Lab Code: 200167-0

FCC PART 15.247

INDUSTRY CANADA RSS-210, ISSUE 7, JUNE 2007

MEASUREMENT AND TEST REPORT

For

Psion Teklogix Inc.

2100 Meadowvale Blvd.
Mississauga, Ontario, Canada L5N 7J9

FCC ID: GM37527CG23
IC ID: 2739D-7527CG23

Report Type: ☒ Original Report	**Product Type:** Hand-Held Computer
Test Engineer(s):	Jack Liu
Report Number:	R0804256-BT
Testing Date(s):	2008-05-11, 2008-05-20
Report Date:	2008-05-30
Reviewed By:	Boni Baniqued
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1 GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

The *Psion Teklogix Inc*. Product, *FCC ID: GM37527CG23, IC: 2739D-7527CG23, model: 7527C G2* or the "EUT" as referred to this report is a Benchmark in Hand-Held Computing. It was engineered to meet the performance and durability requirements for data collection in some of the harshest environments. It has been ergonomically crafted with the user in mind in order to combine usability with performance.

** Testing was preformed on a post production sample provided by Psion Teklogix.*

1.2 Mechanical Description of EUT

The *Psion Teklogix Inc.* product, *FCC ID: GM37527CG23, IC: 2739D-7527CG23, model: 7527C G2 is* of plastic construction and measures approximately 223 mm **(L)** x 75/100 mm **(W)** x 31/42mm **(H)**, weighing approximately 455 g.

1.3 Antenna Description

Item Number	Model/Type	
Antenna	Model number:	WIC2450-A
	Manufacturer:	Centurion
	Frequency Range:	2.400-2.500 GHz
	Connector Type	Soldered
	Antenna Type	Chip Antenna

1.4 EUT Photo

Please refer to Exhibit C for addition EUT photographs.

1.5 Objective

This report is prepared on behalf of *Psion Teklogix Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules and Industry Canada RSS-210 Issue 7, June 2007.

The objective is to determine compliance with FCC and IC standards, rules and limits for this device including:

- Peak Output Power
- Channel Separation
- 20 dB (99%) Bandwidth
- Radiated Spurious Emission [Restricted bands, Harmonics & Spurious]
- Band Edge
- Dwell Time
- Hopping Channel Number
- AC line Conducted Emission
- Unwanted Spurious Emission & Receiving Spurious Emission

1.6 Related Submittal(s)/Grant(s)

No related submittals.

1.7 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.

1.8 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.

1.9 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 data rate settings that were used during testing:

Channel	Low	Middle	High
Frequency (MHz)	2402	2441	2480

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 Local Support Equipment List and Details

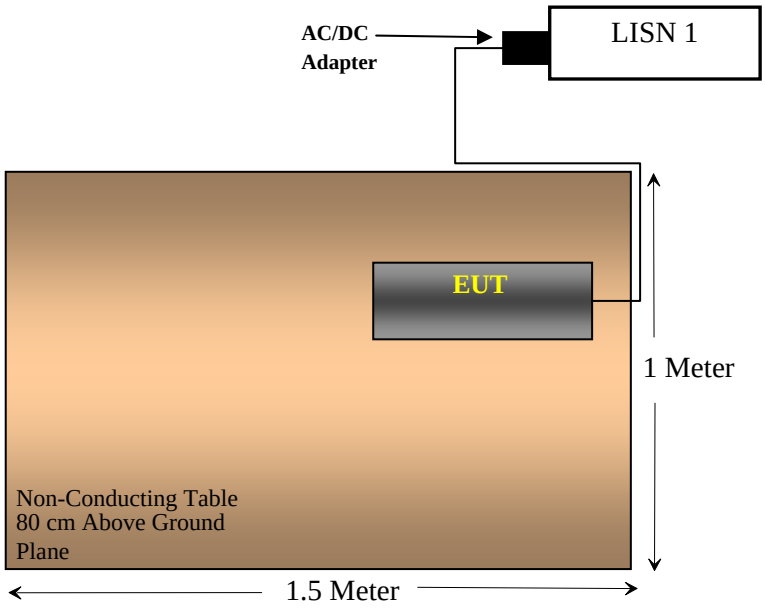
Manufacturer	Description	Model	Serial Number
TOSHIBA	Laptop	Satellite Pro 4200 Series	20016067J

2.6 Interface Ports and Cabling

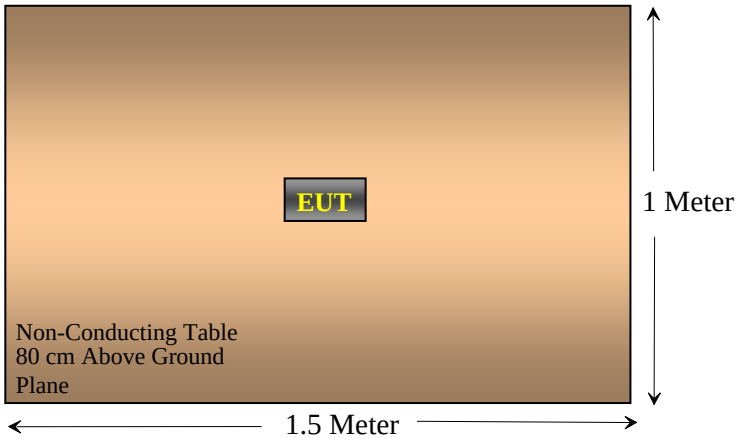
Cable Description	Length (m)	From	To
N/A	N/A	N/A	N/A

