PUBLIC ENTERPRISE TESTING CENTER «OMEGA»

Approved by
Acting director
PE TC "OMEGA"

_____Bogach S.V.

July 29, 2011

TEST REPORT No. 11/652
Issue 2
Corrosion and Oil Resistance tests
for compliance with items 5.1.5.10, 5.1.5.8 IEC 61097-12 First edition 1996-11

Model:	**V100**
FCC ID	**XYEV100**
Manufacturer:	**Ocean Signal Ltd., Great Britain**

Sevastopol
2011

PUBLIC ENTERPRISE TESTING CENTER «OMEGA»

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ACCREDITATION

COSPAS-SARSAT Secretariat Reference No. CS497/F530 dated 21/09/1994

Ministry of Transport Russian Federation Certificate of accreditation of testing laboratory No. АКР.0510-14 PTH dated 19.05.2010 valid until 19.05.2015

Russia Maritime Register of Shipping Certificate of Recognition testing laboratory No. 07.18114.184 dated 21.08.2007 valid until 21.08.2012

National Accreditation Agency of Ukraine Certificate of accreditation for compliance DSTU ISO 17025:2006 No. 2H339 dated 18.05.2011 valid until 17.05.2014

Letter of FCC acceptance #181479 dated August 19, 2008

IC registration of 3/10m OATS #8780A-1 dated January 18, 2010

IC registration of 3m alternative test site #8780A-2 dated January 18, 2010

BABT Certificate of Recognition testing laboratory No.LAB/033 dated 30.06.2011 valid until 30.06.2013

Letter of USCG Acceptance for testing EPIRBs #16714/161.011/OMEGA dated February 7, 2008

Equipment under test	Survival craft portable two-way VHF radiotelephone apparatus model: V100
Manufacturer	Ocean Signal limited, Unit 4, Ocivan way, Margate, Kent, CT9 4NN, United Kingdom
Applicant	Ocean Signal limited, Unit 4, Ocivan way, Margate, Kent, CT9 4NN, United Kingdom
Technical officer **job title** **phone number** **e-mail address**	Stefan Kennedy +44(0) 1843 282930 stefan.kennedy@oceansignal.com
Test commencement date	June 10, 2011
Test completion date	July 12, 2011

CONTENTS

DOCUMENT REVISION HISTORY

Version	Date	Description
Issue 1	July 20, 2011	Initial release
Issue 2	July 29, 2011	Complete list of all test equipment is added

INTRODUCTION

The V100 radio is available as two variants, V100 and V100 with accessory socket. The two radios are identical except for an additional socket assembly that is fitted to the V100 with accessory socket variant. All tests were carried out on the V100 with accessory socket variant as this provides the worse case configuration. The accessory socket also provides the electrical signals necessary for laboratory testing.

This document contains the results of testing of VHF radio to the requirements of the standard IEC 61097-12.

EQUIPMENT UNDER TEST

1.1 Equipment type name	Survival craft portable two-way VHF radiotelephone apparatus (Dummy VHF Radio)
1.2 Equipment trade mark	SafeSea
1.3 Equipment model	V100 with Accessory Socket (Variant)
1.4 Equipment category	Portable ship station(GMDSS)
1.5 Equipment serial number	N/A
1.6 Firmware version	N/A
1.7 Software version	N/A

TEST CONDITIONS AND METHODS

The following referenced document describes procedures, conditions and methods of testing:

IEC 61097-12, First edition 1996-11 –Global maritime distress and safety system (GMDSS) - Part 12: Survival craft portable two-way VHF radiotelephone apparatus - Operational and performance requirements, methods of testing and required test results.

IEC 60945 Ed. 4 Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results.

TEST PROGRAM

Item	Test name	Requirements of IEC 61097-12	Method of IEC 61097-12
1	Corrosion test	5.1.5.10	5.1.5.10 8.12.3 of IEC 60945
2	Oil resistance test	3.4.5, 5.1.5.8	5.1.5.8

TEST SCHEDULE

Item	Test name	Date
1	Corrosion test	10.06.2011-8.07.2011
2	Oil resistance test	12.07.2011

TEST RESULT

Item	Test name	Conclusion
1	Corrosion test	Pass/Fail*
2	Oil resistance test	Pass

* Fail for V100 with Accessory Socket (Variant) – there are signs of deterioration only on the accessory socket dust cap cable clamp.

Pass for V100 as this model doesn’t have the accessory socket with dust cap cable clamp.

