Excellence in Compliance Testing

Certification Test Report

FCC ID: P2SNTR900GDL
IC: 4171B-NTR900GDL

FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210

ACS Report Number: 10-0053.W06.12.A

Manufacturer: Neptune Technology Group, Inc.
Model: R900GDL

Test Begin Date: March 4, 2010
Test End Date: March 5, 2010

Report Issue Date: July 6, 2010

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Reviewed by: _____

Kirby Munroe
Director, Wireless Certifications
ACS, Inc.

This report contains 19 pages

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Industry Canada's Radio Standards Specification RSS-210 for single modular approval.

1.2 Product description

The R900GDL is a one-way RF module that operates in the unlicensed 902-928MHz bandwidth. The data is transmitted via a high power signal to an enhanced data collection device, boosting range and meter reading success rates, while reducing meter reading time.

The R900GDL will attach to new or existing meters, and encodes consumption and tamper information from the meter to a handheld, mobile, or a targeted fixed network reading device.

Manufacturer Information:
Neptune Technology Group, Inc.
1600 Alabama Highway 229
Tallassee, AL 36078

Test Sample Serial Number(s): 2000200008, 2000200016, 2000200055

Test Sample Condition: The test samples were provided in good working order with no visible defects.

1.3 Test Methodology and Considerations

The device uses two modes of operations, a frequency hopping mode and a low power single channel data log mode. The frequency hopping mode is compliant to FCC 15.247 and is covered under this test report. A separate report covers the low power signal channel data log mode under 15.249.

For radiated emissions, the module was position in a single orientation representing the final installation in all host devices.

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions
5015 B.U. Bowman Drive
Buford, GA 30518
Phone: (770) 831-8048
Fax: (770) 831-8598

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 200612-0. Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

The Semi-Anechoic Chamber Test Site, Open Area Test Site (OATS) and Conducted Emissions Site have been fully described, submitted to, and accepted by the FCC, Industry Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

FCC Registration Number: 894540
Industry Canada Lab Code: IC 4175A-1
VCCI Member Number: 1831

- VCCI OATS Registration Number R-1526
- VCCI Conducted Emissions Site Registration Number: C-1608

2.3 Radiated Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The Semi-Anechoic Chamber Test Site consists of a 20' x 30' x 18' shielded enclosure. The chamber is lined with Toyo Ferrite Grid Absorber, model number FFG-1000. The ferrite tile grid is 101 x 101 x 19mm thick and weighs approximately 550 grams. These tiles are mounted on steel panels and installed directly on the inner walls of the chamber.

The turntable is 150cm in diameter and is located 160cm from the back wall of the chamber. The chamber is grounded via 1 - 8' copper ground rod, installed at the center of the back wall, it is bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is all steel, flush mounted table installed in an all steel frame. The table is remotely operated from inside the control room located 25' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Behind the turntable is a 3' x 6' x 4' deep shielded pit used for support equipment if necessary. The pit is equipped with 1 - 4" PVC chases from the turntable to the pit that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3-1 below:

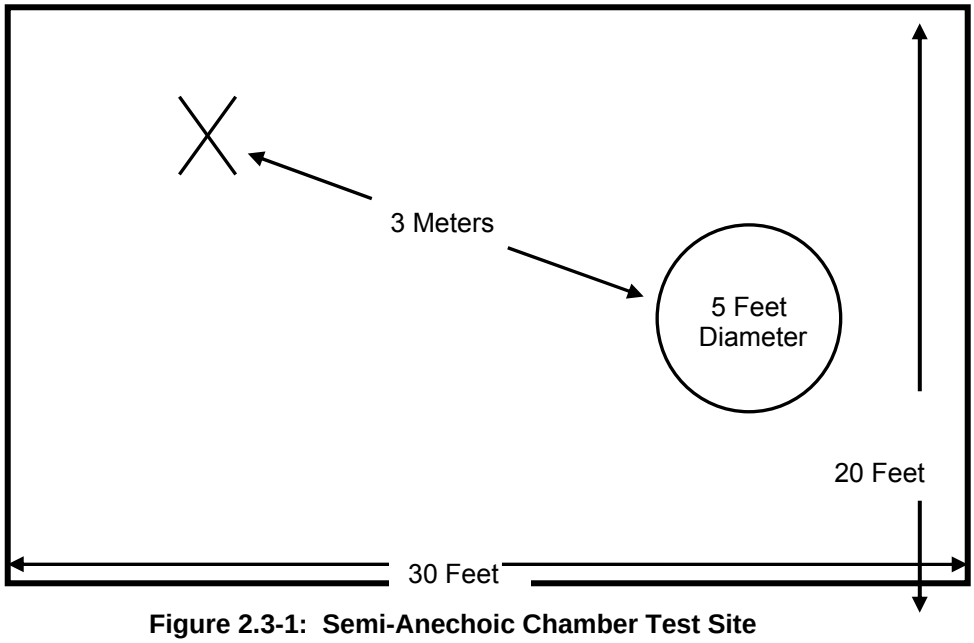


Figure 2.3-1: Semi-Anechoic Chamber Test Site

2.3.2 Open Area Tests Site (OATS)

The open area test site consists of a 40' x 66' concrete pad covered with a perforated electro-plated galvanized sheet metal. The perforations in the sheet metal are 1/8" holes that are staggered every 3/16". The individual sheets are placed to overlap each other by 1/4" and are riveted together to provide a continuous seam. Rivets are spaced every 3" in a 3 x 20 meter perimeter around the antenna mast and EUT area. Rivets in the remaining area are spaced as necessary to properly secure the ground plane and maintain the electrical continuity.