2.7 Test Setup Block Diagrams

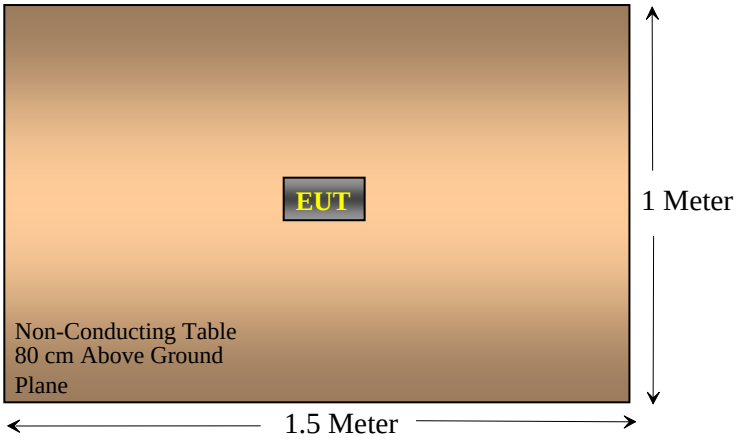
Conducted Emissions



Receiver Radiated Emissions



Transmitter Spurious Radiated Emissions



3 SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

FCC & RSS-210 Rules	Description of Test	Result	Note
§ 15.247 (b)(3); RSS-210	Peak Output Power	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§ 15.247 (a); RSS-210	Channel Separation	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§ 15.247 (a)(2); RSS-210	20 dB (99%) Bandwidth	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§ 15.247 (e),§15.205,§15.209 RSS-210	Radiated Spurious Emission [Restricted bands, Harmonics & Spurious]	Compliant	
§ 15.247 (e),§15.209 RSS-210	Band Edge	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§ 15.247 (a); RSS-210	Dwell Time	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§ 15.247 (a); RSS-210	Hopping Channel Number	N/A	Refer to FCC ID GM37525BTB IC:2739D-7525BTB reports
§15.107; RSS-Gen	AC Line conducted emission	Compliant	
§15.109; RSS-Gen	Unwanted spurious emission Receiver spurious emission	Compliant	

4 FCC §15.203 & IC RSS-Gen §7.1.4- ANTENNA REQUIREMENT

4.1 Applicable Standard

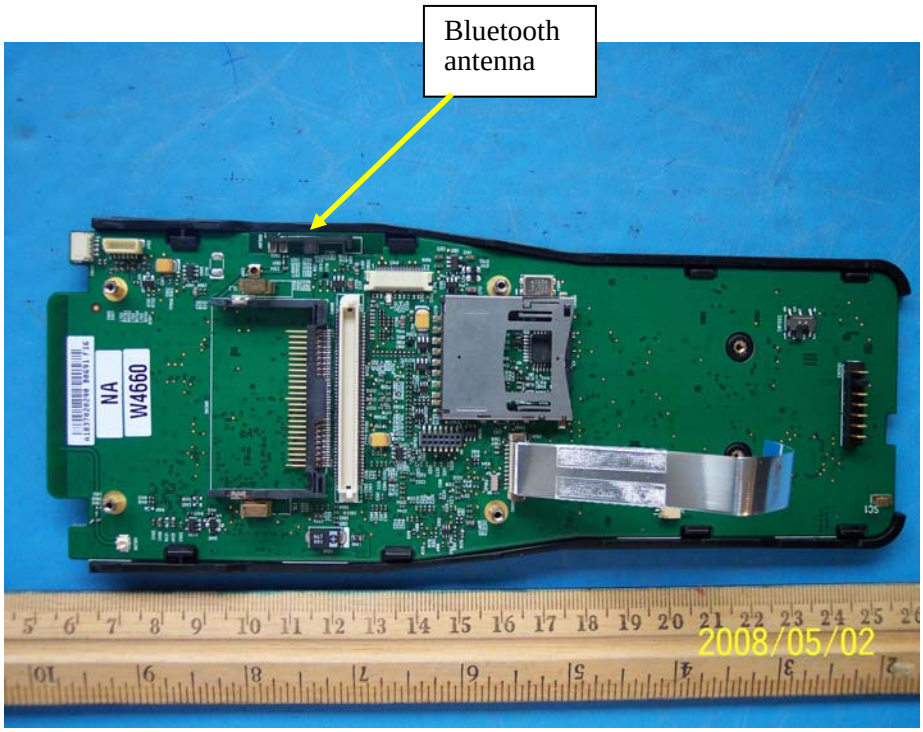
According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered 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.

And according to § 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 RSS-Gen§7.1.4, 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.

4.2 Antenna Connected Construction

The integral antenna is permanently mounted on the printed circuit board and located inside the enclosure, Please refer to the EUT internal photos.



5 FCC §15.107, IC RSS-Gen - CONDUCTED EMISSIONS

5.1 Section 15.107 & RSS-Gen Conducted limits:

For a Class A digital device 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 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 (dBuV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.55-30	73	60

** Decreases with the logarithm of the frequency.*

5.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4 – 2003 measurement procedure. The specification used was FCC/IC consumer device limits.

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

The EUT is gang charger connected to 120 V/60 Hz provided by LISN-1.

5.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Solar Electronics	LISN	9252-R-24-BNC	511205	2007-07-07
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.595 0K03	100337	2008-04-12

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

5.4 Test Procedure

During the conducted emissions test, the power cord of the system was connected to the main outlet of the LISN-1.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a "QP". Average readings are distinguished with an "Ave".

