FCC PART 15 SUBPART C
IC RSS-210, ISSUE 8, DEC 2010

TEST AND MEASUREMENT REPORT

For

Fortinet, Inc.

1090 Kifer Road,

Sunnyvale, CA 94086, USA

FCC ID: TVE-0600101
IC: 7280B-0600101

Report Type:	**Product Type:**
CIIPC Report	802.11 a/b/g/n Module

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1207033-247	CIIPC Report	2012-07-05

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *Fortinet, Inc.* and their product, *model: WPEA-111N/W, FCC ID: TVE-0600101, IC: 7280B-0600101* or the "EUT" as referred to this report. The EUT is an 802.11a/b/g/n Wi-Fi module.

1.2 Mechanical Description of EUT

The EUT measures approximately 30 mm **(L)** x 30 mm **(W)** x 3 mm **(H)** and weighs approximately 3.5 g.

The data gathered are from a typical production sample provided by the manufacturer with serial 10535K1001055

1.3 Objective

This report is prepared on behalf of *Fortinet, Inc.* in accordance with Part 2, Subpart J, and Part 15, Subparts B and C of the Federal Communication Commissions rules and IC RSS-210 Issue 8, Dec 2010.

This class II permissive change report is based on the use of a higher gain antenna compare to the original grant. The new antenna has 5.7 dBi on 2.4 GHz and 5.8 GHz band, as the original grant has 6 dBi on 5.8 GHz band with the same type, therefore only 2.4 GHz band need to add this higher gain antenna information.

The objective is to determine compliance with FCC Part 15.247 and IC RSS-210 rules for Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

UNII submissions with FCC ID: TVE-0600101, IC: 7280B-0600101.

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR16-4-2:2003, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

1.7 Test Facility

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

The test site at BACL Corp. has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997, and Article 8 of the VCCI regulations on December 25, 1997. The test site also complies with the test methods and procedures set forth in CISPR 22:2008 §10.4 for measurements below 1 GHz and §10.6 for measurements above 1 GHz as well as ANSI C63.4-2003, ANSI C63.4-2009, TIA/EIA-603 & CISPR 24:2010.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and they are listed under FCC registration number: 90464 and VCCI Registration No.: A-0027. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL Corp. is an American Association for laboratory Accreditation (A2LA) accredited laboratory (Lab Code 3297-02). The current scope of accreditations can be found at

http://www.a2la.org/scopepdf/3297-02.pdf?CFID=1132286&CFTOKEN=e42a3240dac3f6ba-6DE17DCB-1851-9E57-477422F667031258&jsessionid=8430d44f1f47cf2996124343c704b367816b

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2003.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

2.2 EUT Exercise Software

The software is provided by the customer. The EUT exercise program used during radiated testing was designed to exercise the system components.

The EUT had been tested with the following data rate settings (worst case):

Radio Mode	Bandwidth (MHz)	Frequency/Data rate		
		Low CH (MHz/Mbps)	Mid CH (MHz/Mbps)	High CH (MHz)
802.11b	20	2412/1	2437/1	2462/1
802.11g	20	2412/6	2437/6	2462/6
802.11n HT20	20	2412/MCS0	2437/ MCS0	2462/MCS0
802.11n HT40	40	2422/MCS0	2437/MCS0	2452/MCS0

2.3 Special Accessories

N/A.

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Local Support Equipment

Manufacturer	Description	Model No.	Serial No.
HP	Laptop	Tx2500	CNF83210D9
-	Express Card Adapter	-	-

2.6 Host Internal Configuration and Details

Manufacturers	Descriptions	Models	Serial Numbers
-	Supporting PCB	-	PE3B Ver. 1.2
Fortinet, Inc.	WLAN module	WPEA-111N/W	10535K1001055

