PUBLIC ENTEIRPRISE TESTING CENTER «OMEGA»

Approved by
Acting director
PE TC "OMEGA"

_____Bogach S.V.

July 29, 2011

TEST REPORT No. 11/679
Issue 2

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

Tested in accordance with
Federal Communications Commission (FCC)
47 CFR, Part 2 and Part 80

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	11.07.2011
Test completion date	15.07.2011

CONTENTS

DOCUMENT REVISION HISTORY

Version	Date	Description
Issue 1	22.07.2011	Initial release
Issue 2	29.07.2011	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.

EQUIPMENT UNDER TEST

1.1 Equipment type name	Survival craft portable two-way VHF radiotelephone apparatus
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	VHF Radio V100 No. TA002
1.6 Firmware version	0100
1.7 Software version	0100

TEST CONDITIONS AND METHODS

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

FCC 47 CFR, Part 2--Frequency allocations and radio treaty matters; general rules and regulations, dated December 10, 2010 (§§ 2.1049, 2.1055).

FCC 47 CFR, Part 80—Stations in the maritime services, dated December 10, 2010 (§§ 80.209, 80.211(f)).

TEST PROGRAM

Item	Test name	Requirements of FCC Rules	Method of FCC Rules
1.	Frequency stability	2.1055, 80.209	2.1055
2.	Occupied bandwidth	2.1049, 80.211(f)	2.1049

TEST SCHEDULE

Item	Test name	Date
1.	Frequency stability	11.07.2011- 12.07.2011
2.	Occupied bandwidth	14.07.2011

TEST RESULT

Item	Test name	Conclusion
1.	Frequency stability	Pass
2.	Occupied bandwidth	Pass

CONCLUSION

Name and Location of Test Facility:	**PUBLIC ENTEIRPRISE TESTING CENTER «OMEGA», 99053, Sevastopol, ul. Vakulenchuka, 29, Ukraine**
Date of Submission for Testing:	**July 11, 2011**
Applicable Standards:	**47 CFR** (§§ 2.1049, 2.1055)**, Part 2 and 80** (§§ 80.209, 80.211(f))

I hereby confirm that the VHF radiotelephone described above has been successfully tested in accordance with the Applicable standards and complies with the requirement of Applicable standards as demonstrated in the attached report.

29.07.2011

Evgeniy Yurasov, Department manager

SUMMARY OF TEST RESULTS

Item	Test name	Requirements of FCC Rules	Results
1.	Frequency stability	2.1055, 80.209	Annex 1
2.	Occupied bandwidth	2.1049, 80.211(f)	Annex 2

ANNEX 1
FREQUENCY STABILITY TEST

Frequency Stability Test (item 1 of Program)
Test Procedure: Frequency Stability Test
Equipment Under Test: VHF Radio V100
Serial No.: TA002
Firmware Version: 0100
Software Version: 0100
Test Date: 11.07.2011-12.07.2011
The Name and Test - Site Location: Laboratory No.10
The Name and Qualification of Person Responsible for the test: Marynin A.B.

TEST PROGRAM

Item	Test name	Requirements FCC Rules	Methods FCC Rules
1.	Frequency stability	CFR47 2.1055 CFR47 80.209	CFR47 2.1055

TEST DESCRIPTION

Frequency stability test was carried out.

Frequency measurements were made at the extremes of the specified temperature range (-20°C to +50°C) and at intervals of not more than 10° centigrade through the range. EUT was allowed to stabilize at each temperature for two hours.

The frequency stability test was measured at normal supply voltage and at lower limit of supply voltage.

TEST CONDITIONS

- Ambient temperature: (23-26) °C
- Relative humidity: (57-53) %
- Atmospheric pressure: 752 mm/Hg
- Measurement duration: 19 hours
- Operational channel: 16 channel 156.8 MHz

TEST EQUIPMENT USED

No	Name	Type, model	Ser. No	Next calibration date
1.	Temperature meter	Center-309	100074/1	08.2011
2.	Multi meter	FLUKE - 189/FVF2	89750179	09.2011
3.	Power supply	SEA PS 3020	100185	01.2012
4.	Climatic chamber	KPK-400V	15	08.2010
5.	Service monitor	CMS-54	835587/036	06.2012

TEST RESULT

Figure 1.1 — EUT before the test

Figure 1.2 – General view of the test site

The measurements at 10 degrees intervals of temperatures.

