IEC 62320-1

Edition 1.0 2008-10

INTERNATIONAL STANDARD

AMENDMENT 1

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

Withdrawn
iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/ecc30b9e-124b-4f01-a124-02be997537e1/iec-62320-1-2007-amd1-2008

IEC 62320-1:2007/A1:2008(E)

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2008 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

Withdrawn
iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62321:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/iec/62321-2007-amd1-2008

IEC 62320-1

Edition 1.0 2008-10

INTERNATIONAL STANDARD

AMENDMENT 1

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/ecc70b9e-124b-4f01-a124-02be997537e1/iec-62320-1-2007-amd1-2008
Withdrawn

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE N

ICS 47.020.70

ISBN 978-2-88910-670-7

® Registered trademark of the International Electrotechnical Commission

FOREWORD

This amendment has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

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

CDV	Report on voting
80/522/CDV	80/543/RVC

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

NOTE The amendment clarifies some of the tests and adds an extra sentence to Annex A.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

Withdrawn
iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/eee70b9e-124b-4f01-a124-02be997537e1/iec-62320-1-2007-amd1-2008

CONTENTS

Replace, in the list of CONTENTS, the existing Annex A title by the following new Annex A title:

Annex A (normative) Additional AIS Base Station sentences

4.5 Base Station input/output sentence formatters

Replace the existing Table 1 by the following new Table 1:

Table 1 – Base Station input/output sentence formatters

Sentence formatter	Input independent	Input dependent	Output independent	Output dependent	Description
ABK			**X**		Addressed and binary broadcast acknowledgement
ABM	**X**				Addressed binary and safety related message
ACA	**X**		**Q**		AIS regional channel assignment message
ACM	**X**				Preparation and initiation of an AIS Base Station addressed channel message (VDL Message 22)
ACK	**X**	**X**			Acknowledge alarm

Sentence formatter	Input independent	Input dependent	Output independent	Output dependent	Description
ADS			X	X	AIS Device Status (output interval configured by BCE and upon status change)
AGA	X		Q		Preparation and initiation of an AIS Base Station broadcast of a group assignment message (Message 23)
ALR			X	X	Set alarm state
AIR	X				AIS interrogation request (VDL Message 15)
ASN	X				Preparation and initiation of an AIS Base Station broadcast of assignment VDL Message 16
BBM	X				Broadcast binary message
BCE	X	X	Q	Q	General Base Station configuration extended
BCF	X	X	Q	Q	General Base Station configuration
CAB	X	X	Q	Q	Control AIS Base Station
CBM					Not supported by this IEC standard
DLM	X		Q		Data Link Management slot allocations for Base Station (VDL Message 20 – FATDMA reservations)
ECB	X		Q		Configure broadcast rates for Base Station messages with epoch planning support
FSR			X	X	Frame summary of AIS reception, defined by SPO. The manufacturer shall declare the parameters that are supported
SID	X	X			Installation of a station's identification
SPO	X	X	Q	Q	Select AIS device's reception processing and output
TFR			X	X	Transmit feed-back report – Base Station report on status of requested transmission. Automatic status response of TSA+VDM
TSA	X	X			Transmit Slot Assignment – used to identify AIS time slot used to transmit the content of a VDM sentence. TSA shall preceed the VDM sentence
TSP	X				Transmit Slot Prohibit
TSR			X		Transmit Slot Prohibit status Report. Automatic status response of TSP
VDM	X	X	X	X	VHF Data-link message
VDO			X	X	VHF Data-link Own-vessel message
VER			Q	Q	Version information about equipment. Provided in response to ABQ
VSI			X	X	VDL Signal Information, defined by SPO. The manufacturer shall declare the parameters that are

Withdrawn
iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2007/AMD1:2008

Sentence formatter	Input independent	Input dependent	Output independent	Output dependent	Description
					supported and the corresponding accuracy. The VSI shall follow its associated VDM/VDO
NOTE 1 "X" indicates input to, or output from, the AIS Base Station. "Q" indicates that the sentence may be externally requested using the IEC 61162-1 "$xxABQ,xxx" query sentence (see Annex A) method(s) in order for the identified sentence to be output. NOTE 2 Sentence formatters shown in shaded rows are described in IEC 61162-1.					