3 Summary of Test Results

FCC & IC Rules	Description of Test	Results
FCC §15.247(i), §2.1091 IC RSS-102	RF Exposure	Compliant
FCC §15.203 IC RSS-Gen §7.1.2	Antenna Requirement	Compliant
FCC §15.207(a) IC RSS-Gen §7.2.4	Conducted Emissions	N/A[1]
FCC §15.247(d) IC RSS-210 §A8.5	Spurious Emissions at Antenna Port	N/A[1]
FCC §15.209, §15.247 IC RSS-210 §2.2	Radiated Spurious Emissions including Restricted Band	Compliant
FCC §15.247(a)(2) IC RSS-210 §A8.2	6 dB Bandwidth	N/A[1]
FCC §15.247(b)(3) IC RSS-210 §A8.4	Maximum Peak Output Power	N/A[1]
FCC §15.247(d) IC RSS-210 §A8.5	100 kHz Bandwidth of Frequency Band Edge	N/A[1]
FCC §15.247(e) IC RSS-210 §A8.2(b)	Power Spectral Density	N/A[1]
IC RSS-210 §2.3 & RSS-Gen §6	Receiver Spurious Emission	Compliant

Note: N/A[1], Please refer to original FCC ID: TVE-0600101 and IC: 7280B-0600101.

4 FCC §15.247 (i), §2.1091 & IC RSS-102 - RF Exposure

4.1 Applicable Standard

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* (100)	30
1.34-30	824/f	2.19/f	* ($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Before equipment certification is granted, the procedure of IC RSS-102 must be followed concerning the exposure of humans to RF fields.

According to IC RSS-102 Issue 2 section 4.1, RF limits used for general public will be applied to the EUT.

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Time Averaging (min)
0.003 - 1	280	2.19	-	6
1 - 10	280 / f	2.19 / f	-	6
10 - 30	28	2.19 / f	-	6
30 – 300	28	0.073	2*	6
300 – 1 500	$1.585\ f^{0.5}$	$0.0042\ f^{0.5}$	f / 150	6
1 500 – 15 000	61.4	0.163	10	6
15 000 – 150 000	61.4	0.163	10	$616000 / f^{1.2}$
150 000- 300 000	$0.158\ f^{0.5}$	$4.21 \times 10 - 4\ f^{0.5}$	$6.67 \times 10^{-5}\ f$	$616000 / f^{1.2}$

Note: *f* is frequency in MHz
* = Power density limit is applicable at frequencies greater than 100 MHz

4.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

4.3 MPE Results

2.4 GHz band:

Maximum peak output power at antenna input terminal (dBm):	29.58
Maximum peak output power at antenna input terminal (mW):	907.82
Prediction distance (cm):	20
Prediction frequency (MHz):	2437
Maximum Antenna Gain, typical (dBi):	5.7
Maximum Antenna Gain (numeric):	3.72
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.671
Power density of prediction frequency at 20.0 cm (W/m^2):	6.71
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0
MPE limit for uncontrolled exposure at prediction frequency (W/m^2):	10

The device meet FCC/IC MPE limits at 20 cm distance for uncontrolled exposure environment.

5 FCC §15.203 & IC RSS-Gen §7.1.2 – Antenna Description

5.1 Applicable Standard

According to FCC §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to FCC §15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to IC RSS-Gen §7.1.2: Transmitter Antenna, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

5.2 Antenna Connector Construction

The EUT has two antennas (P/N: AN2450-9210RS) for 802.11 a/b/g/n with 5.7 dBi max antenna gain. This is in accordance to sections FCC Part 15.203 and IC RSS-Gen §7.1.2, is considered sufficient to comply with the provisions of these sections. Please refer to the EUT photos. The EUT supports MIMO.

6 FCC §15.205, §15.209, §15.247(d) & IC RSS-210 §A8.5 - Spurious Radiated Emissions

6.1 Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As per FCC §15.209(a) and RSS-210: Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3 3458 – 3 358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

As per IC RSS-210 §A 8.5. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

6.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2003. The specification limits were in accordance with FCC 15 Subpart C and IC RSS-210.

External I/O cables were draped along the edge of the test table and bundle when necessary.

6.3 Test Procedure

For the radiated emissions test, the EUT host, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT placed on a turntable, 0.8 meter above ground plane. The turntable shall be rotated 360 degrees to determine the highest emission with the antenna in both horizontal and vertical polarizations.

