Bundesrepublik Deutschland
Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie
Federal Maritime and Hydrographic Agency

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Conformance test report of an

AIS SART

Equipment under test: **Jotron**

Type: **Tron AIS-SART**

Applying test standards: IEC 61097-14

Test Report No.: BSH/4615/4361270/09/S3140

Applicant: Jotron AS
Østbyveien, PO Box 54
3280 Tjodalyng
Norway

Hamburg, 8 December 2009
Federal Maritime and
Hydrographic Agency

by order

Bartels
Test engineer

by order

Preuss
head of
laboratory

nach EN ISO/IEC 17025:2005
akkreditiertes Prüflaboratorium

Deutscher Akkreditierungs Rat
DAR

DAT-P-086/98

Federal Maritime and Hydrographic Agency
Bernhard-Nocht-Str. 78

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Germany

DATech Deutsche Akkreditierungsstelle Technik in der TGA GmbH
Signatory of the Multilateral Agreement of EA and ILAC for the mutual recognition

represented in the

Deutschen AkkreditierungsRat

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The **TGA GmbH,** represented by the **DATech Deutsche Akkreditierungsstelle Technik in der TGA GmbH**, confirms that the Testing Laboratory

Federal Maritime and Hydrographic Agency
Department Shipping
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Bernhard-Nocht-Straße 78

20359 Hamburg

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out testing in the fields of

Marine Equipment (Navigation Equipment, Radio-Communication Equipment, Life-Saving Appliances)

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DAR-Registration No.: **DAT-PL-086/98-02**

Frankfurt/Main, 2008-12-23

Correctness of the english translation confirmed: Frankfurt/Main, 2008-12-23

i.V. Dipl.-Ing.(FH) R. Egner
Head of the Accreditation Body

Member in EA, ILAC, IAF

Translation for information purposes only. The German Accreditation Certificate is authoritative

See notes overleaf

General

Applicant:	Jotron AS Østbyveien, PO Box 54, 3280 Tjodalyng, Norway
Equipment under test:	
Type:	Tron AIS-SART
Manufacturer:	Jotron AS
	Østbyveien, PO Box 54, 3280 Tjodalyng, Norway
Place of test:	BSH test laboratory Hamburg, Room 916
Start of test:	26 June 2009
End of test:	27 October 2009

Test standards[1]:

IEC 61097-14 Ed. 1.0 FDIS
Global maritime distress and safety system (GMDSS) –
Part 14: AID search and rescue transmitter (AIS-SART) –
Operational and performance requirements, methods of testing and required test results

Summary

Test No.	Reference	Section	Result (passed/ not passed / not applicable / not tested)
2	IEC 61097-14	6 Performance tests	Passed
3	IEC 61097-14	7 Physical Radio tests	Passed
4	IEC 61097-14	8 Link Layer tests	Passed

[1] Numbers listed in the titles of the test sections of this report refer to the respective sections of IEC 61097-14 if not stated otherwise.

1 General information

1.1 Equipment history

For each Transponder unit under test an numbered entry is provided here. For the two test environment it is recorded which EUT system is under test in that environment

1.1.1 EUT system no 1

Transponder				
Type	Tron AIS-SART	Part No.:	85037	
Delivery date	2009-05-25	Serial number	13	
Test version, internal VHF antenne replaced by an antenna connector				
HW Version:	Delivery date	2009-05-25	Version no	---
	Installation date	2009-05-25		
SW Version:	Delivery date	2009-05-25	Version no	1.0
	Installation date	2009-05-25		
SW Version:	Delivery date		Version no	
	Installation date			

GPS antenna			
Type	Internal	Part No.:	
Delivery date		Serial number	

1.2 Test environment

Here it is intended to record for which time which EUT system is under test.

1.2.1 Test environment no 1

This Test environment is completely equipped as described in Annex A. Normally mainly VDL related tests and DSC tests are done in this environment

Room	BSH Room 916 (9th floor)
Test engineer	H. Bartels
Location	9°59,103 E 53°32,822 N

Equipment no	Start of test	End of test	Test engineer
1	2009-05-26	2009-05-27	Bartels
Documents	2009-09-09	2009-09-10	Bartels
Documents	2009-10-27	2009-10-27	Bartels

1.3 Legend

Result marking (in the "result" column)[2]:

Passed	Item is ok, test was successful
Not passed	Test of a required item was not successful, change required
N/T	Not tested
N/A	Not applicable

Specific remarks (in the "remark" column, marked "bold italic":)

REC	recommendation (in terms of IEC17025 "opinion"); an improvement or change is Recommended
Note	note or comment (in terms of IEC17025 "interpretation") ; rationale for specific results or interpretation of requirements as appropriate

Template for additional test notes (copy if required):

Date	Result	Status

Issue of this template: 2009-05-26

1.4 Test notes

Here are some effects noted which are observed during the normal test but independent of the actual test items.

