Lab Code: 200167-0

FCC PART 15.249

TEST AND MEASUREMENT REPORT

For

Movea, Inc.

680 N. McCarthy Blvd., Suite 120,
Milpitas, CA 95035, USA

FCC ID:JJ4-MPOD1
Model: AS04121

Report Type:	**Product Type:**
Original Report	Wireless Motion Pod Transceiver

Test Engineer:	Kevin Li
Report Number:	R0910126-249
Report Date:	2009-11-20
Reviewed By:	Boni Baniqued Supervisor/Senior RF Engineer
Prepared By: (25)	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave. Sunnyvale, CA 94089, USA Tel: (408) 732-9162 Fax: (408) 732-9164

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R0910126-249	Original Report	2009-11-20

1 General Information

1.1 Product Description for Equipment under Test (EUT)

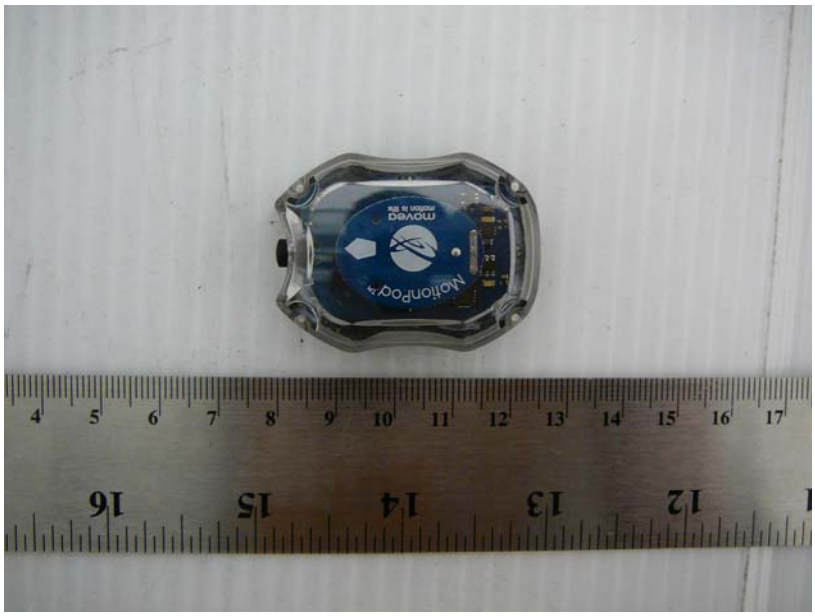
This test and measurement report was prepared on behalf of Movea, *Inc.*, *FCC ID: JJ4-MPOD1*, model: *AS04121*, which will be henceforth in this report referred to as the EUT (Equipment under Test). The EUT is an electronic wireless goniometric device. It is a small autonomous watch-sized motion sensing device that is worn on the body and should be mechanically fixed to the analyzed limb.

1.2 Mechanical Description of EUT

The EUT measures approximately 33 mm **(L)** x 21 mm **(W)** x 15mm **(H)** and weighs approximately 4.5 g.

**The data gathered are from a typical production sample provided by the manufacturer with serial number: 0001EE assigned by BACL.*

1.3 EUT Photo



Please refer to Exhibit C for additional EUT photographs.

1.4 Objective

This type approval report is prepared on behalf of Electronics Solutions, Inc. in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for section 15.203, 15.205, 15.207, 15.209 and 15.249.

1.5 Related Submittal(s)/Grant(s)

No Related Submittals

1.6 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.

1.7 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in 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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the values range from $\pm$2.0 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.

Detailed instrumentation measurement uncertainties can be found in BACL report QAP-018.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.8 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 sites at BACL have been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has 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 facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464, IC registration number: 3062A, and VCCI Registration Number: C-2463 and R-2698. The test site has been approved by the FCC, IC, and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL 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 host system was configured for testing according to ANSI C63.4-2003.

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

2.2 EUT Exercise Software

The EUT is programmed with the following settings that were used during testing:

Frequency (MHz)	Channel/Pocket Interval/Power Amplifier		
	Channel	Pocket Interval (ms)	Power Amplifier (dBm)
2402	Low	30	-13
2438	Middle	30	-13
2482	High	30	-13

2.3 Special Accessories

There were no special accessories were required, included, or intended for use with EUT during these tests.

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Internal Parts List and Details

N/A

2.6 Interface Ports and Cabling

N/A

3 Summary of Test Results

Results reported relate only to the product tested.

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	N/A
§15.20, §15.209 §15.249	Radiated Emissions	Compliant
§15.109	Receiver Spurious Emission	Compliant
§15.249(d)	Out of Band Emissions	Compliant

Note: N/A* Battery operation

4 FCC §15.203 – Antenna Requirement

4.1 Applicable Standard

According to § 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.

4.2 Antenna Connector Construction

The EUT antenna is integrated into the PCB construction, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.

Result: Compliant.

5 FCC §15.207 - Conducted Emissions

5.1 Applicable Standard

FCC Part 15.207 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

** Decreases with the logarithm of the frequency.*

5.2 Test Results

N/A

6 FCC §15.205, §15.209 & §15.249 - 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): 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 15.249(a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation

6.2 Test Setup

The radiated emissions tests were performed in the 3-meter open area test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C limits.

6.3 EUT Setup

The radiated emissions tests were performed using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15C.

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.

6.4 Test Procedure

For the radiated emissions test, the EUT was connected to the DC power source, 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 meters away from the testing antenna, which is varied from 1-4 meters, 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

6.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

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

Margin = Corrected Amplitude - Limit

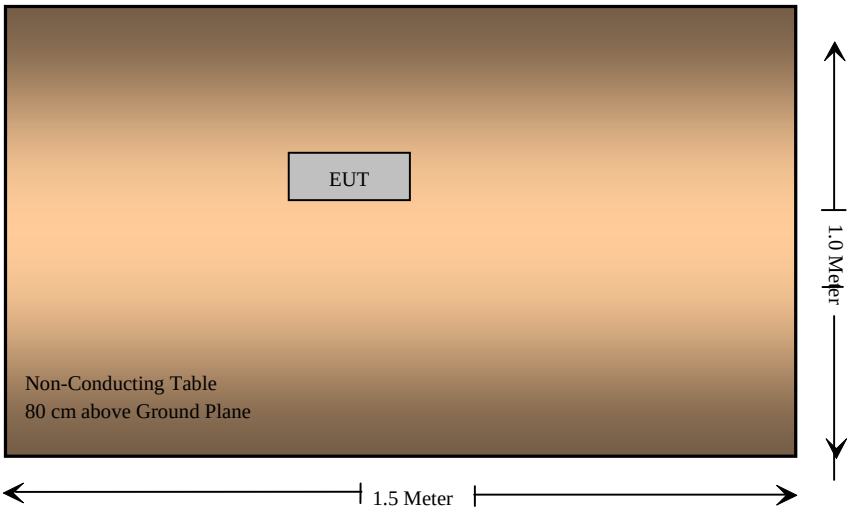
6.6 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US44303352	2009-04-27
Sunol Sciences	Antenna	JB1	A020106-1	2009-04-17
A.R.A.	Horn Antenna	DRG-118/A	1132	2009-07-28
Ducommun	Pre-Amplifier	ALN-09173030-01	990297-01R	2009-03-04
HP	Pre-Amplifier	8447D	2944A06639	2009-06-05