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

6.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Corrected Amplitude - Limit

6.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100338	2011-09-14
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
Hewlett Packard	Pre-amplifier	8447D	2944A10187	2012-03-08
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Agilent	Spectrum Analyzer	E4440A	US42221851	2012-02-28
A.H. Systems	Horn antenna	SAS-200/571	261	2011-10-03
Mini-Circuits	Pre-amplifier	ZVA-183-S	570400946	2012-05-09

Statement of Traceability: BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

6.6 Test Environmental Conditions

Temperature:	20-23 °C
Relative Humidity:	40-42%
ATM Pressure:	101.1-101.3kPa

The testing was performed by Lionel Lara from 2012-07-02 to 2012-07-03 at 5 meter chamber 3.

6.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Title 47, Part 15C and IC RSS-210 standard's radiated emissions limits, and had a worst case margin of:

30-1000 MHz:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-11.68	131.4	Horizontal	High Channel, 2.4GHz b, 30-1000 MHz

Above 1 GHz:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-0.02	2483.5	Vertical	High Channel, 2.4GHz n HT20, 1GHz – 25GHz

Please refer to the following tables for specific test result details

6.8 Radiated Emissions Test Data

1) 30 MHz – 1 GHz, Measured at 3 meters

Quasi-Peak Measurements

2.4 GHz, 802.11b Mode, Low channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	30.56	289	H	0	43.5	-12.94
996.3	32.57	100	V	188	54	-21.43
268	23.81	195	V	198	46	-22.19

2.4 GHz, 802.11b Mode, Middle channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	31.35	301	H	0	43.5	-12.15
996.3	32.83	100	V	190	54	-21.17
268	22.52	198	V	196	46	-23.48

2.4 GHz, 802.11b Mode, High channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	31.82	289	H	0	43.5	-11.68
996.3	31.38	100	V	190	54	-22.62
268	23.87	196	V	196	46	-22.13

2.4 GHz, 802.11n HT20 Mode, Low channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	30.05	295	H	0	43.5	-13.45
996.3	31.16	100	V	190	54	-22.84
268	24.65	202	V	195	46	-21.35

2.4 GHz, 802.11n HT20 Mode, Middle channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	30.12	302	H	0	43.5	-13.38
996.3	31.22	100	V	189	54	-22.78
268	23.66	198	V	198	46	-22.34

2.4 GHz, 802.11n HT20 Mode, High channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	30.25	301	H	0	43.5	-13.25
996.3	30.88	100	V	185	54	-23.12
268	22.89	200	V	200	46	-23.11

2.4 GHz, 802.11n HT40 Mode, Low channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	29.54	300	H	0	43.5	-13.96
996.3	30.09	100	V	191	54	-23.91
268	23.49	201	V	201	46	-22.51

2.4 GHz, 802.11n HT40 Mode, Middle channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	30.33	298	H	0	43.5	-13.17
996.3	32.48	100	V	191	54	-21.52
268	23.74	201	V	200	46	-22.26

2.4 GHz, 802.11n HT40 Mode, High channel

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	FCC/IC Limit (dBµV/m)	Margin (dB)
131.4	29.24	300	H	0	43.5	-14.26
996.3	31.96	100	V	190	54	-22.04
268	24.03	196	V	200	46	-21.97

