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Inland AIS Shipborne Equipment

According to the Vessel Tracking and Tracing Standard for Inland Navigation

Operational and Performance Requirements, Methods of Test and Required Test Results

(Test Standard Inland AIS)

Edition overview

Edition	Date	Description
1.0	31.5.2007	Adoption by the CCNR
1.01	22.10.2008	Adoption by the CCNR Police Regulations Committee
2.0	16.10.2012	Adoption by the CCNR Police Regulations Committee
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FOREWORD

The concept of River Information Services (RIS) has emerged throughout several European research projects, aiming at increasing safety and efficiency of inland waterway transport.

The European Commission, the Central Commission for Navigation on the Rhine and the Danube Commission have recognized the need for means of automatic exchange of navigational data between ships and between ship and shore for automatic identification and tracking and tracing solutions in inland navigation.

In maritime navigation, the IMO has introduced the Automatic Identification System (AIS). All seagoing vessels on international voyage falling under SOLAS convention Chapter V have to be equipped with AIS since the end of 2004.The Guidelines and Recommendations for River Information Services (RIS Guidelines 2004) of PIANC and CCNR define Inland-AIS as important technology.

The Automatic Identification System AIS, as used in maritime navigation, is defined by the International Maritime Organisation (IMO) “Resolution MSC.74(69) Annex 3, Performance Standard for a Universal Shipborne Automatic Identification”. The technical requirements for AIS are provided by ITU Recommendation ITU-R M.1371.

The European RIS Platform established in 2003 the International Expert Group for Tracking and Tracing. The main task of this expert group is the development and maintenance of a European wide harmonised vessel tracking and tracing standard for inland navigation. Because of mixed traffic areas it is important that the standards and procedures for inland shipping are compatible with already defined standards and procedures for seagoing navigation.

To serve the specific requirements of inland navigation, AIS has been further developed to the “Vessel Tracking and Tracing Standard for Inland Navigation” while preserving full compatibility with IMO’s maritime AIS and already existing standards in inland navigation.

The Central Commission for Navigation on the Rhine has adopted in October 2007 the Vessel Tracking and Tracing Standard for Inland Navigation, Edition 1.01. The Commission of the European Communities has adopted the Commission Regulation (EC) No 415/2007 of 13 March 2007 concerning the technical specifications for vessel tracking and tracing systems referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community. This Regulation was amended by the Commission with the Implementing Regulation (EU) No 689/2012 of 27 July 2012. Chapter 2 of the Annex of the Commission Regulation defines the Inland AIS technical specification.

This document describes the “Inland AIS Shipborne Equipment According to the Vessel Tracking and Tracing Standard for Inland Navigation – Operational and Performance Requirements, Methods of Test and Required Test Results (Test Standard Inland AIS)”. Due to its nature it is mainly based on the structure of the parent IEC standard IEC 61993-2 Edition 2. The updated version takes into account ITU-R Recommendation M.1371-4.

This document was originally written in the English language.

Inland AIS shipborne equipment

Operational and performance requirements, methods of test and required test results

1. Scope

This Standard specifies the minimum operational and performance requirements, methods of testing and required test results for Inland AIS shipborne stations.

This edition incorporates the technical characteristics of Class A shipborne equipment included in Recommendation ITU-R M.1371-4 and further described by IEC 61993-2 Ed. 2 “Class A shipborne equipment of the universal automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results” as applicable.

NOTE: All references in this standard to certain paragraphs of IMO resolution MSC.74(69), Annex 3 and IMO resolution A.694(17) or of ITU-R M.1371-4 are indicated in parenthesis i.e. (A3/3-3) or (M.1371-1/3.3) respectively. Likewise references to certain paragraphs of the Vessel Tracking and Tracing Standard Edition 1.0 are indicated in parenthesis i.e. (VTT 2.3.2.4).

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.

Central Commission for the Navigation of the Rhine, Vessel Tracking and Tracing Standard for Inland Navigation, Edition 1.01, October 2007.

Commission Regulation (EC) No 415/2007 of 13 March 2007 concerning the technical specifications for vessel tracking and tracing systems referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community, amended with the Implementing Regulation (EU) No 689/2012 of 27 July 2012.

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

IEC 61993-2 Ed 2, Maritime navigation and radiocommunication equipment and systems - 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 60945, Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results.

IEC 61108 (series), 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.

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 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.1084-4, 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.585-5, Assignment and use of Maritime Mobile Service Identities.

ITU-T Recommendation O.153, Basic parameters for the measurement of error performance at bit rates below the primary rate.

3. Abbreviations

AI	Application Identifier
AIS	Automatic Identification System
ASCII	American Standard Code for Information Interchange
ATIS	Automatic Transmitter Identification System
AtoN	Aids to Navigation
BIIT	built-in integrity tests
CCNR	Central Commission for the Navigation of the Rhine
COG	Course Over Ground
DAC	Designated Area Code
DGNSS	Differential GNSS
DSC	Digital Selective Calling
ECDIS	Electronic Chart Display and Information System
EMMA	European Multiservice Meteorological Awareness system
ENI	Unique European Vessel Identification Number
EPFS	electronic position fixing systems
ERI	Electronic Reporting International
ETA	Estimated Time of Arrival
EUT	equipment under test
FI	Functional Identifier
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HDG	Heading
IAI	International Application Identifier
IALA	International Association of Lighthouse Authorities
ID	Identifier
IEC	International Electrotechnical Commission
IETF	Internet Engineering Task Force
IFM	international function message
IHO	International Hydrographic Office
IMO	International Maritime Organization
ITU	International Telecommunication Union
LR	Long Range
MHz	Megahertz (Megacycles per second)
MID	Maritime Identification Digits
MKD	Minimum Keyboard and Display
MMSI	Maritime Mobile Service Identifier
NUC	not under command
PI	presentation interface
RAI	Regional Application Identifier
RAIM	Receiver Autonomous Integrity Monitoring
RF	radio frequency
RFM	regional function message
RIS	River Information Services
RNW	Regulierungs Niederwasser (granted water level during 94% the year)
ROT	Rate Of Turn
RTA	Requested Time of Arrival
Rx	Receive
SAR	Search And Rescue
SOG	Speed Over Ground
SOLAS	Safety Of Life At Sea
SOTDMA	Self Organizing Time Division Multiple Access
SQRT	Square Root
STI	Strategic Traffic Image
TDMA	Time Division Multiple Access
TTI	Tactical Traffic Image
Tx	Transmit
UDP	User Datagram Protocol
UMTS	Universal Mobile Telecommunications System
UN	United Nations
UN/LOCODE	United nations Location Code
UTC	Universal Time Coordinated
VDL	VHF Data Link
VHF	Very High Frequency
VSWR	voltage standing wave ratio
VTG	see IEC 61162-1, table 5
VTS	Vessel Traffic Services
WGS-84	World Geodetic System from 1984

4. General requirements

Inland AIS shipborne equipment is based on the specification of AIS Class A shipborne equipment in accordance with ITU-R Recommendation M.1371 and IEC standard IEC 61993-2 Edition 2 unless otherwise stated.

4.1 Class A functions not required

Inland AIS shipborne equipment has to fulfil all requirements of AIS Class A shipborne equipment as defined in IEC 61993-2 except:

- Long range application by interface to other equipment
- Interface for long range port.