[2] Test items maybe colour marked in draft versions of the report as follows:

Passed	no colour marking
Not passed	yellow
N/T	blue
N/A	no colour marking
REC	green

2 6 Performance tests

2.1 6.1 Operational tests

(see 3.2)

The requirements of 3.2 shall be verified as follows (the subclause reference is given in brackets).

(See 3.2 a) *By inspection.*

(See 3.2 b) *By inspection.*

(See 3.2 c) *By inspection*

(See 3.2 d) *By inspection.*

(See 3.2 e) *Confirmed by IEC 60945 Drop into water test.*

(See 3.2 f) *Confirmed by IEC 60945 Water immersion test (portable equipment).*

(See 3.2 g) *Confirmed by IEC 60945 Thermal shock test (portable equipment)*

(See 3.2 h) *If the device is not designed specifically to be an integral part of a survival craft, it shall be placed in fresh water for 5 min, as a check that it is capable of floating. The device complete with its one metre mounting system shall float.*

(See 3.2 i) *By inspection.*

(See 3.2 j) *Confirmed by IEC 60945 Corrosion and Oil resistance tests.*

(See 3.2 k) *Confirmed by IEC 60945 Solar radiation test.*

(See 3.2 l) *By inspection.*

(See 3.2 m) *By inspection.*

(See 3.2 n) *By inspection.*

(See 3.2 o) *By observation of the VDL.*

(see 3.2 p) *By observation of the VDL.*

(see 3.2 q) *By observation using manufacturer's instructions and observation of the VDL.*

2009-05-27 Ba	Test details: Operational tests		
Test item	Check	Remark	Result
Verify the following items			
a) easy activation	Verify by inspection that the EUT can be easily activated by unskilled personnel	By pulling a ring	Passed
b) Inadvertent activation	Verify by inspection that the EUT is fitted with means to prevent inadvertent activation	The pull ring is secured by a wire with a seal	Passed
c) Indication	Verify by inspection that the EUT is equipped with a means which is either visual or audible, or both visual and audible, to indicate correct operation,	Visual and audible	Passed
d) Activation	Verify by inspection that the EUT is capable of manual activation		Passed
	Verify by inspection that the EUT is capable of manual deactivation		Passed
	Check if provision for automatic activation is included	Optional No automatic activation	Passed
e) Drop into water	Verify by review of the IEC 60945 test report (section 8.6.2) that the EUT is capable of withstanding without damage drops from a height of 20 m into water	Assessment of Jotron test report "Tron AIS-SART", Version C 2009-10-26. Supervised and witnessed by Nemko Comlab AS.	Passed
f) Watertight	Verify by review of the IEC 60945 test report (section 8.9.2) that the EUT is watertight at a depth of 10 m for at least 5 min		Passed
g) Thermal shock	Verify by review of the IEC 60945 test report (section 8.5) that the EUT can maintain water tightness when subjected to a thermal shock of 45 ℃ under specified conditions of immersion		Passed
h) Floating	Verify by test that the EUT is capable of floating (not neccesarily in an operating position). it shall be placed in fresh water for 5 min, as a check that it is capable of floating. The device complete with its one metre mounting system shall float.	If it is not an integral part of the survival craft. <u>Test 2009-09-10 Ba:</u> The test at Jotron is documented in the test report „Jotron test report Tron AIS-SARTvB.pdf" and witnessed by Nemko Comlab	Passed