2) 1–25 GHz, Measured at 3 meters

2.4 GHz 802.11b mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
2412	77.44	88	100	H	28.36	2.94	0	108.74	Fund.	-	Peak
2412	79.74	186	100	V	28.53	2.94	0	111.21	Fund.	-	Peak
2412	73.76	88	100	H	28.36	2.94	0	105.06	Fund.	-	Ave
2412	76.58	186	100	V	28.53	2.94	0	108.05	Fund.	-	Ave
4824	40.51	150	100	H	33.48	4.06	27.7	50.35	74	-23.65	Peak
4824	46.06	134	147	V	33.59	4.06	27.7	56.01	74	-17.99	Peak
4824	33.13	150	100	H	33.48	4.06	27.7	42.97	54	-11.03	Ave
4824	43.53	134	147	V	33.59	4.06	27.7	53.48	54	-0.52	Ave
7236	41.21	0	100	H	38.5	4.93	27.58	57.06	91	-33.94	Peak
7236	41.21	0	100	V	38.65	4.93	27.58	57.21	91	-33.79	Peak
7236	25.84	0	100	H	38.5	4.93	27.58	41.69	88	-46.31	Ave
7236	25.84	0	100	V	38.65	4.93	27.58	41.84	88	-46.16	Ave
9648	39.22	167	100	H	38.53	5.82	27.06	56.51	91	-34.49	Peak
9648	43.48	114	145	V	38.54	5.82	27.06	60.78	91	-30.22	Peak
9648	27.67	167	100	H	38.53	5.82	27.06	44.96	88	-43.04	Ave
9648	38.41	114	145	V	38.54	5.82	27.06	55.71	88	-32.29	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Middle Channel 2437 MHz, measured at 3 meters											
2437	78.7	88	100	H	28.36	2.94	0	110	Fund.	-	Peak
2437	83.83	74	108	V	28.53	2.94	0	115.3	Fund.	-	Peak
2437	75.33	88	100	H	28.36	2.94	0	106.63	Fund.	-	Ave
2437	80.62	74	108	V	28.53	2.94	0	112.09	Fund.	-	Ave
4874	40.78	147	100	H	33.57	4.1	27.67	50.78	74	-23.22	Peak
4874	45.07	132	127	V	33.59	4.1	27.67	55.09	74	-18.91	Peak
4874	32.35	147	100	H	33.57	4.1	27.67	42.35	54	-11.65	Ave
4874	41.33	132	127	V	33.59	4.1	27.67	51.35	54	-2.65	Ave
7311	41.01	0	100	H	38.27	4.88	27.51	56.65	74	-17.35	Peak
7311	41.01	0	100	V	38.33	4.88	27.51	56.71	74	-17.29	Peak
7311	26.03	0	100	H	38.27	4.88	27.51	41.67	54	-12.33	Ave
7311	26.03	0	100	V	38.33	4.88	27.51	41.73	54	-12.27	Ave
9748	38.85	93	100	H	38.41	5.74	26.98	56.02	95	-38.98	Peak
9748	40.53	150	100	V	38.39	5.74	26.98	57.68	95	-37.32	Peak
9748	25.25	93	100	H	38.41	5.74	26.98	42.42	92	-49.58	Ave
9748	31.37	150	100	V	38.39	5.74	26.98	48.52	92	-43.48	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz, measured at 3 meters											
2462	80.47	88	100	H	29.12	3.01	0	112.6	Fund.	-	Peak
2462	82.28	73	105	V	29.12	3.01	0	114.41	Fund.	-	Peak
2462	77.16	88	100	H	29.12	3.01	0	109.29	Fund.	-	Ave
2462	78.84	73	105	V	29.12	3.01	0	110.97	Fund.	-	Ave
4924	39.92	143	100	H	33.57	4.1	27.75	49.84	74	-24.16	Peak
4924	44.44	132	142	V	33.59	4.1	27.75	54.38	74	-19.62	Peak
4924	28.61	143	100	H	33.57	4.1	27.75	38.53	54	-15.47	Ave
4924	39.91	132	142	V	33.59	4.1	27.75	49.85	54	-4.15	Ave
7386	41.11	0	100	H	38.2	4.89	27.51	56.69	74	-17.31	Peak
7386	41.11	0	100	V	38.28	4.89	27.51	56.77	74	-17.23	Peak
7386	25.83	0	100	H	38.2	4.89	27.51	41.41	54	-12.59	Ave
7386	25.83	0	100	V	38.28	4.89	27.51	41.49	54	-12.51	Ave
9848	38.1	128	100	H	38.23	5.77	26.98	55.12	94	-38.88	Peak
9848	39.25	148	100	V	38.15	5.77	26.98	56.19	94	-37.81	Peak
9848	24.51	128	100	H	38.23	5.77	26.98	41.53	90	-48.47	Ave
9848	27.88	148	100	V	38.15	5.77	26.98	44.82	90	-45.18	Ave

