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

TEST AND MEASUREMENT REPORT

For

Fitbit, Inc.

625 Market Street, Suite 1400,

San Francisco, CA 94105, USA

FCC ID: XRAFB201A
IC: 8542A-0000F201A

Report Type:	**Product Type:**
Original Report	Wi-Fi Weight Scale

Prepared By:	Lionel Lara
Report Number:	R1203123-247
Report Date:	2012-06-18
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1203123-247	Original Report	2012-06-18

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *Fitbit Inc.*, and their product, FCC ID: XRAFB201A,IC: 8542A-F201A, model: FB201W, which will henceforth be referred to as the EUT (Equipment Under Test). The EUT is an 802.11 b Wireless Weight Scale with backlit display. It is powered by 4 standard 1.5V AA type batteries.

1.2 Mechanical Description of EUT

The "EUT" measures 312 mm (L) x 312 mm (W) x 33.4 mm (H), weighing approximately 1.93 kg.

The test data gathered are from typical production sample provided by the client. Serial Number: R1203123-2 assigned by BACL

1.3 Objective

This report is prepared on behalf of *Fitbit, 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.

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)

No Related Submittals.

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2009, 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.: R-3729, C-4176, G-469, and T-1206. 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 a National Institute of Standards and Technology (NIST) accredited laboratory under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2001670.htm

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2009.

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

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	2412/11	2437/11	2462/11

2.2 EUT Exercise Software

The test utility software used was provided by client and was verified to comply with the standard requirements being tested against.

2.3 Special Equipment

N/A

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Local Support Equipment

N/A

2.6 Power Supply List and Details

N/A

2.7 EUT Internal Configurations

Manufacturers	Descriptions	Models	Serial Numbers
Fitbit	PCB Board	12-0009	300-0009DVT5
GainSpan	Module	GSE1011MEE	11410001TW

2.8 External I/O Cabling List and AC Cord

N/A

3 Summary of Test Results

Results reported relate only to the product tested.

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 §7.1.4	Antenna Requirement	Compliant
FCC §15.207(a) IC RSS-Gen §7.2.2	AC Line Conducted Emissions	N/A[1]
FCC §15.247(d) IC RSS-210 §A8.5	Spurious Emissions at Antenna Port	N/A[2]
FCC §15.205, §15.209, §15.247 IC RSS-210 §2.2, §A8.5	Radiated Spurious Emissions	Compliant
FCC §15.247(a)(2) IC RSS-210 §A8.2	6 dB Emission Bandwidth	N/A[2]
FCC §15.247(b)(3) IC RSS-210 §A8.4	Maximum Peak Output Power	N/A[2]
FCC §15.247(d) IC RSS-210 §A8.5	100 kHz Bandwidth of Frequency Band Edge	N/A[2]
FCC §15.247(e) IC RSS-210 §A8.2(b)	Power Spectral Density	N/A[2]
IC RSS-210 §2.3 & RSS-Gen §6.1	Receiver Spurious Emission	Compliant

Note 1: EUT is battery powered.
Note 2: Please refer to FCC ID: YOPGS1011MEE for the conducted results. The only change is different antennas were used for this EUT.

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

Maximum peak output power at antenna input terminal (dBm):	23.47
Maximum peak output power at antenna input terminal (mW):	222.33
Prediction distance (cm):	20
Prediction frequency (MHz):	2462
Maximum Antenna Gain, typical (dBi):	3.5
Maximum Antenna Gain (numeric):	2.24
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.099
Power density of prediction frequency at 0.2 m (W/m^2):	0.99
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 is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.099 mW/cm^2 (0.99 W/m^2).Limit is 1.0 mW/cm^2 (10 W/m^2).

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

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 mW or less. For devices of output powers greater than 10 mW, 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 one Transmitter/Receiver integral antenna, The Transmitter antenna has a max gain of 3.5 dBi which fulfills the requirements of FCC §15.203 and IC RSS-Gen §7.1.2. Please refer to the EUT internal photos.

6 FCC §15.205, §15.209, §15.247(d) & IC RSS-210 §2.2, §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 §2.2, Emissions Falling within Restricted Frequency Bands: Category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted frequency bands are listed in RSS-Gen.

As per IC RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square 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 field strength limits specified in RSS-Gen 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 C63.4-2009. The specification used was the FCC 15 Subpart C and IC RSS-210 limits.

The spacing between the peripherals was 3 centimeters.

