

WITNESS TESTING REPORT



Document no. : 150521/7

Item : TronAIS_TR-8000

Type of equipment : AIS Transponder

Client : Jotron AS

Nemko AS is granted accreditation by Norwegian
Accreditation under registration number TEST 033

Test performed according to parts of

IEC 61993-2 Ed.2/CDV

Maritime navigation and radiocommunication equipment and systems –

Automatic Identification System (AIS)

**Part 2: Class A shipborne equipment of the universal automatic identification
system (AIS)**

**Revision 3.0
2011-02-25**

Prepared by:



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Product manager**



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1 GENERAL INFORMATION

1.1 Laboratorium

Name : Nemko A/S
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1.2 Client Information

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Contact:

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E-mail : gunnar.brandis@jotron.com

1.3 Manufacturer (if other than client)

Name : Jotron AS

2 General information

2.1 Description of the equipment

Model name:	TronAIS_TR-8000
Equipment type:	AIS Transponder
Operating frequencies:	156.025 to 162.025 MHz
Output power:	41 dBm (High setting) and 30 dBm (Low setting)
Power source:	12 - 24 VDC Nominal (10.8 – 31.2 VDC Extreme power)

2.2 Reference documents

The following documents are used to identify the project:

- Project no. 150521; Jotron test report according to IEC 61993-2 clause 15 (Physical tests) and annex D (Physical tests of DSC) dated 2011-01-14.
- Nemko test report no. 161140/2 dated 2011-02-25 for EMC tests according to IEC 60945.
- Doc. no. 150521/3; List of items Nemko wanted to get demonstrated during the witness testing

2.3 Background for the project

Jotron AS had developed a AIS Transponder and needed to demonstrate compliance with the relevant requirements for maritime certification of their product. Due to the need of special test equipment to perform the radio testing according the IEC 61993-2 it was decided that Jotron would perform a complete test of their system and Nemko should perform some witness testing at Jotron premises. The report was sent to Nemko for review.

On the basis of the test report Nemko sent a list of items they wanted to review during the witness testing. The following tests were listed:

- Cl. 15.1.3 Slotted Transmission Spectrum
- Cl. 15.1.4 Modulation Accuracy
- Cl. 15.1.5 Transmitter Output Power Characteristics
- Cl. 15.2.3 Co-channel rejection
- Cl. 15.2.6 Intermodulation Response Rejection and Blocking
- Cl. 15.3.1 Conducted Spurious Emission

Nemko also wanted to check the calibration of random selected instruments.

2.4 Witness testing

The witness testing was carried out 2010-11-05 at Jotron's premises in Tjordalyng. Jotron's representative was Martin Carlsen and from Nemko Geir Antonsen participated.

All the above mentioned tests were demonstrated with satisfactory results and according to test set up described in Jotron test report and in IEC 61993-2. Every test set up was explained in detail clearly showing that the test engineer had good knowledge to the Jotron AIS Transponder, the test equipment and the standard.

2.5 Instrument calibration and quality system

A random check of the calibration status for some of the instruments was performed. This showed that Jotron has a good quality system and keep their instruments calibrated within sufficient intervals.

Jotron has one person responsible for the calibration and update of the instrument database for their internal instruments.

2.6 Tests not covered by Jotron internal test report

Due to lack of calibrated tests site for radiated measurements (IEC 60945), These tests are performed at Nemko premises at Kjeller.

Nemko AS conducted full EMC and environmental testing of the transceiver system according to EN 60945 Ed. 4. The results are documented in Nemko test report no. 161140/2.

All tests are passed.

2.7 Conclusion

Jotron has showed that they have the knowledge, instruments and quality system to perform the tests in test report no. 150521 and Nemko recommend that the above mentioned test report can be used as documentation in the Maritime Certification process to prove the transceivers compliance with physical tests in IEC 61993-2.

3 Document control

3.1 Revision of this document

Rev. no.:	Date:	Performed by:
1.0	2010-12-23	Geir Antonsen
2.0	2011-01-03	Geir Antonsen
3.0	2011-02-25	Geir antonsen