4.2 Functions in addition to Class A

Additionally the following functions are required:

- Initiate and transmit inland specific messages as specified in Table 2
- Process and display received inland specific messages as specified in Table 3
- Act upon group assignment for station type “inland waterways”
- Interface to receive and process differential correction data (RTCM SC 104)
- Interface for Blue Sign function (switch and use of data field in VSD sentence)
- Suppress the transmission of certain ABM/BBM sentences from PI port as specified in Table 2
- Message 5 and RFM 10 shall be transmitted with a reporting interval of 6 minutes, alternating between both channels
- All speed information shall be displayed in km/h on MKD and all range information shall be displayed in km.

4.3 Manuals

The manuals shall also cover the methods necessary to support the Inland AIS specific function.

5. Environmental, power supply, special purpose and safety requirements

The same requirements as for AIS Class A mobile station shall be fulfilled.

6. Performance requirements

6.1 Composition

(VTT 2.3.8) An interface (RTCM SC-104) shall be provided to input the correction data to the internal GNSS receiver.

(VTT 2.3.3) The Inland AIS station shall be able to process Group Assignment Commands (AIS message 23) for station type “inland waterways” and act accordingly.

(VTT 2.4.1) The Inland AIS station shall be able to process the Blue Sign information and set the special manoeuvre indicator in AIS VDL Message 1, 2, 3 accordingly.

(VTT 2.3.7) The Inland AIS station shall be able to process Inland specific Regional Function messages (RFM) with the Designated Area Code (DAC) "200"[1].

6.1.1 Blue sign input

The Blue Sign information shall be input in two ways:

a) input via the IEC 61162-1 VSD sentence

b) input via a dedicated input port.

6.1.1.1 Blue Sign input via VSD sentence

The VSD field "regional application flags" defines 4 bit (values 0...15). The two most significant bits of the regional application flags set the "Special manoeuvre indicator" parameter. The remaining two bits of the VSD sentence shall be ignored.

The following Table describes the translation from the VSD field "regional application flags" to the VDL Message 1, 2, 3 "Special manoeuvre indicator" parameter

Table 1: Translation from VSD sentence to VDL message

VSD sentence regional application flag	VDL Message 1,2,3 Special manoeuvre indicator	Blue Sign description
0 (00xx)	0 (00)	Not available (default)
4 (01xx)	1 (01)	Not set
8 (10xx)	2 (10)	set
12 (11xx)	0 (00)	Invalid input, results in not available

The Special manoeuvre indicator (Blue Sign) parameter shall only be set if the VSD sentence is received with a valid regional application flag value and an interval of at least two seconds. After a time out of 2 seconds the special manoeuvre indicator shall be set to not available.

6.1.1.2 Blue sign status via a dedicated input port

The input for the Blue Sign status shall provide preferably a tri-state or alternatively a two state input which can be controlled by a single switch where the switch circuit open means "Blue Sign not set" and the switch circuit closed means "Blue Sign set".

The presence of the direct connected switch shall be made available by automatic means or manual configuration.

[1] Unless otherwise stated "RFM" in this document refers to Inland specific Regional Function Messages (RFM) as defined in ITU-R M.1371 with an Application identifier (AI) consisting of DAC = 200 and the defined Function Identifier (FI) (e.g.: RFM 10 = DAC "200" + FI "10")

6.1.2 Internal GNSS receiver

The Inland AIS station shall provide an internal GNSS receiver as UTC source, for own positioning, COG and SOG. The internal GNSS receiver shall meet the appropriate requirements of IEC 61108 series as defined in IEC 61993-2. The internal GNSS receiver shall be capable of processing differential correction data from a dedicated RTCM SC 104 interface and via VDL Message 17.

6.2 Information

Information provided by the Inland AIS shall be as defined in Vessel Tracking and Tracing Standard for Inland Navigation.

(A3/6.1) (VTT 2.3.2)

The static, dynamic and voyage related ship information for inland vessels shall have the same parameters and the same structure than in IMO AIS as far as it is applicable. Not used parameter fields shall be set to “not available”. Inland specific static ship information shall be added.

6.3 Information processing

6.3.1 Inland AIS Data input

The following definitions support the input of data for Msg 5 and RFM 10:

- Dimensions / reference for position of own ship.
  The input of total length (LS) and total beam (BS) shall be always in dm values which are transmitted in RFM 10. The input of the reference point for message 5 is defined by BI and CI values in dm. The remaining parameters AI and DI are calculated from total length LS and total beam BS and the defined BI and CI values.
  Message 5 shall transmit A, B, C and D values (rounded up values of AI, BI, CI, DI in m).
  There are two reference points, for the internal GNSS and for an external position source. This method shall be used for both reference points.
- Dimensions / reference for position of combination.
  Besides the dimensions / reference for position of own ship additional dimensions to describe a combination can be added on any side of the own ship.
  For each side an extension (EA, EB, EC, ED) of the own ship can be defined in dm. The total convoy length LC and convoy beam BC are calculated in dm and shall be transmitted by RFM 10.
  Message 5 shall transmit A, B, C and D values (rounded up in m) from the calculated combination.

The following figure 1 illustrates the parameters and the usage to calculate the dimensions for both RFM 10 and message 5.

- Draught: input always in cm, automatic conversion to next higher value (rounding up) for message 5
- The ship and cargo type of message 5 shall be automatically converted from Inland-ship type (ERI ship type; see VTT Standard Annex E).
  IMO ship and cargo type can be overwritten according to the Class A rules.
- The number of blue cones can be entered independently of IMO ship and cargo type.

Figure 1: Parameters and the usage to calculate the dimensions for both RFM 10 and message 5.

The input parameters A, B, C and D from SSD sentence are not used for inland mode

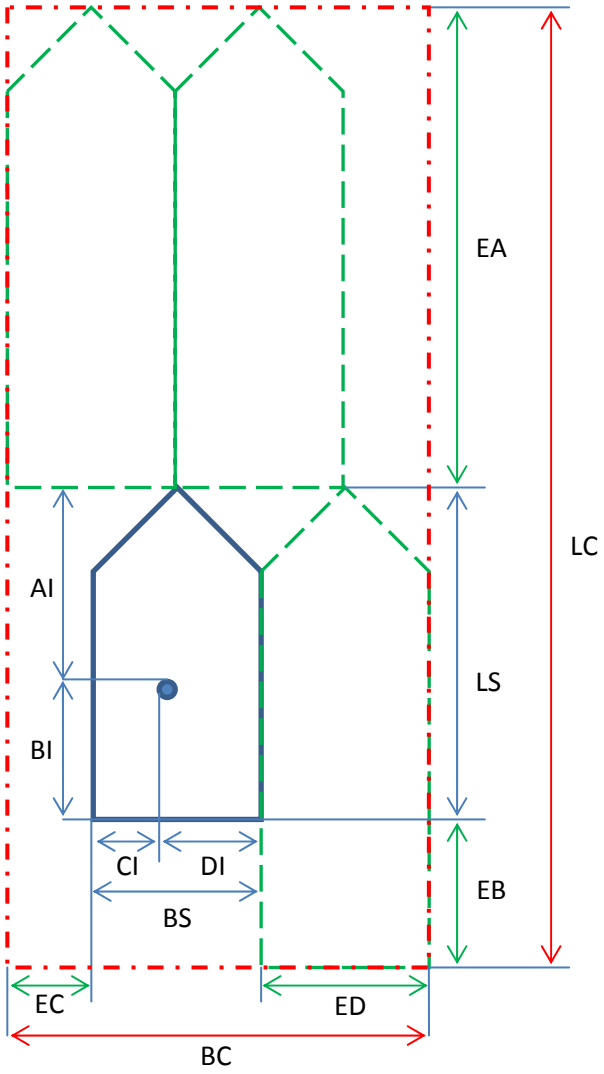
Input parameters IWWSSD: (own ship)
Password protected
BI (dm) and LS (dm)
CI (dm) and BS (dm)

