Lab Code: 200167-0

FCC PART 15 SUBPART C
IC RSS-210 ISSUE 8, DEC 2010
TEST AND MEASUREMENT REPORT

For

Intelleflex Corporation

2465 Augustine Drive, Suite 102,

Santa Clara, CA 95054, USA

FCC ID: VBLCMR-6100
IC: 7151A-CMR6100

Report Type:	**Product Type:**
Original Report	Multi-Protocol Reader

Test Engineer:	Wei Sun
Report Number:	R1202101-247
Report Date:	2012-05-15
Reviewed By:	Victor Zhang RF/EMC Lead
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1202101-247	Original Report	2012-05-15

1 General Information

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *Intelleflex Corporation* and their product, *model: CMR-6100, FCC ID: VBLCMR-6100, IC: 7151A-CMR6100 or* the "EUT" as referred to this report. The EUT is a Multi-Protocol Reader with Multi-Tech GPRS Modem. The EUT has two antennas and only one antenna can transmit at a time.

1.2 Mechanical Description of EUT

The EUT measures approximately 30.5 cm (L) x 16.8 cm (W) x 2.8 cm (H) and weighs approximately 0.9 g.

The data gathered are from a typical production sample provided by the manufacturer with serial number: R1202012-1 assigned by BACL.

1.3 Objective

This report is prepared on behalf of *Intelleflex Corporation* 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.

1.4 Related Submittal(s)/Grant(s)

N/A

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2003.

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 system was configured for testing in accordance with 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 software used, CommSet.EXE version 1.27 was provided by client and verified by Wei Sun to comply with the standard requirements being tested against.

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	Serial Number
DELL	Laptop	PP18L	-

2.6 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
CUI Inc	Switching Adapter	DSA-60W-20	ETS240250U-P11P-DB-IM

2.7 Interface Ports and Cabling

Cable Description	Length (feet)	From	To
RF Cable	16	EUT	Antenna
RF Cable	26	EUT	Antenna

2.8 Internal Parts List and Details

Manufacturers	Descriptions	Models	Serial Numbers
MultiTech	GSM/GPRS Modem	MTSMC-G2-GP	5003224e
Intelleflex Corp	Main PCB	CMR-6100	IA120300261A

3 Summary of Test Results

FCC & IC Rules	Description of Test	Result
FCC §15.247 (i), §2.1091 IC RSS-102	RF Exposure	Compliant
FCC §15.203 IC RSS-Gen §7.1.2	Antenna Requirements	Compliant
FCC §15.207 (a) IC RSS-Gen §7.2.4	AC Line Conducted Emissions	Compliant
FCC §15.247(d) IC RSS-210 §A8.5	Spurious Emissions at Antenna Port	Compliant
FCC §15.205, §15.209, §15.247(d) IC RSS-210 §2.2, §A8.5	Restricted Bands, Spurious Radiated Emissions	Compliant
FCC §15.247 (a)(1)(i) IC RSS-210 §A8.1(c)	20 dB Channel Bandwidth	Compliant
FCC §15.247 (a)(1) IC RSS-210 §A8.1(b)	Hopping Channel Separation	Compliant
FCC §15.247 (a)(1)(i) IC RSS-210 §A8.1(c)	Dwell Time	Compliant
FCC §15.247(a)(1)(i) IC RSS-210 §A8.1(c)	Number of Hopping Channels	Compliant
FCC §15.247(b)(2) IC RSS-210 §A8.4 (1)	Maximum Peak Output Power	Compliant
FCC §15.247(d) IC RSS-210 §A8.5	Band Edge	Compliant
FCC Part 15.109 IC RSS-Gen §6	Receiver Spurious Emission	Compliant

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

4.1 Applicable Standard

For intentional device, according to FCC Part §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Per IC RSS-Gen §7.1.2, A transmitter can only be sold or operated with antennas with which it was certified. A transmitter maybe 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 IC 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 IC RSS-210 Annex 8 or RSS-210 Annex 9, the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to IC RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

4.2 Result

The EUT has a unique reverse polarity TNC connector and maximum gain of 6 dBi antenna, which 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.

900 MHz Radio Antenna

5 FCC §15.207 & IC RSS-Gen §7.2.4 - Conducted Emissions

5.1 Applicable Standards

As per FCC §15.207 & IC RSS-Gen §7.2.4 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 (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [1]	56 to 46 [1]
0.5-5	56	46
5-30	60	50

***Note* [1]:** *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 Part15.207 and IC RSS-Gen limits.

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

The AC/DC power adapter of the EUT was connected with LISN-1 which provided 120 V/60 Hz AC power.