i) Lanyard	Verify by inspection that the EUT is equipped with a buoyant lanyard, suitable for use as a tether	The test unit was not yet equipped with a lanyard but there are means to store the lanyard. Test 2009-09-09 Ba: A confirmation letter from Jotron confirms that the AIS-SART is equipped with a lanyard of 10 m length, suitable for use as a tether (Document „Statement of Lanyard.pdf“)	Passed
	Verify by measurement that the length is not less than 10 m		Passed
j) Corrosion and oil resistance	Verify by review of the IEC 60945 test report (section 8.11/12) or waiver that the EUT is not unduly affected by seawater or oil	Jotron has supplied a waiver for solar radioation, sea water and oil resistance (Document “Waiver of solar, oil and water.pdf”	Passed
k) Sunlight resistance	Verify by review of the IEC 60945 test report (section 8.10) or waiver that the EUT is resistant to deterioration in prolonged exposure to sunlight,		Passed
l) Colour	Verify by inspection that the EUT is of a highly visible yellow/orange colour on all surfaces where this will assist detection.		Passed
m) Construction	Verify by inspection that the EUT has a smooth external construction to avoid damaging the survival craft		Passed

n) Antenna height	Verify by inspection that the EUT provided with an arrangement to bring the AIS-SART antenna to a level of at least 1metre above sea level.	The test unit was not yet equipped with the arrangement Test 2009-09-09 Ba: There is a telescopic mount of 1 m height provided. This is documented by the video "Telescopic mount.wmv"	Passed
	Check that a illustrated instruction is provided. The instructions shall illustrate the minimum requirement of 1 metre above sea level during use along with the installation method.	There are instructions in the users manual	Passed
	Check that the manufacturer provides a visible means of indicating the base of the antenna.	There is no marking of the base of the antenna. The base of the antenna seems to be indicated by the shape (tapering) of the housing. This requires confirmation by the manufacturer. Retest 2009-10-27 Ba: The final version of the SART is equipped with a marking of the antenna base	Passed
	Verify by measurement that the height to the declared 1 metre mark from sea level is not less than 1 meter.	Test 2009-09-09 Ba: The video "Telescopic mount.wmv" shows that the antenna height is more than 1 m	Passed
o) Reporting rate	Verify by observation of the VDL that the EUT is capable of transmitting with a reporting interval of 1 minute or less.	This test is performed in section ...	Passed
p) Internal position source	Verify by observation of the VDL that the EUT is equipped with an internal position source and be capable of transmitting its current position in each message	This test is performed in section 8.2	Passed
q) Testing	Verify by observation of manufactuer's instructions that the EUT is capable of being tested for all functionalities using specific test information, and by observation of the VDL	This test with observation of the VDL is performed in section 8.3	Passed

2.2 6.2 Battery

2.2.1 6.2.1 Battery capacity test

This test is covered by the Physical Radio Tests.

Date	Result	Status
2009-09-10 Ba	I could not clearly identify in the test reports that the battery capacity test has been performed. Please clarify this question. Retest 2009-10-27 Ba: The battery test has been added to the new version of the Nemco Comlab test report 126928/02, dated 2009-09-18.	Passed

2.2.2 6.2.2 Expiry date indication

The life of the battery as defined by its expiry date shall be at least three years. The expiry date of the battery shall be the battery manufacturing date plus no more than half the useful life of the battery. The useful life of the battery is defined as the period of time after the date of battery manufacture that the battery will continue to meet the input power requirements of the AIS-SART for at least 96 hours, after allowing for all losses over the useful life of the battery. To define the useful life of the battery, the following losses at the temperature of +20℃ ± 5 ℃ shall be included, in addition to the power required to operate the AIS-SART:

a) self-testing annually with GNSS data available;

b) self-discharge of the battery;

c) stand-by loads.

The manufacturer shall provide evidence to support the above battery life calculations including the time for self testing and assuming typical GNSS acquisition time.

The AIS-SART shall be clearly and durably marked with the battery expiry date (see 3.8).

NOTE For example a battery that has a useful life of 10 years from the date of manufacture, cannot have an expiry date that exceeds 5 years from the date of manufacture and would have to be capable of providing enough power for 10 years of self-testing, self-discharge and stand-by loads in addition to the operational power requirement of the AIS-SART.

2009-09-09 Ba	Test details: Expiry date indication		
Test item	Check	Remark	Result
Indication	Verify by inspection that the EUT is clearly and durably marked with the battery expiry date.	The "Users manual" shows the Battery expiry label	Passed
Calculation	Check that the manufacturer provides evidence to support the battery life calculations	The calculation is provided. Document: "Battery life calculation.pdf"	Passed
	Check that the battery life calculations include • Annual self-testing • Self-discharge of the battery • Stand-by loads • assume typical GNSS acquisition time.		Passed
	Verify that the calculations are correct.	The Battery life calculations are not clear and require some clarification. Retest 2009-10-27 Ba: The battery life calculations have been clarified and are consistant now.	Passed

2.2.3 6.2.3 Reverse polarity protection

It shall not be possible to connect the battery with the polarity reversed.