Input parameters IWWIVD: (convoy extension)
Not password protected
EA (dm)
EB (dm)
EC (dm)
ED (dm)

Calculated internally:
AI (dm) = LS - BI
DI (dm) = BS - CI
BC (dm) = BS + EC + ED
LC (dm) = LS + EA + EB
A (m) = AI + EA (rounded upwards)
B (m) = BI + EB (rounded upwards)
C (m) = CI + EC (rounded upwards)
D (m) = DI + ED (rounded upwards)

Output Msg5:
A (m)
B (m)
C (m)
D (m)

Output RFM 10:
LC (dm)
BC (dm)



6.3.2 Inland AIS Data storage and message compilation

(VTT 2.3.8, VTT 2.4.4.2)

For data input of the required information for transmission either means for manual input or the proposed digital interface sentences for Inland AIS ($--SSD, $--VSD, $PIWWSSD and $PIWWIVD) shall be used. This requires means for input and storage of the inland specific data. Only inputs that change the stored data (manual input or $--SSD, $--VSD, $PIWWSSD, $PIWWIVD) shall generate a transmission where applicable.

The following tables define the behaviour of the Inland AIS mobile station regarding inland specific functional messages.

6.3.2.1 Initiation of an inland specific functional message

The following table defines the initiator of inland specific functional messages (IFM, RFM) to be transmitted by the Inland AIS mobile station.

(ABM/BBM = via standard Presentation Interface, MKD = via Minimum Keyboard and Display, Inland ECDIS = via connected Inland ECDIS (recommendation only). On VDL request = autonomous reaction when an IFM 2 or 3 interrogation is received).

Table 2: Transmission of inland specific functional messages

Message	Description	Addr/ Bc	TX INITIATED BY			
			ABM/ BBM	MKD	Auto-matically gene-rated	On VDL request
RFM10	Inland static data [1)]	Bc	No	---	x	Opt [1) 2)]
RFM 21	ETA	Addr	x	Opt	No	No
RFM 22	RTA	Addr	No	No	No	No
RFM 23	EMMA warning	Bc	No	No	No	No
RFM 24	Water level	Bc	No	No	No	No
RFM 40	Signal Status	Bc	No	No	No	No
RFM 55	Inland number of persons [2)]	Addr	x	Opt	No	x
RFM 55	Inland number of persons	Bc	x	x	No	No
IFM 2	Interrogation	Addr	x	No	No	---
IFM 3	Capability interrogation	Addr	x	No	No	---
IFM 4 a)	Capability response [2)]	Addr	x	---	No	x
´X´ = required; ´Opt´ = Optional; ´No´ = Not allowed; ´---´ = Not applicable						

[1)] Autonomously provided in conjunction with AIS VDL Message 5 by the Inland AIS mobile station.

[2)] Message is provided only if interrogation is addressed to own station.

6.3.2.2 Processing of received inland specific functional messages

The following table defines the behaviour (internal processing and reaction) of the Inland AIS mobile station, when an inland specific functional message (IFM, RFM) is received.

(VDM = output via Presentation Interface, MKD = displayed on Minimum Keyboard and Display, Inland ECDIS = displayed on connected Inland ECDIS (recommendation only), VDL response = autonomous reaction on a received VDL message).

Table 3: Reception of inland specific functional messages

Message	Description	Addr/Bc	Processing		
			VDM	MKD	VDL Response
RFM10	Inland static data	Bc	x	X	---
RFM 22	RTA, response to ETA [1)]	Addr	x	Opt.	---
RFM 23	EMMA warning	Bc	x	Opt.	---
RFM 24	Water level	Bc	x	Opt.	---
RFM 40	Signal status	Bc	x	Opt.	---
RFM 55	Inland number of persons [1)]	Addr	x	X [2)]	---
RFM 55	Inland number of persons	Bc	x	X [2)]	---
IFM 2	Interrogation [3) 1)]	Addr	x	---	x
IFM 3	Capability interrogation [3) 1)]	Addr	x	---	x
IFM 4	Capability response [1)]	Addr	x	---	---
IFM 16	Number of persons [1)]	Addr	x	X	---
IFM 16	Number of persons	Bc	x	X	---
´X´ = required; ´Opt´ = Optional; ´No´ = Not allowed; ´---´ = Not applicable					

1) Messages are processed only if addressed to own station.

2) Only the display of total number of persons on board is required.

3) Messages are provided only if interrogation is addressed to own station.

6.3.2.3 Inland specific RFM 10 (Inland ship static and voyage related data) and Inland specific RFM 55 (Persons on board)

The compilation of the RFM 10 and RFM 55 for transmission is part of the Inland AIS station itself:

- The RFM 10 shall be used by Inland AIS only, to broadcast ship static and voyage related data in addition to message 5. The message shall be sent not later than 4 seconds after message 5 by using a message 8 / RFM 10.
- Message 5 and RFM 10 shall be transmitted with a reporting interval of 6 minutes, alternating between both channels.

- The Inland AIS station must be able to respond to an interrogation for VDL message 5 (received message 15) automatically with message 5 and message 8 / RFM 10.
- The Inland AIS station must be able to initiate a message 8 / RFM 55 by MKD and to respond on a request for “Inland number of persons on board” automatically with the message 6 / RFM 55.

6.3.2.4 Inland specific RFM’s other than RFM 10 or RFM 55

The following options are available for the compilation of inland specific messages other than RFM 10 and 55:

- The compilation is implemented in the Inland AIS station itself.
- The compilation of inland specific message may be provided by an external application outside the Inland AIS ship borne station and is input via the Presentation Interface using IEC 61162-1 ABM or BBM sentences as applicable.

  External applications could be:
  - a connected Inland ECDIS equipment or Radar equipment
  - a connected dedicated software application (without Inland ECDIS capability).

6.3.3 Alarms and status information

Means shall be provided to selectively disable alarms during installation which are not applicable for that specific installation, i.e. external EPFS lost (25), heading lost/invalid (32), no valid ROT information (35). This feature has to be password protected.

6.4 Minimum Keyboard and Display (MKD)

6.4.1 Display of received Messages

In addition to AIS Class A following information shall be displayed on a MKD:

- Inland AIS static data
  Where information is delivered both by Message 5 and RFM 10 the Inland AIS specific date shall preferably be displayed (dimension, draught, ship type, dangerous cargo category)
- Number of person on board
  RFM 55 shall have preference above IFM 16
- Blue sign information
- Speed information shall be displayed in km/h
- Range information shall be displayed in km.

