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Test report no. : 134363-6

Item tested : Sirius-3

Type of equipment : NAVTEX Receiver

Client : Polaris Electronics A/S

FCC Part 80.1101(c)(1)
NAVTEX Receivers

Industry Canada RSS-188, Issue 1
Global Maritime Distress and Safety System (GMDSS)

2010-09-24

Authorized by : .....
Geir Antonsen
Technical Verificator

CONTENTS

1 GENERAL INFORMATION

1.1 Tested by

Name :	Nemko AS
Address :	Nemko Kjeller Instituttveien 6, Box 96 NO-2027 Kjeller, NORWAY
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Number of Pages:	10

1.2 Client Information

Name :	Polaris Electronics A/S
Address :	Kærholt 1, P.O. Box 7957, DK-9210 Aalborg SØ, Denmark
Telephone :	+45 9631 7900
E-mail :	info@polaris-as.dk

Contact:

Name :	/

1.3 Responsible Manufacturer (if other than client)

Name :	/
Address :	/
Telephone :	/
Fax :	/
E-mail :	/

2 Test Information

2.1 Tested Item

Name :	Polaris
Model/version :	Sirius-3
Serial number :	/
Hardware identity and/or version:	/
Software identity and/or version :	FW rev. 0.1
Receive Frequencies :	490 kHz, 518 kHz, 4209.5 kHz
Power Adaptor :	13.2 V DC
Antenna Connector :	50 ohm, N-type

Description of Tested Device(s)

The tested device is a NAVTEX receiver without direct printing device.

2.2 Test Environment

2.2.1 Normal test condition

Temperature:	20 – 23 °C
Relative humidity:	20 – 50 %
Normal test voltage:	13.2 V DC

The values are the limit registered during the test period.

The EUT is powered from an external power supply.

2.2.2 Extreme test conditions

Voltage

Minimum Voltage:	15.6 V AC
Maximum Voltage:	10.8 V AC

Temperature

Minimum Temp.:	0 °C
Maximum Temp.:	+40 °C

2.3 Test Period

Item received date:	2009-09-20
Test period :	from 2009-09-20 to 2011-02-19

2.4 Test Engineer

Frode Sveinsen

2.5 Test Equipment

See list of test equipment in clause 6.

2.6 Other Comments

All tested items complies with the requirements in the bellow mentioned Resolutions and Recommendation.

3 TEST REPORT SUMMARY

3.1 General

The EUT have been assessed and tested for compliance with:

IMO Resolution A.525(13), "Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships," including Annex, adopted 17 November 1983.

ITU-R Recommendation M.540-2, "Operational and Technical Characteristics for an Automated Direct-printing Telegraph System for Promulgation of Navigational and Meteorological Warnings and Urgent Information to Ships," including Annexes, 1990.

IMO Resolution A.694(17), "General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids" including Annex, adopted 6 November 1991.

The test methods have been in accordance with Comlab 1003 where applicable.

☒ Production Unit

☐ Pre-production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) AND CONFIGURATONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

TEST REPORT NO.: 134363-4

TESTED BY : _____ **DATE: 2010-04-30**

Frode Sveinsen, Chief Engineer

4 Test Report Summary

4.1 Abbreviations

The following abbreviations are used in the test summary:

Pass The test results are inside the limits given in the standard.
Fail The test results are outside the limits given in the standard.
NA Not applicable. The testcase is not applicable for the tested equipment.
NT Not tested. The testcase is not covered by this test report.

4.2 Test Summary

Test name		Verdict
IMO Resolution A.525(13)	17 Nov 1993	Pass
ITU-R Recommendation M.540-2, Including annexes	1990	Pass
IMO Resolution A.694(17)	6 Nov 1991	Pass

5 Test results

5.1 IMO Resolution A.525(13)

"Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships," including Annex, adopted 17 November 1983.