The entire ground plane extends 12' beyond the turntable edge and 16' beyond the antenna mast when set to a 10 meter measurement distance. The ground plane is grounded via 4 - 8' copper ground rods, each installed at a corner of the ground plane and bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is an all aluminum 10' flush mounted table installed in an all aluminum frame. The table is remotely operated from inside the control room located 40' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Adjacent to the turntable is a 7' x 7' square and 4' deep concrete pit used for support equipment if necessary. The pit is equipped with 5 - 4" PVC chases from the pit to the control room that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit. The pit is covered with 2 sheets of 1/4" diamond style re-enforced steel sheets. The sheets are painted to match the perforated steel ground plane; however the underside edges have been masked off to maintain the electrical continuity of the ground plane. All reflecting objects are located outside of the ellipse defined in ANSI C63.4.

A diagram of the Open Area Test Site is shown in Figure 2.3-2 below:

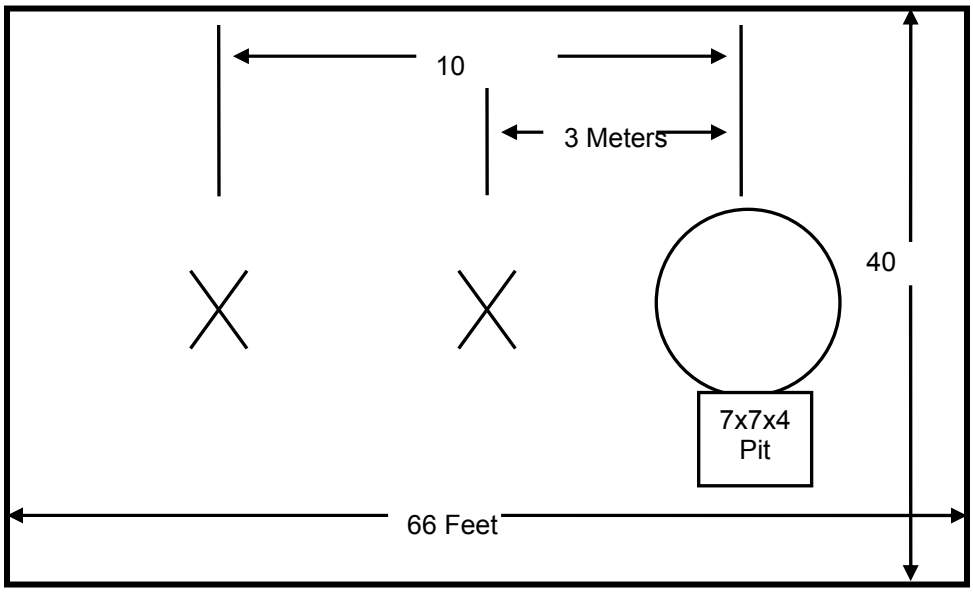


Figure 2.3-2: Open Area Test Site

2.4 Conducted Emissions Test Site Description

The AC mains conducted EMI site is located in the main EMC lab. It consists of an 8' x 8' solid aluminum horizontal group reference plane (GRP) bonded every 3" to an 8' X 8' vertical ground plane.

The site is of sufficient size to test table top and floor standing equipment in accordance with section 6.1.4 of ANSI C63.4.

A diagram of the room is shown below in figure 4.1.3-1:

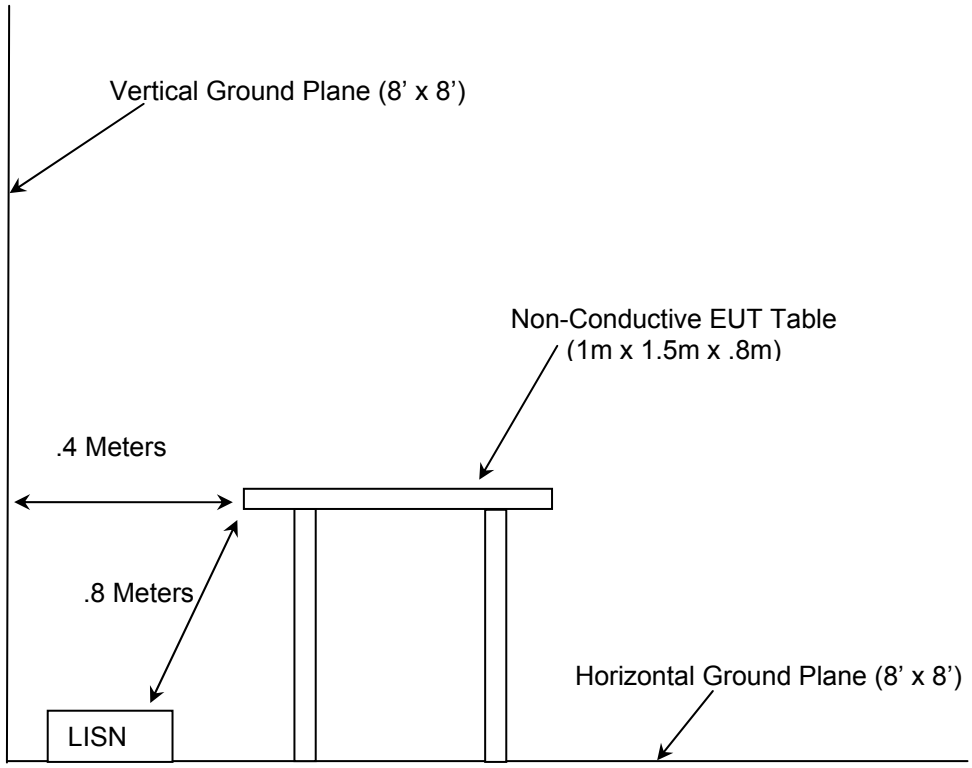


Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2003: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2010
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2010
- FCC Public Notice DA 00-705 - Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems, March 30, 2000
- Industry Canada Radio Standards Specification: RSS-210 - Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, Issue 7 June 2007