Table 4: Following information in RFM 10 shall be displayed:

Parameter	Displayed on MKD
ENI	Yes
Length of ship or convoy	Yes
Beam of ship or convoy	Yes
ERI ship type	Yes
Number of blue cones	Yes
Draught	Yes
Loaded/unloaded	Yes
Quality of speed information	Optional
Quality of course information	Optional
Quality of heading information	Optional

6.4.2 Input of Data

In addition to AIS Class A following data shall be entered via MKD:

- Inland AIS static data
  Where information is contained in both Message 5 and RFM 10 the Inland AIS specific date shall input only once to avoid conflicts, i.e. dimension/reference, draught, ship type, dangerous cargo category
- Number of person on board
  RFM 55 shall have preference above IFM 16.

Table 5: Following information in RFM 10 and RFM 55 shall be input via MKD:

Parameter	**Category**	**Remark**
ENI	Static	1)
Length of ship (LS)	Static	1) Shall also be used for the calculation of message 5 and RFM 10
Distance from reference point to stern (BI) (for internal and external position source)	Static	1) Shall also be used for the calculation of message 5 and RFM 10
Beam of ship (BS)	Static	1) Shall also be used for the calculation of message 5 and RFM 10
Distance from reference point to port (CI) (for internal and external position source)	Static	1) Shall also be used for the calculation of message 5 and RFM 10
Extension for length of convoy (EA, EB,)	Voyage related	2) Shall also be used for the calculation of message 5 and RFM 10
Extension for beam of convoy (EC, ED)	Voyage related	2) Shall also be used for the calculation of message 5 and RFM 10
ERI ship type	Voyage related	2)
Number of blue cones	Voyage related	2)
Draught	Voyage related	2)
Loaded/unloaded	Voyage related	2)
Persons on board (crew members, passengers and shipboard personnel)	Voyage related	2)
Quality of speed information	Static	On installation, shall be set to 0 if not derived from a type approved sensor
Quality of course information	Static	On installation, shall be set to 0 if not derived from a type approved sensor
Quality of heading information	static	On installation, shall be set to 0 if not derived from a type approved sensor

1) On installation, data shall be protected by the administrator password

2) Voyage related, data shall not be protected by the administrator password.

6.4.3 Initiation of transmission of RFM 55 via MKD

Means on the MKD shall be provided to initiate the transmission of broadcast RFM 55.

7. Technical requirements

7.1 Response to Assignment Commands

(VTT 2.3.3 Table 2.1)

An Inland AIS station shall process assignment commands in accordance with ITU-R M.1371 and VTT 2.3.3 Table 2.5. The Inland AIS mobile station shall act upon group assignment for station type “inland waterway” and not for station type “Class A mobile station”.

An assignment command, with a reporting interval less than the autonomous reporting interval, received via the digital interface sentence for Inland AIS $PIWWIVD shall decrease the reporting interval defined by ITU-R M.1371. An assignment command shall not increase the reporting interval above the autonomous reporting interval.

7.2 Presentation interface

7.2.1 Required ports

The Presentation Interface of the Inland AIS shall comprise the data ports listed in table 6. (Also see Annex D.)

Table 6: Presentation Interface Access

General Function	Mechanism
Automatic Input of Sensor Data (Sensor data input from shipboard equipment)	(3) IEC 61162-2 input ports, also configurable as IEC 61162-1 input ports
High Speed Input/Output Ports (Operator controlled commands and data input; AIS VHF Data Link (VDL) data; and AIS equipment status)	(2) IEC 61162-2 paired input and output ports
BITT Alarm Output	(1) Isolated normally-closed (NC) contact circuit

Note: Pilot port is not required

7.2.2 Input data and formats

The Inland AIS shall as a minimum be able to receive and process the input data shown in table 7. The details of these sentences are contained in IEC 61162-1. Manufacturer's proprietary data may also be entered using these high-speed ports.

Table 7: AIS High-speed input data and formats

Data	IEC 61162-1 Sentences
Normal Access - Parameter Entry	
Voyage information: Vessel type and cargo category Navigational status Draught, max. actual static Destination ETA date and time Regional application flags Reporting rate settings Number of blue cones air draught of ship Number of assisting tugboat Number of crew members on board Number of passengers on board Number of shipboard personnel on board	VSD - Voyage static data PIWWIVD – Inland Waterway voyage data
Station information: Vessel name (administrator password protected) Call sign (administrator password protected) Antenna location length and beam ENI number (administrator password protected) ERI ship type Quality of speed information Quality of course information Quality of heading information	SSD - Station static data PIWWSSD – Inland Waterway static ship data
Initiate VHF Data-link Broadcasts	
Safety messages	ABM - Addressed Binary Message BBM - Broadcast Binary Message
Binary messages	ABM - Addressed Binary Message BBM - Broadcast Binary Message
Interrogation Message	AIR - AIS Interrogation Information
AIS Equipment - Parameter Entry	
AIS VHF channel selection AIS VHF power setting AIS VHF channel bandwidth Transmit/Receive mode control MMSI IMO number Other AIS equipment controls	ACA - AIS Channel Assignment Message EPV-Equipment property value (administrator password protected) EPV-Equipment property value (administrator password protected) EPV-Equipment property value (administrator password protected)
BIIT Input	
Alarm / indication acknowledgement	ACK Acknowledgement message

Note: Information which is not marked with “administrator password protected” shall be accepted if no administrator password is provided even if there is protected information in the same sentence. In this case the protected information is ignored.

7.2.3 Output data and formats

In addition to the AIS Class A station an Inland AIS station outputs PIWWSSD and PIWWIVD sentences on the two high speed ports as response on a query.

Query sentences is used as defined in IEC 61162-1 with sentence formatters SSD and IVD. On query for SSD the unit will respond with both an SSD sentence and a PIWWSSD sentence.

8. Operational tests

8.1 Operating modes/capability

8.1.1 Interrogation response

(4.2.1, M.1371/A2-3.3.2, A8, 6.5.4.1)

8.1.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode. Apply an interrogation message (message 15; EUT as destination) to the VDL according to message table (M.1371/A8-3.11) for responses with message 3, message 5 and slot offset set to defined value. Record transmitted messages and frame structure.

8.1.1.2 Required results

Check that the EUT transmits the appropriate interrogation response message as requested after defined slot offset. Confirm that the EUT transmits the response on the same channel as where interrogation was received. Confirm that the EUT transmits message 5 and “Inland ship static and voyage related data” RFM 10 using binary broadcast message (message 8) to the VDL. Confirm that the “Inland ship static and voyage related data” RFM 10 follows message 5 within 4 seconds. Confirm that ITDMA is used if possible.

8.2 Reporting intervals

8.2.1 Static data reporting rates

8.2.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

a) Record the transmitted messages and check for static and voyage related data (message 5 & RFM 10).
b) Change static and/or voyage related station data. Record the transmitted messages and check for static and voyage related data (message 5).

8.2.1.2 Required results

a) Confirm that the EUT transmits message 5 with a reporting interval of 6 minutes and the inland specific RFM 10 not later than 4 seconds after message 5 on the same channel using ITDMA if possible. The ITDMA access scheme shall replace a scheduled position report message 1 with a message 3.
b) Confirm that the EUT transmits message 5 and RFM 10 within 1 minute reverting to a reporting interval of 6 minutes.

8.3 Alarms and indicators, fall-back arrangements

8.3.1 Method of measurement

Disable the alarms according section 6.3.3.

8.3.2 Required results

Confirm that the alarms can be disabled. Confirm that the disabling of alarms is administration password protected.