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

6.7 Test Setup Block Diagram

Radiated Emissions



6.8 Test Environmental Conditions

Temperature:	22°C
Relative Humidity:	31 %
ATM Pressure:	101.1kPa

**The testing was performed by Kevin Li on 2009-10-29.*

6.9 Summary of Test Results

According to the data hereinafter, the EUT complied with the limits presented in FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.249, and had the worst margin of:

Low Channel: 2402 MHz

Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range
-20.97	30.77872	Horizontal	30 to 1000 MHz
-15.21	4804	Vertical	Above 1 GHz

Middle Channel: 2438 MHz

Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range
-21.34	31.52148	Vertical	30 to 1000 MHz
-16.24	4876	Vertical	Above 1 GHz

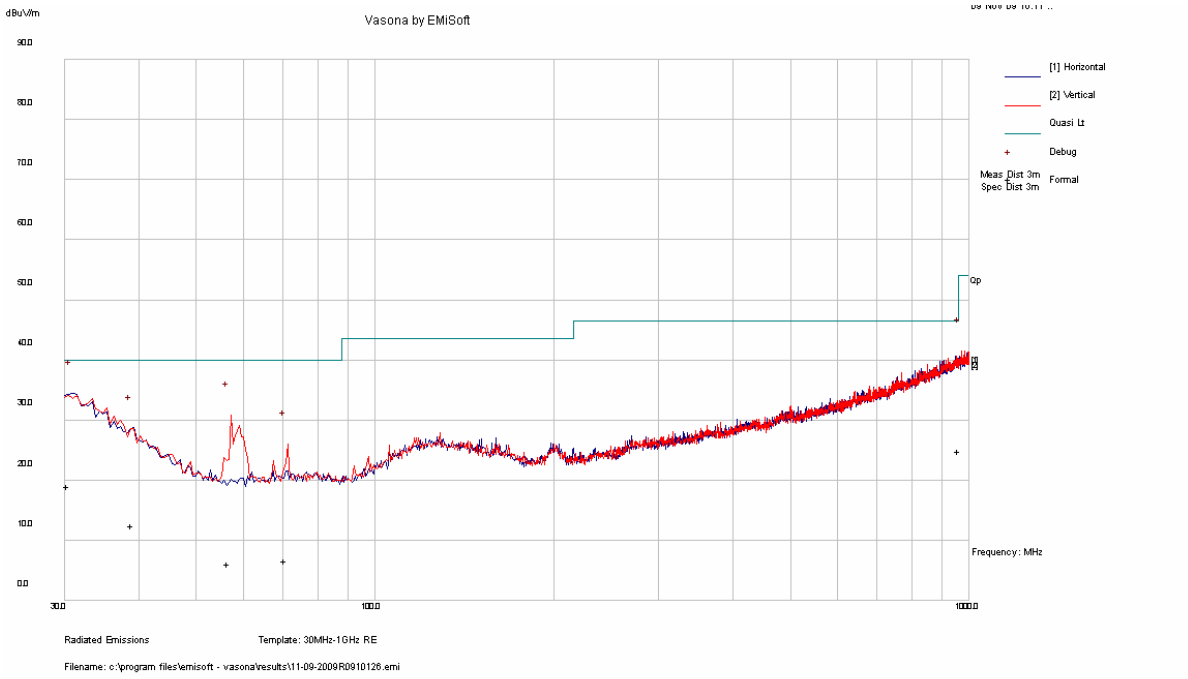
High Channel: 2482 MHz

Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range
-20.02	30.0000	Horizontal	30 to 1000 MHz
-17.66	4964	Vertical	Above 1 GHz