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

Equipment Calibration Information					
ACS#	**Mfg.**	**Eq. type**	**Model**	**S/N**	**Cal. Due**
1	Rohde & Schwarz	Spectrum Analyzers	ESMI - Display	833771/007	09-21-2010
2	Rohde & Schwarz	Spectrum Analyzers	ESMI - Receiver	839587/003	09-21-2010
22	Agilent	Amplifiers	8449B	3008A00526	09-21-2010
25	Chase	Antennas	CBL6111	1043	09-02-2010
30	Spectrum Technologies	Antennas	DRH-0118	970102	05-08-2010
40	EMCO	Antennas	3104	3211	01-27-2011
73	Agilent	Amplifiers	8447D	2727A05624	07-15-2010
167	ACS	Cable Set	Chamber EMI Cable Set	167	01-25-2011 (See Note1)
193	ACS	Cable Set	OATS cable Set	193	01-05-2011 (See Note1)
211	Eagle	Filters	C7RFM3NFNM	HLC-700	12-21-2010 (See Note1)
213	TEC	Amplifiers	PA 102	44927	12-21-2010
277	Emco	Antennas	93146	9904-5199	09-18-2010
283	Rohde & Schwarz	Spectrum Analyzers	FSP40	1000033	09-21-2010
291	Florida RF Cables	Cables	SMRE-200W-12.0-SMRE	None	11-24-2010 (See Note1)
292	Florida RF Cables	Cables	SMR-290AW-480.0-SMR	None	11-24-2010 (See Note1)
337	Microwave Circuits	Filters	H1G513G1	282706	07-17-2010 (See Note1)
329	A.H.Systems	Antennas	SAS-571	721	08-04-2010
343	Florida RF Cables	Cables	SMRE-200W-12.0-SMRE	N/A	05-04-2010 (See Note1)
422	Florida RF	Cables	SMS-200AW-72.0-SMR	805	01-26-2011 (See Note1)
430	RF Cables	Cables	SMS-290AW-480-SMS	N/A	05-04-2010 (See Note1)

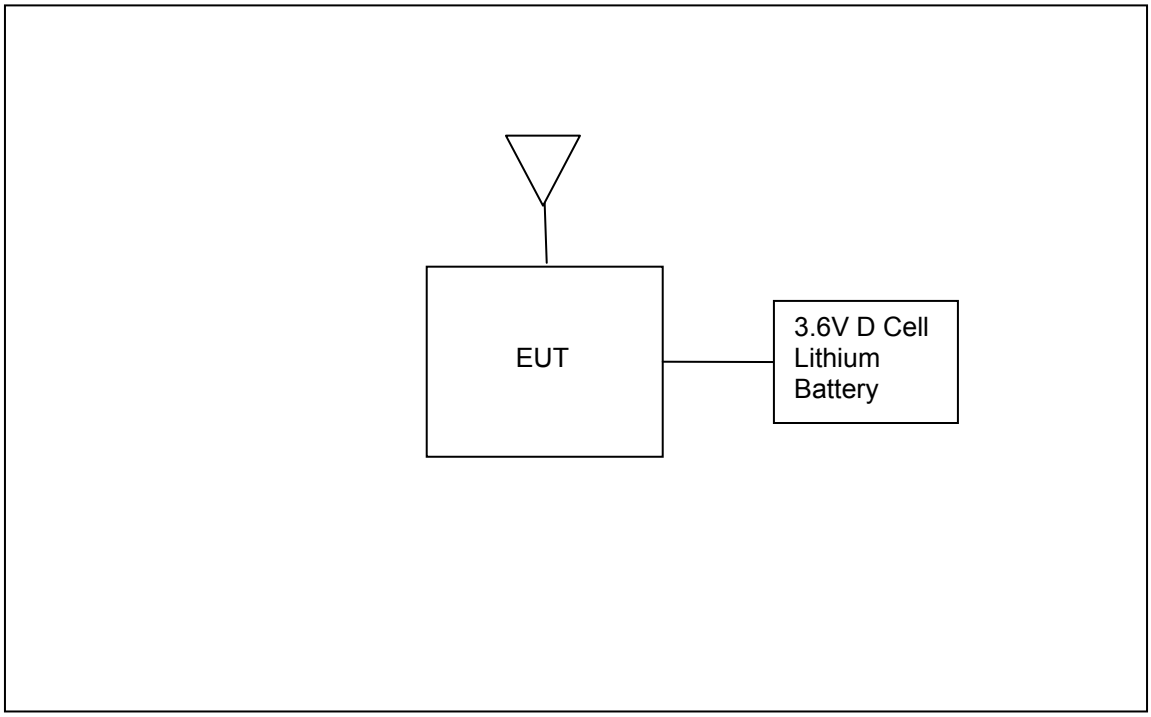
Note1: Items characterized on an annual cycle. The date shown indicates the next characterization due date.
Note2: Items verified on an annual cycle. The date shown indicates the next verification due date.