5.5 Environmental Conditions

Temperature:	16 °C
Relative Humidity:	40 %
ATM Pressure:	102.0 kPa

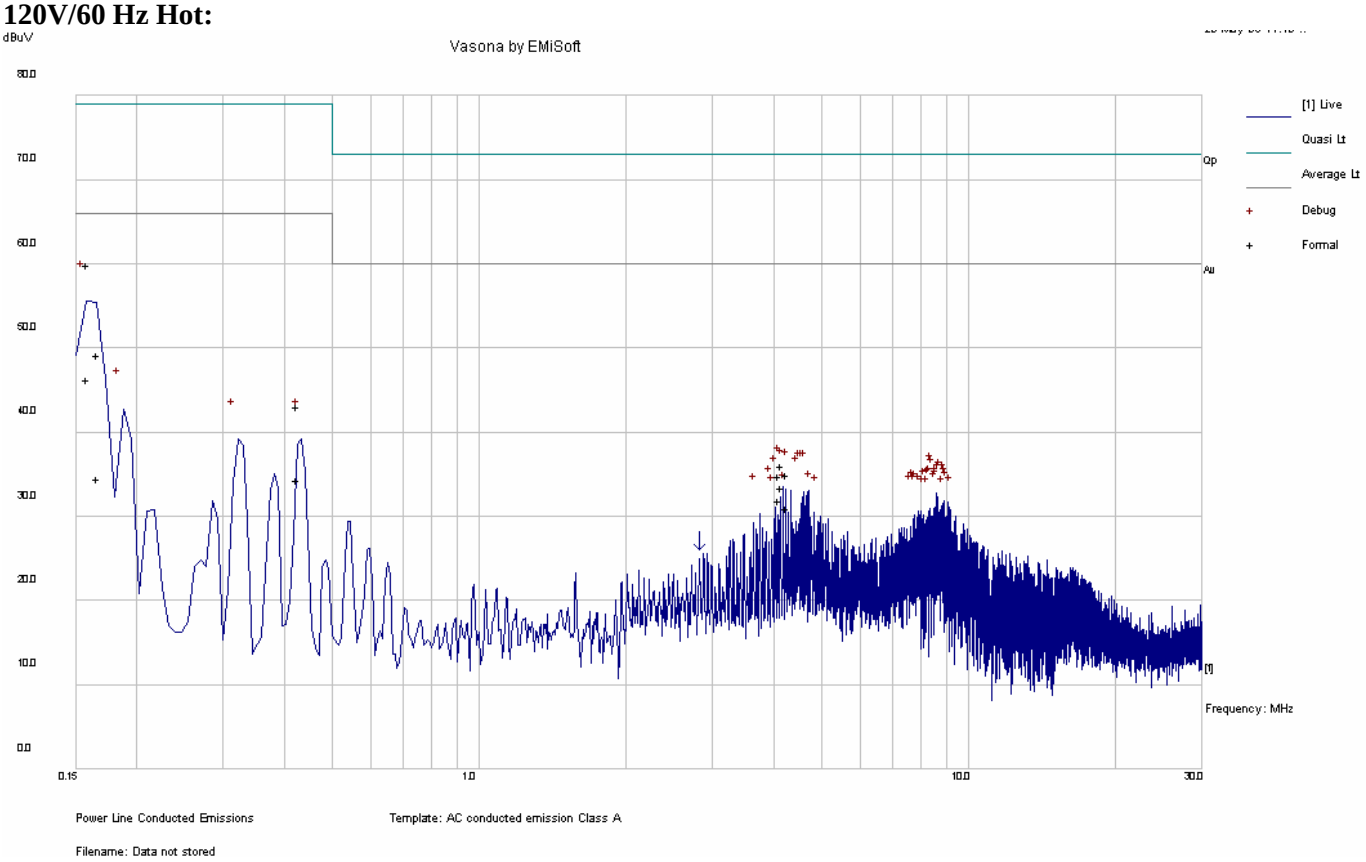
**The testing was performed by Jack Liu from 2008-05-11*

5.6 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC & IC standard's conducted emissions limits for consumer devices, with the *worst* margin reading of:

Connection: 5 VDC from AC/DC adapter connected to 120 V/ 60 Hz			
Margin (dB)	**Frequency (MHz)**	**Conductor (Hot/Neutral)**	**Range (MHz)**
-23.79	0.162	Hot	0.150 MHz to 30 MHz
-24.59	0.163	Neutral	0.150 MHz to 30 MHz

120V/60 Hz Hot:



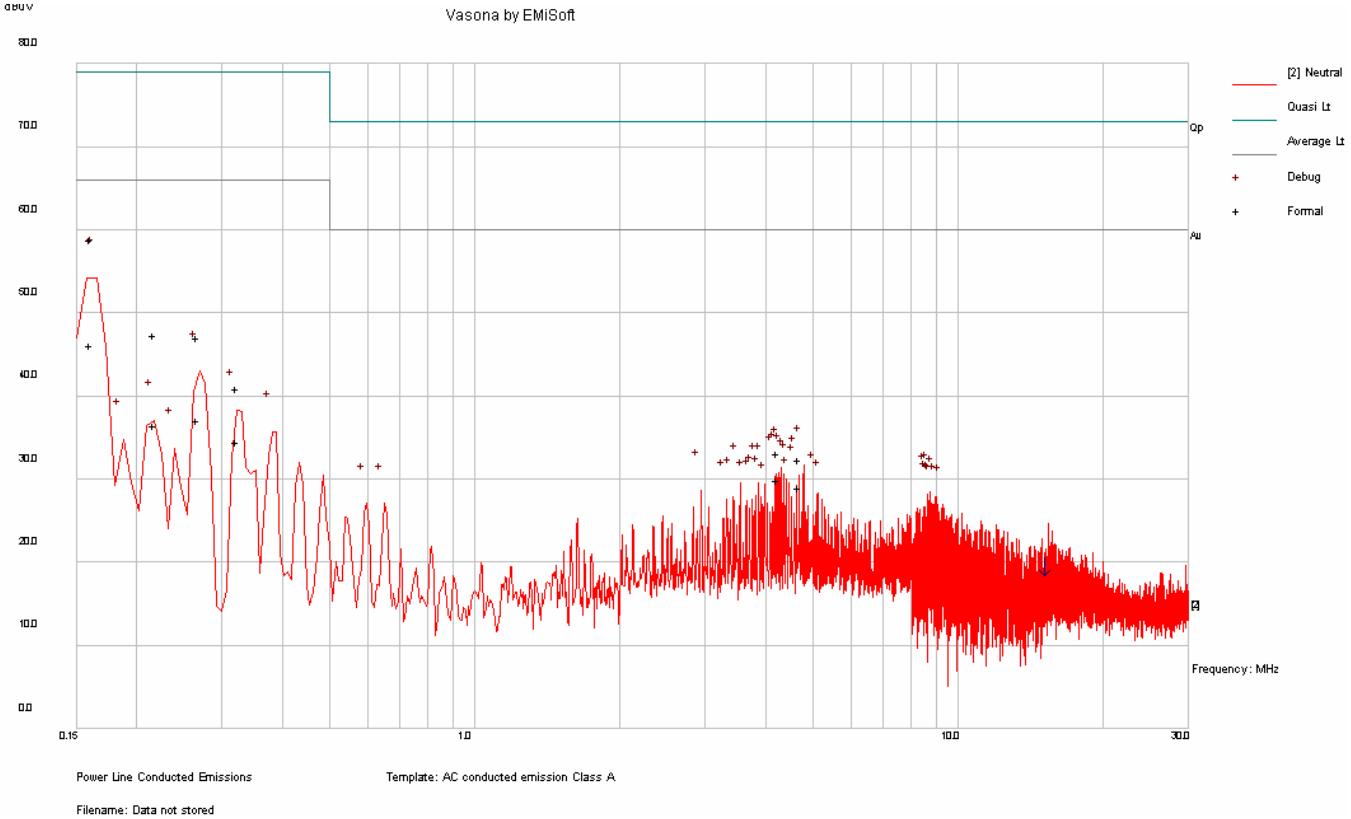
Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.162	55.21	H	79	-23.79
0.17	44.47	H	79	-34.53
0.435	38.38	H	79	-40.62
4.241	31.32	H	73	-41.68
4.351	30.25	H	73	-42.75
4.184	30.08	H	73	-42.92

Final Measurement Average Detector

Frequency (MHz)	Average (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.162	41.56	H	66	-24.44
4.241	28.73	H	60	-31.27
4.184	27.17	H	60	-32.83
4.351	26.23	H	60	-33.77
0.17	29.70	H	66	-36.30
0.435	29.60	H	66	-36.40

120V/60 Hz Neutral:



Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.163	54.13	N	79	-24.87
0.222	42.63	N	79	-36.37
0.273	42.24	N	79	-36.76
0.329	36.18	N	79	-42.82
4.306	28.32	N	73	-44.68
4.796	27.62	N	73	-45.38

Final Measurement Average Detector

Frequency (MHz)	Average (dBµV)	Conductor (Hot/Neutral)	Limit (dBµV)	Margin (dB)
0.163	41.41	N	66	-24.59
0.273	32.36	N	66	-33.64
0.222	31.69	N	66	-34.31
4.306	25.15	N	60	-34.85
4.796	24.31	N	60	-35.69
0.329	29.80	H	66	-36.20

6 FCC §15.205, §15.209 & §15.247(e), IC RSS-210 - RADIATED SPURIOUS 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 0.495 – 0.505 2.1735 – 2.1905 4.125 – 4.128 4.17725 – 4.17775 4.20725 – 4.20775 6.215 – 6.218 6.26775 – 6.26825 6.31175 – 6.31225 8.291 – 8.294 8.362 – 8.366 8.37625 – 8.38675 8.41425 – 8.41475 12.29 – 12.293 12.51975 – 12.52025 12.57675 – 12.57725 13.36 – 13.41	16.42 – 16.423 16.69475 – 16.69525 25.5 – 25.67 37.5 – 38.25 73 – 74.6 74.8 – 75.2 108 – 121.94 123 – 138 149.9 – 150.05 156.52475 – 156.52525 156.7 – 156.9 162.0125 –167.17 167.72 – 173.2 240 – 285 322 – 335.4 399.9 – 410 608 – 614	960 – 1240 1300 – 1427 1435 – 1626.5 1645.5 – 1646.5 1660 – 1710 1718.8 – 1722.2 2200 – 2300 2310 – 2390 2483.5 – 2500 2690 – 2900 3260 – 3267 3.332 – 3.339 3 3458 – 3 358 3.600 – 4.400	4. 5 – 5. 15 5. 35 – 5. 46 7.25 – 7.75 8.025 – 8.5 9.0 – 9.2 9.3 – 9.5 10.6 – 12.7 13.25 – 13.4 14.47 – 14.5 15.35 – 16.2 17.7 – 21.4 22.01 – 23.12 23.6 – 24.0 31.2 – 31.8 36.43 – 36.5 Above 38.6

As per FCC §15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
IC RSS-210 the measurement method shall be described in the test report. The same parameter, peak power or average power, used for the transmitter output power measurement shall be used for unwanted emission measurements. The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate or carrier frequency), or from 30 MHz, whichever is the lower, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

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 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.