CONCLUSION

Name and Location of Test Facility:	**PUBLIC ENTEIRPRISE TESTING CENTER «OMEGA», 99053, Sevastopol, ul. Vakulenchuka, 29, Ukraine**
Date of Submission for Testing:	**June 10, 2011**
Applicable Standard:	**IEC 61097-12 First edition (1996-11) IEC 60945 Edition 4.0 (2002-08)**

I hereby confirm that the VHF radiotelephone described above has been successfully tested in accordance with the Applicable standards and complies with the requirements of Applicable standards as demonstrated in the attached report with the exception of item 5.1.5.10 IEC 61097-12 (Corrosion test)

29.07.2011

Evgeniy Yurasov, Department manager

SUMMARY OF TEST RESULTS

Item	Test name	Requirements of IEC 61097-12	Results
1	Corrosion test	5.1.5.10	Annex 1
2	Oil resistance test	3.4.5, 5.1.5.8	Annex 2

ANNEX 1.
CORROSION TEST

Corrosion Test (item 1 of Program)
Test Procedure: Corrosion Test
Equipment Under Test: Dummy of VHF Radio V100 with dummy of battery
Serial No.: N/A
Firmware Version: N/A
Software Version: N/A
Test Date: from 10.06.2011 till 08.07.2011
The Name and Test - Site Location: Laboratory No.10
The Name and Qualification of Person Responsible for the test: Baydachnyi A.V.

TEST PROGRAM

Item	Test name	Requirements item of standard IEC 61097-12	Methods item of standard IEC 61097-12
1.	Corrosion test	5.1.5.10	8.12.3 of IEC 60945

TEST DESCRIPTION

The EUT was placed in a chamber and sprayed with a salt solution for 2 h at normal temperature. The salt solution was prepared by dissolving (5 ± 1) parts by weight of sodium chloride (NaCl) in 95 parts by weight of distilled or demineralized water.

At the end of the spraying period, the EUT was placed in a chamber and was maintained at a temperature of 40 °C ± 2 °C, and a relative humidity between 90 % and 95 % for a period of seven days.

The EUT was subjected to a test comprising four spraying periods, each of duration 2 h, with a storage period of seven days after each.
There shall be no undue deterioration or corrosion of metal parts after the test.

At the conclusion of the test the EUT was inspected with the naked eye without magnification.

TEST CONDITIONS

- Ambient temperature: 23-28 °C
- Relative humidity: 49-63 %
- Atmospheric pressure: 749-754 mm/Hg
- Test duration: 28 days

TEST EQUIPMENT USED

No	Name	Type, model	Ser. No	Next calibration date
1.	Temperature meter	Center-309	100074/1	08.2011
2.	Salt fog chamber	DS090-X	20807004	05.2012
3.	Climatic chamber	KTK-800	308286	10.2012

TEST RESULT

No signs of deterioration or corrosion of metal parts were founded except for clamp that fixes line of dust cap to the EUT case on the Accessory socket variant.
There is deterioration of clamp (Figures 1.8, 1.9, 1.11).
The test result is;

V100:	Pass
V100 with Accessory Socket (Variant):	Fail.

Photos of VHF Radio before and after test are presented below.