5 SUPPORT EQUIPMENT

Table 5-1: Support Equipment

Item	Equipment Type	Manufacturer	Model Number	Serial Number
The module was tested stand-alone and did not require any support equipment for testing.				

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM



7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC: Section 15.203

The R900GDL utilizes a PCB mounted Helix antenna with 0 dBi gain.

7.2 Power Line Conducted Emissions – FCC: Section 15.207 IC: RSS-Gen 7.2.2

7.2.1 Measurement Procedure

The EUT is battery operated only and therefore AC power line conducted emissions where not performed.

7.3 Radiated Emissions – FCC: Section 15.109 (Unintentional Radiation) IC: RSS-210 2.6

7.3.1 Measurement Procedure

Radiated emissions tests were performed over the frequency range of 30MHz to 5GHz. Measurements of the radiated field strength were made at a distance of 3m from the boundary of the equipment under test (EUT) and the receiving antenna. The antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. Radiated measurements above 30MHz and below 1GHz were made with the Spectrum Analyzer's resolution bandwidth set to 120 KHz using a Quasi-peak detector. Above 1GHz, peak and average measurements are taken with the RBW and VBW were set to 1MHz and 3MHz respectively.

7.3.2 Measurement Results

Results of the test are given in Table 7.3.2-1 below:

Table 7.3.2-1: Radiated Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
30	---------	18.13	V	-6.70	---------	11.43	--------	40.0	---------	28.60
79.58	---------	18.54	V	-17.88	---------	0.66	--------	40.0	---------	39.30
96.82	---------	17.85	V	-15.07	---------	2.78	--------	43.5	---------	40.70
486.98	---------	20.49	H	-6.01	---------	14.48	--------	46.0	---------	31.50
692.83	---------	20.16	V	-2.09	---------	18.07	--------	46.0	---------	27.90
959.04	---------	20.44	V	3.33	---------	23.77	--------	46.0	---------	22.20

* Note: All emissions above 959.04 MHz were attenuated below the permissible limit.

7.4 Peak Output Power - FCC Section 15.247(b)(2) IC: RSS-210 A8.4(1)

7.4.1 Measurement Procedure (Radiated Method)

Antenna conducted measurements could not be performed on this device, therefore radiated tests were performed to show compliance with the peak output power limit according to the alternative test methods in the FCC publication DA 00-705.

The procedures set forth in ANSI C63.4 were followed with respect to maximizing the peak emission. The resolution bandwidth of the spectrum analyzer was set to 1 MHz which was greater the 20 dB bandwidth measured in section 7.5.4. The video bandwidth was set to 3 MHz and a peak detector using the Max Hold function was utilized.

The power was calculated using the following equation:

$$P = (E * d)^2 \Big/ 30 * G$$

Where: G = Numeric Gain of the transmitting antenna with reference to an isotropic radiator
d = The distance in meters from which the field strength was measured
E = The measured maximum fundamental field strength in V/m

7.4.2 Measurement Results

Results are shown below in Tables 7.4.2-1 to 7.4.2-2.

Table 7.4.2-1: Fundamental Field Strength

Frequency (MHz)	Uncorrected Level (dBuV)	Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)
911.0815	110.14	H	1.63	111.77
919.0769	113.53	H	1.87	115.40

Table 7.4.2-2: Peak Output Power

Frequency (MHz)	Measurement Distance (m)	Antenna Gain (dBi)	Field Strength (V/m)	Antenna Gain (Num)	Power (mW)	Power (dBm)
911.0815	3	0	0.39	1.00	45.12	16.54
919.0769	3	0	0.59	1.00	104.08	20.17

7.5 Channel Usage Requirements

7.5.1 Carrier Frequency Separation – FCC: Section 15.247(a)(1) IC: RSS-210 A8.1(b)

7.5.1.1 Measurement Procedure

The span of the spectrum analyzer was set wide enough to capture two adjacent peaks and the RBW and VBW were set to ≥ 1% of the span.

7.5.1.2 Measurement Results

The adjacent channel separation was measured to be 130.8 kHz. Results are shown below in Figure 7.5.1.2-1.