6.10 Radiated Emissions Test Plot & Data

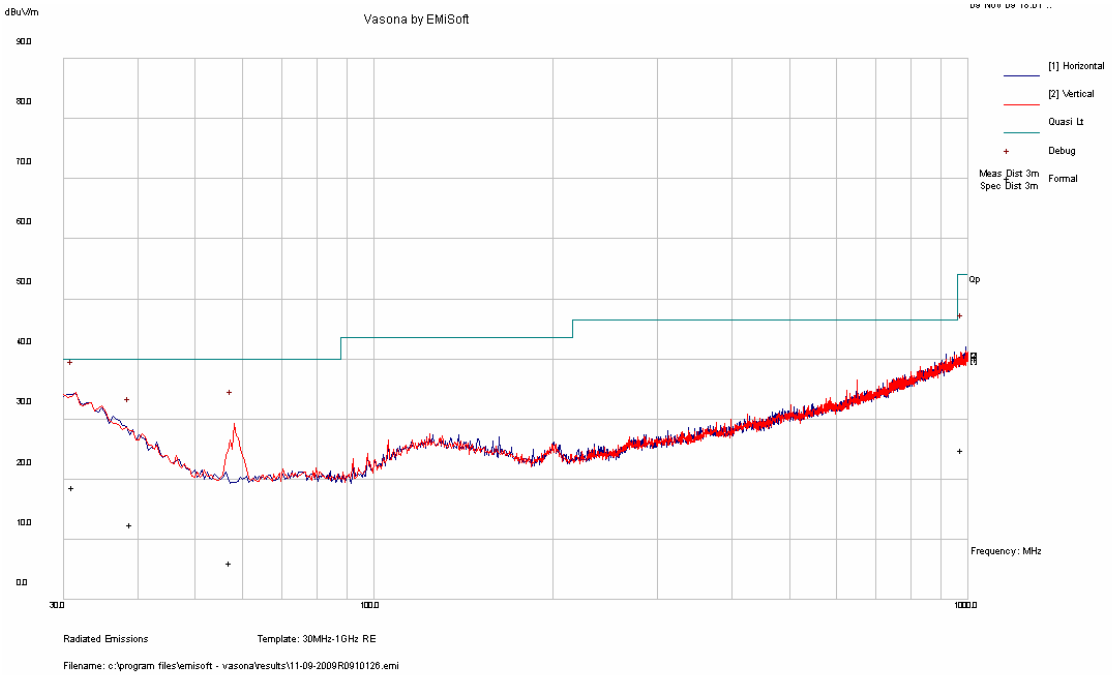
30 MHz – 1 GHz, Measured at 3 meters

Low Channel: 2402 MHz



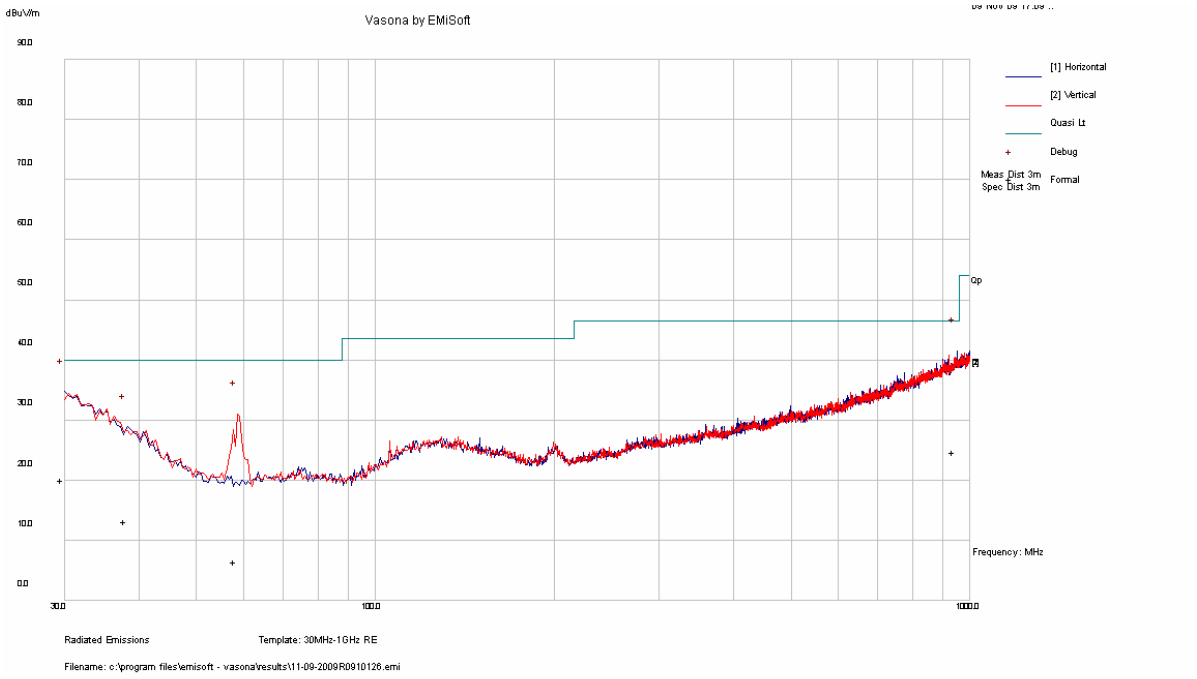
Frequency (MHz)	Corrected Quasi-Peak (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
30.77872	19.03	242	H	54	40	-20.97
39.41900	12.50	240	H	255	40	-27.50
972.0075	24.92	225	V	17	54	-29.08
57.27736	6.10	257	V	232	40	-33.90

Middle Channel: 2438 MHz



Frequency (MHz)	Corrected Quasi-Peak (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
31.52148	18.66	153	V	289	40	-21.34
39.42716	12.50	361	H	203	40	-27.50
988.8858	24.82	242	H	137	54	-29.18
57.92792	6.09	152	V	285	40	-33.91

High Channel: 2482 MHz



Frequency (MHz)	Corrected Quasi-Peak (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
30.0000	19.98	367	H	360	40.0	-20.02
950.74	24.77	401	H	128	46.0	-21.23
38.4490	13.15	268	H	6	40.0	-26.85
58.6714	6.49	375	V	178	40.0	-33.51

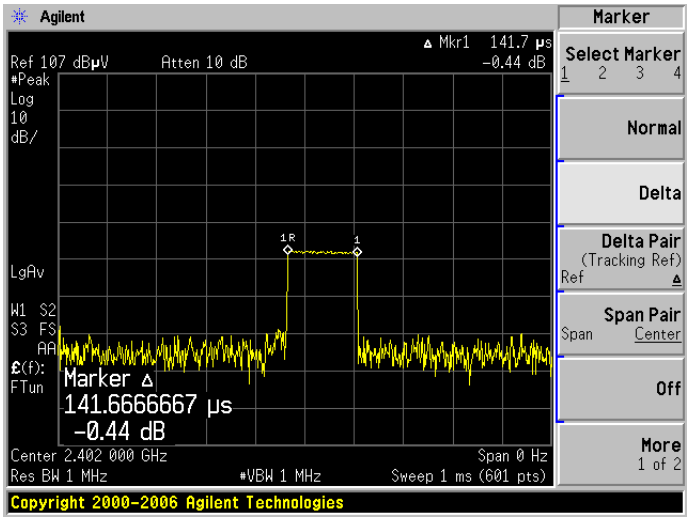
Above 1 GHz, Measured at 3 meters

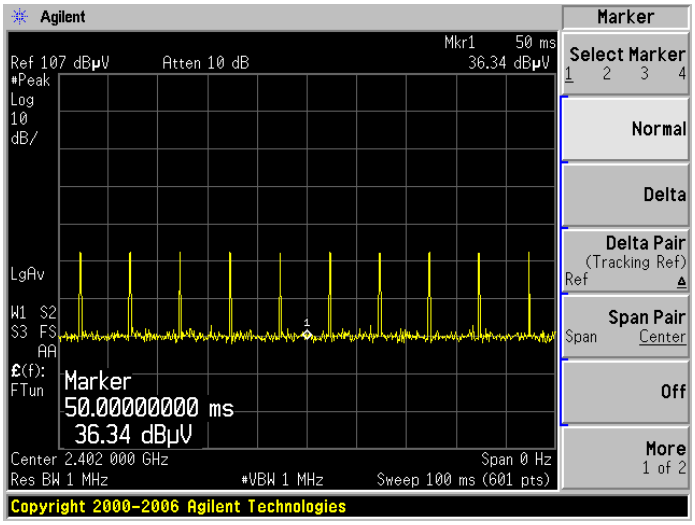
Low Channel: 2402 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/QP/AV	Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Duty Cycle Factor (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.249/15.209		
				Height (cm)	Polar. (H/V)	Factor (dB/m)					Limit (dBuV/m)	Margin (dB)	Comment
2402	97.72	Peak	168	100	V	28.23	8.97	36.75	0	98.17	114	-15.83	Fund.
2402	93.58	Peak	98	100	H	28.23	8.97	36.75	0	94.03	114	-19.97	Fund.
2402	97.72	Ave	168	100	V	28.23	8.97	36.75	-36.96	61.21	94	-32.79	Fund.
2402	93.58	Ave	98	100	H	28.23	8.97	36.75	-36.96	57.07	94	-36.93	Fund.
4804	51.41	Peak	168	100	V	30.30	13.62	36.54	0	58.79	74	-15.21	Spurious
4804	51.18	Peak	98	100	H	30.30	13.62	36.54	0	58.56	74	-15.44	Spurious
4804	51.41	Ave	168	100	V	30.30	13.62	36.54	-36.96	21.83	54	-32.17	Spurious
4804	51.18	Ave	98	100	H	30.30	13.62	36.54	-36.96	21.6	54	-32.4	Spurious

