time
COG	course over ground
CommState	communication state (see NOTE 1)

NOTE 1 Communication state is defined in Recommendation ITU-R M.1371-4. It is used to indicate whether the AIS is using the message structure for SOTDMA or ITDMA.

ECDIS	electronic chart display and information system
EPFS	electronic position-fixing systems
ETA	estimated time of arrival
EUT	equipment under test
FATDMA	fixed access time division multiple access
GMSK	Gaussian minimum shift keying
HDG	Heading
IMO	International Maritime Organization
ITDMA	incremental time division multiple access
LR	long-range
MAC	medium access control
MKD	minimum keyboard and display
MMSI	maritime mobile service identity

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