2009-09-09 Ba	Test details: Reverse polarity protection		
Test item	Check	Remark	Result
Reversed polarity	Verify by inspection that it is not possible to connect the battery with the polarity reversed.	Jotron has supplied a letter which makes evident that it is not possible to connect the battery with the polarity reversed. Document: „Waiver of reversed polarity.pdf" In addition it is documented in test report „Jotron test report Tron AIS-SARTvB.pdf" including fotos of the connector.	Passed

2.3 6.3 Unique identifier

This test is performed in section

- *8.2.3 Message content of Message 1 and*
- *8.3.1 Transmission with EPFS data available*

2.4 6.4 Environment

The AIS-SART shall meet the environmental condition requirements of IEC 60945 for equipment category Portable.

2009-09-10 Ba	Test details: Operational tests		
Test item	Check	Remark	Result
IEC 60945 test report	Review the IEC 60945 test report. Verify that the requirements are fulfilled	2009-09-10 Ba: The test reports are available and will be assessed in the next time 2009-11-30 Ba: The assessment of the IEC 60945 test report has been successfully finished	Passed

2.5 6.5 Range performance

The nominal radiated power (EIRP) of the AIS-SART shall be 1W.

This radiated power provides the range performance of the AIS-SART as described in Annex

This test is covered by the Physical Radio Tests

2.6 6.6 Transmission performance

This test is performed in section

- *8.2 Active mode tests for the active mode and section*
- *8.3 Test mode tests for the test mode*

2.7 6.7 Labelling

In addition to the items specified in IEC 60945, the following shall be clearly indicated on the exterior of the equipment:

a) brief operating and test instructions (in English),

b) expiry date (in English) for the primary battery used and

c) the unique identifier (user ID field of the AIS messages)
NOTE Expiry date is battery replacement date (see 3.3.1).

2009-09-10 Ba	Test details: Labelling		
Test item	Check	Remark	Result
Verify by inspection that on the exterior of the equipment it is clearly indicated			
Operating instructions	-Brief operating and test instructions	There are prief operating instructions printed on the equipment (Foto on the manuals) Please provide for documentation a foto of the final equipment showing the test instructions	Passed
	Verify that the operating and test instructions are in English		Passed
Expiry date	- expiry date (in English) for the primary battery used	Tested in section 6.2.2	
Unique identifier	- the unique identifier (user ID field of the AIS messages)	Please provide fotos of the final equipment showing the correct labels including the battery expirance label. Retest 2009-10-27 Ba: The equipment label included the unique identifier, named "User ID"	Passed

2.8 6.8 Manuals

In addition to the requirements of IEC 60945, the manuals shall include instructions for periodic testing and maintenance for the AIS-SART

NOTE Instructions on how to operate the AIS-SART in a SART active situation shall be part of the labelling on the device (see 3.8).

2009-09-10 Ba	Test details: Manuals		
Test item	Check	Remark	Result
Periodic testing	Verify by inspection that the manuals include instructions for periodic testing	There are instructions for testing the AIS SART Page 22 of the Users manual	Passed
Maintenance	Verify by inspection that the manuals include instructions for maintenance	There are maintenance instructions. Page 22 of the Users manual	Passed

2.9 6.9 Electronic Positon Fixing System

An EPFS shall be used as the source for AIS-SART position reporting.

The internal EPFS shall be a GNSS receiver that meets the following requirements of IEC61108 series: position accuracy, acquisition, re-acquisition, receiver sensitivity, RF dynamic range, position update, effects of specific interfering signals but with an minimum update of once per minute, provide a resolution of one ten-thousandth of a minute of arc and use WGS84 datum.

The manufacturer shall provide evidence that an internal navigation device cold start is forced at every AIS-SART activation (cold start refers to the absence of time dependent or position dependent data in memory, which might affect the acquisition of the GNSS position).

Jotron has declared in a letter “Statement of GPS module.pdf” that the AIS SART includes the same GPS module**, Fastrax iTrax03-S, which is used for the EPIRB Tron40GPS MkII. This EPIRB is approved according to MED.**

Based on this declaration we accept the GPS module without test for the National type approval.

2.10 6.10 Activator

The Activator provides a means for manual activation and deactivation of the AIS-SART. Manual activation shall provide a means to avoid inadvertent activation such as the use of not less than two simple but independent actions.