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(10*0.142ms/100 ms) = -36.96 dB*

Please refer to the following plot for the Duty cycle calculation:





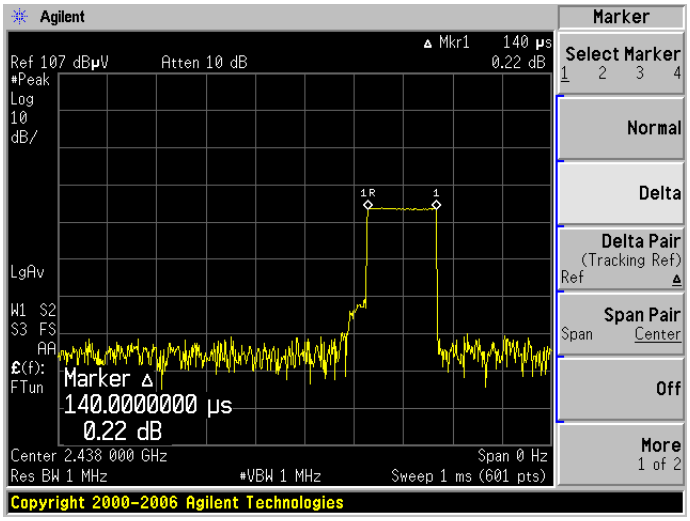
Duty Cycle Plots

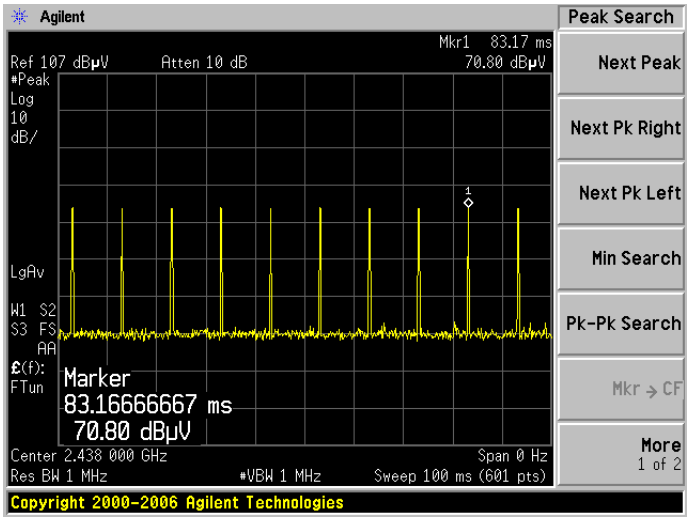
Middle Channel: 2438 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/QP/AV	Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Duty Cycle Factor (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.249/15.209		
				Height (cm)	Polar. (H/V)	Factor (dB/m)					Limit (dBuV/m)	Margin (dB)	Comment
2438	97.25	Peak	206	100	V	28.23	8.97	36.75	0	97.70	114	-16.30	Fund.
2438	89.48	Peak	143	100	H	28.23	8.97	36.75	0	89.93	114	-24.07	Fund.
2438	97.25	Ave	206	100	V	28.23	8.97	36.75	-36.95	60.75	94	-33.25	Fund.
2438	89.48	Ave	143	100	H	28.23	8.97	36.75	-36.95	52.98	94	-41.02	Fund.
4876	50.38	Peak	207	100	V	30.30	13.62	36.54	0	57.76	74	-16.24	Spurious
4876	48.41	Peak	158	100	H	30.30	13.62	36.54	0	55.79	74	-18.21	Spurious
4876	50.38	Ave	207	100	V	30.30	13.62	36.54	-36.95	20.81	54	-33.19	Spurious
4876	48.41	Ave	158	100	H	30.30	13.62	36.54	-36.95	18.84	54	-35.16	Spurious

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(10*0.142ms/100 ms) = -36.95 dB*

Please refer to the following plot for the Duty cycle calculation:





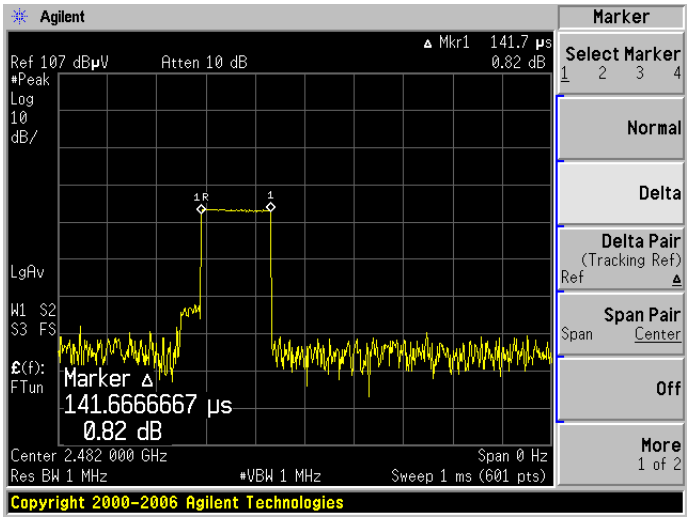
Duty Cycle Plots

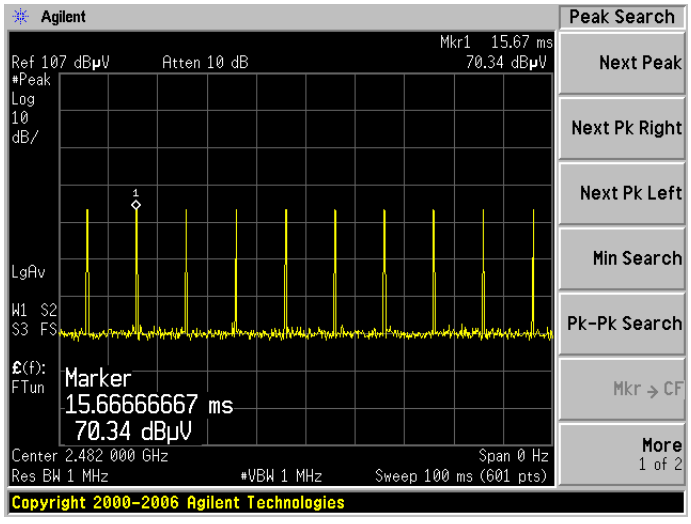
High Channel: 2482 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/QP/AV	Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Duty Cycle Factor (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.249/15.209		
				Height (cm)	Polar. (H/V)	Factor (dB/m)					Limit (dBuV/m)	Margin (dB)	Comment
2482	96.57	Peak	203	100	V	28.23	8.97	36.75	0	97.02	114	-16.98	Fund.
2482	87.27	Peak	167	100	H	28.23	8.97	36.75	0	87.72	114	-26.28	Fund.
2482	96.57	Ave	203	100	V	28.23	8.97	36.75	-36.96	60.06	94	-33.94	Fund.
2482	87.27	Ave	167	100	H	28.23	8.97	36.75	-36.96	50.76	94	-43.24	Fund.
4964	48.96	Peak	210	100	V	30.30	13.62	36.54	0	56.34	74	-17.66	Spurious
4964	44.99	Peak	158	100	H	30.30	13.62	36.54	0	52.37	74	-21.63	Spurious
4964	48.96	Ave	210	100	V	30.30	13.62	36.54	-36.96	19.38	54	-34.62	Spurious
4964	44.99	Ave	158	100	H	30.30	13.62	36.54	-36.96	15.41	54	-38.59	Spurious