Figure 1.1 – Detail photo of parts of VHF Radio before the test

Figure 1.2 – Detail photo of parts of VHF Radio before the test

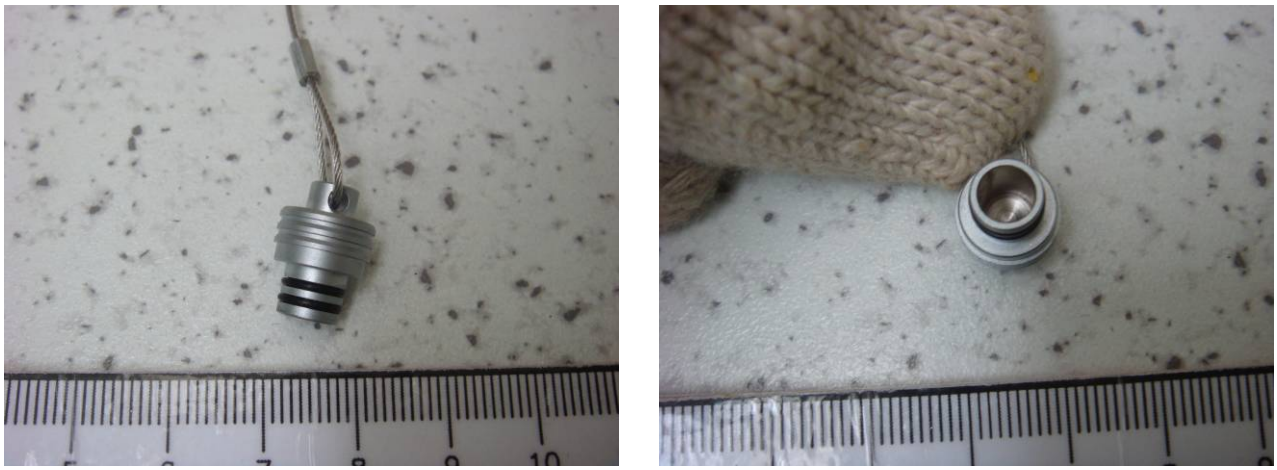

Figure 1.3 – Detail photo of parts of VHF Radio before the test

Figure 1.4 – EUT in the salt fog chamber

Figure 1.5 – View temperature of salt solution into reservoir

Figure 1.6 – EUT in climatic chamber

Figure 1.7 – Temperature and humidity in climatic chamber

Figure 1.8 – Detail photo of parts of VHF Radio after the test.
There are no corrosion, and other signs of deterioration

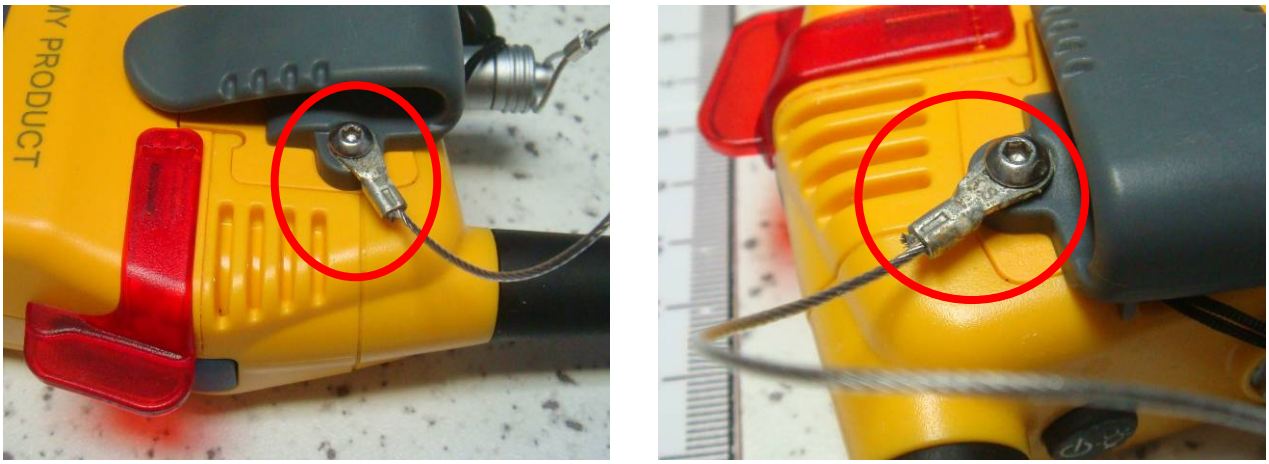

Figure 1.9 – Detail photo of parts of VHF Radio after the test.
There are signs of deterioration of clamp