8.4 Input of Data on MKD

8.4.1 Method of measurement

Input all static and voyage related data according to 0 Table 5.

8.4.2 Required results

Confirm that all data according to 0 Table 5 can be input with the appropriate accuracy.

Confirm that the input of data is protected by password according to 0 Table 5.

Confirm that the ship and cargo type of message 5 is automatically converted from Inland-ship type (ERI ship type; see VTT Standard Annex E) when the ERI ship type is input.

Confirm that the IMO ship and cargo type can be overwritten according to the Class A rules.

8.5 Display of data on MKD

8.5.1 Method of measurement

Apply a message 1, 9, 18, 19 to the VDL.

8.5.2 Required results

Confirm that the speed is displayed in km/h and the range is displayed in km.

9. Specific tests of link layer

9.1 Group assignment

9.1.1 Assignment by $PIWWIVD

Group assignment commands have precedence of assignments by input via $PIWWIVD.

9.1.1.1 Method of measurement

Address the EUT with an AIS message 23 to bring the EUT in assigned mode. Record VDL and verify the reaction of the EUT. Apply an assignment by $PIWWIVD input with a different reporting interval.

9.1.1.2 Required results

Verify that the EUT ignores the assignment by input via $PIWWIVD.

9.1.2 Assignment by message 16

Messages which are addressed directly to an AIS Transponder have precedence of group assignment commands and manual assignments. Following test shall verify the assignment priority of these messages.

9.1.2.1 Method of measurement

Set up the standard test environment and operate EUT in autonomous mode. Input sensor data to achieve a reporting interval of 10 seconds.

a) Address the EUT with an AIS message 16 to bring the EUT in assigned mode with a reporting interval of 5 seconds. Record VDL and verify the reaction of the EUT.
b) Apply a message 23 with a reporting interval of 2 seconds. Construct message 23 in that way that the EUT will be addressed by the message.
c) Apply a $PIWWIVD assignment input with a reporting interval of 2 seconds.

9.1.2.2 Required results

a) Verify that the reporting interval is 5 s.
b) Verify that the EUT ignores the command given by message 23.
c) Verify that the EUT ignores the assignment command given by $PIWWIVD.

9.1.3 Increased reporting interval assignment

9.1.3.1 Increased reporting interval assignment by $PIWWIVD

(7.3.3.1, M.1371/A2-3.3.6, E.1.6)

9.1.3.1.1 Method of measurement

Set up the standard test environment and operate EUT in autonomous mode.

a) Apply a $PIWWIVD assignment to the EUT with a reporting interval greater than the autonomous reporting interval
b) Apply a $PIWWIVD assignment to the EUT with a reporting interval shorter than the autonomous reporting interval.

Record transmitted messages.

9.1.3.1.2 Required results

a) Confirm that the EUT transmits position reports with the autonomous reporting interval in $PIWWIVD.

b) Verify that EUT switches to assigned mode and transmits position reports with 2 seconds reporting interval. Verify that EUT reverts to autonomous mode after timeout period.

9.1.4 Addressing by station type

9.1.4.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode with a reporting interval of 10 seconds.

a) Transmit a Group Assignment command (message 23) to the EUT (define geographic region so that the EUT is inside this region). Set the reporting interval to 2 seconds and the station type to 0 (all stations).

b) Transmit a Group Assignment command (message 23) to the EUT (define geographic region so that the EUT is inside this region). Set the reporting interval to 2 seconds and the station type to 1 (Class A), 2 (Class B), 3 (SAR aircraft), 4 (Class B SO), 5 (Class B CS).

c) Transmit a Group Assignment command (message 23) to the EUT (define geographic region so that the EUT is inside this region). Set the reporting interval to 5 seconds and the station type to 6 (Inland Waterway). Apply this message to the VDL again within 4 minutes. Record VDL and check reaction of the EUT.

9.1.4.2 Required result

a) Verify that EUT switches to assigned mode and transmits position reports with 2 seconds reporting interval. Verify that EUT reverts to autonomous mode after timeout period.

b) Verify that EUT declines message 23.

c) Verify that EUT switches to assigned mode and transmits position reports with 5 seconds reporting interval. Verify that EUT reverts to autonomous operation mode after timeout period of second transmitted group assignment.

9.2 Inland AIS message formats

9.2.1 Received Inland specific messages

9.2.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

a) Apply following Inland specific messages using binary message (message 8) to the VDL:
Inland ship static and voyage related data Inland specific RFM 10 (DAC 200 / FI 10)
EMMA warning Inland specific RFM 23 (DAC 200 / FI 23)
Water level Inland specific RFM24 (DAC 200 / FI 24)
Signal status Inland specific RFM 40 (DAC 200 / FI 40)
Inland number of persons onboard Inland specific RFM 55 (DAC 200 / FI 55)
Number of persons on board International Function message 16 (DAC 001 / FI 16).

b) Apply following addressed Inland specific messages using binary message (message 6; EUT as destination) to the VDL.
RTA at lock/bridge/terminal Inland specific RFM 22 (DAC 200 / FI 22)
Inland number of persons onboard Inland specific RFM 55 (DAC 200 / FI 55)
Number of persons on board International Function message 16 (DAC 001 / FI 16).

c) Apply an addressed Inland specific messages using addressed binary message (message 6; other station as destination) to the VDL.

d) Apply position report (message 1, 2 or 3) with parameter “Blue sign set” and static and voyage related data (message 5) to the VDL.

Record transmitted messages and frame structure.

9.2.1.2 Required results

a) Confirm that EUT outputs the received message via the presentation interface properly. If implemented confirm that EUT displays received Inland specific message accordingly. Confirm that the content of RFM 10 is displayed according to 0 Table 4 (6.4.1).

b) Confirm that EUT outputs the received message via the presentation interface properly. Check that EUT transmits the appropriate acknowledgement message for addressed messages. If implemented confirm that EUT displays received Inland specific message accordingly.

c) Confirm that the EUT does not output the message 6 (addressed to other station) on the presentation interface. If implemented confirm that EUT does not display the received Inland specific message addressed to other station as destination.

d) Confirm that EUT outputs the received message via the presentation interface properly. If implemented confirm that EUT displays the information “Blue sign set” only when Inland ship static and voyage related data RFM 10 (using message 8) has been received before.

9.2.2 Transmitted inland specific messages

(6.5.1, M.1371/A8)

Set up standard test environment and operate EUT in autonomous mode. Apply all static, dynamic and voyage related data to the EUT (over MKD, $--SSD, $--VSD, $PIWWIVD and $PIWWSSD). Record all messages on VDL and check the contents of the relevant messages. For all sub-points make sure that values transmitted to the EUT by MKD or PI sentences are stored in the EUT even after disconnecting the power supply. Examine VDL messages of EUT and figure out if defined values are used.

9.2.2.1 Position report message 1, 2 or 3

(6.5.4.1)

Blue Sign information may be derived by a direct connected switch or by the regional bits of the periodically received PI sentence ($--VSD). The presence of the direct connected switch shall be made available by automatic means or manual configuration. Ensure that Blue Sign information derived from direct connected switch has precedence of transferred NMEA commands (regional bits of $--VSD sentence).