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(10*0.142ms/100 ms) = -36.95 dB*

Please refer to the following plot for the Duty cycle calculation:





Duty Cycle Plots

7 FCC §15.249(d) – Out of Band Emissions

7.1 Applicable Standard

According to §15.249(d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

7.3 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US45303156	2009-03-25

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

7.4 Test Environmental Conditions

Temperature:	22°C
Relative Humidity:	31%
ATM Pressure:	102kPa

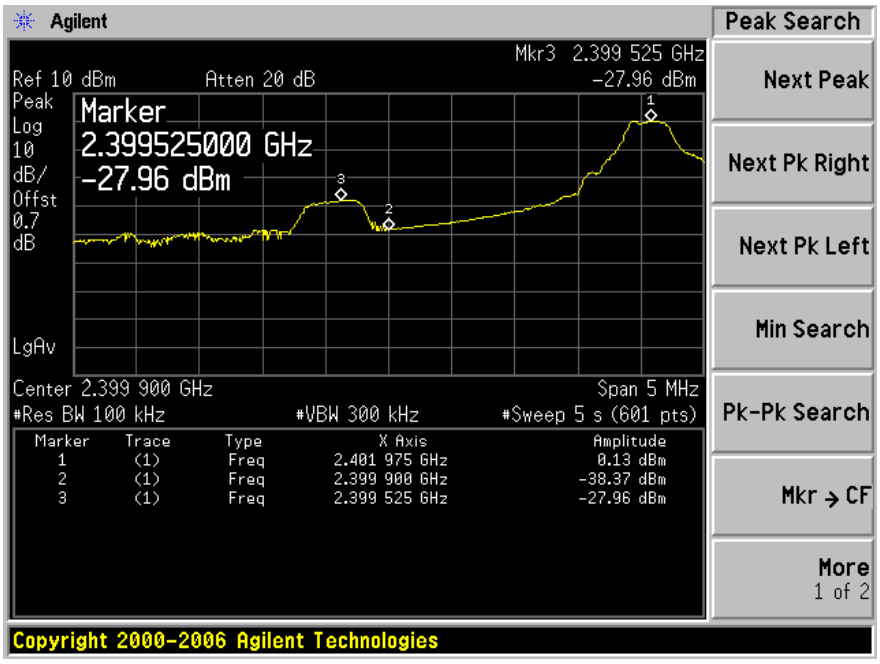
**The testing was performed by Kevin Li on 2009-10-29.*

7.5 Test Results

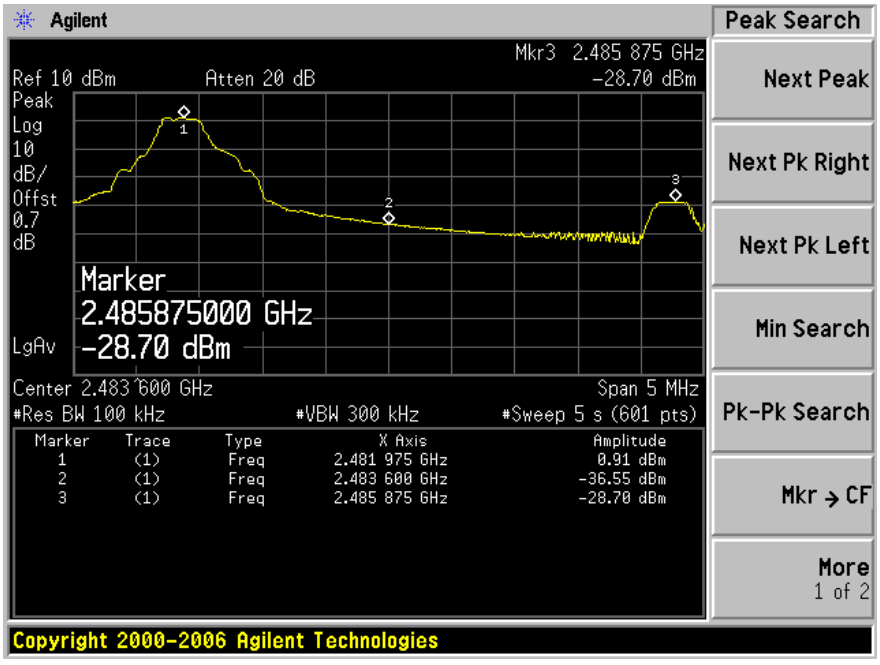
Please refer to the following plots for detailed results

Plots of 100 kHz Band Edge:

Lowest Channel

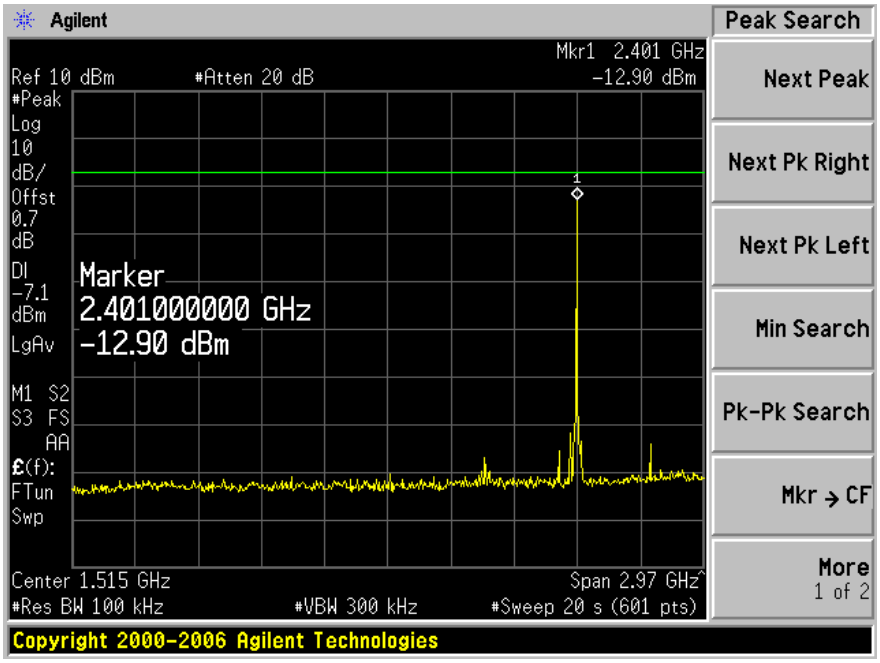


Highest Channel

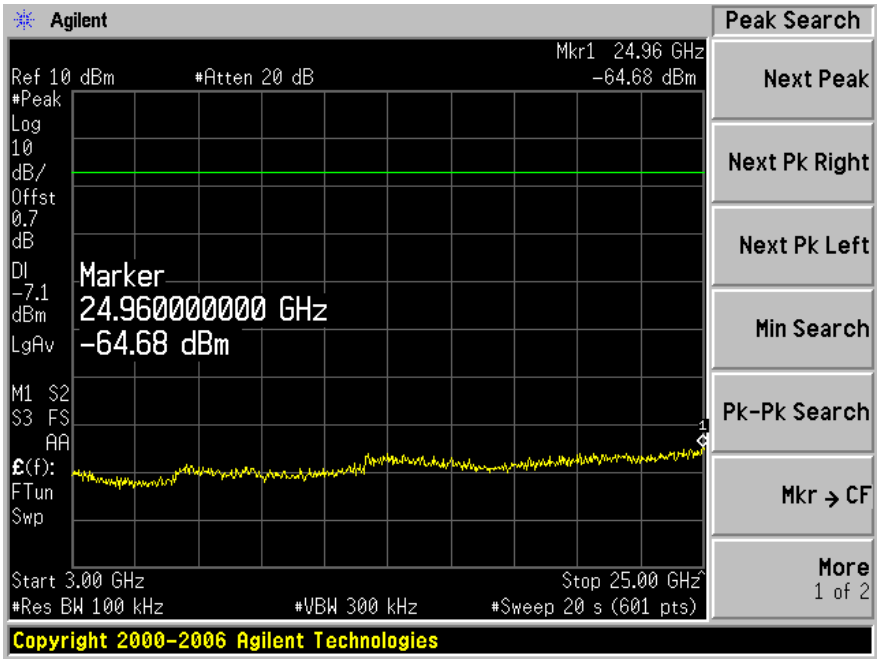


Plots of Spurious Emission at Antenna Port

Low Channel

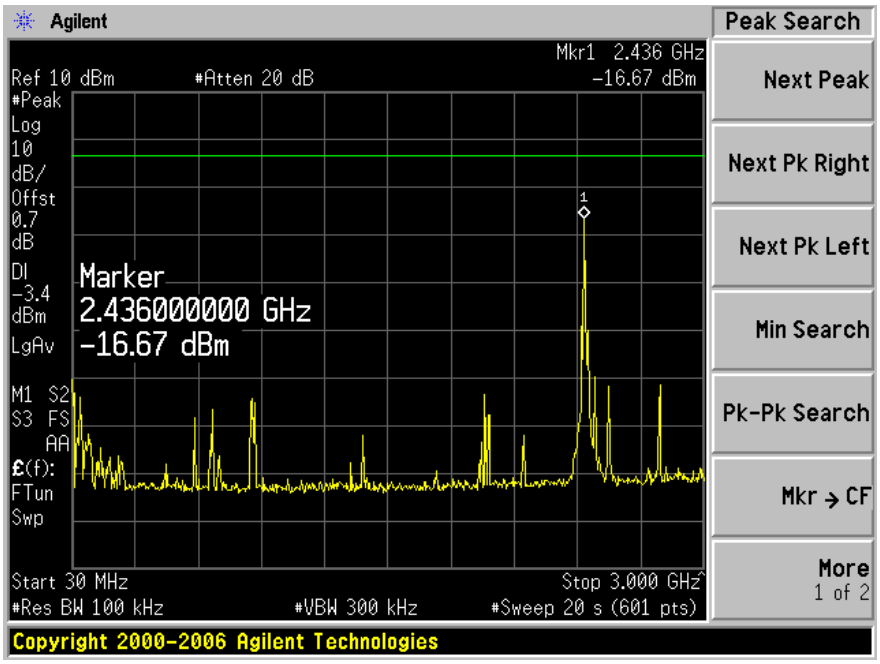


Plot 1-1: 30 MHz to 3 GHz

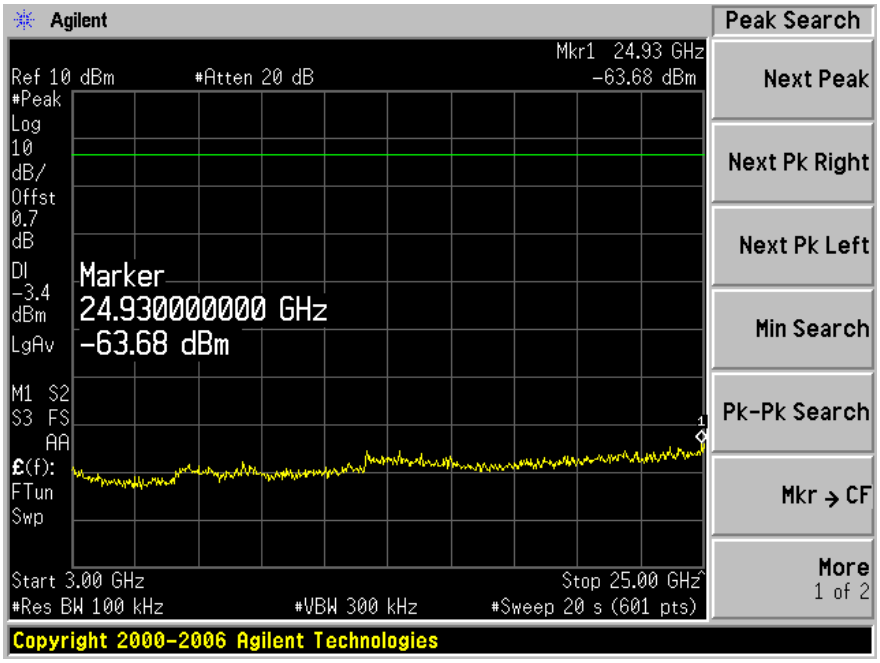


Plot 1-2: 3 to 25 GHz

Middle Channel

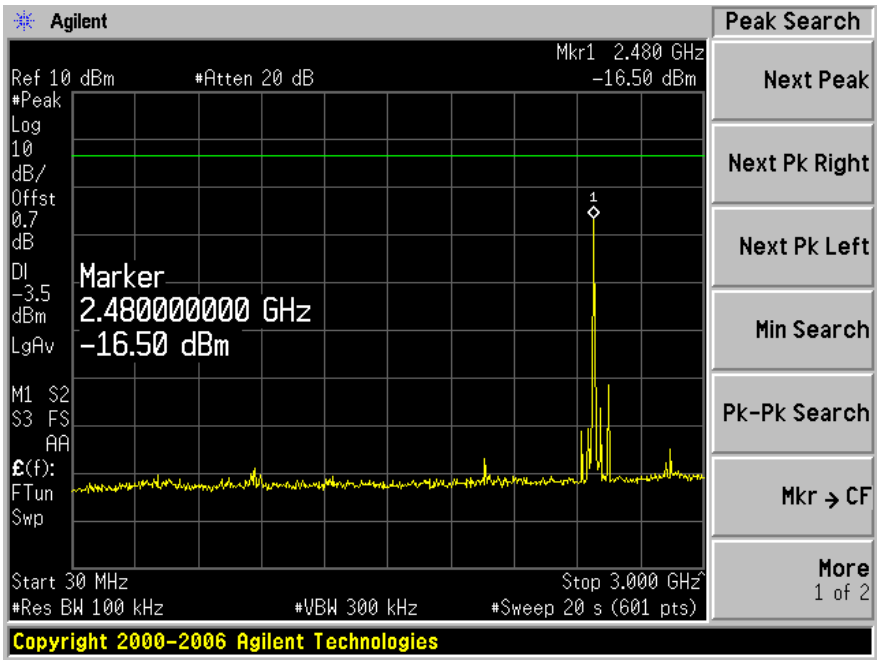


Plot 2-1: 30 MHz to 3 GHz

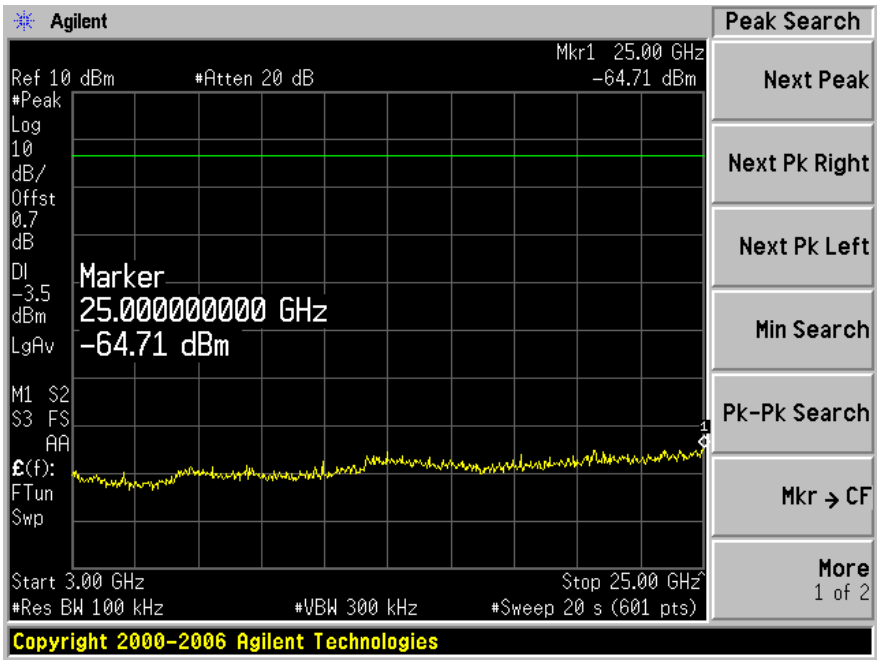


Plot 2-2: 3 to 25 GHz

High Channel



Plot 3-1: 30 MHz to 3 GHz



Plot 3-2: 3 to 25 GHz

8 FCC §15.109 Receiver Spurious Emission

8.1 Applicable Standard

According to FCC §15.109(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of emission (MHz)	Field strength of fundamental (millivolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