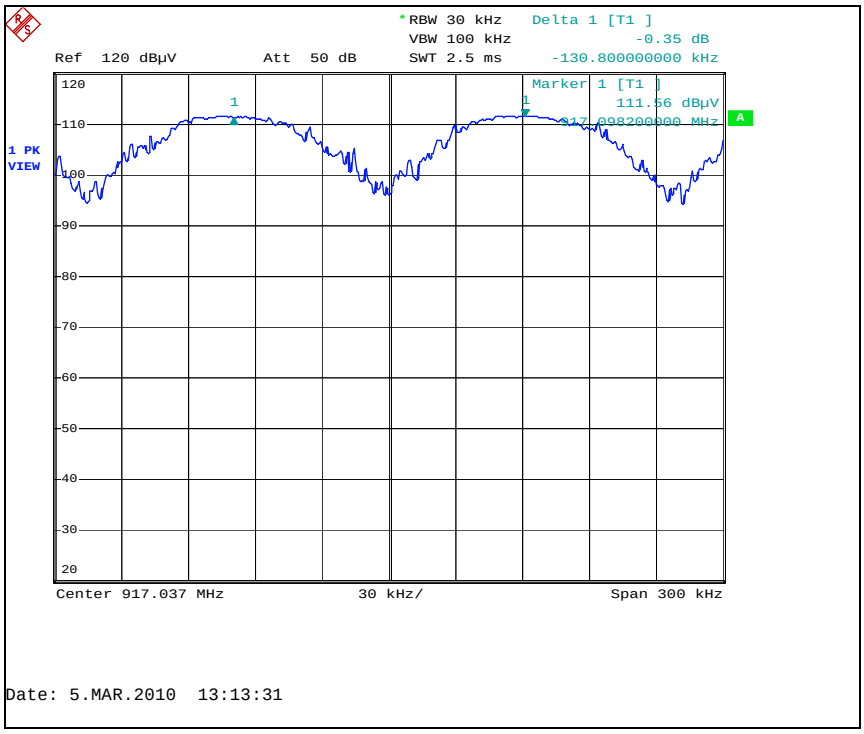


Figure 7.5.1.2-1: Carrier Frequency Separation

7.5.2 Number of Hopping Channels – FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

The 20dB bandwidth of the device is less than 250 kHz. The device employs > 50 hopping channels as required. Results are shown below in Figures 7.5.2-1 to 7.5.2-3.

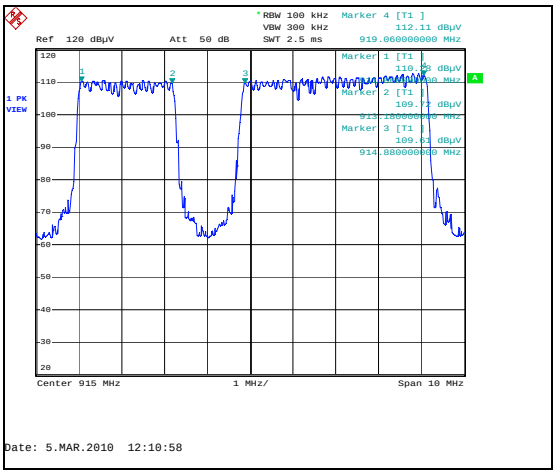


Figure 7.5.2-1: Hopping Channels (Total)

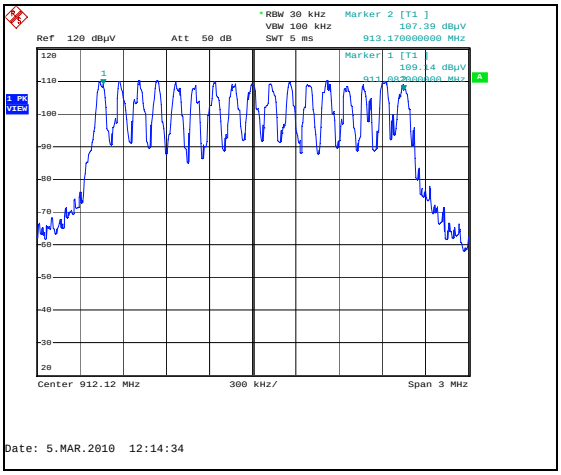


Figure 7.5.2-2: Hopping Channels (Lower Section)

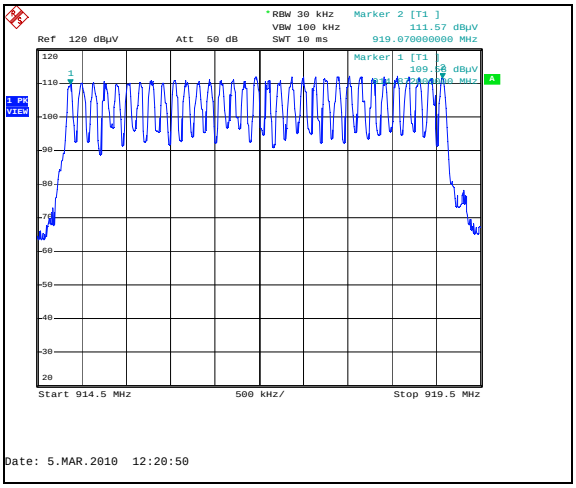


Figure 7.5.2-3: Number of Hopping Channels (Upper Section)

7.5.3 Channel Dwell Time – FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

7.5.3.1 Measurement Procedure

The hopping channel is centered on the analyzer and the span set to 0 Hz. The RBW was set to 100 kHz and the VBW to 300 kHz. Sweep time was set to 20 ms to capture the burst duration of the emission. The marker–delta function of the analyzer was employed to measure the burst duration.

The duration of the RF transmission is 7.08 ms. There is a minimum 10 second rest period in which the device hops to another channel according to the pseudorandom frequency table before transmitting another 7.08 ms burst. Therefore the average time of occupancy on any channel in a 20 second period is 7.08ms. A single transmission is shown in figure 7.5.3.2-1 to 7.5.3.2-2 below:

7.5.3.2 Measurement Results

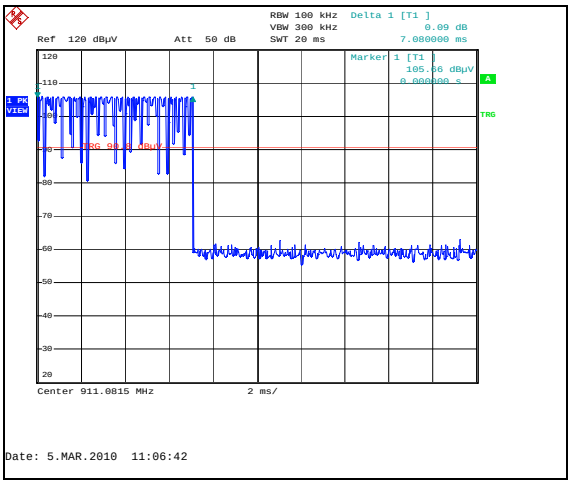


Figure 7.5.3.2-1: Channel Dwell Time

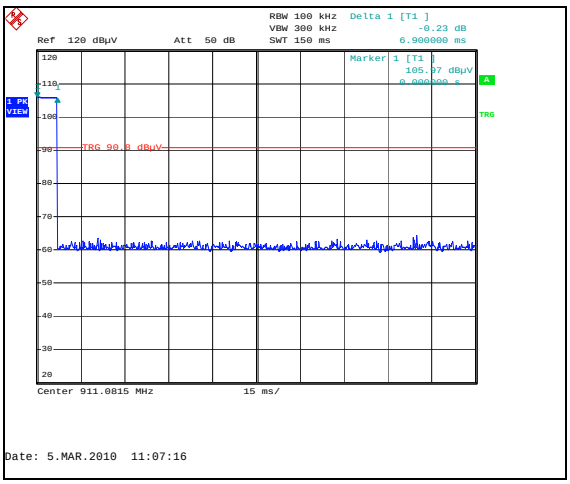


Figure 7.5.3.2-2: Channel Dwell Time (100ms)

7.5.4 20dB / 99% Bandwidth - FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

7.5.4.1 Measurement Procedure

The spectrum analyzer span was set to 2 to 3 times the estimated bandwidth of the emission. The RBW was to ≥ 1% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The Delta function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission and approximately 20dB below the peak level. The RBW was to 1% to 3% of the approximate emission width. The trace was set to max hold with a peak detector active. The occupied bandwidth measurement function of the analyzer was used for the 99% bandwidth.

7.5.4.2 Measurement Results

Results are shown below in Table 7.5.4.2-1 and Figures 7.5.4.2-1 through 7.5.4.2-4.

Table 7.5.4.2-1: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
911.0815	70.8	81.0
919.0769	71.2	82.5

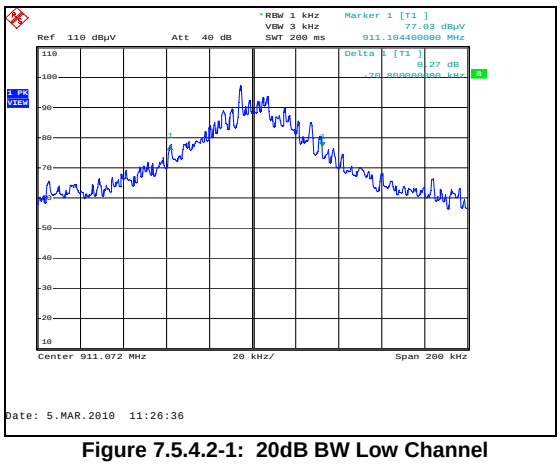


Figure 7.5.4.2-1: 20dB BW Low Channel

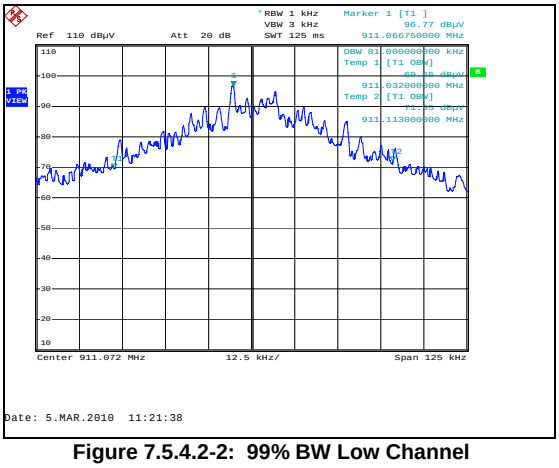


Figure 7.5.4.2-2: 99% BW Low Channel

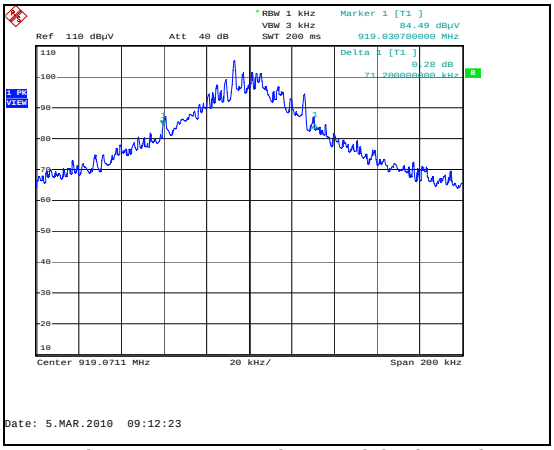


Figure 7.5.4.2-3: 20dB BW High Channel

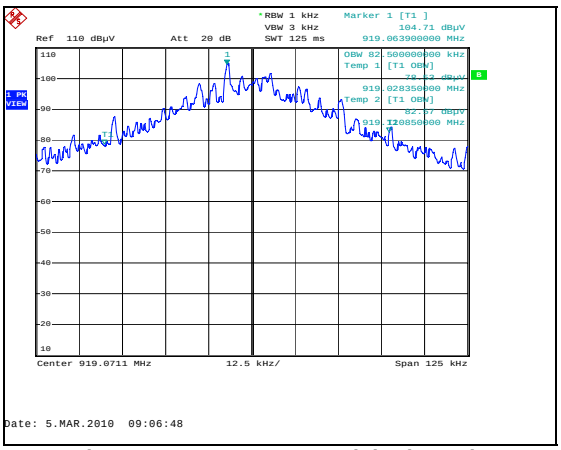


Figure 7.5.4.2-4: 99% BW High Channel

7.6 Band-Edge Compliance and Spurious Emissions-FCC 15.247d IC:RSS-210 2.6, A8.5

7.6.1 Band-Edge Compliance of RF Conducted Emissions

7.6.1.1 Measurement Procedure

The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. For each measurement the spectrum analyzer's RBW was set to 100 kHz, which is ≥ 1% of the span, and the VBW was set to 300kHz.