Temperature, ºC	Normal supply voltage, V	Frequency error, Hz	Lower limit supply voltage, V	Frequency error, Hz	Limit of frequency error, 10 ppm (1.56 kHz)	Conclusion
- 20	9	- 5	7.2	- 4	±1.56 kHz	Pass
- 10	9	- 4	7.2	- 5	±1.56 kHz	Pass
0	9	- 7	7.2	- 6	±1.56 kHz	Pass
10	9	- 6	7.2	- 5	±1.56 kHz	Pass
20	9	- 5	7.2	- 6	±1.56 kHz	Pass
30	9	- 6	7.2	- 5	±1.56 kHz	Pass
40	9	- 4	7.2	- 5	±1.56 kHz	Pass
50	9	- 5	7.2	- 6	±1.56 kHz	Pass

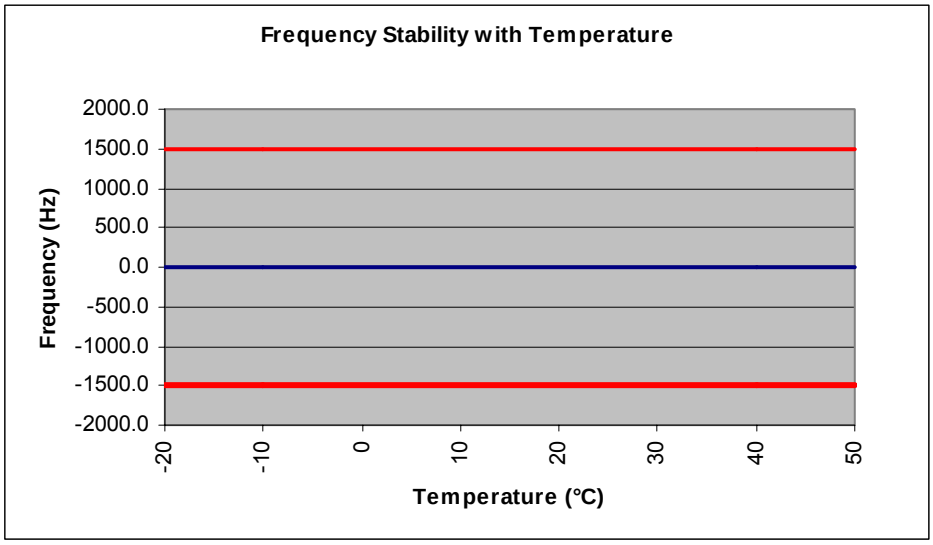

Figure 1.3 – Frequency Stability with Temperature, Normal supply voltage, 9 V

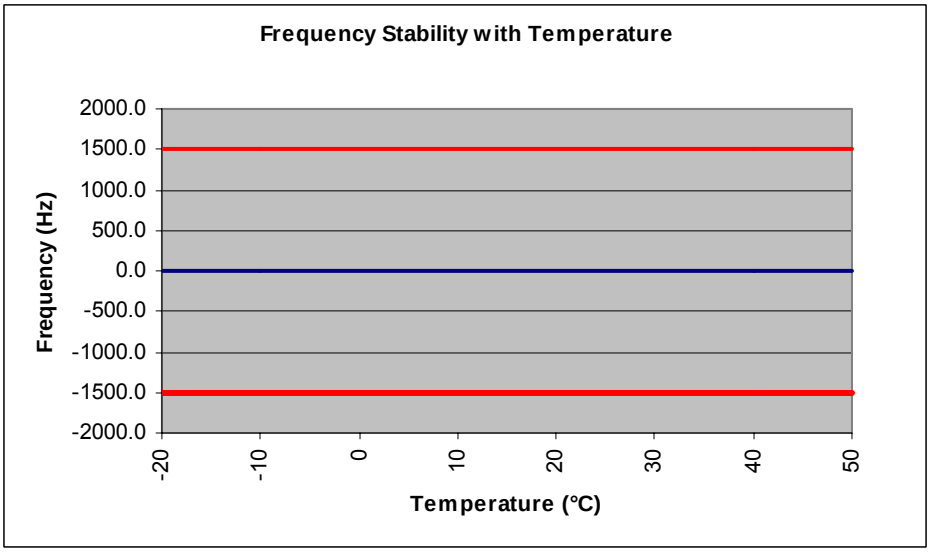

Figure 1.4 – Frequency Stability with Temperature, Lower limit supply voltage, 7.2 V