2.4 GHz 802.11n HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
2412	79.35	88	100	H	28.36	2.94	0	110.65	Fund.	-	Peak
2412	83.39	73	110	V	28.53	2.94	0	114.86	Fund.	-	Peak
2412	68.34	88	100	H	28.36	2.94	0	99.64	Fund.	-	Ave
2412	72.69	73	110	V	28.53	2.94	0	104.16	Fund.	-	Ave
4824	39	0	100	H	33.48	4.06	27.7	48.84	74	-25.16	Peak
4824	42.3	129	150	V	33.59	4.06	27.7	52.25	74	-21.75	Peak
4824	24.02	0	100	H	33.48	4.06	27.7	33.86	54	-20.14	Ave
4824	27.01	129	150	V	33.59	4.06	27.7	36.96	54	-17.04	Ave
7236	39.86	0	100	H	38.5	4.93	27.58	55.71	94	-38.29	Peak
7236	39.86	0	100	V	38.65	4.93	27.58	55.86	94	-38.14	Peak
7236	25.79	0	100	H	38.5	4.93	27.58	41.64	84	-42.36	Ave
7236	25.79	0	100	V	38.65	4.93	27.58	41.79	84	-42.21	Ave
9648	39.23	0	100	H	38.53	5.82	27.06	56.52	94	-37.48	Peak
9648	39.23	0	100	V	38.54	5.82	27.06	56.53	94	-37.47	Peak
9648	24.08	0	100	H	38.53	5.82	27.06	41.37	84	-42.63	Ave
9648	24.08	0	100	V	38.54	5.82	27.06	41.38	84	-42.62	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Middle Channel 2437 MHz, measured at 3 meters											
2437	86.17	88	100	H	28.36	2.94	0	117.47	Fund.	-	Peak
2437	88.25	76	107	V	28.53	2.94	0	119.72	Fund.	-	Peak
2437	75.71	88	100	H	28.36	2.94	0	107.01	Fund.	-	Ave
2437	77.68	76	107	V	28.53	2.94	0	109.15	Fund.	-	Ave
4874	39.06	300	100	H	33.57	4.1	27.67	49.06	74	-24.94	Peak
4874	45.33	132	142	V	33.59	4.1	27.67	55.35	74	-18.65	Peak
4874	25.02	300	100	H	33.57	4.1	27.67	35.02	54	-18.98	Ave
4874	31.34	132	142	V	33.59	4.1	27.67	41.36	54	-12.64	Ave
7311	40.38	0	100	H	38.27	4.88	27.51	56.02	74	-17.98	Peak
7311	40.38	0	100	V	38.33	4.88	27.51	56.08	74	-17.92	Peak
7311	26.15	0	100	H	38.27	4.88	27.51	41.79	54	-12.21	Ave
7311	26.15	0	100	V	38.33	4.88	27.51	41.85	54	-12.15	Ave
9748	38.62	0	100	H	38.41	5.74	26.98	55.79	99	-43.21	Peak
9748	38.62	0	100	V	38.39	5.74	26.98	55.77	99	-43.23	Peak
9748	24.19	0	100	H	38.41	5.74	26.98	41.36	89	-47.64	Ave
9748	24.19	0	100	V	38.39	5.74	26.98	41.34	89	-47.66	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz, measured at 3 meters											
24632	79.72	64	100	H	29.12	3.01	0	111.85	Fund.	-	Peak
24632	83.21	76	105	V	29.12	3.01	0	115.34	Fund.	-	Peak
24632	69.18	64	100	H	29.12	3.01	0	101.31	Fund.	-	Ave
24632	72.36	76	105	V	29.12	3.01	0	104.49	Fund.	-	Ave
4924	39.12	0	100	H	33.57	4.1	27.75	49.04	74	-24.96	Peak
4924	43.08	129	150	V	33.59	4.1	27.75	53.02	74	-20.98	Peak
4924	24.05	0	100	H	33.57	4.1	27.75	33.97	54	-20.03	Ave
4924	27.88	129	150	V	33.59	4.1	27.75	37.82	54	-16.18	Ave
7386	39.79	0	100	H	38.2	4.89	27.51	55.37	74	-18.63	Peak
7386	39.79	0	100	V	38.28	4.89	27.51	55.45	74	-18.55	Peak
7386	25.64	0	100	H	38.2	4.89	27.51	41.22	54	-12.78	Ave
7386	25.64	0	100	V	38.28	4.89	27.51	41.3	54	-12.7	Ave
9848	39.28	0	100	H	38.23	5.77	26.98	56.3	95	-38.7	Peak
9848	39.28	0	100	V	38.15	5.77	26.98	56.22	95	-38.78	Peak
9848	24.16	0	100	H	38.23	5.77	26.98	41.18	84	-42.82	Ave
9848	24.16	0	100	V	38.15	5.77	26.98	41.1	84	-42.9	Ave