8.2 Test Setup

The radiated emissions tests were performed in the 3-meter open area test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15B limits.

8.3 EUT Setup

The radiated emissions tests were performed using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15C limits.

The spacing between the peripherals was 10 centimeters.

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

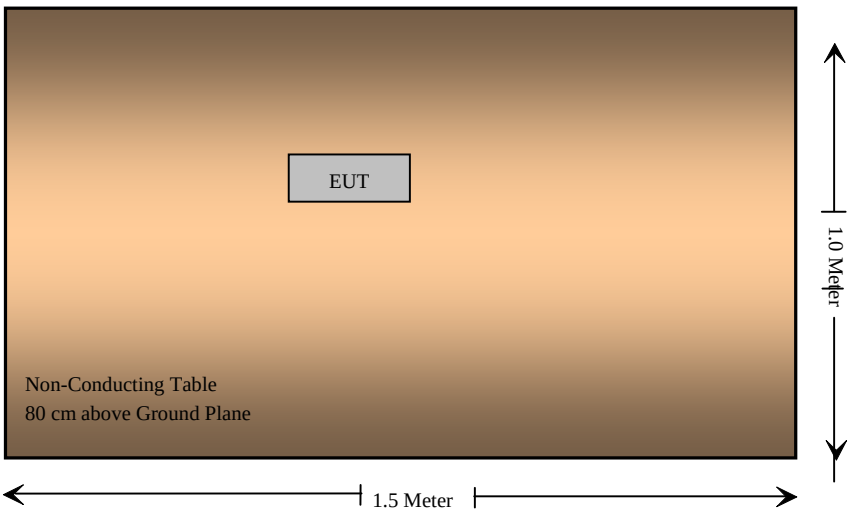
8.4 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US45303156	2009-03-25
Sunol Sciences	Antenna	JB1	A020106-1	2009-04-17
A.R.A	Horn Antenna	DRG-118/A	1132	2009-07-28
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2008-07-01
Ducommun	Pre-Amplifier	ALN-09173030-01	990297-01R	2009-03-04
HP	Pre-Amplifier	8447D	2944A06639	2009-06-05