9.2.2.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

a) Apply a valid VSD sentence with the regional application flag set to:
"Blue sign not set" (0100bin),
"Blue sign is set" (1000bin),
"Blue sign information is not available" (0000bin).

b) Set the input data for Blue sign information in VSD to invalid (e.g. wrong checksum).

c) Apply a valid VSD sentence with the regional application flag set to 2. Disconnect VSD input for Blue sign information.

d) Connect Blue Sign switch to EUT in a way that the Blue Sign value is set to 1 (= not set).

e) Change Blue Sign value to 2 (= set) by direct connected switch to EUT.

f) Change Blue Sign value to 1 (= not set) by applying VSD sentence (regional bits of VSD sentence) to EUT.

g) Disconnect Blue Sign switch from EUT in a way that Blue Sign value is set to 0 (=not available).

9.2.2.1.2 Required results

a) Check the parameter blue sign in VDL message 1, 2, 3:
1 = not engaged in special manoeuvre (blue sign not set),
2 = engaged in special manoeuvre (blue sign set),
0 = not available.
Confirm that EUT transmits message 1 or 2 or 3 with blue sign value accordingly.
Confirm that EUT does not transmit message 5 for unchanged data derived from PI sentence (VSD).

b) Confirm that EUT switches blue sign value to 0 (= not available) within 2 seconds after invalid input (check PI Output, VDO sentence) and that EUT transmits message 1 or 2 or 3 with blue sign value 0 (= not available).

c) Confirm that EUT switches blue sign value to 0 (= not available) within 2 seconds after invalid input (check PI Output, VDO sentence) and that EUT transmits message 1 or 2 or 3 with blue sign value 0 (= not available).

d) Confirm that EUT transmits message 1 or 2 or 3 with blue sign value 1 (= not set).

e) Confirm that EUT transmits message 1 or 2 or 3 with blue sign value 2 (= set).

f) Confirm that EUT ignores Blue Sign information derived from VSD sentence.

g) Confirm that EUT transmits message 1 or 2 or 3 with blue sign value 0 (= not available).

9.2.2.2 Ship static and voyage related data (Message 5 and RFM 10)

9.2.2.2.1 Method of measurement

Operate EUT in autonomous mode and record messages on VDL.

a) Configure several relevant ship and convoy combinations (in minimum it shall be tested for all extensions set to 0 (own ship only) and all extensions set to values not 0 and for internal and external position source).

b) Configure several ERI ship and combination types.

c) Configure ship and cargo type for message 5.

d) Configure draught in dm.

e) Switch off EUT by disconnecting power supply. Reconnect Power and record messages on VDL.

9.2.2.2.2 Required results

a) Confirm that EUT transmits the correct A, B, C, D values rounded up in message 5 and correct length and beam in RFM 10 according to the calculations defined in section 6.3.1 with the specified accuracy.

b) Confirm that EUT transmits the correct ERI ship and combination type in RFM 10 and the converted ship and cargo type in message 5.

c) Confirm that EUT transmits the correct ship and cargo type in message 5.

d) Confirm that EUT transmits the correct draught in cm in RFM 10 and in dm rounded up in message 5.

e) Confirm that the EUT transmits message 5 and RFM 10 with values unchanged.

9.2.2.3 ETA at lock / bridge / terminal RFM 21 (DAC 200 / FI 21) (if implemented)

(6.5.4.1)

This message shall be sent by Inland AIS stations only, to send an ETA report to a lock, bridge or terminal in order to apply for a time slot in resource planning. The message shall be sent with binary message 6. An acknowledgement by RFM 22 shall be received within 15 minutes. Otherwise the RFM 21 shall be repeated once.
Note: Alternatively this functionality can be implemented externally.

9.2.2.3.1 Method of measurement

a) Send application message RFM 21 (DAC 200 / FI 21) from EUT by using addressed binary message 6. Respond to this message via VDL within 15 minutes by using application message DAC 200 / FI 22. Record VDL for a time period greater than 15 minutes.

b) Send application message RFM 21 (DAC 200 / FI 21) from EUT by using addressed binary message 6 and do not respond to this message via VDL. Wait for a time period greater than 15 minutes and record VDL.

9.2.2.3.2 Required results

a) Confirm that EUT transmits AIS message 6 RFM 21 with proper content. Check that the responding application message RFM 22 (DAC 200 / FI 22) applied to VDL is outputted by EUT on ECDIS port. Confirm that EUT does not repeat application message RFM 21 after 15 minutes.

b) Confirm that EUT transmits AIS message 6 RFM 21 with proper content. Record VDL and check if EUT repeats application message RFM 21 after 15 minutes. Observe VDL for additional 15 minutes and confirm that EUT does not transmit application message RFM 21 again.

9.2.2.4 Persons on board RFM 55 (DAC 200 / FI 55)

(6.5.4.1)

This message shall be used by inland vessels only, to send the number of persons on Board to a competent authority in order to inform about the number of persons on board. The message shall be sent with binary message 6 RFM 55 (DAC 200, FI 55).

9.2.2.4.1 Method of measurement

a) Initiate transmission of persons on board message as RFM 55 by MKD.
b) Initiate transmission of persons on board message as RFM 55 by ABM.
c) Initiate transmission of persons on board message as RFM 55 by BBM.

9.2.2.4.2 Required results

a) Confirm that EUT transmits AIS message 6 with proper content (check all numbers) as RFM 55.
b) Confirm that EUT transmits AIS message 6 with proper content as RFM 55.
c) Confirm that EUT transmits AIS message 8 with proper content as RFM 55.

9.2.3 Transmit inland specific interrogation messages

9.2.3.1 Transmit an interrogation for a specific FM (IFM 2)

9.2.3.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

Apply an ABM sentence containing an IFM 2 (Interrogation for a specific FM) using binary message 6 to request “Inland ship and voyage related data (RFM 10)”. Record transmitted messages.

a) Send an IFM 2, request DAC = 200 and requested FI = 10.
b) Send an IFM 2, request DAC = 200 and requested FI = 55.
c) Send an IFM 2, request DAC = 303 and requested FI = 10.

9.2.3.1.2 Required results

Check that EUT reacts as follows:

a) Verify that EUT sends interrogation message on VDL using binary message 6 and that DAC FI and requested DAC are correct.
b) Verify that EUT sends interrogation message on VDL using binary message 6 and that DAC FI and requested DAC are correct.
c) Verify that EUT sends interrogation message on VDL using binary message 6 and that DAC FI and requested DAC are correct.

9.2.3.2 Transmit a capability interrogation (IFM 3)

9.2.3.2.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode. Apply an ABM sentence containing IFM 3 (Capability Interrogation) using binary message 6 to the VDL with DAC = 001, FI = 3, Requested DAC = 200 and Requested FI = 10.

9.2.3.2.2 Required results

Check that the EUT transmits a binary addressed message 6 and confirm that the content of message is correct.

9.2.4 Response to inland specific interrogation messages

9.2.4.1 Response to “Capability interrogation” (IFM 3) with “Capability reply” (IFM 4)

9.2.4.1.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

a) Apply an IFM 3 (Capability interrogation) using addressed binary message (message 6) to the VDL with requested DAC = 200. Record transmitted messages.

b) Repeat the test with DAC = 303.

c) Repeat the test with DAC = 001.

