Report On

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd CARBON Type 1 AtoN
In accordance with FCC CFR 47 Part 80
and Industry Canada RSS-182

COMMERCIAL-IN-CONFIDENCE

FCC ID: UYW-4180003
IC ID: 7075A-418-0003

Document 75917597 Report 05 Issue 2 May 2013

Product Service

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REPORT ON

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd CARBON Type 1 AtoN
In accordance with FCC CFR 47 Part 80
and Industry Canada RSS-182

Document 75917597 Report 05 Issue 2

May 2013

PREPARED FOR

SRT Marine Technology Ltd
Wireless House
Westfield Industrial Estate
Midsomer Norton
Bath
BA3 4BS

PREPARED BY

Natalie Bennett
Senior Administrator (Technical)

APPROVED BY

Mark Jenkins
Authorised Signatory

DATED 14 May 2013

This report has been up-issued to Issue 2 to amend the limit in section 2.6.7.

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 80 and Industry Canada RSS-182. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler M Russell

UKAS TESTING 0141

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Product Service

SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd CARBON Type 1 AtoN
In accordance with FCC CFR 47 Part 80 and Industry Canada RSS-182

Product Service

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 CARBON Type 1 AtoN to the requirements of FCC CFR 47 Part 80 and Industry Canada RSS-182.

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)	A to N
Serial Number(s)	P216FTU034
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 80 (2011) Industry Canada RSS-182 (Issue 5, 2012)
Incoming Release Date	Application Form 15 October 2012
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	POR003047 22 March 2012
Start of Test	12 November 2012
Finish of Test	19 November 2012
Name of Engineer(s)	G Lawler M Russell

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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 80 and Industry Canada RSS-182 is shown below.

Section	Spec Clause		Test Description	Result	Comments/Base Standard
	FCC	IC			
Transmit					
2.1	80.205	7.3	Bandwidths	Pass	
2.2	80.209	5.1 and 7.4	Transmitter Frequency Tolerances	Pass	
2.3	80.211	7.9	Emission Limitations	Pass	
2.4	80.213	7.3	Modulation Requirements	Pass	
2.5	80.213 (a)(2)	7.3	Transmitter Frequency Deviation	Pass	
2.6	80.215	5.2 and 7.5	Transmitter Power	Pass	
2.7	80.215 (e)(g)(1)(2)(3)	7.5	Transmitter Carrier Power Reduction	Pass	
2.8	80.217 (b)	-	Suppression of Interface Aboard Ships	Pass	

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1.3 APPLICATION FORM

APPLICANT'S DETAILS

COMPANY NAME : SRT-Marine Technology…
ADDRESS : Wireless House, Westfield Industrial Estate, Midsomer Norton, Bath, England. BA3 4BS
NAME FOR CONTACT PURPOSES : Richard McMahon

TELEPHONE NO: +44(0)1761409500 FAX NO: +44(0)1761410093
E-MAIL: richard.mcmahon@srt-marine.com

EQUIPMENT INFORMATION

Model name/number	TRS-418-0003/TR-418-0001	Identification/Part number	…P216FTU034…
Hardware Version	……EP3……	Software Version	.080200.00.10.05.
Manufacturer	SRT-Marine Technology.	Country of Origin	Hungary
FCC ID	UYW-4180003	Industry Canada ID	7075A-418-0003

Technical description (a brief description of the intended use and operation)
…AIS Aid to Navigation……(Aton)

Supply Voltage:

[ ]	AC mains	State AC voltage …… V	and AC frequency …… Hz
[√]	DC (external)	State DC voltage .12-24. V	and DC current …2.5 peak. A
[ ]	DC (internal)	State DC voltage …… V	and Battery type ……

Frequency characteristics:
Transmitter Frequency range .156.025 MHz to 162.025 MHz Channel spacing …25kHz…. (if channelized)
Receiver Frequency range (if different) .156.025 MHz to 162.025 MH z Channel spacing …25kHz…. (if channelized)
Designated test frequencies:
Bottom: 156.025 MHz Middle: 159.025 MHz Top: 162.025 MHz
Intermediate Frequencies : 19.655 and 29.255 MHz
Highest Internally Generated Frequency : 191.28 MHz

Power characteristics:
Maximum transmitter power …12.5…… W Minimum transmitter power (if variable) …1…… W

[ ]	Continuous transmission	
[√]	Intermittent transmission	State duty cycle <1%

If intermittent, can transmitter be set to continuous transmit test mode? Y/N N

Antenna characteristics:

[√]	Antenna connector	State impedance …… 50 ohm
[ ]	Temporary antenna connector	State impedance …… ohm
[ ]	Integral antenna	State gain …… dBi

Modulation characteristics:

[ ]	Amplitude	[√] Other
[ ]	Frequency	Details: GMSK-TDMA (GMSK, QSPK etc)
[ ]	Phase	

Can the transmitter operate un-modulated? Y/N N
ITU Class of emission: .25K0Q1DDT.

Battery/Power Supply

Model name/number	…N/A……	Identification/Part number	…… N/A ……
Manufacturer	……	Country of Origin	……

Ancillaries (if applicable)

Model name/number	…… N/A……	Identification/Part number	…… N/A ……
Manufacturer	……	Country of Origin	……

Extreme conditions:

Maximum temperature	…55 °C	Minimum temperature	minus 25 °C
Maximum supply voltage	…31.2…… V	Minimum supply voltage	…9.6…… V

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I hereby declare that I am entitled to sign on behalf of the applicant and that the information supplied is correct and complete.

Signature :

Name : Richard McMahon

Position held : Certification Engineer

Date : 15.10.12

Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a SRT Marine Technology Ltd CARBON Type 1 AtoN. 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.

Product Service

SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
SRT Marine Technology Ltd CARBON Type 1 AtoN
In accordance with FCC CFR 47 Part 80 and Industry Canada RSS-182

2.1 BANDWIDTHS

2.1.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.205
Industry Canada RSS-182, Clause 7.3

2.1.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.1.3 Date of Test

14 November 2012

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

The EUT was connected to a spectrum analyser via a cable and attenuators. The EUT was configured to transmit three different packet data loads at maximum power.

The trace was set to max hold until a sufficient number of sweeps was observed. The 99% occupied bandwidth function was selected on the spectrum analyser and the result and the trace were recorded.

2.1.6 Environmental Conditions

Ambient Temperature	17.9°C
Relative Humidity	42.9%

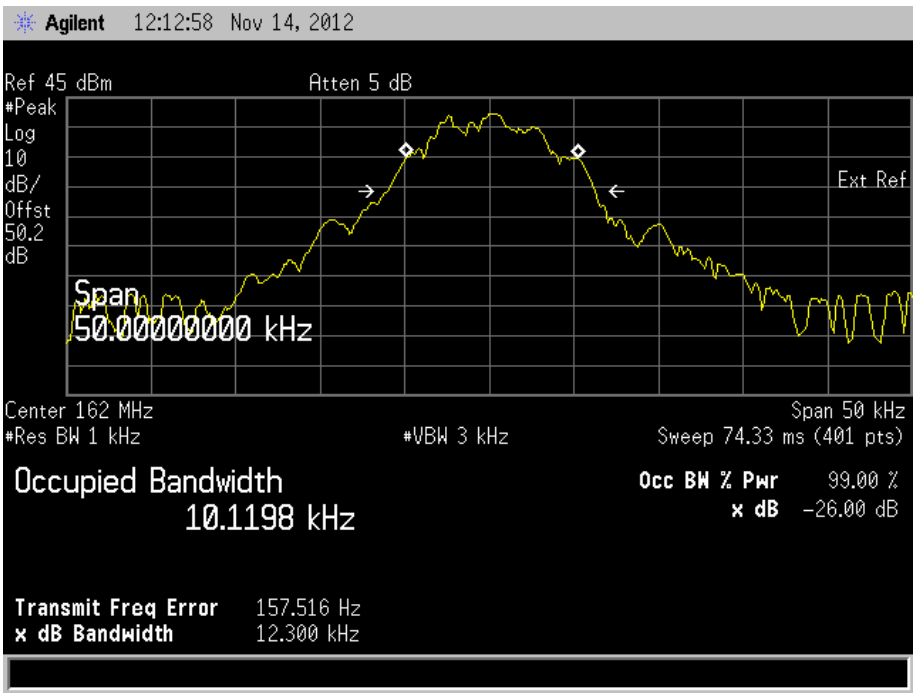
2.1.7 Test Results

Frequency	Test Signal	Authorised Bandwidth	Result (kHz)
161.975 MHz	01010101	16 kHz	10.1198
	00001111	16 kHz	**10.2011**
	PRS	16 kHz	9.9417
162.025 MHz	01010101	16 kHz	10.2050
	00001111	16 kHz	9.8916
	PRS	16 kHz	10.0778