6.4 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Mini-Circuits	Pre amplifier	ZKL-2	7786100643	2008-01-02
HP	Pre amplifier	8449B	3147A00400	2007-11-02
Sunol Science Corp	Combination Antenna	JB1 Antenna	A103105-3	2008-03-25
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2007-06-07
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

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

6.5 Test Procedure

For the radiated emissions test, the EUT, 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 1000MHz:

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

Above 1000MHz:

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

6.6 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

6.7 Environmental Conditions

Temperature:	16 °C
Relative Humidity:	40 %
ATM Pressure:	102.0 kPa

**The testing was performed by Jack Liu from 2008-05-11.*

6.8 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC and IC requirements, and had the worst margin readings of:

Harmonics & Spurious

30-1000 MHz:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-9.64	455.006	Vertical	Low, 30 MHz – 1GHz
-9.93	486.210	Vertical	Mid, 30 MHz – 1GHz
-0.47	423.826	Vertical	High, 30 MHz – 1GHz

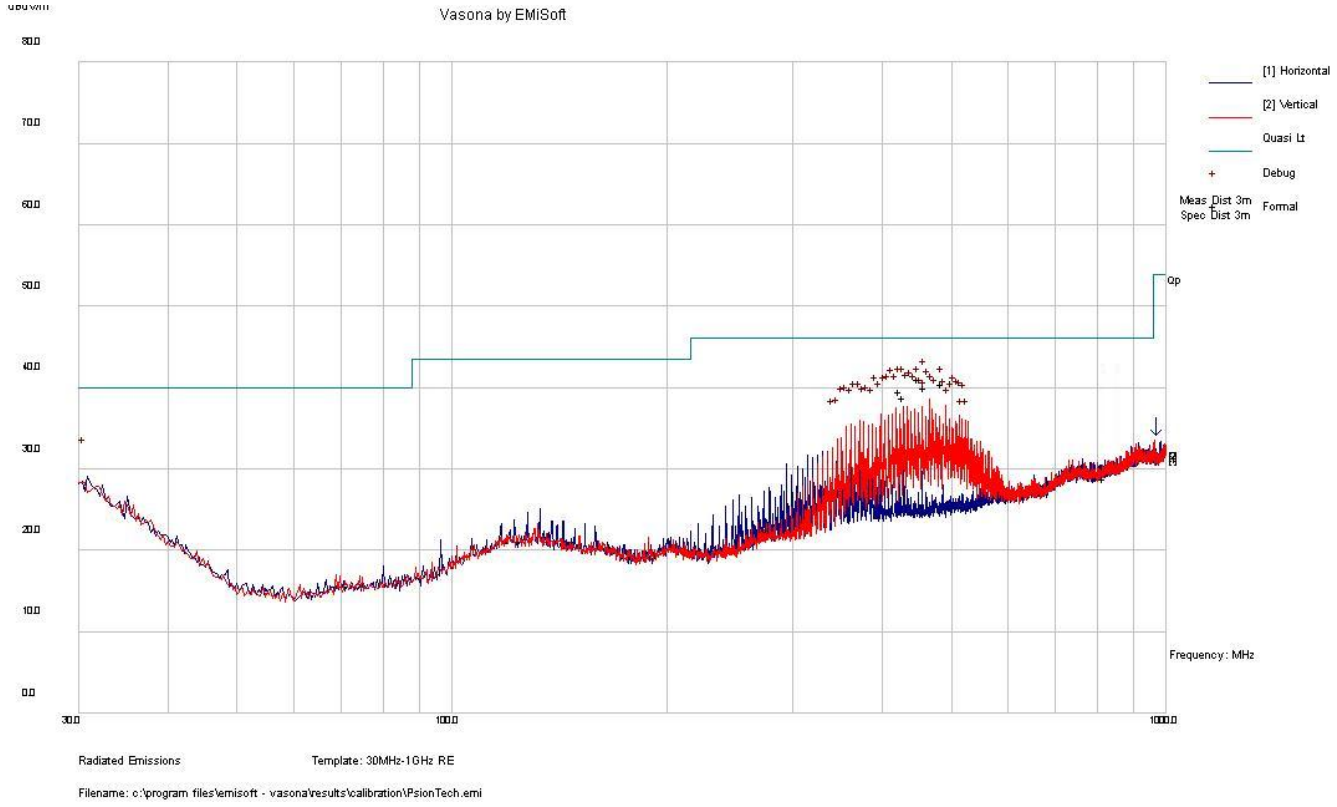
Above 1GHz

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-13.01	4804	Vertical	Low, 1GHz – 25GHz
-21.04	4882	Vertical	Mid, 1GHz – 25GHz
-11.81	4960	Vertical	High, 1GHz – 25GHz