2.4 GHz 802.11n HT40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2422 MHz, measured at 3 meters											
2422	75.59	88	100	H	28.36	2.94	0	106.89	Fund.	-	Peak
2422	78.35	76	107	V	28.53	2.94	0	109.82	Fund.	-	Peak
2422	64.98	88	100	H	28.36	2.94	0	96.28	Fund.	-	Ave
2422	67.78	76	107	V	28.53	2.94	0	99.25	Fund.	-	Ave
4844	38.94	0	100	H	33.48	4.06	27.7	48.78	74	-25.22	Peak
4844	38.94	0	100	V	33.59	4.06	27.7	48.89	74	-25.11	Peak
4844	24.12	0	100	H	33.48	4.06	27.7	33.96	54	-20.04	Ave
4844	24.12	0	100	V	33.59	4.06	27.7	34.07	54	-19.93	Ave
7266	40.12	0	100	H	38.27	4.88	27.56	55.71	74	-18.29	Peak
7266	40.12	0	100	V	38.33	4.88	27.56	55.77	74	-18.23	Peak
7266	25.9	0	100	H	38.27	4.88	27.56	41.49	54	-12.51	Ave
7266	25.9	0	100	V	38.33	4.88	27.56	41.55	54	-12.45	Ave
9688	38.78	0	100	H	38.41	5.74	26.98	55.95	89	-33.05	Peak
9688	38.78	0	100	V	38.39	5.74	26.98	55.93	89	-33.07	Peak
9688	24.32	0	100	H	38.41	5.74	26.98	41.49	79	-37.51	Ave
9688	24.32	0	100	V	38.39	5.74	26.98	41.47	79	-37.53	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Middle Channel 2437 MHz, measured at 3 meters											
2437	83.37	87	100	H	28.36	2.94	0	114.67	Fund.	-	Peak
2437	87.68	72	109	V	28.53	2.94	0	119.15	Fund.	-	Peak
2437	72.42	87	100	H	28.36	2.94	0	103.72	Fund.	-	Ave
2437	76.01	72	109	V	28.53	2.94	0	107.48	Fund.	-	Ave
4874	39.05	0	100	H	33.57	4.1	27.67	49.05	74	-24.95	Peak
4874	43.12	128	124	V	33.59	4.1	27.67	53.14	74	-20.86	Peak
4874	24.3	0	100	H	33.57	4.1	27.67	34.3	54	-19.7	Ave
4874	29.92	128	124	V	33.59	4.1	27.67	39.94	54	-14.06	Ave
7311	40.16	0	100	H	38.27	4.88	27.51	55.8	74	-18.2	Peak
7311	40.16	0	100	V	38.33	4.88	27.51	55.86	74	-18.14	Peak
7311	25.96	0	100	H	38.27	4.88	27.51	41.6	54	-12.4	Ave
7311	25.96	0	100	V	38.33	4.88	27.51	41.66	54	-12.34	Ave
9748	38.74	0	100	H	38.41	5.74	26.98	55.91	99	-43.09	Peak
9748	38.74	0	100	V	38.39	5.74	26.98	55.89	99	-43.11	Peak
9748	24.31	0	100	H	38.41	5.74	26.98	41.48	87	-45.52	Ave
9748	24.31	0	100	V	38.39	5.74	26.98	41.46	87	-45.54	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2452 MHz, measured at 3 meters											
2452	74.86	87	100	H	29.12	3.01	0	106.99	Fund.	-	Peak
2452	77.43	75	106	V	29.12	3.01	0	109.56	Fund.	-	Peak
2452	64.17	87	100	H	29.12	3.01	0	96.3	Fund.	-	Ave
2452	67.14	75	106	V	29.12	3.01	0	99.27	Fund.	-	Ave
4904	39.16	0	100	H	33.57	4.1	27.67	49.16	74	-24.84	Peak
4904	39.16	0	100	V	33.59	4.1	27.67	49.18	74	-24.82	Peak
4904	24.32	0	100	H	33.57	4.1	27.67	34.32	54	-19.68	Ave
4904	24.32	0	100	V	33.59	4.1	27.67	34.34	54	-19.66	Ave
7356	40.15	0	100	H	38.2	4.89	27.57	55.67	74	-18.33	Peak
7356	40.15	0	100	V	38.28	4.89	27.57	55.75	74	-18.25	Peak
7356	26.02	0	100	H	38.2	4.89	27.57	41.54	54	-12.46	Ave
7356	26.02	0	100	V	38.28	4.89	27.57	41.62	54	-12.38	Ave
9808	38.84	0	100	H	38.23	5.77	27.02	55.82	89	-33.18	Peak
9808	38.84	0	100	V	38.15	5.77	27.02	55.74	89	-33.26	Peak
9808	24.41	0	100	H	38.23	5.77	27.02	41.39	79	-37.61	Ave
9808	24.41	0	100	V	38.15	5.77	27.02	41.31	79	-37.69	Ave