5.3 Minimum requirements for the TDMA transmitter of the AIS Base Station

Replace the existing Table 5 by the following new Table 5:

Table 5 – Minimum required TDMA transmitter characteristics

Transmitter parameters	25 kHz channels	12,5 kHz channels
Carrier power error	± 1,5 dB	± 1,5 dB
Carrier frequency error	± 500 Hz	± 500 Hz
Spectrum mask for slotted transmissions	–25 dBc at ± 10 kHz –70 dBc at ± 25 kHz	0 dBc at ± 2,5 kHz –60 dBc at ± 12,5 kHz
Transmitter test sequence and modulation accuracy	'0' bit start for test signals 1 and 2 1 760 Hz + 352 Hz/ –176 Hz for test signal 1 2 400 Hz ± 240 Hz for test signal 2	'0' bit start for test signals 1 and 2 535 Hz + 108 Hz/ –54 Hz for test signal 1 1 200 Hz ± 120 Hz for test signal 2
Transmitter output power versus time	Power within mask shown in Figure 11 and timings given in Table 12	Not applicable
Intermodulation attenuation	≥ 40 dB	Not applicable

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2008/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/ec... /iec-62320-1-2008-amd1-2008
Withdrawn

6.2.1 General rules

Replace the eleventh bullet and text by the following:

- when the UTC sync source is unavailable, the AIS Base Station shall use UTC indirect or shall be synchronised to another Base Station;

6.3.1 General rules

Replace the third bullet and text by the following:

- when the UTC sync source is unavailable, the independent AIS Base Station shall use UTC indirect or the semaphore rules as defined by ITU-R M.1371;

Add, after the last bullet and text, the following:

- all VDL messages shall be as short as possible.

6.3.4.8 AIS Base Station response to VDM input

Add, after the second paragraph, the following new text:

A transmission initiated by a VDM input shall not replace a scheduled message.

Messages 4, 11 and 20 shall not be transmitted.

Messages 15 and 16 shall not be transmitted if a slot offset is provided unless the slot offset is recalculated by the base station. Messages that have a Comm.state shall have the Synch.state bits of the Comm.state set to the current status of the station. The remaining Comm.state bits shall be set to zero to prevent false slot allocations.

The repeat indicator shall be set to greater than zero before transmitting.

After receiving a VDM sentence, the Base Station responds with the appropriate TFR sentence.

6.3.5 Autonomous channel management

Add the following text as a new second paragraph:

The “in use” data field of the ACA sentence defines the status of the region (0 = not in use, 1 = in use). The manufacturer shall declare the number of regions supported.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 62320-1:2007/AMD1:2008
Withdrawn

6.4 BIIT conditions

Replace the existing text by the following text:

The AIS Base Station shall monitor the following BIIT conditions and shall generate the appropriate ALR sentences on the PI. The ALR sentence shall be output at least once per minute. The alarm conditions are noted in Table 9 and the resulting alarm status is sent via PI sentence ADS. If an alarm is active (acknowledged or not), the ADS alarm status field is set to A; if no alarm is active the field is set to V.

6.5.3 DGNSS dedicated port option

Replace the existing text by the following:

The AIS Base Station may be configured to transmit DGNSS corrections (Message 17) that are input via a dedicated RTCM SC104 format DGNSS port.

Base Stations shall convert the RTCM SC104 format to VDL format before transmission.

This option shall only be available for the independent operation and care should be taken to minimise the impact on the VDL.

8.1.4.1 Standard test signal number 1

Replace the existing text by the following text:

For TDMA Type 1: A test signal consisting of a 26 ms packet (1 slot) of 010101.

8.1.4.2 Standard test signal number 2

Replace the existing text by the following text and delete the Note:

For TDMA Type 2: A test signal consisting of a 26 ms packet (1 slot) of 00001111.

Table 12 – Maximum values of absolute measurement uncertainties

Delete the final entry:

Transmitter transient frequency (frequency difference)	± 250 Hz

9.2.6.2 Method of measurement

Replace the existing item d) by the following new item d):

d) the transmitter shall be modulated with a continuous test signal number 1;

withdrawn
iTeh STANDARD PREVIEW
(standards.iteh.ai)

9.3.8.2 Manufacturers' declarations

Replace the existing item c) by the following new item c):

IEC 62320-1:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/e0c70b9e-1246-4f01-a124-02be997537e1/iec-62320-1-2007-amd1-2008

c) frequency of the local oscillator[3] at 162,025 MHz (AIS2) and at the lowest TDMA channel (f_{LOH}, f_{LOL}).

9.3.8.6 Method of search over the "limited frequency range" using SINAD measurement

Replace the existing item b) by the following new item b):

b) The wanted signal, provided by generator A, shall be at 162,025 MHz and shall be modulated with a 1 kHz sine wave at ±2,4 kHz deviation.

Add, after item i), the following item j):

j) Repeat the test using the lowest frequency.

9.3.8.7 Method of search over the limited frequency range using PER or BER measurement

Replace the existing item b) by the following new item b):

b) The wanted signal, provided by generator A, shall be at 162,025 MHz and shall be modulated to generate test signal number 3.

Add, after item i), the following new item j):

j) Repeat the test using the lowest frequency.

9.3.8.8 Method of measurement (at identified frequencies)

Replace the existing item b) by following new item b):

b) The wanted signal, provided by generator A, shall be at the high and low channels used for the calculation of SFI_1 and SFI_2 and shall be modulated to generate test signal number 3.

9.3.9.3 Method of measurement

Add the following Note after the existing text:

NOTE The step size of the frequency of the unwanted signal in 9.3.8.6 h) and 9.3.8.7 h) should be reduced to 2,5 kHz.