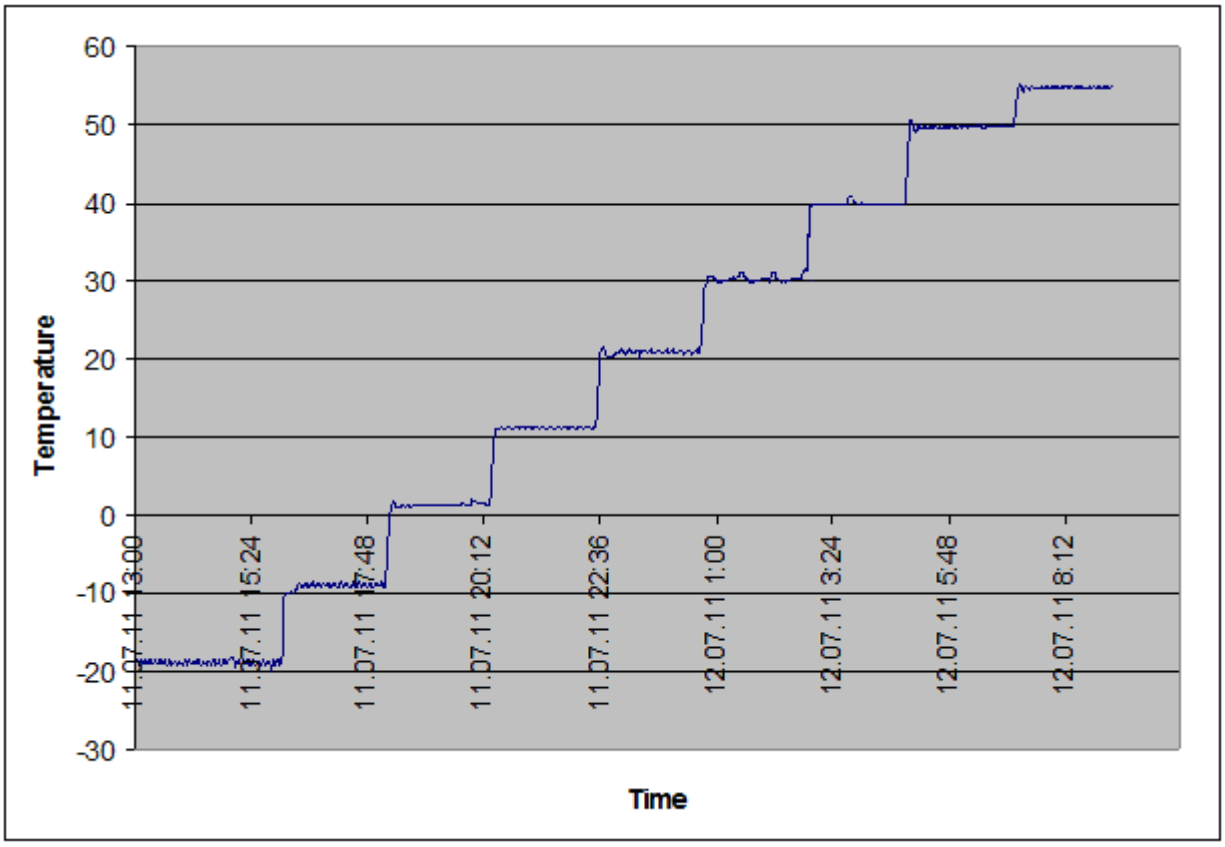

Figure 1.5 – Plot of temperatures during the test

ANNEX 2
OCCUPIED BANDWIDTH TEST

Occupied Bandwidth Test (item 2 of Program)
Test Procedure: Occupied Bandwidth Test
Equipment Under Test: VHF Radio V100
Serial No.: TA002
Firmware Version: 0100
Software Version: 0100
Test Date: 14.07.2011
The Name and Test - Site Location: Laboratory No.10
The Name and Qualification of Person Responsible for the test: Marynin A.B.

