Report On

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd NEON II
In accordance with FCC CFR 47 Part 15B and ICES-003

COMMERCIAL-IN-CONFIDENCE

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DATED 16 December 2011

This report has been up-issued to Issue 4 to amend the FCC ID.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

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SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd NEON II
In accordance with FCC CFR 47 Part 15B and ICES-003

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC and Industry Canada Testing of the SRT Marine Technology Ltd NEON II to the requirements of FCC CFR 47 Part 15B and ICES-003.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	SRT Marine Technology Ltd
Model Number(s)	Neon II
Serial Number(s)	N/A
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15B and ICES-003 (2010 and 2004)
Incoming Release Date	Application Form 10 October 2011
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	POR002484 15 September 2011
Start of Test	5 October 2011
Finish of Test	5 October 2011
Name of Engineer(s)	G Lawler

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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15B and ICES-003 is shown below.

Section	Spec Clause	Test Description	Result	Comments/Base Standard
Class B AIS NEON II				
2.1	15.109 and 7.1	Radiated Emissions	Pass	

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1.3 APPLICATION FORM

MAIN EUT			
MANUFACTURING DESCRIPTION	NEON II; Class B AIS Transceiver to IEC62287-1		
MANUFACTURER	SRT Marine Technology Ltd		
TYPE	Marine Radio Equipment		
PART NUMBER	413-0002		
SERIAL NUMBER	N/A		
HARDWARE VERSION	Revision 2		
SOFTWARE VERSION	040200.01.02		
TRANSMITTER OPERATING RANGE	VHF = 156.025-162.025MHz		
RECEIVER OPERATING RANGE	VHF = 156.025-162.025MHz, GPS = 1575.42MHz		
COUNTRY OF ORIGIN	United Kingdom		
INTERMEDIATE FREQUENCIES	19.655MHz, 455KHz, 29.255MHz,		
ITU DESIGNATION OF EMISSION	6K00G7E		
HIGHEST INTERNALLY GENERATED FREQUENCY	213.68MHz		
OUTPUT POWER (W or dBm)	2 W, 33dBm		
FCC ID	YYG-413-0002		
INDUSTRY CANADA ID	7075A-4130002A		
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Marine AIS CSTDMA Class B Transceiver to IEC62287-1		
BATTERY/POWER SUPPLY			
MANUFACTURING DESCRIPTION	Switch mode power supply		
MANUFACTURER	SRT Marine Technology Ltd		
TYPE	Switch mode power supply		
PART NUMBER	N/A as internal		
VOLTAGE	12 to 24V DC, -10% to +30% (10.8 to 31.2V DC		
COUNTRY OF ORIGIN	United Kingdom		
MODULES (if applicable)			
MANUFACTURING DESCRIPTION	N/A		
MANUFACTURER	N/A		
TYPE	N/A		
POWER	N/A		
FCC ID	N/A		
COUNTRY OF ORIGIN	N/A		
INDUSTRY CANADA ID	N/A		
EMISSION DESIGNATOR	N/A		
DHSS/FHSS/COMBINED OR OTHER	N/A		
ANCILLARIES (if applicable)			
MANUFACTURING DESCRIPTION	N/A		
MANUFACTURER	N/A		
TYPE	N/A		
PART NUMBER	N/A		
SERIAL NUMBER	N/A		
COUNTRY OF ORIGIN	N/A		

Signature Nathan Emery

Date 10 October 2011

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1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a SRT Marine Technology Ltd NEON II. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 12 V DC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.

SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd NEON II
In accordance with FCC CFR 47 Part 15B and ICES-003

2.1 RADIATED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15B and ICES-003, Clause 15.109 and 7.1

2.1.2 Equipment Under Test and Modification State

Neon II S/N: N/A - Modification State 0

2.1.3 Date of Test

5 October 2011

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

A preliminary profile of the Spurious Radiated Emissions is obtained up to the 5th harmonic of the EUT's highest internally generated fundamental frequency. For frequencies from 30MHz to 18GHz the EUT is placed on a test table 800mm above the ground plane. For frequencies above 18GHz, the EUT height is increased by 200mm to a height of 1000mm. This is to ensure the beam width of the measuring antenna gives sufficient vertical coverage of the EUT.