Product Service

161.975 MHz

01010101



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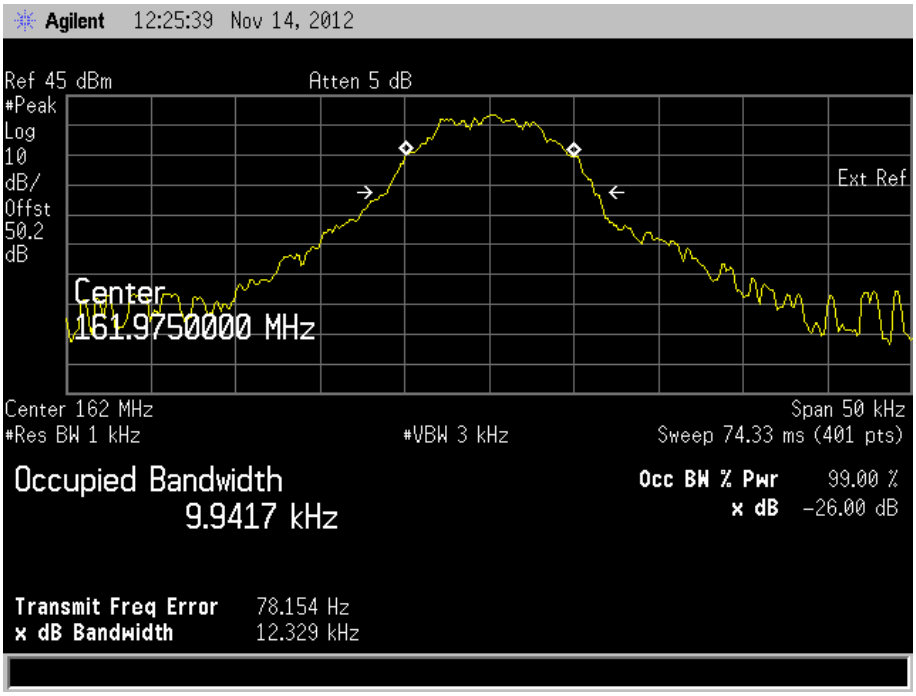
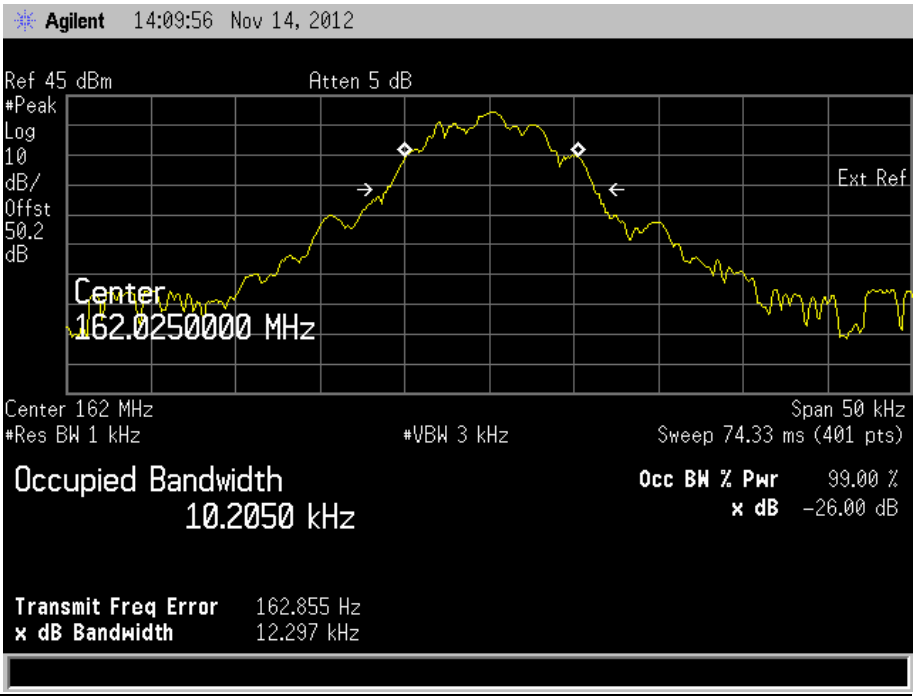
Product Service

PRS



162.025 MHz

01010101



Product Service

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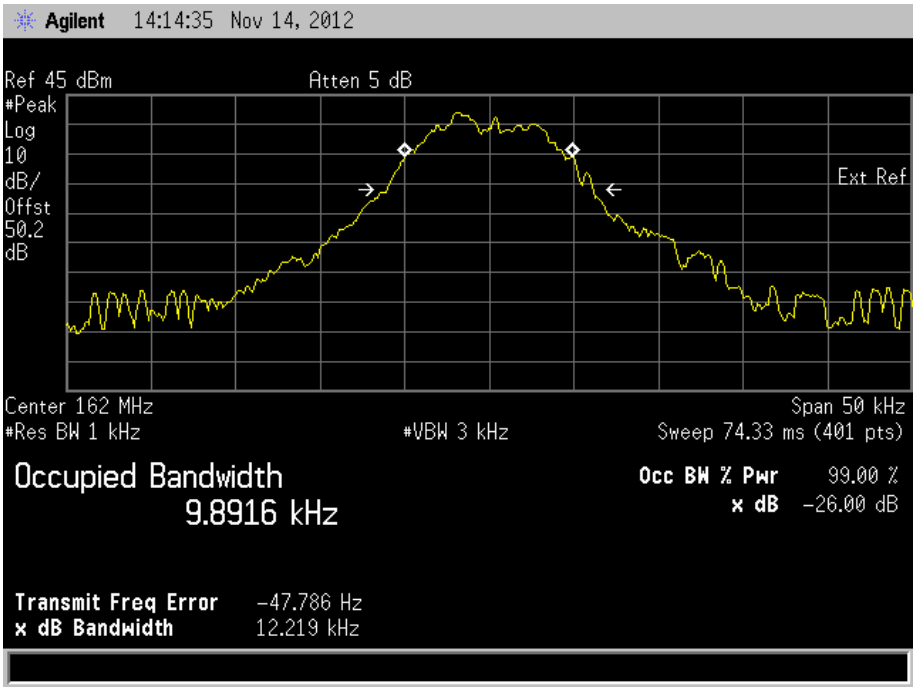
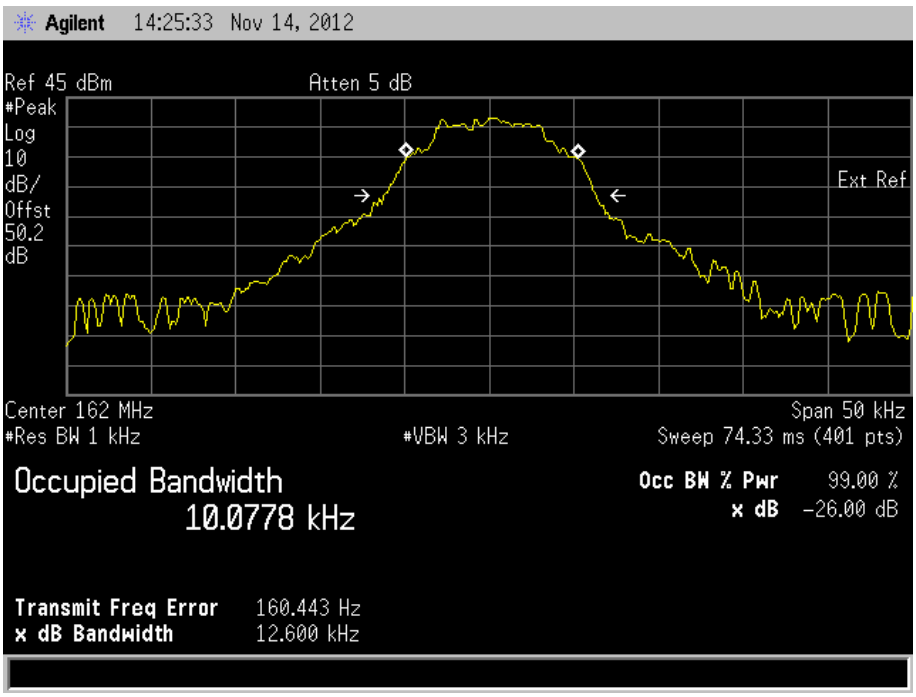