TEST PROGRAM

Item	Test name	Requirements FCC Rules	Methods FCC Rules
1.	Occupied bandwidth	CFR47 2.1049 CFR47 80.211(f)	CFR47 2.1049

TEST DESCRIPTION

Measurements of occupied bandwidth were performed while the sample was continuously transmitted when modulated by a 2500 Hz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.

The transmitter output was connected to the spectrum analyzer in peak hold mode via a calibrated attenuator and cable.

TEST CONDITIONS

- Ambient temperature: 26 °C
- Relative humidity: 48 %
- Atmospheric pressure: 752 mm/Hg
- Measurement duration: 2 hours
- Operational channel: 16 channel 156.8 MHz

TEST EQUIPMENT USED

No	Name	Type, model	Ser. No	Next calibration date
1.	Spectrum analyzer	HP8593E	3831U02306	07.2012
2.	Service monitor	CMS-54	835587/036	06.2012

TEST RESULT

Figure 2.1:
99% Occupied Bandwidth
Carrier Frequency: 156.8 MHz (16 CH)
Power: 2.5 W
Modulation: FM with 2.5 sine wave

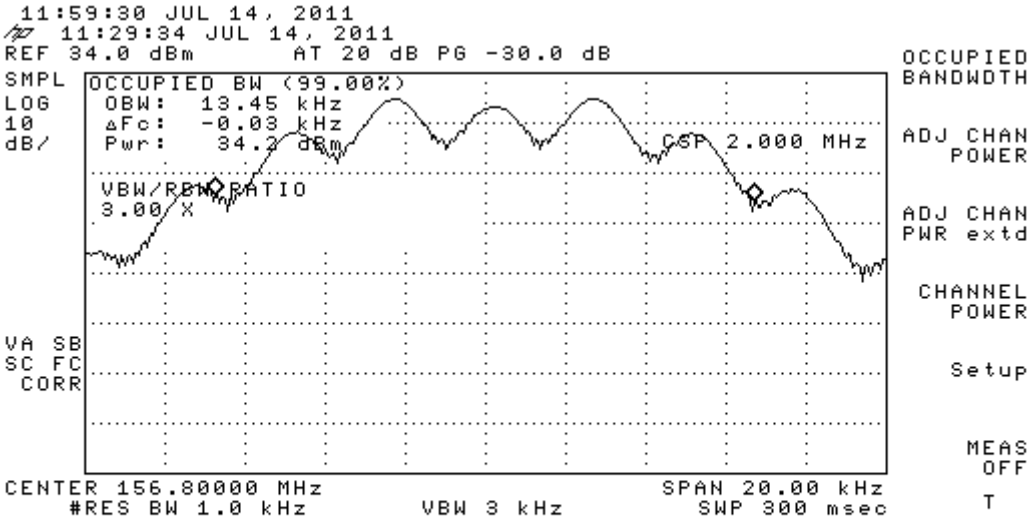

Figure 2.1 – Occupied bandwidth 99%

Figure 2.2:
99% Occupied Bandwidth
Carrier Frequency: 156.8 MHz (16 CH)
Power: 1 W
Modulation: FM with 2.5 sine wave