The AIS-SART shall be provided with means to indicate that the AIS-SART has been previously activated, to advise the users of a possible reduction of the required battery capacity. These means shall not be capable of reset by the user. For example, manual activation requires the breaking of a seal that cannot be replaced by the user.

This indication of previous activation shall be unaffected when initiating the test mode. The Activator provides a means for manual activation and deactivation of the AIS-SART test mode.

2009-05-27 Ba	Test details: Activator		
Test item	Check	Remark	Result
Activation	Verify by inspection that the EUT provides means for manual activation.	By pulling a ring	Passed
	Verify by inspection that the EUT provides a means to avoid inadvertent activation such as the use of not less than two simple but independent actions.	The pull ring is secured by a wire with a seal	Passed
Deactivation	Verify by inspection that the EUT provides means for manual deactivation.	By moving the switch back to the off position and putting the pull ring back to the fixing position	Passed
Indication	Verify by inspection that the EUT provides an indication of previous activation	For activation the seal must be broken. By inspection of the seal a previous activation can be recognised.	Passed
	Verify by inspection that the indication cannot be reset by the user	The seal cannot be replaced by the user	Passed
	Verify by inspection that the indication is not affected by initiating the test mode	The manual switch can be moved into the test mode activation position without breaking the seal	Passed
Test mode	Verify by inspection that the EUT provides means for manual activation of the test mode	By moving the manual switch into the test mode activation position and keep it in this position for at least 5 s	Passed
	Verify by inspection that the EUT provides means for manual deactivation of the test mode	• After start of the test mode sequence there is not means to stop the sequence. • After transmission of one burst the test mode is automatically finished <u>Retest 2009-09-09 Ba:</u> The test mode can be stopped by moving the manual switch in to the test mode position again.. This is documented by the video " Start and stop test.wmv"	Passed Passed

2.11 6.11 Indicator

The indicator shall be visual and /or audible.

The indicator shall indicate that the AIS-SART:

- *has been activated*
- *is under going test*
- *has completed test*

There shall be indication of the EPFS status whilst the AIS-SART is activated.

2009-05-27 Ba	Test details: Indicator		
Test item	Check	Remark	Result
Visual/ audible	Check by inspection if the indicator is visual		Passed
	Check by inspection if the indicator is audible		Passed
Indication	Check by inspection that the EUT indicates that it has been activated	Yellow and green LED flashing with 2 s rate	Passed
	Check by inspection that the EUT indicates that is under going test	Yellow and green LED flashing with 2 s rate	Passed
	Check by inspection that the EUT indicates that it has completed test	At the end of the test there is a long green or red LED on together with a long beep	Passed
	Check by inspection that the EUT indicates the EPFS status whilst the AIS-SART is activated	The EPFS status is indicated by the colour of the flashing LEDs: - green and red: searching - green: position fix - red: EPFS off	Passed

3 7 Physical radio tests

The purpose of these tests is to verify that the AIS-SART complies with the RF requirements under normal and extreme conditions. The tests are accomplished by the following procedures.

All the physical radio tests can be performed on either AIS 1 or AIS 2 unless otherwise stated.

Unless otherwise stated all the physical radio tests shall be performed with the modified AIS-SART(see 5.5).

The following tests shall be performed under normal conditions:

- *Conducted output power*
- *Radiated output power with the standard AIS-SART*
- *Conducted spurious emissions*
- *Frequency error*
- *Modulation accuracy*
- *Modulation spectrum slotted transmission*
- *Power vs. time function*
- *Power as a function of time*

The following tests shall be performed under extreme conditions:

- *Conducted power*
- *Frequency error*

This test is performed by a Radio test lab. The test report is reviewed to verify that the EUT meets the requirements

2009-09-09 Ba	Test details: Physical radio tests		
Test item	Check	Remark	Result
Verify by review of the Physical radio test report that the EUT meats the requirements			
Normal conditions	7.2 Frequency error		Passed
	7.3 Conducted output power	The measurement is ok. The conducted output power is compared to the required radiated output power of 27 dBm and passed if this is exceeded. There is no requirement for the conducted output power. It is only the basis for the calculation of the antenna gain. See Note) <u>Retest 2009-10-27 Ba:</u> The conducted output power at normal conditions is only used for the calculation of the gain. ***<u>Rec:</u>*** The measurement result of the conducted output power is not included in the test report. We recommend to include the measurement values also in the test teport	Passed Passed
	7.4 Radiated output power with the standard AIS-SART		Passed
	7.5 Modulation spectrum slotted transmission		Passed
	7.6 Transmitter test sequence and modulation accuracy		Passed
	7.7 Transmitter output power versus time function		Passed
	7.8 Spurious emissions form the transmitter		Passed