10.2.1.7 VDM re-broadcast

Replace the existing subclause heading by the following new heading:

10.2.1.7 VDM to VDL processing

iTeh STANDARD PREVIEW
(standards.iteh.ai)

10.2.1.7.1 Purpose

Delete the Note:

IEC 62320-1:2007/AMD1:2008
https://standards.iteh.ai/catalog/standards/sist/[illegible]/iec-62320-1-2007-amd1-2008

NOTE It is required that the repeat indicator is set to >0 before re-transmitting, because Class B "CS" has to exclude those messages from its synchronisation algorithm.

Withdrawn

10.2.1.7.3 Required results

Replace the existing text by the following new text:

NOTE The following results are required for a Base Station operated as an independent unit.

a) Confirm that the EUT generates an appropriate TFR sentence and does NOT transmit the VDM.

b) Confirm that the BCE sentence was received correctly by the EUT using the query for the BCE sentence. Confirm that the EUT generates an appropriate TFR sentence and transmits the Message within 4 s.

c) Confirm that the DLM sentence was received correctly by the EUT using the query sentence for the DLM sentence. Confirm that the ECB sentence was received correctly by the EUT using the query sentence for the ECB sentence.

d) Confirm that the EUT generates an appropriate TFR sentence and transmits each allowable Message, allowing up to 4 s between transmissions in available FATDMA or RATDMA slots. Confirm that the information in each transmitted Message is complete and correct. Confirm that the appropriate VDO sentence is output on the PI when a message is transmitted. Confirm that VDL Message 4, 11 and 20 VDM sentences are not transmitted. Confirm that VDL messages 15 and 16 are only transmitted when no slot offset is provided.

e) Confirm that the EUT generates an appropriate TFR sentence and transmits the message after correcting Comm.state and that the repeat indicator is not zero.

f) Confirm the EUT generates an appropriate TFR sentence and does NOT transmit the VDM.

g) Confirm that the DLM sentence was received correctly by the EUT using the query sentence for the DLM sentence. Confirm that the EUT transmits the 5 VDM messages one in each frame.

10.2.1.8.2 Method of measurement

Replace the existing text by the following new text:

Set up the standard test environment and operate the EUT as defined in the pre-set-up conditions.

a) Apply TSA+VDM sentence pair with encapsulated Message 1 to 23 to the EUT.

b) Apply the following TSA+VDM sentence pair with inappropriate Comm.state and repeat indicator to the EUT:

$xxTSA,AA0000003770007,9,A,HHMM,2100,2*hh<CR><LF>

!xxVDM,1,1,9,A,15M3NSwP00J6TN>?a0e3Ngv000$q,0*hh<CR><LF>

c) Apply five TSA and five VDM sentences with encapsulated Message 1 to the EUT assigning the transmission of the five Messages 1s in consecutive slots on the same channel.

$xxTSA,AA0000003770007,0,A,HHMM,1001,2*hh<CR><LF>

!ABVDM,1,1,0,A,15M3NSwP00J6TN0?a0iT<Ov>0D01,0

$xxTSA,AA0000003770007,1,A,HHMM,1002,2*hh<CR><LF>

!ABVDM,1,1,1,A,15M3NSwP00J6TN0?a0iT<Ov>0D01,0

$xxTSA,AA0000003770007,2,A,HHMM,1003,2*hh<CR><LF>

!ABVDM,1,1,2,A,15M3NSwP00J6TN0?a0iT<Ov>0D01,0

$xxTSA,AA0000003770007,3,A,HHMM,1004,2*hh<CR><LF>

!ABVDM,1,1,3,A,15M3NSwP00J6TN0?a0iT<Ov>0D01,0

$xxTSA,AA0000003770007,4,A,HHMM,1005,2*hh<CR><LF>

!ABVDM,1,1,4,A,15M3NSwP00J6TN0?a0iT<Ov>0D01,0

d) Apply the TSA+VDM sentence pair with an encapsulated message ID that is undefined, with the correct message structure to the EUT.

$xxTSA,AA0000003770007,5,A,HHMM,1005,2*hh<CR><LF>

!ABVDM,1,1,5,A,W5M3NSwP00J6TN0?a0iT<Ov>0D01,0

e) Apply a TSA sentence and a VDM sentence with encapsulated Message 8, using five slots.

$xxTSA,AA0000003770007,6,B,HHMM,1005,2*hh<CR><LF>

!xxVDM,3,1,6,B,8h3OHqh0J00@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048,0*hh<CR><LF>

!xxVDM,3,2,6,B,<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048,0*<CR><LF>

!xxVDM,3,3,6,B,<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT048<@DHLPT0,0*hh<CR><LF>

Apply a TSA sentence and a VDM sentence with encapsulated Message 14 at least 266 ms (10 slot duration) before the scheduled Message 8 using one slot and using the same start slot number on the same channel.

Withdrawn
iTeh STANDARD PREVIEW (standards.iteh.ai)