9.2.4.1.2 Required results

a) Check that the EUT transmits the appropriate response “Capability reply” (IFM 4) using addressed binary message (message 6) addressed to the interrogator. Check the content of this message in accordance to the specification in ITU-R M.1371. Bit order of ´FI capability table´:

first	sec.	first	sec.	first	sec.					first	sec.	first	sec.
FI 0		FI 1		FI 2						FI 62		FI 63	

Verify that at least the DAC 200 / FI 10 and DAC 200 / FI 55 for Inland AIS are included in the binary structure. Confirm that the EUT transmits the response on the same channel as where the request was received.

b) Check that the EUT transmits the appropriate response “Capability reply” (IFM 4) using addressed binary message (message 6) addressed to the interrogator. Check the content of this message in accordance to the specification in ITU-R M.1371.Confirm that the EUT does respond with all values set to 0. Confirm that the EUT transmits the response on the same channel as where the request was received.

c) Check that the EUT transmits the appropriate response “Capability reply” (IFM 4) using addressed binary message (message 6) addressed to the interrogator. Check the content of this message in accordance to the specification in ITU-R M.1371.

Verify that at least the DAC 001 / FI 3 is included in the binary structure. Confirm that the EUT transmits the response on the same channel as where the request was received.

9.2.4.2 Response to interrogation for ”Inland ship static and voyage related data” (RFM 10)

9.2.4.2.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode. Apply an IFM 2 (Interrogation for a specific FM) using binary message 6 to request “Inland ship and voyage related data” (RFM 10) to the VDL. Record transmitted messages.

a) Request “Inland ship and voyage related data” (RFM 10) with DAC = 200, FI 10.
b) Request “Inland ship and voyage related data” (RFM 10) with DAC = 303, FI 10.

9.2.4.2.2 Required results

Check that EUT reacts as follows:

a) EUT shall respond to interrogation with “Inland ship and voyage related data” (RFM 10) using binary message 6.
b) EUT shall not respond.

9.2.4.3 Response to interrogation for “Number of Persons on board” (RFM 55 and IFM 16)

9.2.4.3.1 Method of measurement

Set up standard test environment and operate EUT in autonomous mode.

Apply an International Function message IFM 2 (Interrogation for a specific FM) using binary message 6 to request Inland number of persons onboard to the VDL. Record transmitted messages.

a) Request “number of persons on board” with DAC = 200, FI 55.
b) Request “number of persons on board” with DAC = 303, FI 55.

9.2.4.3.2 Required results

Check that EUT reacts as follows:

a) Confirm that EUT transmits AIS message 6 with proper content (check all numbers) as inland specific RFM 55.
b) EUT shall not respond.

10. High speed input

This test checks the configuration of the Inland AIS unit using the high speed input port.

10.1 Voyage data configuration

10.1.1 Method of measurement

a) Apply a VSD sentence with voyage related data.
b) Apply a PIWWIVD sentence with Inland specific voyage data.
c) Apply a VSD sentence with voyage related data with draught deviating from b).
d) Apply a query for VSD.

10.1.2 Required result

a) Confirm that all data are accepted with exception of the draught.

b) Confirm that all Inland specific voyage data are accepted with full resolution.

c) Confirm that the draught from VSD is ignored.

d) Confirm that a VSD and a PIWWIVD sentence are output with correct data.

10.2 Static data configuration

10.2.1 Method of measurement

a) Apply a PIWWSSD sentence with static data, no preceding SPW sentence.

b) Apply a PIWWSSD sentence with static data, preceding SPW sentence with incorrect password.

c) Apply a PIWWSSD sentence with static data, preceding SPW sentence with correct password.

d) Apply a SSD sentence with static data different to the currently stored values, preceding SPW sentence with correct password.

e) Apply a query for SSD.

10.2.2 Required result

a) Confirm that the data which are protected according to Table 7 (7.2.2) are not accepted. Confirm that the other data are accepted.

b) Confirm that the data which are protected according to Table 7 (7.2.2) are not accepted. Confirm that the other data are accepted.

c) Confirm that all static data of the PIWWSSD sentence are accepted.

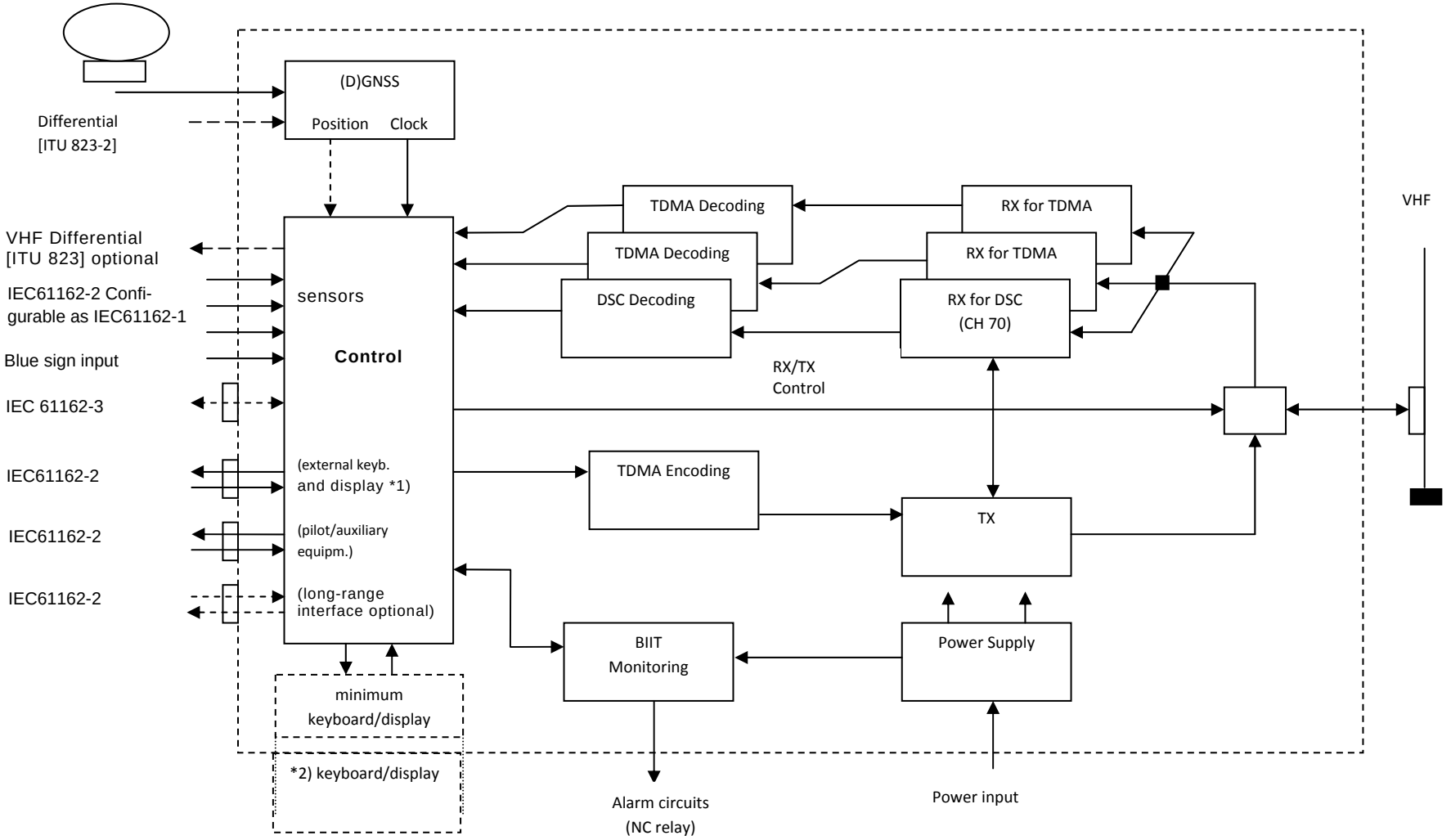
d) Confirm that the A, B, C, D values are ignored and all other static data of the SSD sentence are accepted.

e) Confirm that a SSD and a PIWWSSD sentence are output with correct data and accuracy.