3) Restricted Band Emissions

2.4 GHz 802.11b mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
2385.7	27.96	88	100	H	28.36	2.94	0	59.26	74	-14.74	Peak
2385.7	30.67	186	100	V	28.53	2.94	0	62.14	74	-11.86	Peak
2385.7	16.53	88	100	H	28.36	2.94	0	47.83	54	-6.17	Ave
2385.7	21.17	186	100	V	28.53	2.94	0	52.64	54	-1.36	Ave
High Channel 2462 MHz, measured at 3 meters											
2487.7	31.81	88	100	H	29.12	3.01	0	63.94	74	-10.06	Peak
2487.7	32.21	73	105	V	29.12	3.01	0	64.34	74	-9.66	Peak
2487.7	21.5	88	100	H	29.12	3.01	0	53.63	54	-0.37	Ave
2487.7	20.57	73	105	V	29.12	3.01	0	52.7	54	-1.3	Ave

2.4 GHz 802.11n HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
2390	31.7	88	100	H	28.36	2.94	0	63	74	-11	Peak
2390	37.95	73	110	V	28.53	2.94	0	69.42	74	-4.58	Peak
2390	16.58	88	100	H	28.36	2.94	0	47.88	54	-6.12	Ave
2390	18.93	73	110	V	28.53	2.94	0	50.4	54	-3.6	Ave
High Channel 2462 MHz, measured at 3 meters											
2483.5	38.12	64	100	H	29.12	3.01	0	70.25	74	-3.75	Peak
2483.5	40.57	76	105	V	29.12	3.01	0	72.7	74	-1.3	Peak
2483.5	19.6	64	100	H	29.12	3.01	0	51.73	54	-2.27	Ave
2483.5	21.85	76	105	V	29.12	3.01	0	53.98	54	-0.02	Ave

2.4 GHz 802.11n HT40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2422 MHz, measured at 3 meters											
2389.6	35.55	88	100	H	28.36	2.94	0	66.85	74	-7.15	Peak
2389.6	39.69	76	107	V	28.53	2.94	0	71.16	74	-2.84	Peak
2389.6	19.17	88	100	H	28.36	2.94	0	50.47	54	-3.53	Ave
2389.6	21.75	76	107	V	28.53	2.94	0	53.22	54	-0.78	Ave
High Channel 2452 MHz, measured at 3 meters											
2483.6	36.64	87	100	H	29.12	3.01	0	68.77	74	-5.23	Peak
2483.6	39.44	75	106	V	29.12	3.01	0	71.57	74	-2.43	Peak
2483.6	18.02	87	100	H	29.12	3.01	0	50.15	54	-3.85	Ave
2483.6	20.96	75	106	V	29.12	3.01	0	53.09	54	-0.91	Ave

7 IC RSS-210 §2.3 & RSS-Gen §6 - Receiver Spurious Radiated Emissions

7.1 Applicable Standard

According to IC RSS-Gen §4.10, the receiver shall be operated in the normal receive mode near the mid-point of the band over which the receiver is designed to operate.