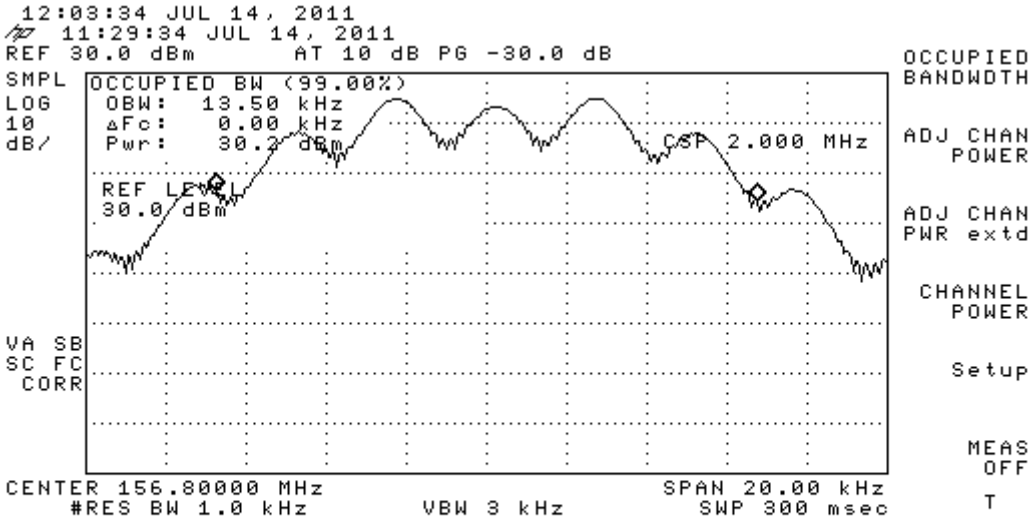

Figure 2.2 – Occupied bandwidth 99%

Figure 2.3:
Emission mask[1]
Carrier Frequency: 156.8 MHz (16 CH)
Power: 2.5 W
Modulation: FM with 2.5 sine wave

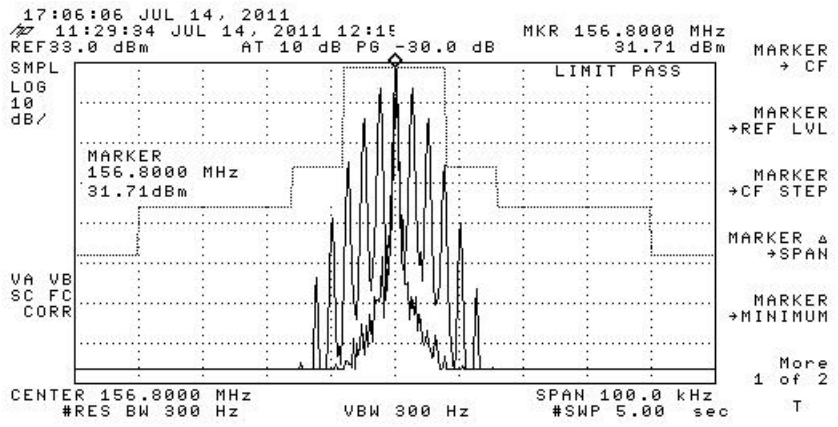

Figure 2.3 – Emission mask

[1] The mask shown on the plot is narrower than the requirements and just state the requirements of CFR 47 part 80 211(f). According to CFR47 part 80 205(a) the authorised bandwidth is 20KHz The mask on the plot is based on the bandwidth 16 kHz.

Figure 2.4:
Emission mask[1]
Carrier Frequency: 156.8 MHz (16 CH)
Power: 1 W
Modulation: FM with 2.5 sine wave

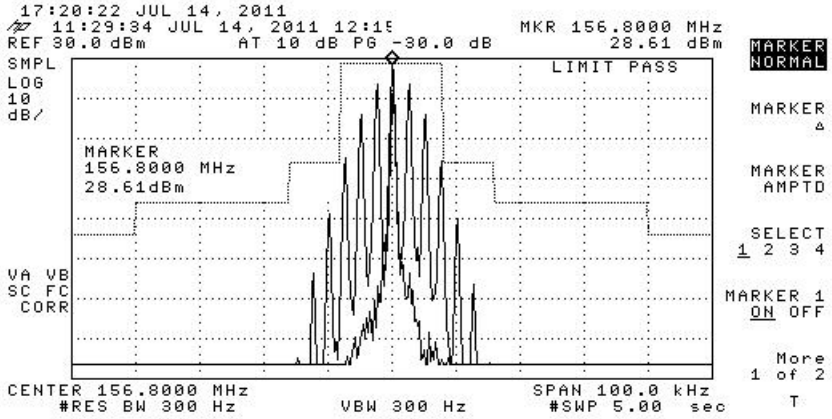

Figure 2.4 – Emission mask

[1] The mask shown on the plot is narrower than the requirements and just state the requirements of CFR 47 part 80 211(f). According to CFR47 part 80 205(a) the authorised bandwidth is 20KHz The mask on the plot is based on the bandwidth 16 kHz.

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
Service monitor	Rohde&Shwarz	CMS-54	835587/036	June, 2011	1 year
Climatic chamber	Feutron	KPK-400V	15	August, 2010	2 year
Multimeter	Fluke	FLUKE - 189/FVF2	89750179	September, 2010	1 year
Power supply	Sea	SEA PS 3020	100185	January, 2011	1 year
Spectrum analyzer 9 kHz-22 GHz	Hewlett-Parckard Co	HP8593E	3831U02306	July, 2011	1 year