7.6.1.2 Measurement Results

Results are shown in the figures 7.6.1.2-1 to 7.6.1.4 below.

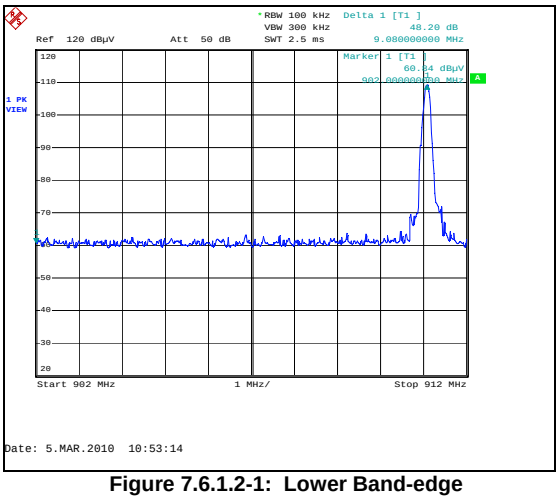


Figure 7.6.1.2-1: Lower Band-edge

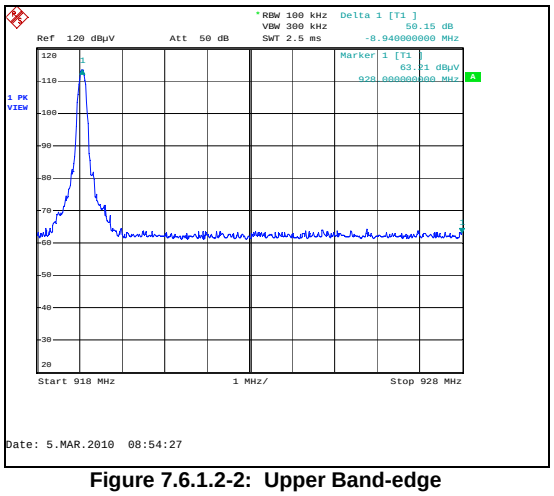


Figure 7.6.1.2-2: Upper Band-edge

HOPPING MODE:

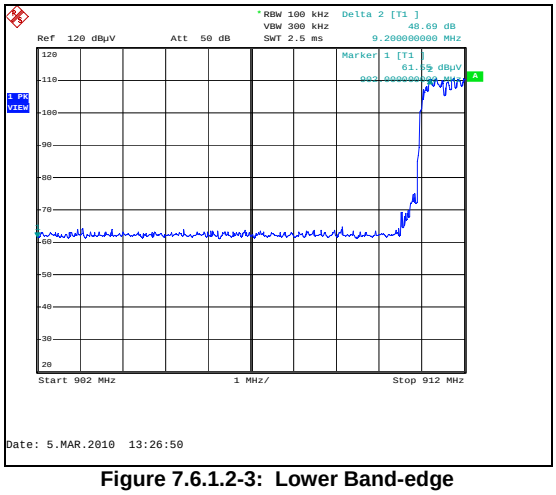


Figure 7.6.1.2-3: Lower Band-edge

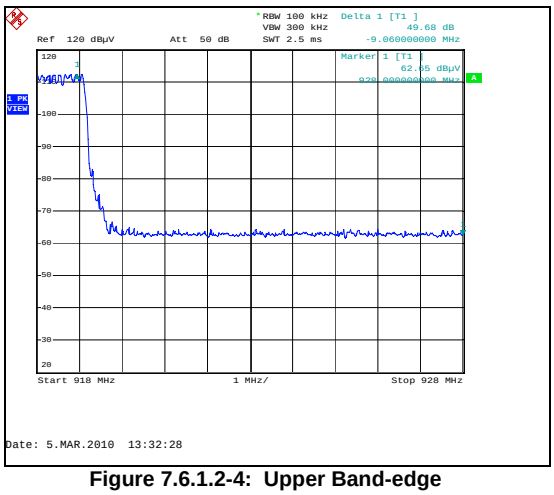


Figure 7.6.1.2-4: Upper Band-edge

7.6.2 RF Conducted Spurious Emissions

7.6.2.1 Measurement Procedure

Antenna conducted measurements could not be performed on this device, therefore radiated tests were performed to show compliance with the spurious RF conducted limit according to FCC publication DA 00-705.

For each measurement, the spectrum analyzer's RBW was set to 100 kHz and the VBW was set to 300 kHz. The peak detector and Max Hold function of the analyzer were utilized. The field strength of both the fundamental emission and all spurious emissions outside of the restricted bands were measured with these settings. Procedures in ANSI C63.4 with respect to maximizing the emissions were followed.

7.6.2.2 Measurement Results

The magnitudes of all emissions are reported in section 7.6.3 with the appropriate limit as referenced to 20 dB below the fundamental frequency field strength.

7.6.3 Radiated Spurious Emissions - FCC Section 15.247(d) IC: RSS-210 2.6

7.6.3.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 30MHz to 10GHz, 10 times the highest fundamental frequency.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000MHz, peak and average measurements made with RBW and VBW of 1 MHz and 3MHz respectively.