PRS



Limit Clause

(d) The nominal authorised channel bandwidth for voice is 20 kHz
(e) For data modulation, an authorised bandwidth of 16 kHz is permitted.
± 5 KHz.

2.2 TRANSMITTER FREQUENCY TOLERANCES

2.2.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.209
Industry Canada RSS-182, Clause 5.1 and 7.4

2.2.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.2.3 Date of Test

15 November 2012 & 19 November 2012

2.2.4 Test Equipment Used

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

2.2.5 Test Procedure

The EUT was connected to a spectrum analyser via 50 dB of attenuation with an external high stability frequency reference connected.

The EUT was transmitted unmodulated and the trace set to max hold with a 100 Hz resolution bandwidth.

The marker was then used to measure the peak response and the result recorded in the table on the following page.

2.2.6 Environmental Conditions

Ambient Temperature	23.9 - 24.7°C
Relative Humidity	31.6 - 34.6%

Product Service

2.2.7 Test Results

161.975 MHz

Temperature	Frequency Error (ppm)	
	9.6 V DC	31.2 V DC
-20°C	1.5743	2.0374
-10°C	2.0374	1.7595
0°C	0.9261	0.9261
+10°C	1.5126	1.3582
+20°C	0.0123	0.0309
+30°C	0.2284	0.0617
+40°C	-0.8852	-0.9852
+50°C	0.0981	2.3845

162.025 MHz

Temperature	Frequency Error (ppm)	
	9.6 V DC	31.2 V DC
-20°C	0.5061	0.9258
-10°C	0.4135	1.2035
0°C	0.1543	0.4629
+10°C	1.1727	1.3702
+20°C	0.0123	0.0432
+30°C	-0.0309	-0.0185
+40°C	-0.0689	-0.1173
+50°C	1.1318	1.1562

Frequency	Maximum Frequency Error (Hz)
161.975 MHz	2.3845
162.025 MHz	2.0367

Limit Clause

No limit is defined 80.209. Therefore limit from ITU 1371 is used.

±3ppm.

2.3 EMISSION LIMITATIONS

2.3.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.211
Industry Canada RSS-182, Clause 7.9

2.3.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.3.3 Date of Test

12 November 2012 & 15 November 2012

2.3.4 Test Equipment Used

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

2.3.5 Test Procedure

The EUT transmitting on full power, was connected to a Spectrum Analyser via 50dB of attenuation in the 9kHz – 300MHz frequency range and via a 30dB attenuator with 300MHz High Pass Filter in the 300MHz – 2GHz frequency range.

The EUT was checked (for bottom and top channels of the EUT) against the specification limit for all emissions >250% removed from the assigned frequency, between 9kHz – 2GHz frequency range.

The Path Loss for each frequency range was recorded and the worst case loss was entered as a Reference Level Offset.