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

8.5 Test Setup Block Diagram

Radiated Emissions



8.6 Test Environmental Conditions

Temperature:	22°C
Relative Humidity:	31 %
ATM Pressure:	101.2kPa

**The testing was performed by Kevin Li on 2009-10-29.*

8.7 Test Results

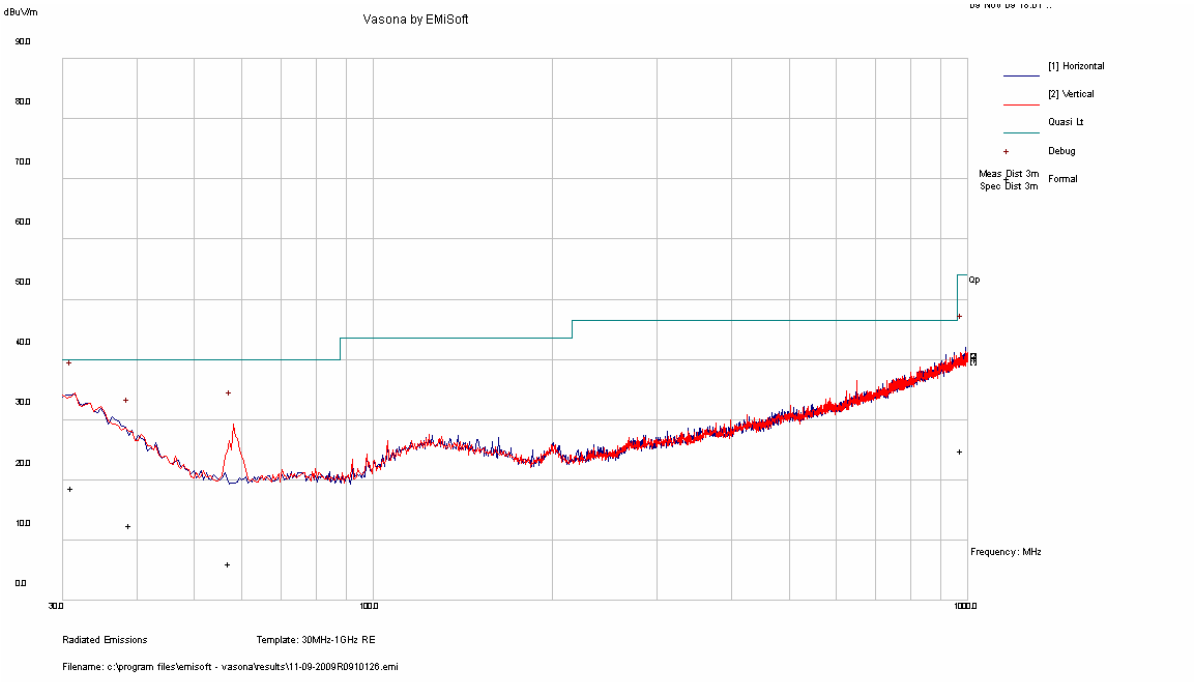
According to the recorded data, the EUT complied with RSS-210 Standard, and had the worst margin reading of:

Receiving Mode:

Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range
-21.34	31.52148	Vertical	30 MHz to 1 GHz
-	-	-	Above 1 GHz*

8.8 Radiated Emissions Test Plot & Data

30 MHz – 1 GHz (Middle Channel measured at 3 meters)



Frequency (MHz)	Corrected Quasi-Peak (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
31.52148	18.66	153	V	289	40	-21.34
39.42716	12.50	361	H	203	40	-27.50
57.92792	6.09	152	V	285	40	-33.91

Above 1 GHz (Middle Channel measured at 3 meters)

Frequency (MHz)	S.A. Reading (dBµV)	Table Azimuth (degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.109		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
-	-	-	-	-	-	-	-	-	-	-	*
-	-	-	-	-	-	-	-	-	-	-	*

**Note: All emission levels are at the noise floor and/or more then 20 dB below the limit.*

9 99% Occupied Bandwidth

9.1 Applicable Standard

FCC §15.215.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emissions bandwidth. (6 dB bandwidth for DTS)
4. Repeat above procedures until all frequencies measured were complete.

9.3 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US45303156	2009-03-25

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

9.4 Test Environmental Conditions

Temperature:	22°C
Relative Humidity:	33 %
ATM Pressure:	101.1kPa

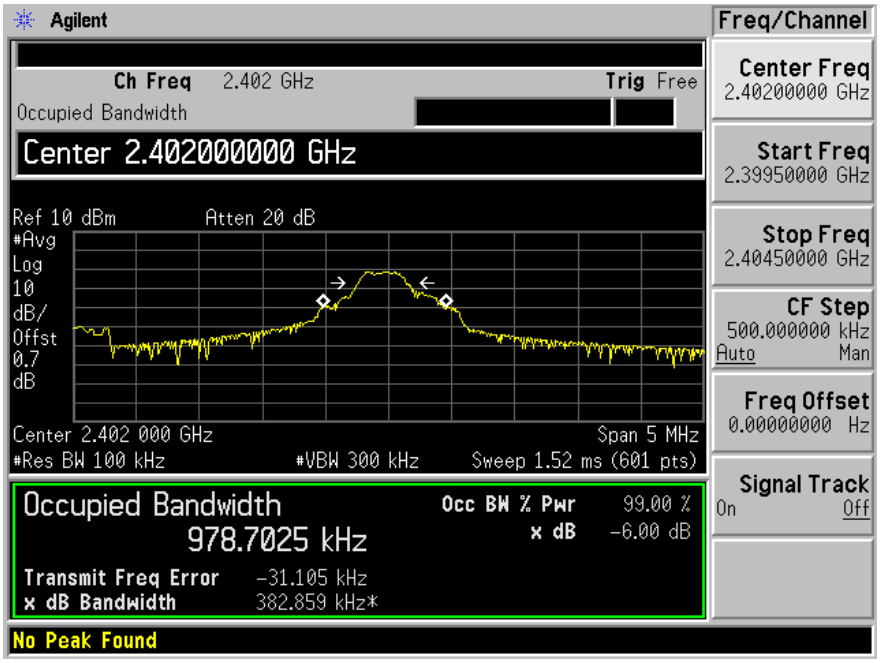
**The testing was performed by Kevin Li on 2009-11-02.*

9.5 Test Results

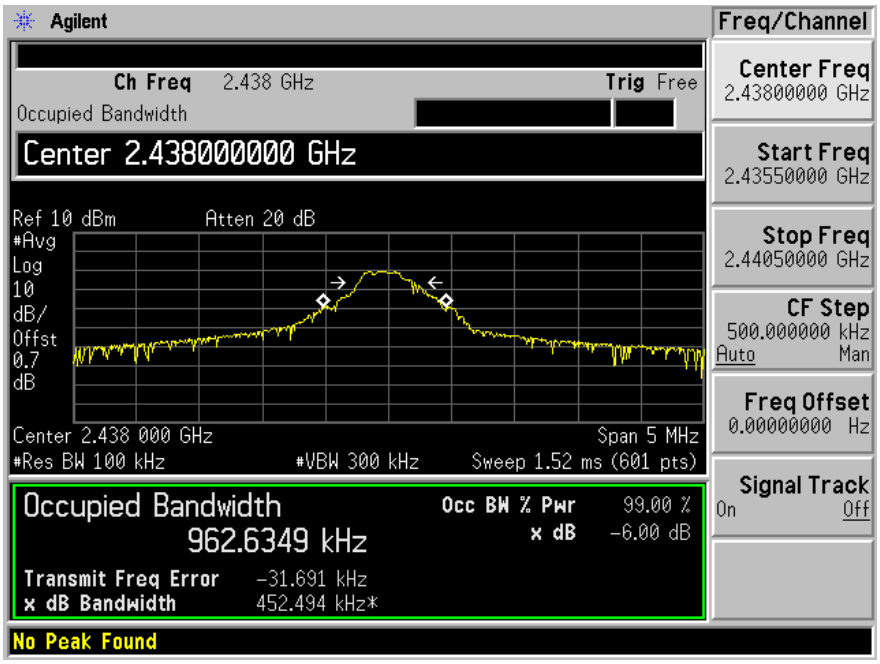
Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)
Low	2402	978.70
Middle	2438	962.63
High	2482	1011.4

Please refer to the following plots for detailed test results

Low Channel



Middle Channel



High Channel