Unless otherwise specified in the applicable RSS, the radiated emission measurement is the standard measurement method (with the device's antenna in place) to measure receiver spurious emissions.

Radiated emission measurements are to be performed using a calibrated open-area test site.

For either method, the search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is the higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is the higher, without exceeding 40 GHz.

For emissions below 1 GHz, measurements shall be performed using a CISPR quasi-peak detector and the related measurement bandwidth. As an alternative to CISPR quasi-peak measurement, compliance with the emission limit can be demonstrated using measuring equipment employing a peak detector with the same measurement bandwidth as that for CISPR quasi-peak measurements. Above 1 GHz, measurements shall be performed using an average detector and a resolution bandwidth of 300 kHz to 1 MHz.

The receiver spurious emissions limits were specified in Table 2 of RSS-Gen §6.

Table 2: Radiated Limits of Receiver Spurious Emissions

Frequency (MHz)	Field Strength (Microvolts/m at 3 meters)
30-88	100
88-216	150
216-960	200
Above 960	500

7.2 EUT Setup

The radiated emissions tests were performed in the 3 meter chamber, using the setup in accordance with ANSI C63.4-2003.

7.3 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations.

All data were recorded in the peak detection mode. Quasi-peak readings was performed only when an emissions was found to be marginal (within -4 dB of specification limits), and are distinguished with a "**QP**" in the data table.

7.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Corrected Amplitude - Limit

7.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100338	2011-09-14
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
Hewlett Packard	Pre-amplifier	8447D	2944A10187	2012-03-08
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Agilent	Spectrum Analyzer	E4440A	US42221851	2012-02-28
A.H. Systems	Horn antenna	SAS-200/571	261	2011-10-03
Mini-Circuits	Pre-amplifier	ZVA-183-S	570400946	2012-05-09

Statement of Traceability: BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

7.6 Test Environmental Conditions

Temperature:	20-23 °C
Relative Humidity:	40-42%
ATM Pressure:	101.1-101.3kPa

The testing was performed by Lionel Lara from 2012-07-02 to 2012-07-03 at 5 meter chamber 3.

7.7 Summary of Test Results

According to the test data, the EUT complied with IC RSS-210/RSS-Gen, with the closest margins from the limit listed below:

Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-0.41	18000	Horizontal	30 to 25000

7.8 Radiated Spurious Emissions Test Data

1) 30-1000 MHz, Measured at 3 meters

Receiving mode, Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
99.90	41.69	245	H	295	43.5	-1.81
176.3	39.16	150	H	206	43.5	-4.34
199.8	36.58	168	H	22	43.5	-6.92

2) Above 1 GHz, Measured at 3 meters

Receiving mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC & IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
2494	47.68	325	100	H	29.12	3.01	27.8	52.01	74	-21.99	Peak
2494	51.75	352	100	V	29.12	3.01	27.8	56.08	74	-17.92	Peak
2494	28.45	325	100	H	29.12	3.01	27.8	32.78	54	-21.22	Ave
2494	30.12	352	100	V	29.12	3.01	27.8	34.45	54	-19.55	Ave
4988	42.87	36	112	H	33.95	4.21	27.73	53.3	74	-20.7	Peak
4988	43.68	137	169	V	33.91	4.21	27.73	54.07	74	-19.93	Peak
4988	25.1	36	112	H	33.95	4.21	27.73	35.53	54	-18.47	Ave
4988	25.56	137	169	V	33.91	4.21	27.73	35.95	54	-18.05	Ave
18000	39.41	0	100	H	44.49	8.47	25.33	67.04	74	-6.96	Peak
18000	39.41	0	100	V	44.04	8.47	25.33	66.59	74	-7.41	Peak
18000	25.96	0	100	H	44.49	8.47	25.33	53.59	54	-0.41	Ave
18000	25.96	0	100	V	44.04	8.47	25.33	53.14	54	-0.86	Ave