During characterisation the turntable azimuth is adjusted from 0 to 360 degrees with the measuring antenna in one polarity. It is then repeated for the other polarity. Any frequencies of interest are noted for formal measuring later. The distance from the measuring antenna to the boundary of the EUT is 3m. Above 18GHz this distance may be reduced to 1m.

During formal measurement the spectrum analyser is tuned to the frequency of the emission. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum emission level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum emission level occurs. Once the point of maximum emission has been determined the emission is measured. Emissions in the 30MHz to 1GHz range are measured using a CISPR Quasi – Peak detector function in a 120kHz bandwidth. Emissions in the range 1GHz to 40GHz require Peak and Average measurements. The Peak measurements are made using a peak detector with 1MHz Resolution and Video bandwidths. The average measurements employ a peak detector with a Resolution bandwidth of 1MHz and a Video bandwidth of 10Hz. If measurements are made at a 1m measuring distance, then 10dB is added to the specification limit.

2.1.6 Environmental Conditions

Ambient Temperature	19.6°C
Relative Humidity	68.0%

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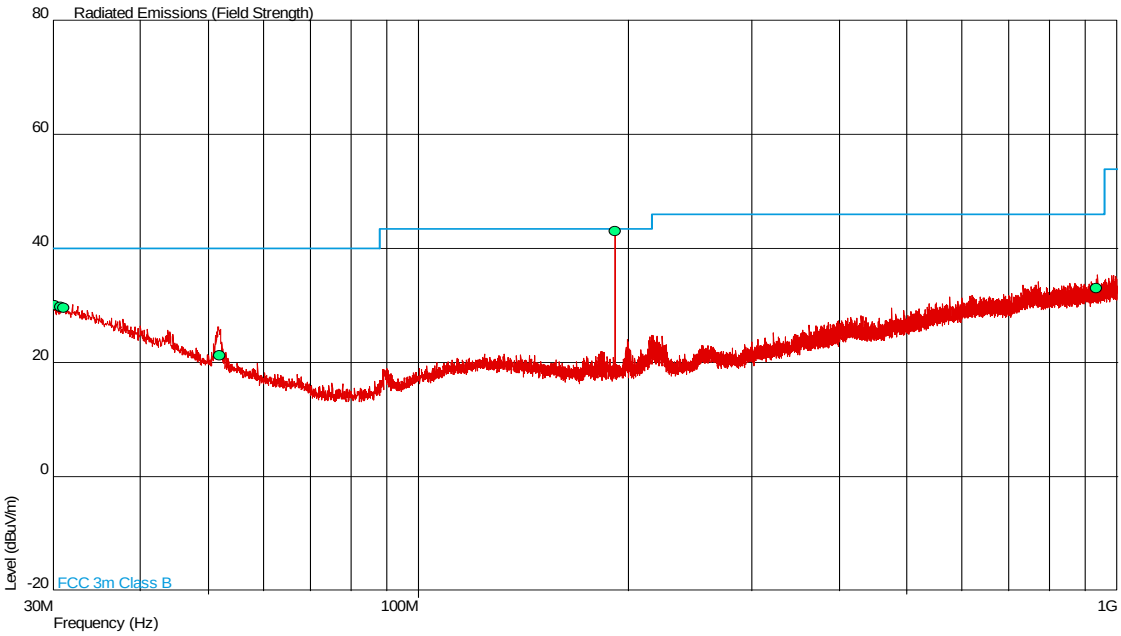
2.1.7 Test Results

Channel 1

30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.109	30.1	32.0	40.0	100	-9.9	68.0	258	2.08	Horizontal
30.773	29.8	30.9	40.0	100	-10.2	69.1	246	1.00	Vertical
31.091	29.6	30.2	40.0	100	-10.4	69.8	64	1.00	Vertical
51.891	21.2	11.5	40.0	100	-18.8	88.5	145	1.00	Horizontal
191.281	43.0	141.3	43.5	150	-0.5	8.7	335	1.00	Vertical
934.322	33.1	45.2	46.0	200	-12.9	154.8	1	1.69	Vertical

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SECTION 3

TEST EQUIPMENT USED

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3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - Radiated Emissions					
Meter	Iso-tech	IDM101	2417	12	20-Sep-2012
Hygrometer	Rotronic	Hygropalm	2404	12	20-Jan-2012
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	12	26-Aug-2012
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU

TU – Traceability Unscheduled

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3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	MU
Radiated Emissions	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB

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SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

UKAS TESTING 0141

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).