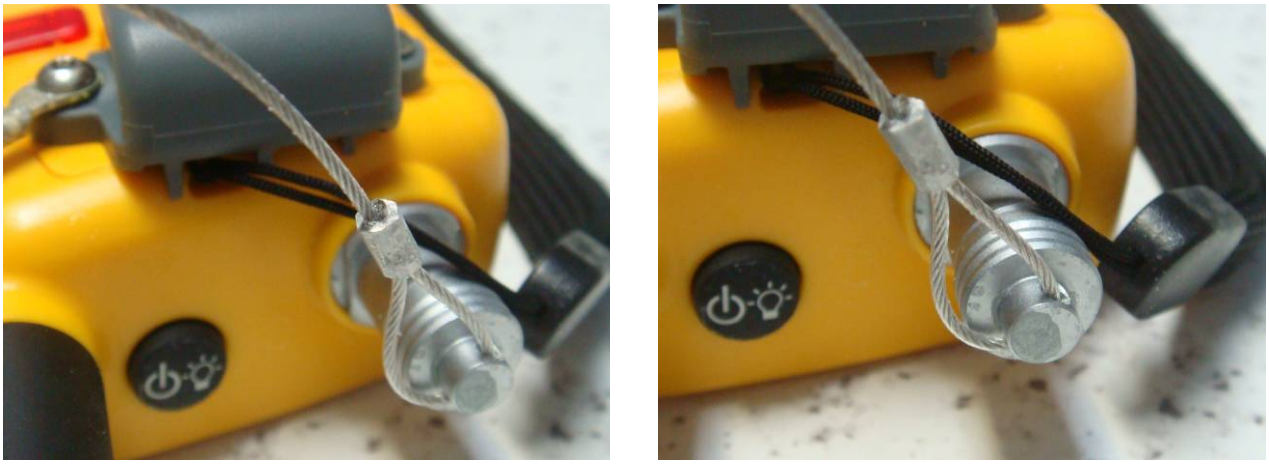

Figure 1.10 – Detail photo of parts of VHF Radio after the test.
There are no corrosion, and other signs of deterioration

Figure 1.11 – Detail photo of parts of VHF Radio after the test

There are no corrosion, and other signs of deterioration on all parts, except for the accessory socket dust cap cable clamp.

Figure 1.12 – Detail photo of parts of VHF Radio after the test
There are no corrosion, and other signs of deterioration

ANNEX 2.
OIL RESISTANCE TEST

Oil Resistance Test (item 2 of Program)
Test Procedure: Oil Resistance Test
Equipment Under Test: Sample 1 Dummy of VHF Radio V100 with primary battery
Sample 2 Dummy of battery
Serial No.: N/A
Firmware Version: N/A
Software Version: N/A
Test Date: 12.07.2011
The Name and Test – Site Location: Laboratory No.10
The Name and Qualification of Person Responsible for the test: Baydachnyi A.V.

TEST PROGRAM

Item	Test name	Requirements item of standard IEC 61097-12	Methods item of standard IEC 61097-12
1.	Oil resistance test	3.4.5	5.1.5.8

TEST DESCRIPTION

The EUT was immersed at a temperature of 19 °C ± 5 °C for 3 h in a mineral oil.
The following oil was used: ASTM oil No. 1
ASTM oil No. 1 has of the following specification:
– aniline point: 120 °C ± 5 °C;
– flashpoint: minimum 240 °C;
– viscosity: (10 – 25) cSt at 99 °C.

After the test, the EUT was cleaned in accordance with the manufacturer’s instructions and examined for deterioration of the external structure.

The EUT was subjected to a performance check and an examination with the naked eye.

TEST CONDITIONS

– Ambient temperature: 28 °C
– Relative humidity: 52 %
– Atmospheric pressure: 754 mm/Hg
– Oil temperature: 19 °C
– Test duration: 3 hour

TEST EQUIPMENT USED

No	Name	Type, model	Ser. No	Next calibration date
1.	Temperature meter	Center-309	100074/1	08.2011
2.	Tank of oil		101175	05.2012
3.	Climatic Chamber	KPK-400V	15	05.2012

TEST RESULT

No.	Parameter	Measured value and check		Results
		before oil test	after oil test	
1.	Visual inspection	no signs of damage such as shrinking, cracking, swelling, dissolution or change of mechanical characteristics	no signs of damage such as shrinking, cracking, swelling, dissolution or change of mechanical characteristics	Pass

Photos of VHF Radio before, during and after test are presented below.

Figure 2.1 – Detail photo of parts of VHF Radio before the test

Figure 2.2 – Detail photo of parts of VHF Radio before the test

Figure 2.3 – Detail photo of parts of VHF Radio before the test

Figure 2.4 –EUT immersed in a tank with oil.

Figure 2.5 – Temperature in climatic chamber

Figure 2.6 – Detail photo of parts of VHF Radio after the test

Figure 2.7 – Detail photo of parts of VHF Radio after the test

Figure 2.8 – Detail photo of parts of VHF Radio after the test

Figure 2.9 – Detail photo of parts of VHF Radio after the test

LIST OF TEST INSTRUMENTS

Test Instruments	Manufacturer	Model	Serial No.	Date of last calibration	Calibration interval
Hygrometer	Steklopribor	VIT-2	D688	December, 2010	1 year
Temperature meter	CENTER (CTC)	Center-309	100074/1	August, 2010	1 year
Climatic chamber	Feutron	KPK-400V	15	August, 2010	2 year
Tank of oil	PE TC “OMEGA”	-	101175	May, 2010	2 year
Salt fog chamber	Unique Electronics Ltd	DS090-X	20807004	May, 2010	2 year