2.3.6 Environmental Conditions

Ambient Temperature	22.3 - 24.8°C
Relative Humidity	30.0 - 31.2%

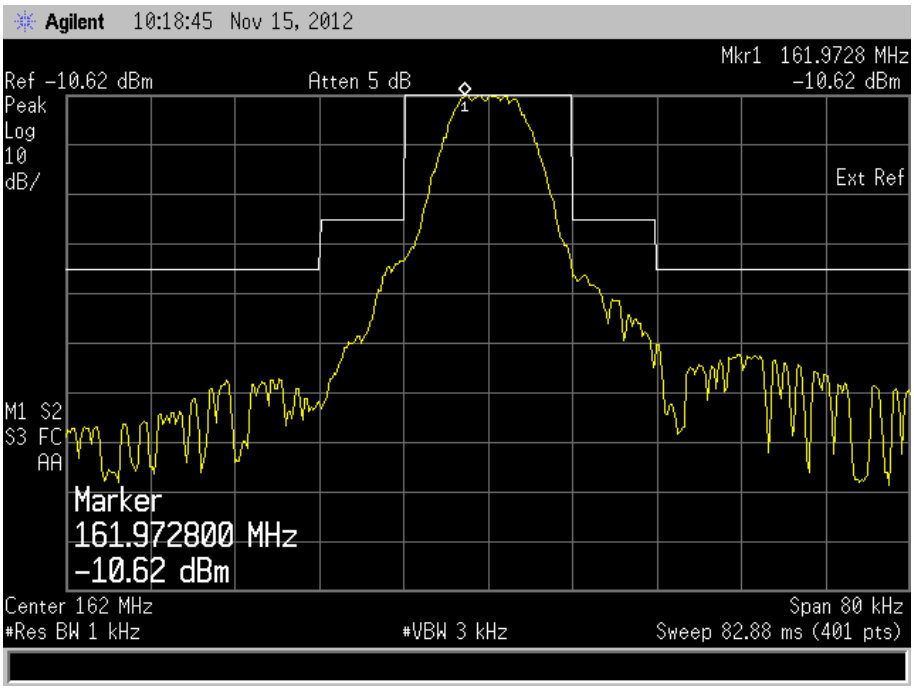
Product Service

2.3.7 Test Results

12 V DC Supply

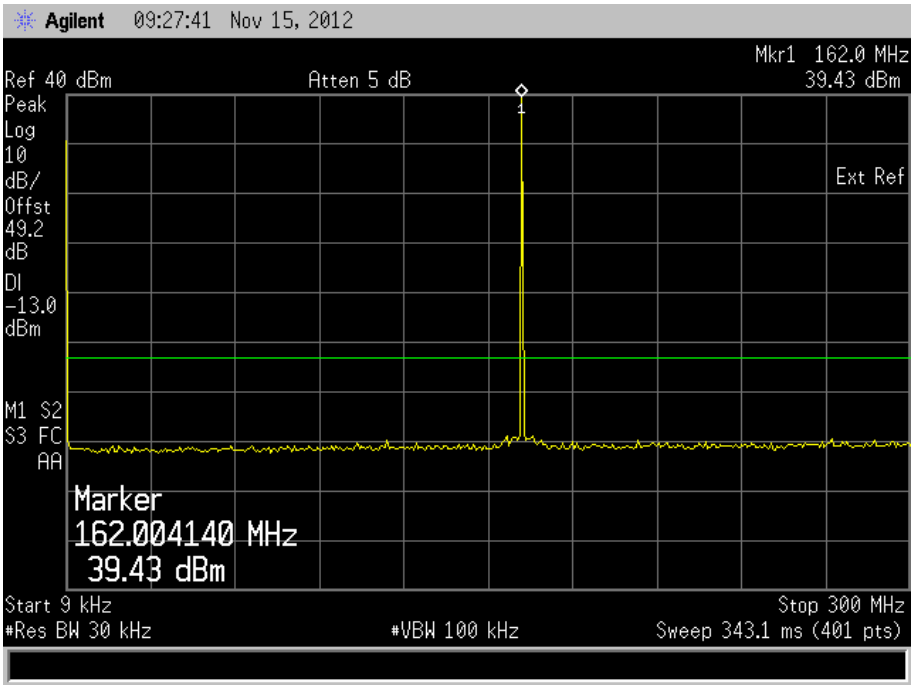
Conducted

161.975 MHz

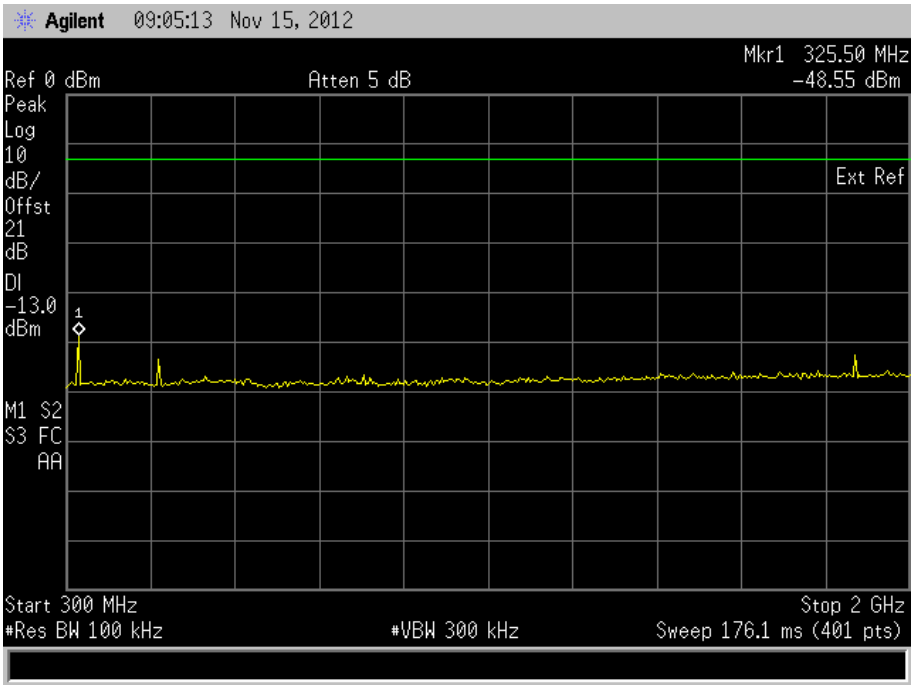


Product Service

30 MHz to 1 GHz

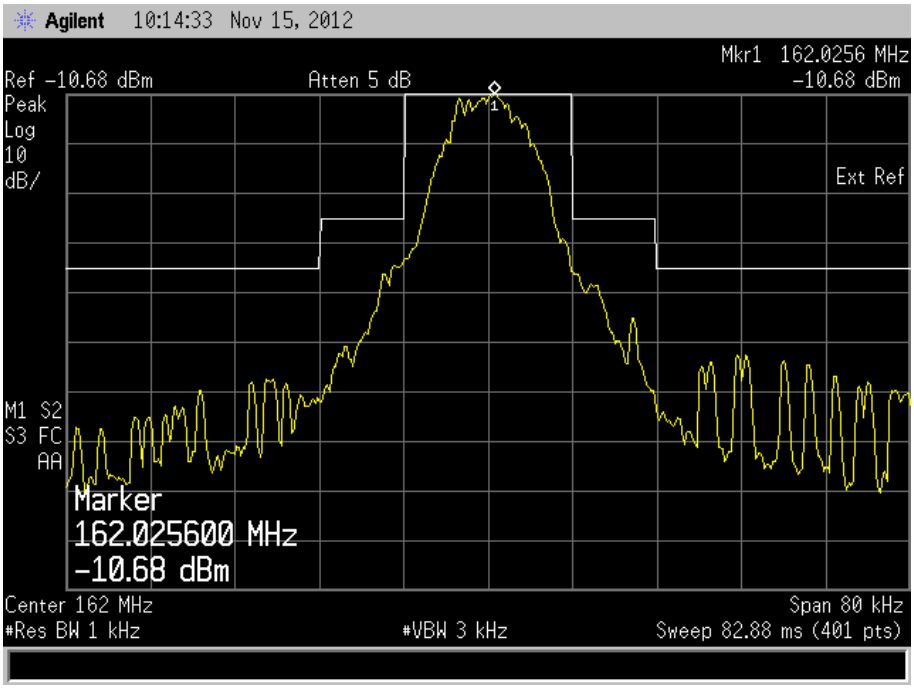


1 GHz to 2 GHz

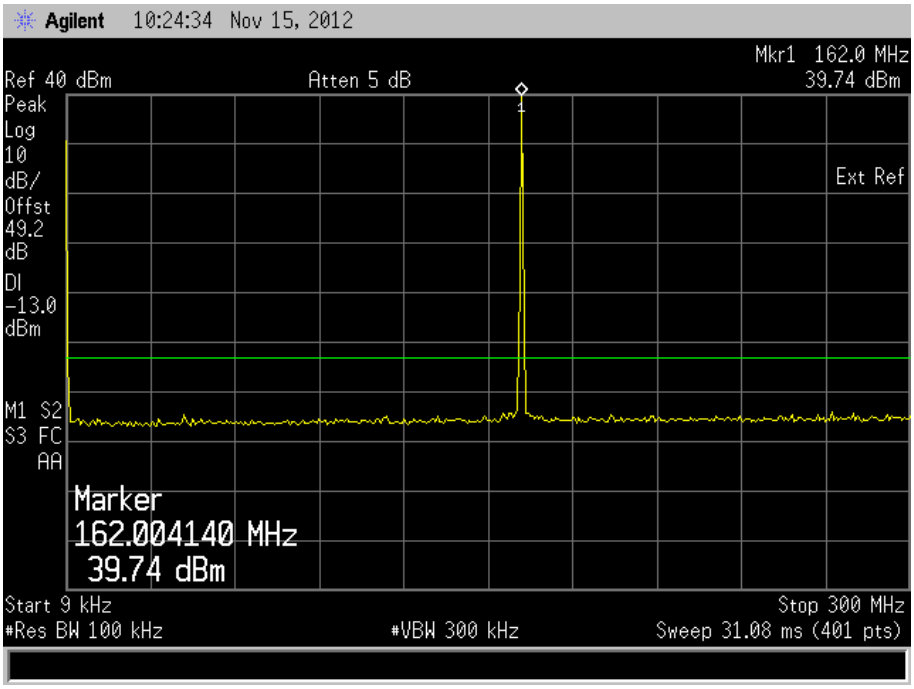


Product Service

162.025 MHz

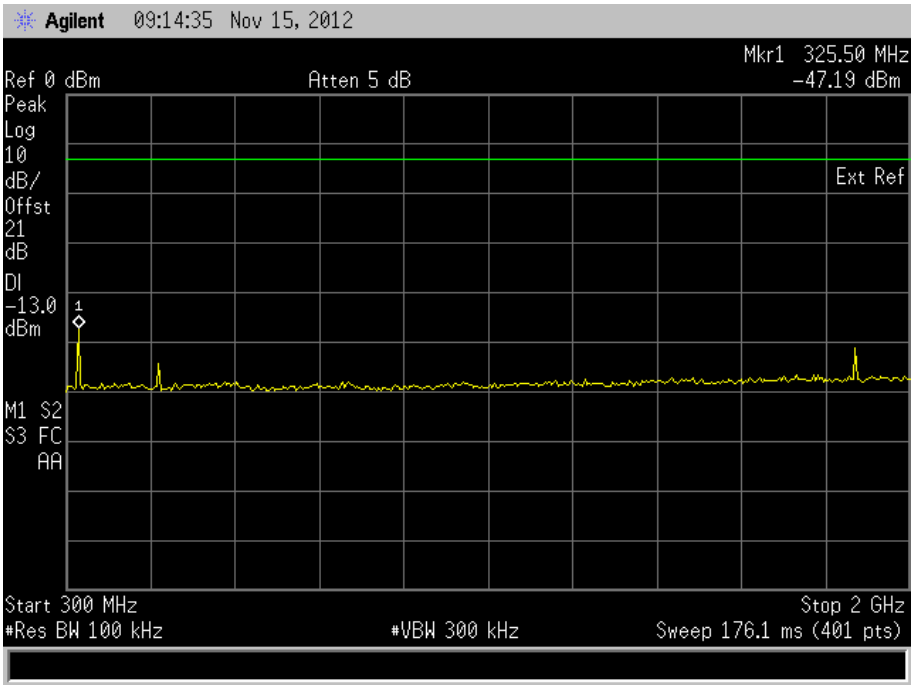


30 MHz to 1 GHz



Product Service

1 GHz to 2 GHz



Limit Clause 80.211

Emission Mask

On any frequency removed from the assigned frequency by more than 50 % up to and including 100 % of the authorized bandwidth: At least 25 dB