Extreme conditions	7.2 Frequency error		Passed
	7.3 Conducted output power	The conducted output power is compared to the required radiated output power of 27 dBm and passed if this is exceeded. This is incorrect. See Note). The measured values are ok. After correct calculation of the radiated power the measured values exceed the required values. <u>Retest 2009-10-27 Ba:</u> Now the calculated radiated output power is compared to the required values ***<u>Rec:</u>*** The measurement result of the conducted output power is not included in the test report. We recommend to include the measurement values also in the test teport	Passed Passed
	7.6 Transmitter test sequence and modulation accuracy		Passed
	Test condition	The test report does not state if the - low temperature tests have been performed with the battery at the end of useful life (> 92 hours of operation) - high temperature tests have been performed with the a full capacity battery <u>Retest 2009-10-27 Ba:</u> The following informationhas been added to the test description: • *During low temperature extreme conditions (-20 degrees), the tests have been performed with a battery at the end of its useful lifetime (more than 92 hours).* • *During high temperature extreme conditions (+55 degrees), the tests have been performed with a fresh battery.*	Passed

4 8 Link layer Tests

4.1 8.1 Tests for Synchronisation accuracy

To measure the synchronisation error of the AIS-SART.

8.1.1 Method of measurement

Activate the AIS-SART with EPFS data available in active mode and record transmissions for 40 minutes.

Record VDL messages and measure the time between the transmission patterns as defined by ITU-R M.1371 and the actual transmission made by the AIS-SART. The transmission timing shall be measured and referenced to the beginning of the start of a transmission packet (start flag) according to ITU-R M.1371.

8.1.2 Required results

The synchronisation error with its additive jitter shall not exceed ± 312 µs between minutes 15 and 40.

2009-05-26 Ba	Test details: Synchronisation accuracy		
Test item	Check	Remark	Result
Evaluate the data recorded under 8.2.1			
Sync jitter	Verify that the additive jitter does not exceed ± 312 µs between minutes 15 and 40		Passed

4.2 8.2 Active mode tests

These tests require analysis of the transmissions of the AIS-SART.

4.2.1 8.2.1 Methode of measurement

Activate the AIS-SART in active mode and record transmissions for 40 minutes. Inhibit EPFS data and record transmissions for a further 20 minutes.

Record the activation time of the AIS-SART.

For all transmitted messages record:

- *transmission time (UTC time)*
- *transmission slot*
- *in-slot timing*
- *transmission channel*
- *message content*

The records will be evaluated in the following test items.

2009-05-26 Ba	Test details: Operational tests		
Test item	Check	Remark	Result
Activate the AIS-SART in active mode and record transmissions for 40 minutes			
Activation time	Record the activation time	UTC 10:52	Passed
Inhibit EPFS data and record transmissions for further 20 minutes			
Time of inhibit	Record the time of inhibit EPFS data	UTC 11:32	Passed

4.2.2 8.2.2 Initialisation Period

a) The first message is transmitted within 1 min after activation.

b) The first message with a valid position is transmitted within 15 minutes.

2009-05-26 Ba	Test details: Initialisation period		
Test item	Check	Remark	Result
Evaluate the data recorded in 8.2.1			
a) First transmission	Verify that the first message is transmitted within 1 min after activation.	The first transmission starts after about 10 s	Passed
b) Valid position	Verify that the first message with a valid position is transmitted within 15 minutes	The second burst, 1 min 10 s after the activation, includes a valid position	Passed

4.2.3 8.2.3 Message content of Message 1

For position reports transmitted after 15 minutes and before 40 minutes the following is required:

a) Message ID = 1.

b) Repeat indicator = 0.

c) User ID as configured in the AIS-SART.

d) Navigational status = 14.

e) Rate of turn = default.

f) SOG = actual SOG from GNSS receiver.

g) Position accuracy = according to the RAIM result if provided, otherwise 0.

h) Position = actual position from internal GNSS receiver.

i) Position is updated at least once per minute, for each burst.

j) COG = actual COG from internal GNSS receiver.

k) True heading = default.

l) Time stamp = actual UTC second (0...59).

m) Verify correct indication according to manufacturer's documentation.