Requirements		Verdict
1	The equipment should conform with the provisions of CCIR Recommendation 540 applicable to ship borne equipment and in addition with the provisions given in the following paragraphs.	Pass
2	The equipment should comprise a radio receiver, a signal processor and a printing device. [1)]	EUT has LCD screen for displaying messages. An external printing device may be connected to a 25-pin connector at the back of the EUT
3	Details of the coverage area and message categories which have been exclude by the operator from reception should be readily available.	Available through menus
4	The receiver should operate on the frequency prescribed by the Radio Regulation for the system.	Pass Test report 134363-4, sub clause 5.2
5	The equipment should be provided with a facility to test that the radio receiver, signal processor and printing device are functioning correctly.	Pass See manufacturer's declaration
6	The equipment should be capable of internally storing at least 30 message identifications. After between 60 and 72 hours a message identification should automatically be erased from the store. If the number of received message identifications exceeds the capacity of the store, the oldest message identification should be erased.	Pass See manufacturer's declaration
7	Only message identifications which have been satisfactorily received should be stored; a message is satisfactorily received if the character error rate is below 4%.	Pass See manufacturer's declaration
8	The receipt of search and rescue information should give an alarm at the position from which the ship is normally navigated. It should be possible only to reset this alarm manually.	Pass See manufacturer's declaration
9	Information for location (B1)* and message (B2)* designators in programmable memories should not be erased by interruptions in the power supply of less than 6 hours.	Pass See manufacturer's declaration
10	The receiver sensitivity should be such that for a source with an e.m.f. of 2 µV in series with a non-reactive impedance of 50 ohms, the character error rate is below 4%.	Pass Test report 134363-4, sub clause 5.2
11	The printing device should be able to print at least 32 characters per line.	Pass See manufacturer's declaration
12	If automatic line feed entails division of a word, this shall be indicated in the written text. The printing device should automatically feed paper after completing the printed message.	Pass See manufacturer's declaration
13	The equipment should print an asterisk if a character is received mutilated.	Pass See manufacturer's declaration

[1)] EUT has LCD screen for displaying messages. An external printing device may be connected to a 25-pin connector at the back of the EUT.

5.2 ITU-R Recommendation M.540-2

"Operational and Technical Characteristics for an Automated Direct-printing Telegraph System for Promulgation of Navigational and Meteorological Warnings and Urgent Information to Ships," including Annexes, 1990

Annex II Technical Characteristics		**Verdict**
1	The signals transmitted should be in conformity with the collective B-mode of the direct-printing system specified in Recommendations 476 and 625.	Pass
2	The technical format of the transmission should be as defined Annex II Clause 2.	N/A
3	The printer should only be activated if the preamble B1-B4 is received without errors	Pass See manufacturer's declaration
4	Facilities should be provided to avoid printing of the same message several times on the same ship, when such a message has already been satisfactorily received.	Pass See manufacturer's declaration
5	The necessary information for the measures under §4 above should be deducted from the sequence B1B2B3B4 and from the message.	Pass¨ See manufacturer's declaration
6	A message should always be printed if B3B4 = 00.	Pass See manufacturer's declaration
7	Extra (redundant) letter and figure shifts should be used in the message to reduce garbling.	Pass See manufacturer's declaration
8	In case a message is repeated by another transmitting station (e.g. for better coverage) the original preamble B1-B4 should be used.	Pass See manufacturer's declaration
9	The equipment onboard ships should be neither unduly complex nor expensive.	N/A
10	The transmitter frequency tolerance for the mark and the space signals should be better than ±10 Hz.	Pass Test report 134363-4, sub clause 5.2

5.3 IMO Resolution A.694(17)

"General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids"

Annex Technical Characteristics		Verdict
1	Introduction	N/A
2	Equipment should be installed in such a manner that it is capable of meeting the requirements of 1.1	N/A
3	Operation	
3.1	Operational controls: design, function, location, arrangement and size	Pass
3.2	Operational controls: normal adjustments	Pass
3.3	Operational controls: Illumination	Pass
3.4	Operational controls: misuse of controls	Pass
3.5	Operational controls: connection to other units	Pass
3.6	Operational controls: digital input	Pass
4	Power Supply	
4.1	Variations of Power Supply	Pass
4.2	Excessive current and voltage, transients and accidental reversal of power supply polarity	Pass
4.3	Operation from more than one source of electrical energy	N/A
5	Durability and Resistance to Environmental Conditions	Pass
6	Interference	
6.1	Electromagnetic compatibility	Pass
6.2	Mechanical noise	Pass
6.3	Compass safe distance	Pass
7	Safety Precautions	
7.1	Accidental access to dangerous voltages should be prevented as far as possible	Pass
7.2	Earthing	Pass
7.3	Electromagnetic hazard	Pass
7.4	X-radiation	Pass
8	Maintenance	
8.1	Replacement of manin unit without elaborate recalibration or readjustment	Pass
8.2	Readily accessible for inspection and maintenance purposes	Pass
8.3	Adequate information to enable equipment to be properly operated and maintained should be provided	N/A
9	Marking and Identification	Pass