On any frequency removed from the assigned frequency by more than 100 % up to and including 250 % of the authorized bandwidth: At least 35 dB

Outside the Emission Mask

>250 % of authorised bandwidth 43+10 Log P **OR** -13 dBm

Product Service

2.4 MODULATION REQUIREMENTS

2.4.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.213
Industry Canada RSS-182, Clause 7.3

2.4.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.4.3 Date of Test

14 November 2012

2.4.4 Test Equipment Used

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

2.4.5 Test Procedure

The EUT was configured to transmit three different packet data loads. These were 11110000, 10101010 and PRBS. The traces were recorded as shown below.

2.4.6 Environmental Conditions

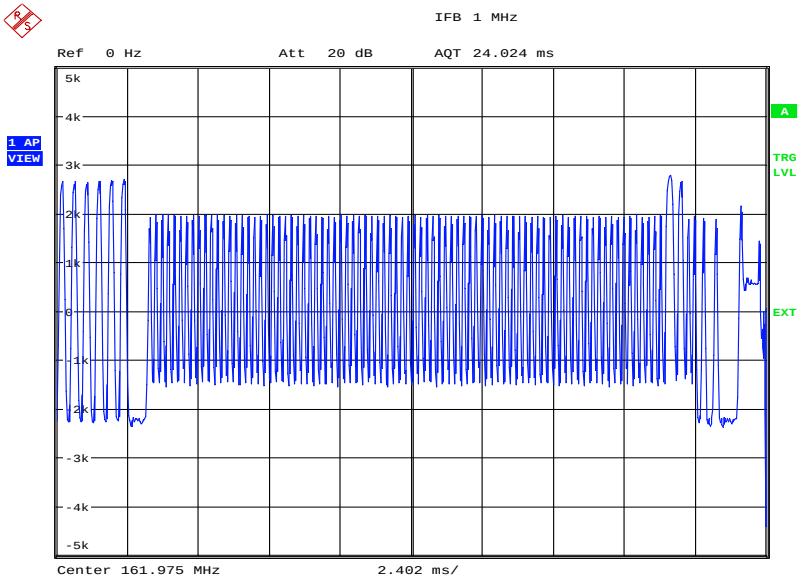
Ambient Temperature	20.3°C
Relative Humidity	36.7%

Product Service

2.4.7 Test Results

161.975 MHz

01010101



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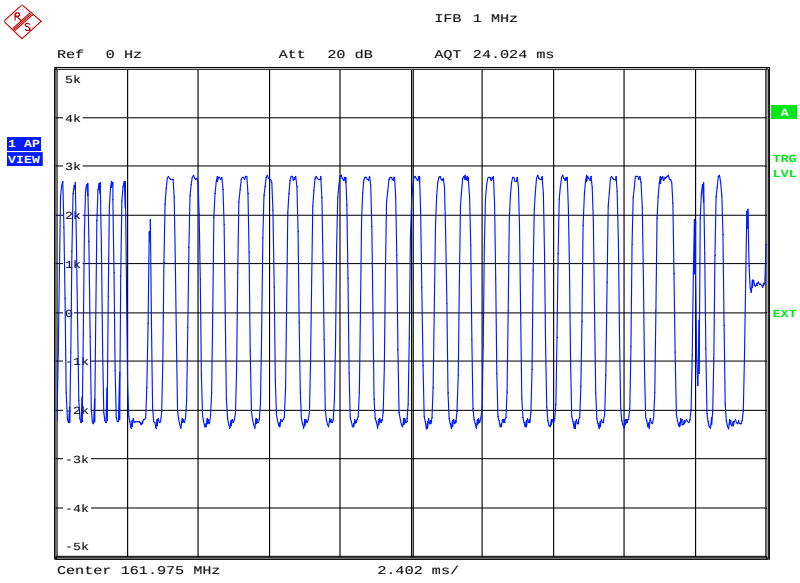

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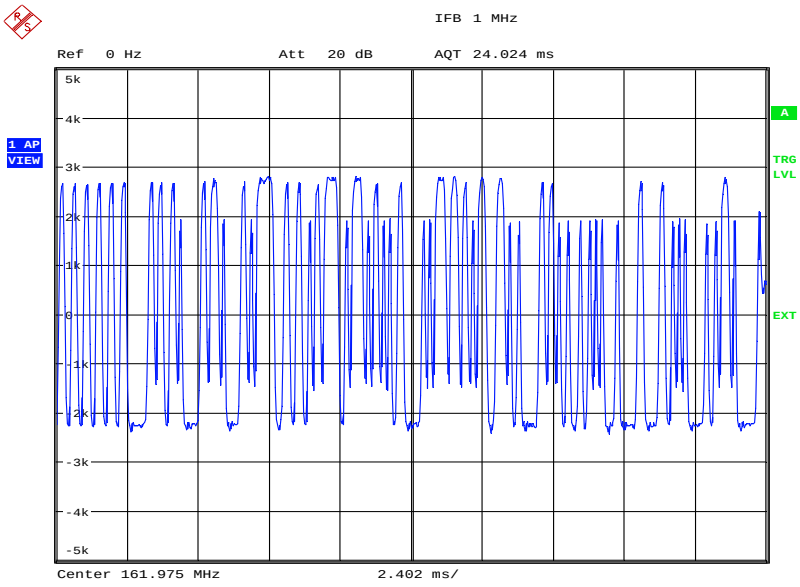
Product Service

PRS



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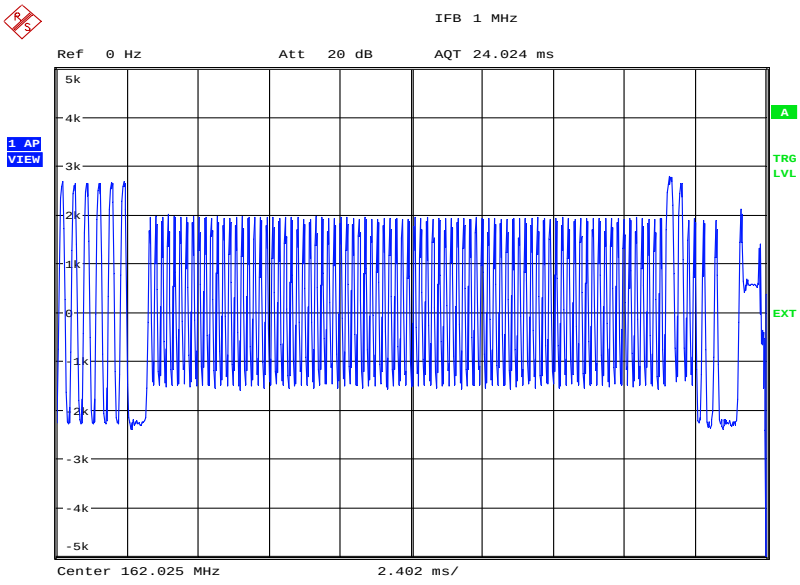
162.025 MHz