6.9 Radiated Emissions Test plot & data:

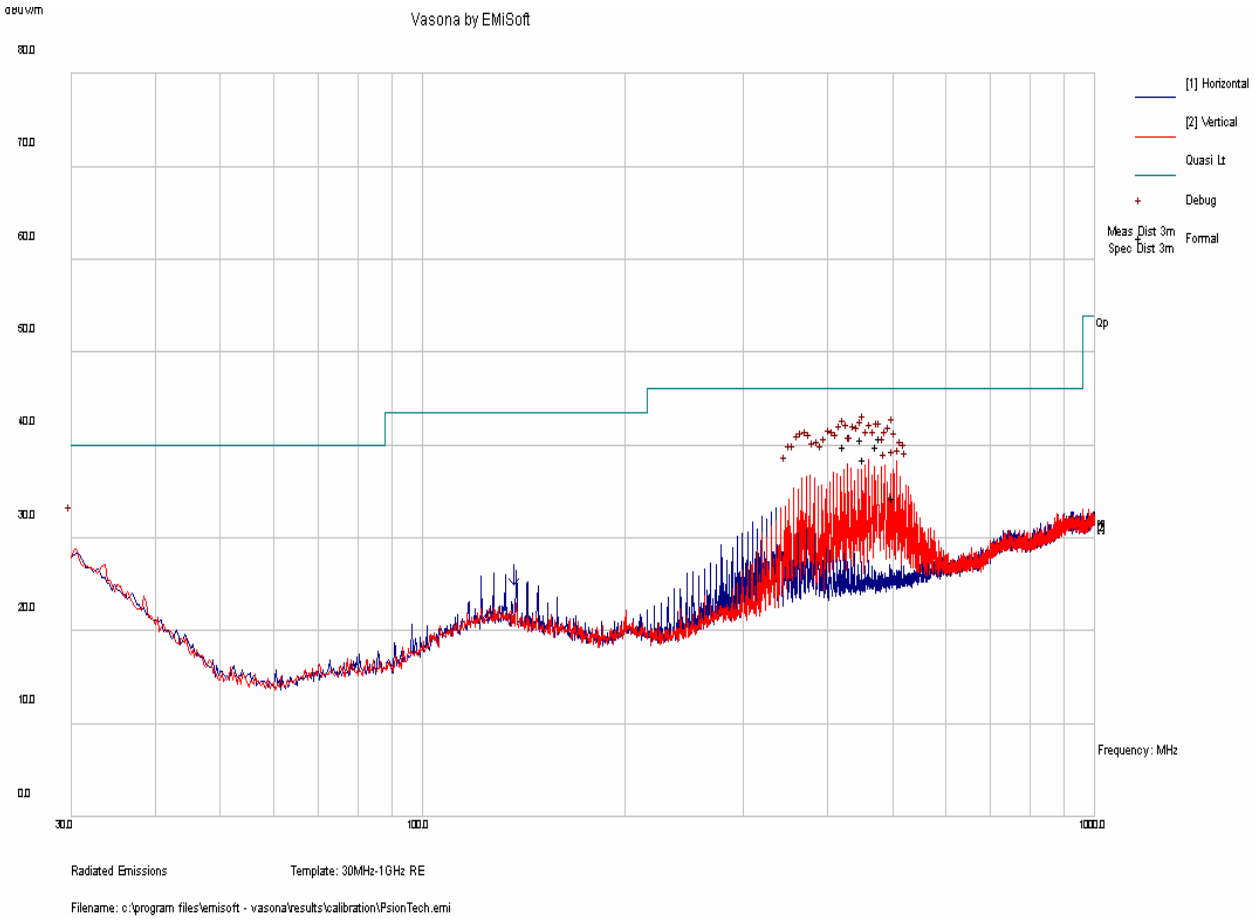
Primary scan 30MHz -1GHz

Low Channel 2402 MHz



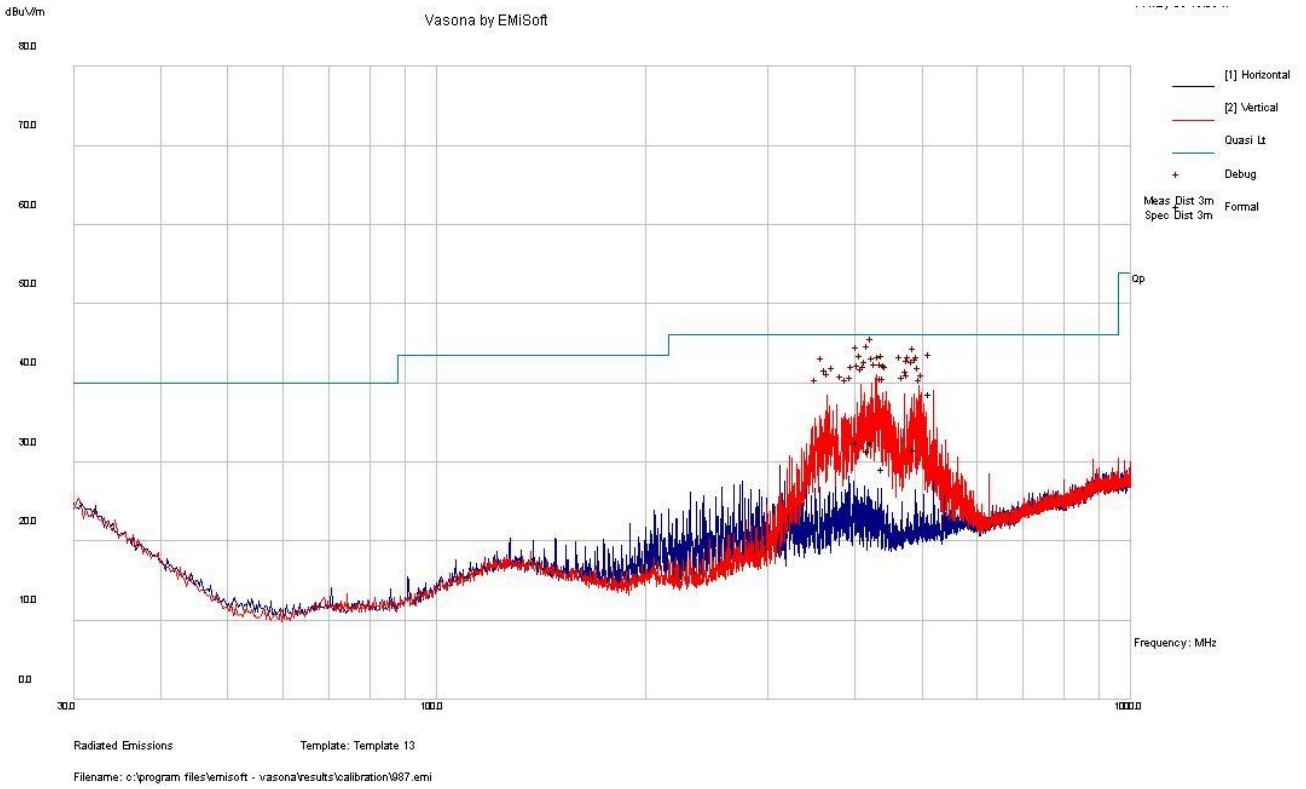
Frequency (MHz)	Quasi-Peak (dBµV/m)	Antenna Height (cm)	Correction Factor (dB)	Ant. Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
455.006	36.36	104	-12.92	V	3	46	-9.64
491.415	35.65	104	-12.28	V	3	46	-10.35
465.413	35.21	98	-12.72	V	347	46	-10.79
429.014	34.84	110	-13.06	V	43	46	-11.16
434.209	34.09	89	-13.06	V	306	46	-11.91
829.763	24.16	194	-8.06	V	166	46	-21.84