For those frequencies that fell outside the restricted bands, the alternative test methods in the FCC publication DA 00-705 was followed using a RBW of 100kHz and VBW of 300kHz and peak detector as described in section 7.6.2.

7.6.3.2 Duty Cycle Correction

For average radiated measurements in restricted bands, the measured level was reduced by a factor 23dB to account for the duty cycle of the EUT. The EUT transmits for 7.08mS on a channel followed by a minimum 10 second rest period before hopping to the next channel. Therefore the duty cycle is 7%. The duty cycle correction factor is determined using the formula: 20log (7.08/100) = -23dB. See Section 7.5.3 for details.

7.6.3.3 Measurement Results

Radiated spurious emissions found in the band of 30MHz to 10GHz are reported in the Table 7.6.3.3-1 below.

Table 7.6.3.3-1: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel										
911.0815	109.91	---------	H	1.63	111.54	---------	--------	--------	---------	---------
911.0815	106.03	---------	V	1.63	107.66	---------	--------	--------	---------	---------
1822.16	69.18	---------	H	-1.91	67.27	---------	91.5	---------	24.20	---------
1822.16	66.03	---------	V	-1.91	64.12	---------	91.5	---------	27.40	---------
2733.24	58.34	58.34	H	1.15	59.49	36.49	74.0	54.0	14.50	17.50
2733.24	55.68	55.68	V	1.15	56.83	33.83	74.0	54.0	17.20	20.20
3644.33	61.00	61.00	H	3.32	64.32	41.32	74.0	54.0	9.70	12.70
3644.33	53.79	53.79	V	3.32	57.11	34.11	74.0	54.0	16.90	19.90
4555.41	55.69	55.69	H	5.64	61.33	38.33	74.0	54.0	12.70	15.70
4555.41	52.55	52.55	V	5.64	58.19	35.19	74.0	54.0	15.80	18.80
5466.49	48.15	48.15	H	7.49	55.64	---------	91.5	---------	35.90	---------
5466.49	44.41	44.41	V	7.49	51.90	---------	91.5	---------	39.60	---------
6377.57	53.06	53.06	H	9.15	62.21	---------	91.5	---------	29.30	---------
6377.57	54.07	54.07	V	9.15	63.22	---------	91.5	---------	28.30	---------
7288.65	50.76	50.76	H	10.70	61.46	38.46	74.0	54.0	12.50	15.50
7288.65	50.04	50.04	V	10.70	60.74	37.74	74.0	54.0	13.30	16.30
8199.73	55.97	55.97	H	11.55	67.52	44.52	74.0	54.0	6.50	9.50
8199.73	61.55	61.55	V	11.55	73.10	50.10	74.0	54.0	0.90	3.90
9110.82	---------	---------	H	12.19	---------	---------	74.0	54.0	---------	---------
9110.82	---------	---------	V	12.19	---------	---------	74.0	54.0	---------	---------
High Channel										
919.0769	113.22	---------	H	1.87	115.09	---------	--------	--------	---------	---------
919.0769	107.32	---------	V	1.87	109.19	---------	--------	--------	---------	---------
1838.15	67.86	67.86	H	-1.76	66.10	---------	95.1	---------	29.00	---------
1838.15	67.11	67.11	V	-1.76	65.35	---------	95.1	---------	29.80	---------
2757.23	58.29	58.29	H	1.17	59.46	36.46	74.0	54.0	14.50	17.50
2757.23	55.00	55.00	V	1.17	56.17	33.17	74.0	54.0	17.80	20.80
3676.31	59.39	59.39	H	3.45	62.84	39.84	74.0	54.0	11.20	14.20
3676.31	51.42	51.42	V	3.45	54.87	31.87	74.0	54.0	19.10	22.10
4595.38	59.02	59.02	H	5.72	64.74	41.74	74.0	54.0	9.30	12.30
4595.38	52.63	52.63	V	5.72	58.35	35.35	74.0	54.0	15.70	18.70
5514.46	48.79	48.79	H	7.58	56.37	---------	95.1	---------	38.70	---------
5514.46	43.53	43.53	V	7.58	51.11	---------	95.1	---------	44.00	---------
6433.54	57.41	57.41	H	9.28	66.69	---------	95.1	---------	28.40	---------
6433.54	57.83	57.83	V	9.28	67.11	---------	95.1	---------	28.00	---------
7352.62	52.34	52.34	H	10.67	63.01	40.01	74.0	54.0	11.00	14.00
7352.62	49.77	49.77	V	10.67	60.44	37.44	74.0	54.0	13.60	16.60
8271.69	54.50	54.50	H	11.62	66.12	43.12	74.0	54.0	7.90	10.90
8271.69	60.82	60.82	V	11.62	72.44	49.44	74.0	54.0	1.60	4.60
9190.77	---------	---------	H	12.33	---------	---------	74.0	54.0	---------	---------
9190.77	---------	---------	V	12.33	---------	---------	74.0	54.0	---------	---------

7.6.3.4 Sample Calculation:

$R_C = R_U + CF_T$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak
Corrected Level: 58.34 + 1.15 = 59.49dBuV/m
Margin: 74dBuV/m – 59.49dBuV/m = 14.50dB

Example Calculation: Average
Corrected Level: 58.34 + 1.15 – 23 = 36.39dBuV
Margin: 54dBuV – 36.49dBuV = 17.50dB

8 CONCLUSION

In the opinion of ACS, Inc. the R900GDL, manufactured by Neptune Technology Group, Inc. meets the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-210.

END REPORT