01010101



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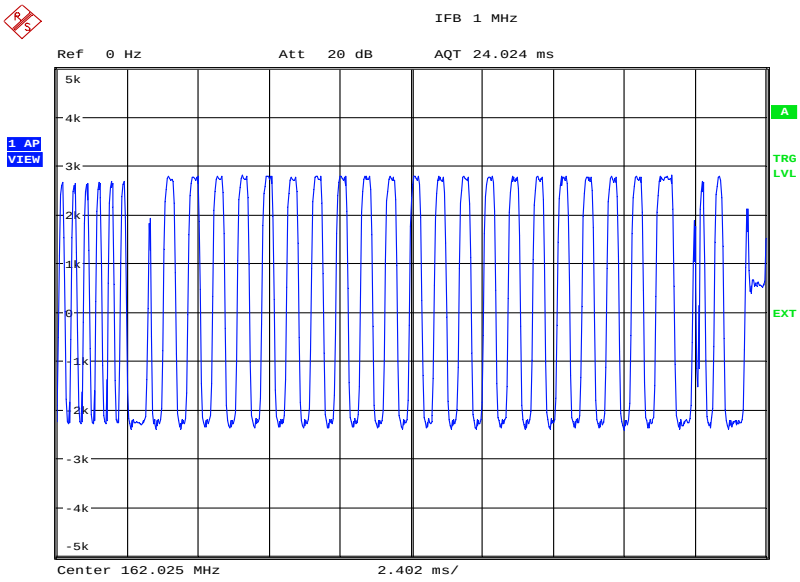
Product Service

00001111



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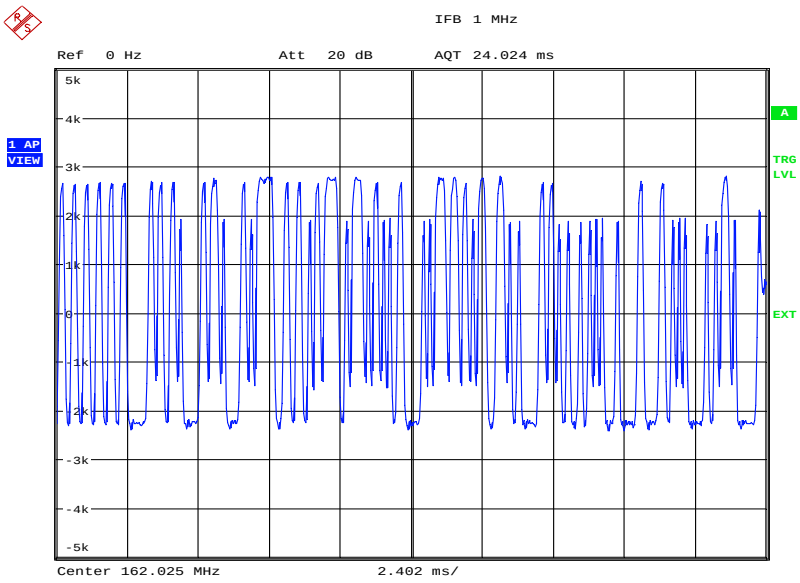
PRS



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Limit Clause

When phase or frequency modulation is used int he 156-162 MHz bands the peak modulation must be maintained between 75 and 100 percent. A frequency deviation of ±5 kHz is defined as 100 percent peak modulation.

Ship and cost station transmitters operating in the 156-162 MHz and 216-220 MHz bands must be capable of proper operation with a frequency deviation that does not exceed ±5 kHz.

2.5 TRANSMITTER FREQUENCY DEVIATION

2.5.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.213 (a)(2)
Industry Canada RSS-182, Clause 7.3

2.5.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.5.3 Date of Test

14 November 2012

2.5.4 Test Equipment Used

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

2.5.5 Test Procedure

The EUT was configured to transmit three different packet data loads at maximum power. These were 11110000, 10101010 and PRBS. The maximum deviation was recorded using the modulation analysis function on the spectrum analyser and compared with the specification limits.

2.5.6 Environmental Conditions

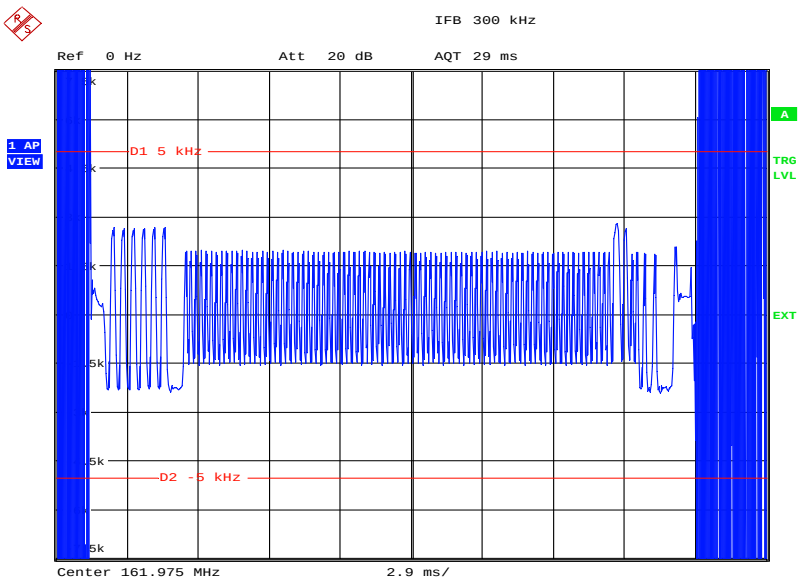
Ambient Temperature	20.6°C
Relative Humidity	46.5%

Product Service

2.5.7 Test Results

Confirm that the frequency deviation does not exceed 5 kHz	**Yes**

AIS 1 – 01010101



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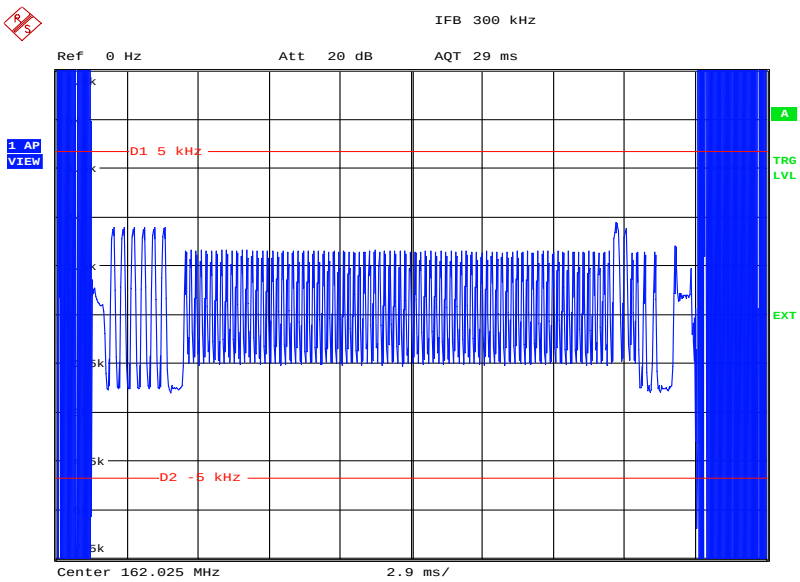

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Product Service

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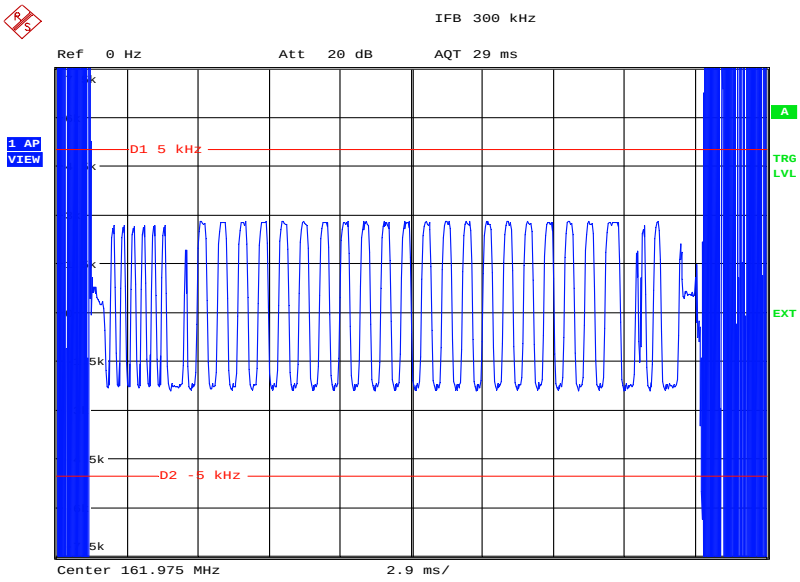