Middle Channel 2441 MHz



Frequency (MHz)	Quasi-Peak (dBµV/m)	Antenna Height (cm)	Correction Factor (dB)	Ant. Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
486.21	36.07	97	-12.35	V	354	46	-9.93
455.023	35.91	98	-12.92	V	361	46	-10.09
429.003	35.04	108	-13.06	V	36	46	-10.96
481.013	35.04	114	-12.43	V	0	46	-10.96
460.206	33.67	118	-12.81	V	30	46	-12.33
507.011	29.58	230	-12.24	V	361	46	-16.42

High channel 2480 MHz



Frequency (MHz)	Quasi-Peak (dBµV/m)	Antenna Height (cm)	Correction Factor (dB)	Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
423.826	45.53	100	-13.08	V	35	46	-0.47
429.025	44.67	125	-13.06	V	307	46	-1.33
413.425	44.35	106	-13.25	V	308	46	-1.65
439.436	42.12	126	-13.07	V	320	46	-3.88
434.252	40.47	149	-13.06	V	24	46	-5.53
408.226	37.24	292	-13.34	V	341	46	-8.76

Radiated Emission at 3 meters, 1 GHz – 25 GHz

Low Channel 2402 MHz

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2402	58.96	151	1.44	V	29.1	5.65	0	93.71			Fund/Peak
2402	58.48	151	1.44	V	29.1	5.65	0	93.23			Fund/Ave.
2402	54.35	149	1.43	H	29.1	5.65	0	89.1			Fund/Peak
2402	53.73	149	1.43	H	29.1	5.65	0	88.48			Fund/Ave.
4804	41.53	180	118	V	33	4.99	38.53	40.99	54	-13.01	Ave.
4804	35.56	168	50	H	33	4.99	38.53	35.02	54	-18.98	Ave
4804	49.26	180	118	V	33	4.99	38.53	48.72	74	-25.28	Peak
4804	43.39	168	50	H	33	4.99	38.53	42.85	74	-31.15	Peak

Middle Channel 2441 MHz

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2441	59.76	149	1.41	V	29.1	5.71	0	94.57			Fund/Peak
2441	59.35	149	1.41	V	29.1	5.71	0	94.16			Fund/Ave.
2441	54.62	149	1.41	H	29.1	5.71	0	89.43			Fund/Peak
2441	53.88	149	1.41	H	29.1	5.71	0	88.69			Fund/Ave.
4882	40.31	12	2.18	V	33.1	4.91	38.4	39.92	54	-21.04	Ave.
4882	30.84	0	1.45	H	33.1	4.91	38.4	30.45	54	-22.38	Ave
4882	44.11	12	2.18	V	33.1	4.91	38.4	43.72	74	-30.07	Peak
4882	41.29	0	1.45	H	33.1	4.91	38.4	40.9	74	-33.1	Peak

High Channel 2480 MHz

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2480	60.03	150	1.4	V	29.2	5.77	0	95			Fund/Peak
2480	59.66	150	1.4	V	29.2	5.77	0	94.63			Fund/Ave.
2480	54.33	148	1.5	H	29.2	5.77	0	89.3			Fund/Peak
2480	53.58	148	1.5	H	29.2	5.77	0	88.55			Fund/Ave.
4960	41.98	18	1.9	V	33.5	4.94	38.23	42.19	54	-11.81	Ave.
4960	24.73	212	1.4	H	33.5	4.94	38.23	24.94	54	-29.06	Ave
4960	42.68	18	1.9	V	33.5	4.94	38.23	42.89	74	-31.11	Peak
4960	35.72	212	1.4	H	33.5	4.94	38.23	35.93	74	-38.07	Peak

Restricted Band Edge (Near Band Edge): Low channel

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2388.81	51.42	190	1.2	V	29	3.68	39.02	45.08	54	-8.92	Ave
2379.353	48.35	130	1.14	H	29	3.68	39.02	42.01	54	-11.99	Ave
2388.81	47.66	190	1.2	V	29	3.68	39.02	41.32	74	-32.68	Peak
2379.353	43.85	130	1.14	H	29	3.68	39.02	37.51	74	-36.49	Peak

Restricted Band Edge (Near Band Edge): High channel

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
2489.305	40.89	200	1.7	V	29.2	3.72	39.25	34.56	54	-19.44	Ave
2491.522	39.59	136	1.4	H	29.2	3.72	39.25	33.26	54	-20.74	Ave
2489.305	44.15	200	1.7	V	29.2	3.72	39.25	37.82	74	-36.18	Peak
2491.522	43.31	136	1.4	H	29.2	3.72	39.25	36.98	74	-37.02	Peak