11. Long Range functionality tests

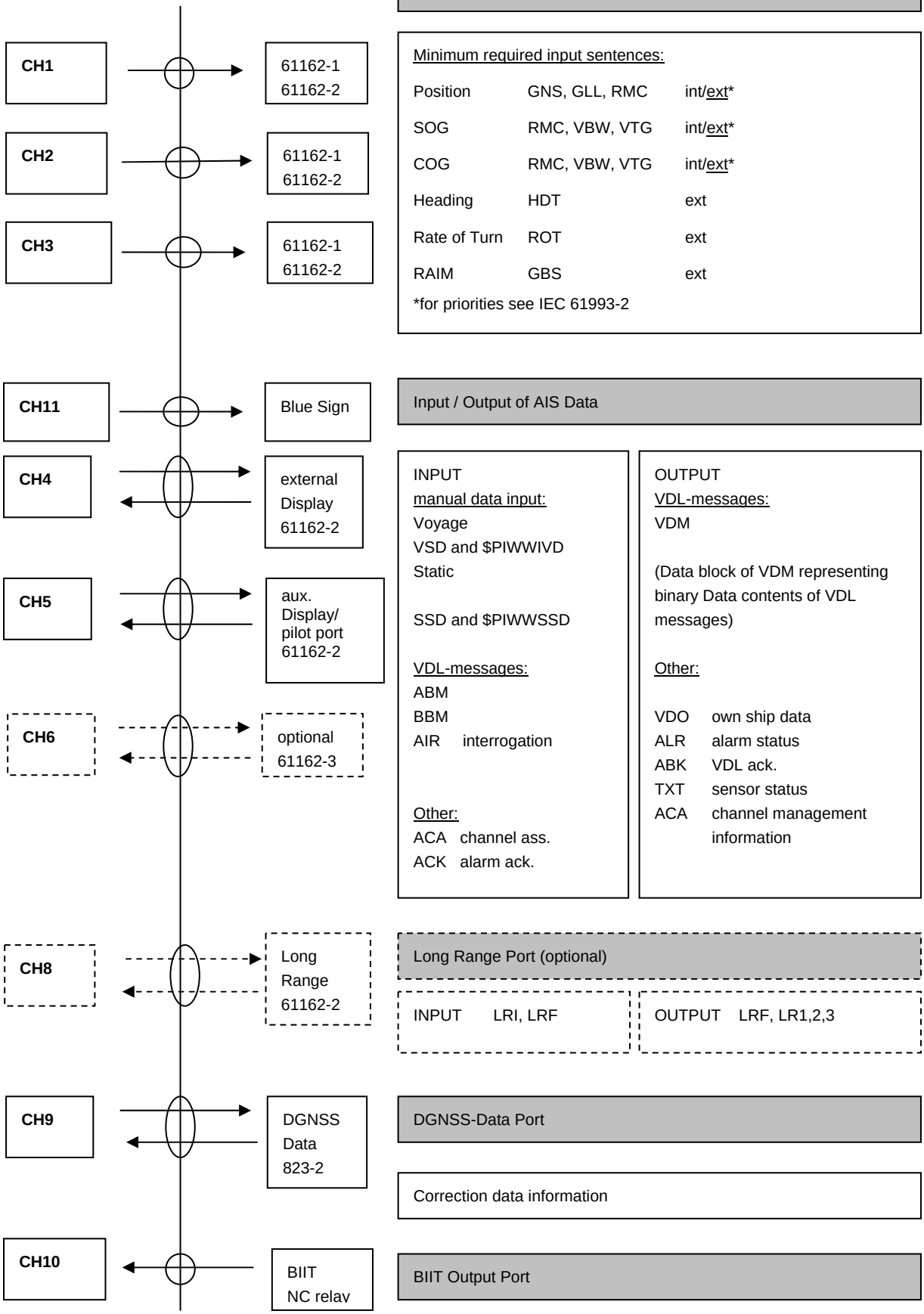
Not mandatory for Inland AIS

Annex A: (informative) Block diagram of AIS



*1) The external keyboard/display may be e.g. a radar, ECDIS or dedicated devices.
*2) The internal keyboard/display may be optionally

Annex B: (normative) AIS Interface Overview



Annex C: (Normative) Additional PI port sentences for Inland AIS

C.1 Inland Waterway voyage data

$PIWWIVD,x,x,x,x.x,x.x,x,xxx,xxxx,xxx,x.x,x.x,x.x,x.x*hh<CR><LF>
field 1 2 3 4 5 6 7 8 9 10 11 12 13

Field	Format	Description
1	x	See Table 2.5 Reporting rate settings, default setting: 0
2	x	Number of blue cones: 0-3, 4=B-Flag, 5=default=unknown
3	x	0=not available=default, 1=loaded, 2=unloaded, rest not used
4	x.x	Static draught of ship 0 to 20,00 meters, 0=unknown=default, rest not used
5	x.x	Air draught of ship 0 to 40,00 meters, 0=unknown=default, rest not used
6	x	Number of assisting tugboat 0-6, 7=default=unknown, rest not used
7	xxx	Number of crew members on board 0 to 254, 255=unknown=default, rest not
8	xxxx	Number of passengers on board 0 to 8190, 8191=unknown=default, rest not used
9	xxx	Number of shipboard personnel on board 0 to 254, 255=unknown=default, rest not used
10	x.x	Convoy extension to bow in (meter.decimeter = resolution in dm)
11	x.x	Convoy extension to stern in (meter.decimeter = resolution in dm)
12	x.x	Convoy extension to port side in (meter.decimeter = resolution in dm)
13	x.x	Convoy extension to starboard side in (meter.decimeter = resolution in dm)

In case of null fields the corresponding configuration setting shall not be changed.

C.2 Inland Waterway Static Ship data

This sentence is used to change settings, which are not covered by SSD and VSD.

$PIWWSSD,cccccccc,xxxx,x.x,x.x,x,x,x,x.x,x.x,x.x,x.x*hh<CR><LF>
field 1 2 3 4 5 6 7 8 9 10 11

Field	Format	Description
1	cccccccc	ENI number
2	xxxx	ERI ship type according to ERI classification (see Vessel Tracking and Tracing Standard for Inland Navigation, Edition 1.0, Annex E, CCNR, 31.5.2006)
3	x.x	Length of ship 0 to 800,0 meter
4	x.x	Beam of ship 0 to 100,0 meter
5	x	Quality of speed information 1=high or 0=low
6	x	Quality of course information 1=high or 0=low
7	x	Quality of heading information 1=high or 0=low
8	x.x	B value for internal reference position (distance reference point to stern)
9	x.x	C value for internal reference position (distance reference point to port side)
10	x.x	B value for external reference position (distance reference point to stern)
11	x.x	C value for external reference position (distance reference point to port side)

***