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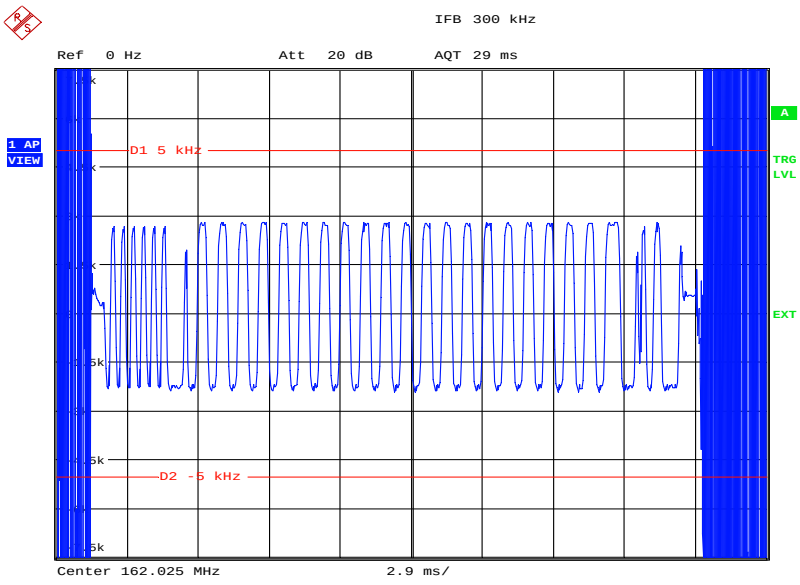

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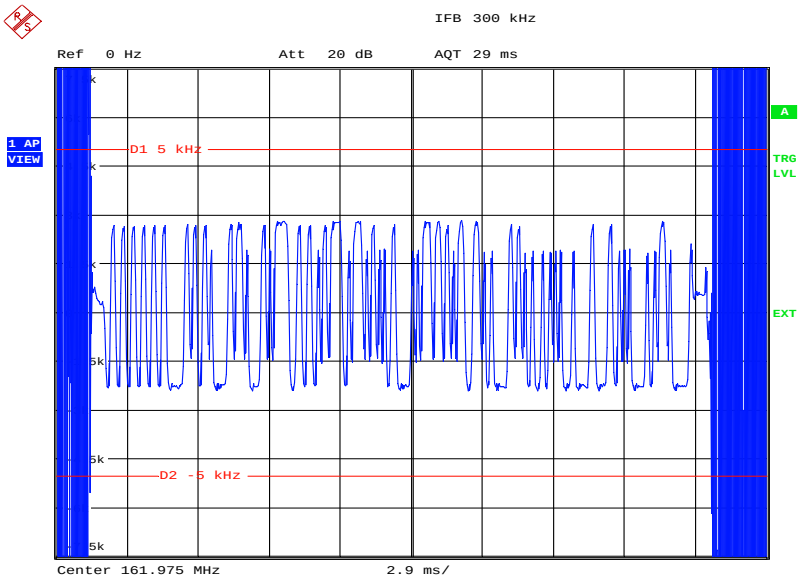
Product Service

AIS 1 – PRBS



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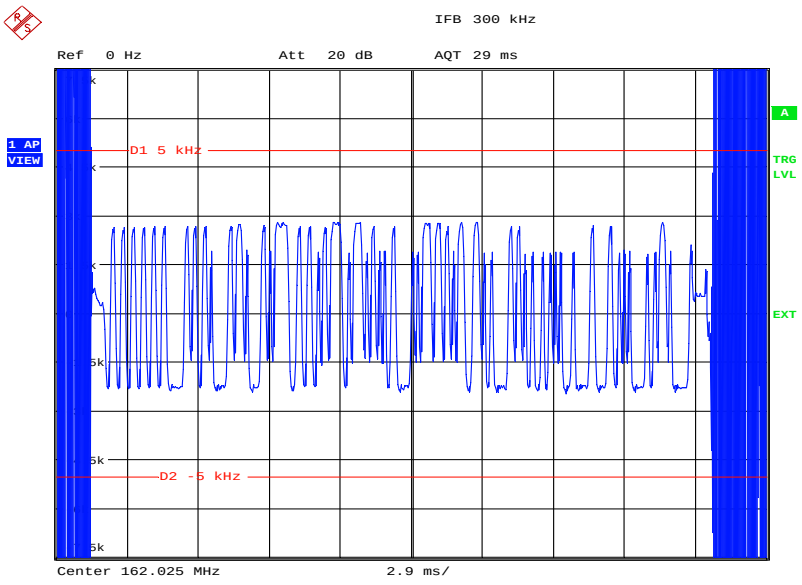

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Limit Clause 80.213 (a)(2)

When phase or frequency modulation is used in the 156–162 MHz band the peak modulation must be maintained between 75 and 100 percent. A frequency deviation of ±5 kHz is defined as 100 percent peak modulation.

2.6 TRANSMITTER POWER

2.6.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.215
Industry Canada RSS-182, Clause 5.2 and 7.5

2.6.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.6.3 Date of Test

14 November 2012

2.6.4 Test Equipment Used

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

2.6.5 Test Procedure

The EUT was connected to a spectrum analyser via a cable and a 30 dB attenuator. The EUT was set to transmit at maximum power with a modulated and un-modulated carrier. A resolution bandwidth of 1 MHz and a video bandwidth of 10 MHz were used using an RMS detector and average trace. The results are shown in the table on the following page.

2.6.6 Environmental Conditions

Ambient Temperature	24.4°C
Relative Humidity	35.1%

Product Service

2.6.7 Test Results

161.975 MHz

Result (dBm)	Result (W)
40.51	11.246

162.025 MHz

Result (dBm)	Result (W)
40.90	12.303

Limit Clause 80.215 (e)(1)

25W

2.7 TRANSMITTER CARRIER POWER REDUCTION

2.7.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.215 (e)(g)(1)(2)(3)
Industry Canada RSS-182, Clause 7.5

2.7.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.7.3 Date of Test

14 November 2012

2.7.4 Test Equipment Used

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

2.7.5 Test Procedure

The maximum measured erp was compared with the limit in Clause 80.215(e)(1) to ensure that the measured power was less than 10W.

2.7.6 Environmental Conditions

Ambient Temperature	24.5°C
Relative Humidity	35.0%

2.7.7 Test Results

Carrier power: 29.97 dBm / 0.993 W

Limit Clause 80.215 (e)(1) (g)(1)

156.000 MHz to 162.000 MHz	≤10W

All transmitters and remote control units must be capable of reducing the carrier power to one watt or less.

2.8 SUPPRESSION OF INTERFACE ABOARD SHIPS

2.8.1 Specification Reference

FCC CFR 47 Part 80, Clause 80.217 (b)

2.8.2 Equipment Under Test and Modification State

A to N S/N: P216FTU034 - Modification State 0

2.8.3 Date of Test

19 November 2012

2.8.4 Test Equipment Used

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

2.8.5 Test Procedure

The EUT was connected to a spectrum analyser via a 10 dB attenuator. The spectrum was measured between 9 kHz to 2 GHz. A resolution bandwidth of 100 kHz was used below 1 GHz and 1 MHz was used above 1 GHz. The traces were recorded as shown on the following pages.