7 FCC §15.109, RSS-GEN – UNWANTED SPURIOUS EMISSIONS AND RECEIVER SPURIOUS EMISSIONS

7.1 Applicable Standard

According to §15.247(a)(2), 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 (microvolt/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

7.2 Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date
Mini-Circuits	Pre amplifier	ZKL-2	7786100643	2008-01-02
HP	Pre amplifier	8449B	3147A00400	2007-11-02
Sunol Science Corp	Combination Antenna	JB1 Antenna	A103105-3	2008-03-25
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2007-06-07
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

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

7.3 Environmental Conditions

Temperature:	16 °C
Relative Humidity:	40 %
ATM Pressure:	102.0 kPa

**The testing was performed by Jack Liu from 2008-05-11.*

7.4 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC and IC requirements, and had the worst margin readings of:

Unwanted Emissions and Receiving Spurious Emission

30-1000 MHz:

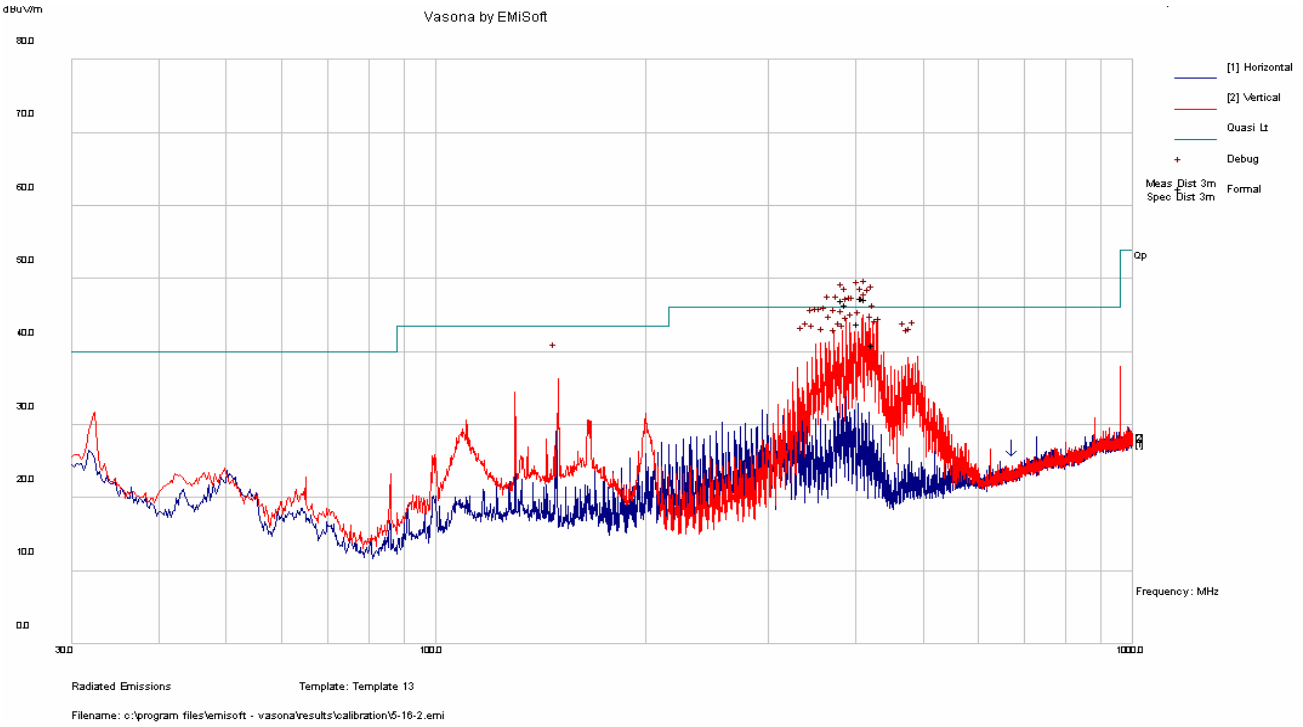
Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-3.47	413.412	Vertical	30 MHz to 1000 MHz

Above 1GHz:

Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-11.44	4946.544	Vertical	1GHz – 25GHz

7.5 Radiated Emissions Test plot & data:

EUT at Receiving Mode Measured at 3 meters, 30MHz -1GHz



Frequency (MHz)	Quasi-Peak (dBµV/m)	Antenna Height (cm)	Correction Factor (dB)	Ant. Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
413.412	42.53	141	-13.25	V	17	46	-3.47
418.618	42.47	99	-13.16	V	304	46	-3.53
387.399	42.24	127	-13.42	V	350	46	-3.76
392.617	41.63	142	-13.44	V	339	46	-4.37
409.341	39.08	135	-13.32	V	38	46	-6.92
429.373	36.16	99	-13.06	V	327	46	-9.84

EUT at Receiving Mode Measured at 3 meters, 1 GHz – 25 GHz

Frequency (MHz)	Receiver Reading (dBµV)	Azimuth Degrees	Ant. Height (m)	Ant. Polar. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comments
4946.544	42.35	200	1.6	V	33.5	4.94	38.23	42.56	54	-11.44	Ave
4828.447	39.54	17	1.93	H	33	4.99	38.53	39.00	54	-15.00	Ave
4946.544	45.84	200	1.6	V	33.5	4.94	38.23	46.05	74	-27.95	Peak
4828.447	44.12	17	1.93	H	33	4.99	38.53	43.58	74	-30.42	Peak