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 is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

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	100337	2011-03-21
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10
Sunol Science Corp	System Controller	SC99V	113005-1	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
A.R.A Inc	Horn antenna	DRG-118/A	1132	2012-01-04
Hewlett Packard	Pre amplifier	8447D	2944A06639	2011-06-09
Mini-Circuits	Pre Amplifier	ZVA-183-S	667400960	2011-05-08

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

6.6 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	46 %
ATM Pressure:	102.1kPa

The testing was performed by Lionel Lara on 2012-03-16 in 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 the worst margin of:

30-1000 MHz:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Range**
-13.83	33.32	Vertical	802.11b, Low, 30-1000 MHz

1 – 25 GHz:

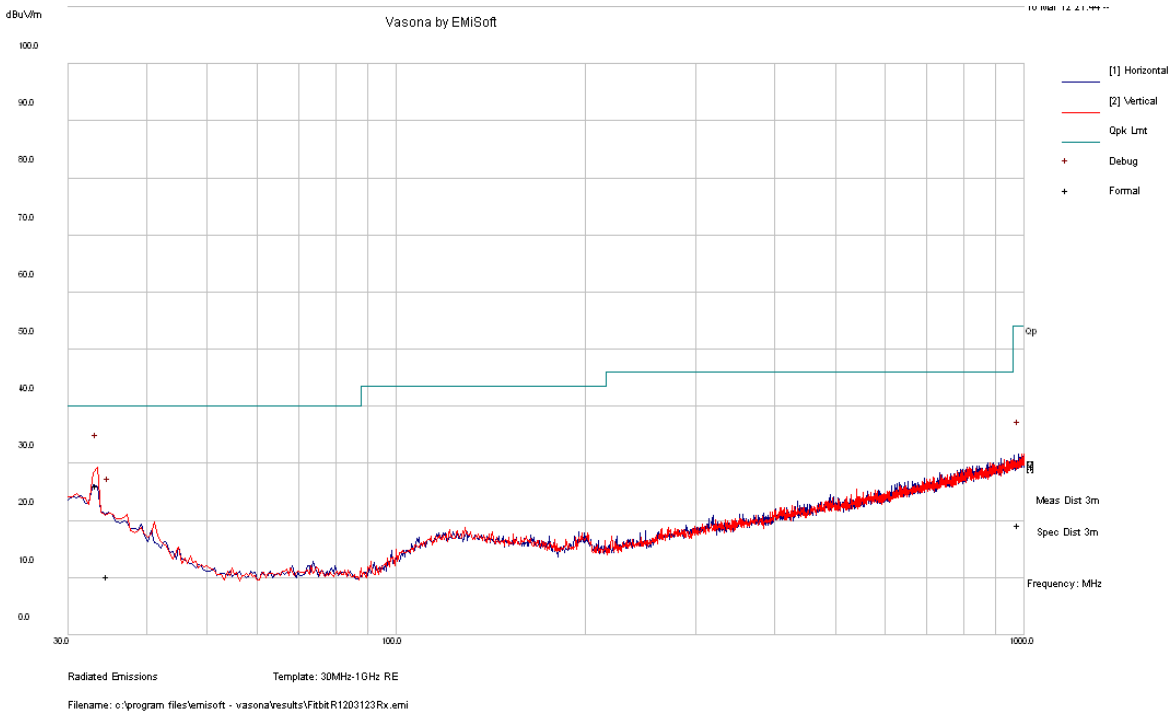
Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Range**
-8.86	2494.1	Horizontal	802.11b High, 1GHz – 25GHz

Please refer to the following table and plots for specific test result details

6.8 Radiated Emissions Test Data and Plots

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

Worst Channel: Low channel (2412 MHz)



Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
33.32	26.17	99	V	119	40	-13.83
34.774	10.27	104	H	249	40	-29.73
979.0025	19.28	246	H	196	54	-34.72

2) 1–25 GHz, Measured at 3 meters

802.11b 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)	
Low Channel 2412 MHz, measured at 3 meters											
4824	40.94	177	120	V	32.88	4.06	27.71	50.17	74	-23.83	Peak
4824	31.07	177	120	V	32.88	4.06	27.71	40.30	54	-13.70	Ave
-[1]	-	-	-	-	-	-	-	-	-	-	-
Middle Channel 2437 MHz, measured at 3 meters											
4874	40.84	181	100	V	32.96	4.1	27.71	50.19	74	-23.81	Peak
4874	28.83	181	100	V	32.96	4.1	27.71	38.18	54	-15.82	Ave
-[1]	-	-	-	-	-	-	-	-	-	-	-
High Channel 2462 MHz, measured at 3 meters											
4924	40.46	176	100	V	32.96	4.1	27.71	49.81	74	-24.19	Peak
4924	29.55	176	100	V	32.96	4.1	27.71	38.90	54	-15.10	Ave
-[1]	-	-	-	-	-	-	-	-	-	-	-

Note 1: All other spurious emissions at noise floor level.