2.8.6 Environmental Conditions

Ambient Temperature	24.9°C
Relative Humidity	33.5%

Product Service

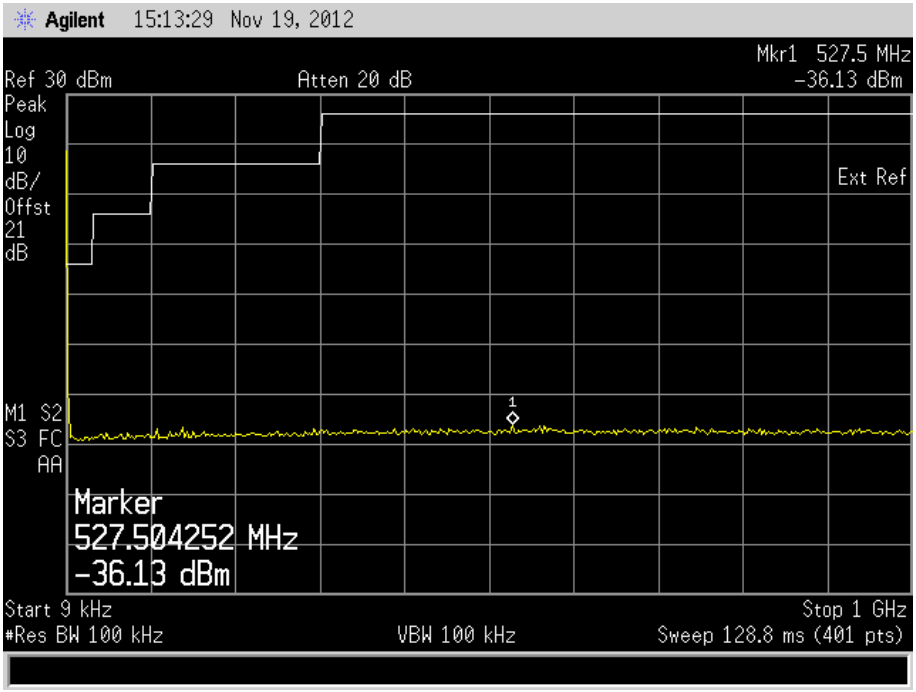
2.8.7 Test Results

Conducted

161.975 MHz

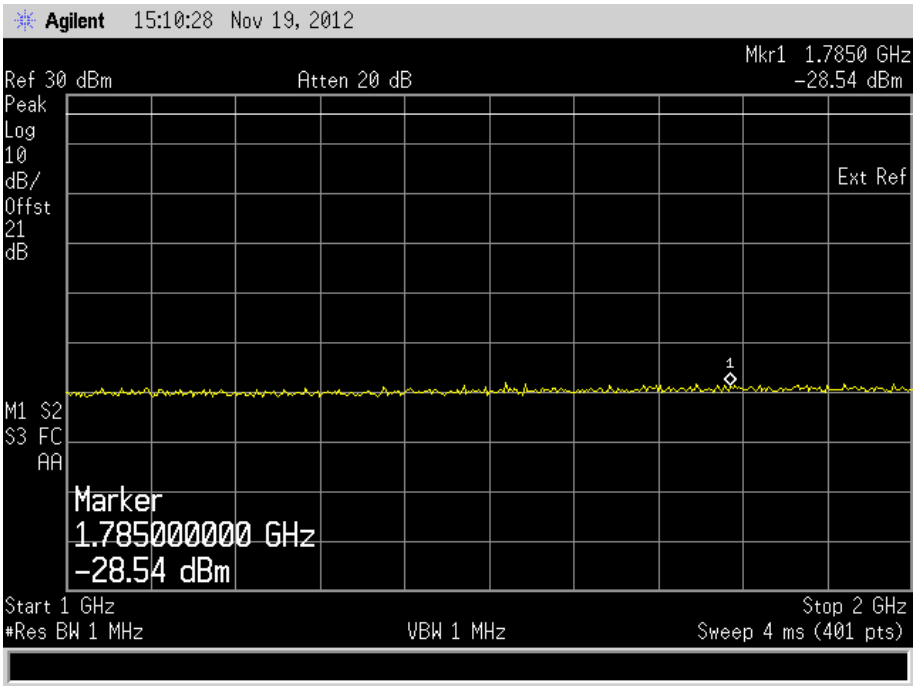
Frequency of Interfering Emissions (MHz)	Power to Artificial Antenna (µW)	Power to Artificial Antenna (dBm)
9 kHz to 30 MHz	1.406	-28.52
30 MHz to 100 MHz	0.121	-39.16
100 MHz to 300 MHz	1.683	-27.74
300 MHz to 1000 MHz	0.244	-36.13
300 MHz to 2000 MHz	1.400	-28.54

30 MHz to 1 GHz



Product Service

1 GHz to 2 GHz



Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

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 - Bandwidths					
Signal Generator	Rohde & Schwarz	SMG	42	12	12-Sep-2013
Signal Generator	Rohde & Schwarz	SMX	115	12	5-Jul-2013
Multimeter	Fluke	75 Mk3	455	12	16-Jan-2013
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	2891	12	21-May-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	9-May-2013
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	12-Jan-2013
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3701	12	12-Jan-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Section 2.2 – Transmitter Frequency Tolerance					
DC Power Supply	Hewlett Packard	6269B	326	-	TU
Digital Temperature Indicator + T/C	Fluke	51	412	12	6-Jan-2013
Temperature Chamber	Montford	2F3	467	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Section 2.3 – Emission Limitations					
DC Power Supply	Hewlett Packard	6269B	326	-	TU
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Screened Room (5)	Rainford	Rainford	1545	36	25-Dec-2013
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
High Pass Filter	Mini-Circuits	NHP-300	1640	12	15-Aug-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Attenuator (20dB, 150W)	Narda	769-20	3367	12	28-May-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	11-Oct-2013
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU

Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.4 - Modulation Requirements					
Signal Generator	Rohde & Schwarz	SMG	42	12	12-Sep-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Power Divider	Weinschel	1506A	3345	12	8-May-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Section 2.5 – Transmitter Frequency Deviation					
Signal Generator	Rohde & Schwarz	SMG	42	12	12-Sep-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Power Divider	Weinschel	1506A	3345	12	8-May-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Section 2.6 and 2.7 – Transmitter Power and Transmitter Carrier Power Reduction					
Signal Generator	Rohde & Schwarz	SMG	42	12	12-Sep-2013
Signal Generator	Rohde & Schwarz	SMX	115	12	5-Jul-2013
Climatic Chamber	Votsch	VT4002	161	-	O/P Mon
DC Power Supply	Hewlett Packard	6269B	326	-	TU
Multimeter	Fluke	75 Mk3	455	12	16-Jan-2013
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	2891	12	21-May-2013
Attenuator (10dB, 50W)	Aeroflex / Weinschel	47-10-34	3166	12	27-Jun-2013
Thermocouple Thermometer	Fluke	51	3172	12	30-Jul-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Attenuator (30dB, 150W)	Narda	769-30	3369	12	28-May-2013
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	9-May-2013
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	31-Aug-2013
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	12-Jan-2013
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3701	12	12-Jan-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Section 2.8 - Suppression of Interference Aboard Ships					
DC Power Supply	Hewlett Packard	6269B	326	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	19-Jan-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	14-Jun-2013
Attenuator (20dB, 150W)	Narda	769-20	3367	12	28-May-2013
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	31-Aug-2013

TU – Traceability Unscheduled
O/P MON – Output Monitored with Calibrated Equipment

Product Service

3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Modulation Requirements	-
Transmitter Frequency Deviation	-
Bandwidths	± 58.05 Hz
Transmitter Power	± 0.70 dB
Transmitter Frequency Tolerances	± 11 Hz
Emission Limitations	Radiated: ± 3.08 dB Conducted: ± 3.454 dB
Suppression of Interface Aboard Ships	-
Transmitter Carrier Power Reduction	-

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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).