3) Restricted Band Edge

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)	
Low Channel 2412 MHz, measured at 3 meters											
2362.4	27.91	193	135	V	27.79	2.94	0	58.64	74	-15.36	Peak
2369.7	27.38	78	189	H	27.68	2.94	0	58.00	74	-16.00	Peak
2362.4	14.15	193	135	V	27.79	2.94	0	44.88	54	-9.12	Ave
2369.7	14.14	78	189	H	27.68	2.94	0	44.76	54	-9.24	Ave
High Channel 2462 MHz, measured at 3 meters											
2487.3	27.64	348	100	V	24.48	3.01	0	55.13	74	-18.87	Peak
2494.1	27.13	79	193	H	28.39	3.01	0	58.53	74	-15.47	Peak
2487.3	13.73	348	100	V	24.48	3.01	0	41.22	54	-12.78	Ave
2494.1	13.74	79	193	H	28.39	3.01	0	45.14	54	-8.86	Ave

7 IC RSS-210 §2.3 & RSS-Gen §6.1 - Receiver Spurious Radiated Emissions

7.1 Applicable Standard

According to IC RSS-Gen §6.1, radiated spurious emission measurements shall be performed with the receiver antenna connected to the receiver antenna terminals. Spurious emissions from receivers shall not exceed the radiated limits shown in the table below:

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

* Measurements for compliance with limits in the above table may be performed at distance other than 3 metres, in accordance with section 7.2.7.

7.2 EUT Setup

The radiated emissions tests were performed in the 3 meter chamber, using the setup in accordance with ANSI C63.4-2009.

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 Lists and Details

Manufacturer	Description	Model Number	Serial Number	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2011-03-21
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10
Sunol Science Corp	System Controller	SC99V	113005-1	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
A.R.A Inc	Horn antenna	DRG-118/A	1132	2012-01-04
Hewlett Packard	Pre amplifier	8447D	2944A06639	2011-06-09
Mini-Circuits	Pre Amplifier	ZVA-183-S	667400960	2011-05-08

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

7.6 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	46 %
ATM Pressure:	102.1kPa

The testing was performed by Lionel Lara on 2012-03-16 in 5 meter chamber 3.

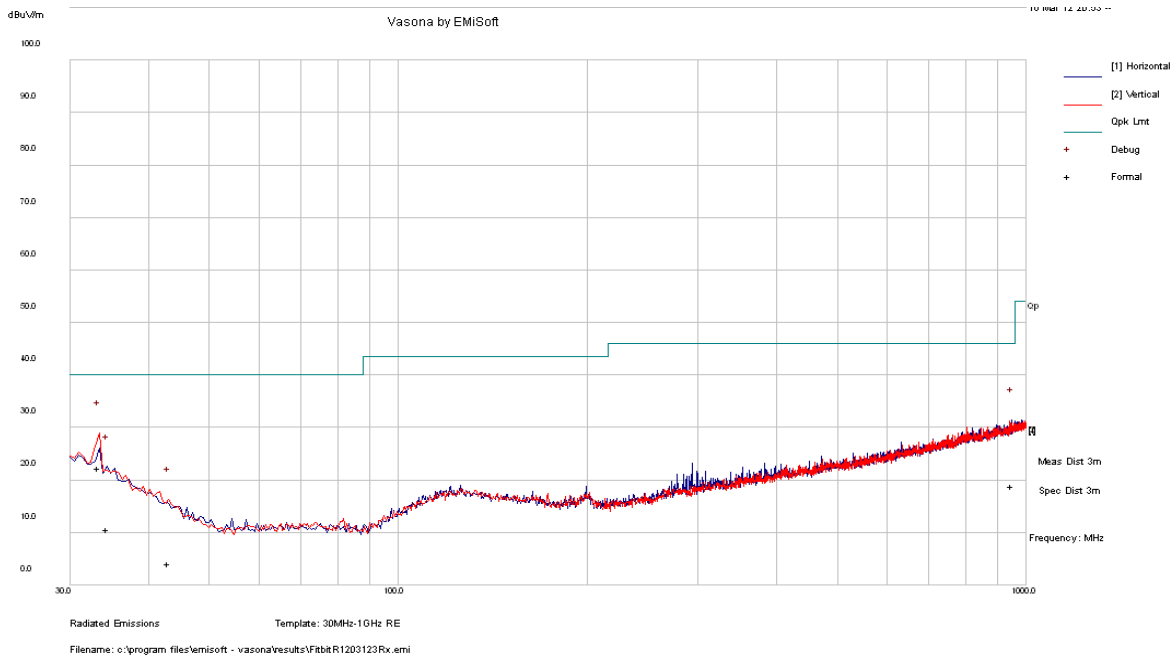
7.7 Summary of Test Results

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

Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-17.60	33.331	Vertical	30 to 25000

7.8 Radiated Emissions Test Data and Plots

1) 30-1000 MHz, Measured at 3 meters



Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
33.331	22.40	290	V	283	40	-17.60
947.8373	18.92	119	H	218	46	-27.08
34.40325	10.65	249	H	246	40	-29.35
43.0395	4.21	233	V	337	40	-35.79

2) Above 1 GHz Measured at 3 meters

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
-	-	-	-	-	-	-	Peak
-	-	-	-	-	-	-	Ave.

Note: All Emissions are on/under noise floor level