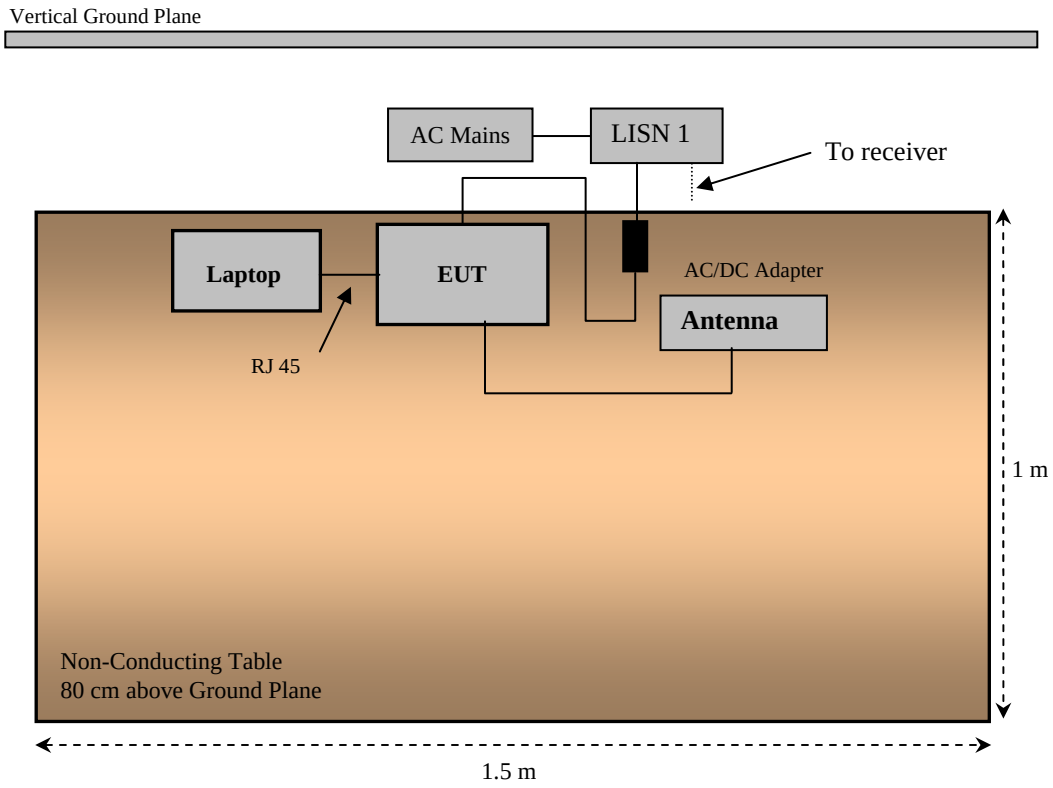
5.3 Test Procedure

During the conducted emissions test, the power cord of the EUT host system was connected to the mains outlet of the LISN-2.

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”.

5.4 Test Setup Block Diagram



5.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Cable Loss (CL) plus the High Pass Filter/Attenuator value (HA) and subtracting the Amplifier Gain (Ga) to the indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + CL + HA – Ga

For example, a corrected amplitude (CA) of 36 dBuV = Indicated Amplitude reading (Ai) of 50.0 dBuV + Cable Loss (CL) 1.0 dB + High Pass Filter/Attenuator (IA) 5 dB - Amplifier Gain (Ga) 20 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 (dB) = Corrected Amplitude (dBuV) - Limit (dBuV)

5.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2011-04-14
Solar Electronics	LISN	9252-R-24-BNC	511205	2011-06-25
TTE	Filter, High Pass	H9962-150K-50-21378	K7133	2011-06-10

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

5.7 Test Environmental Conditions

Temperature:	22 °C
Relative Humidity:	33 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-03-27 in 5 meters chamber 3.

5.8 Summary of Test Results

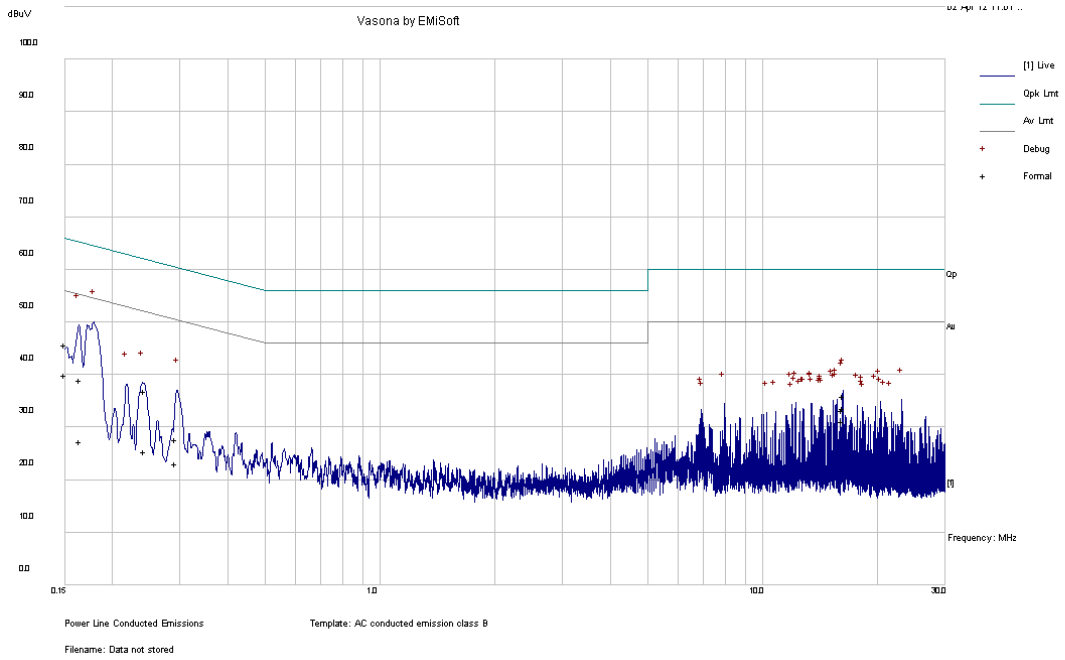
According to the recorded data in following table, the EUT complied with the FCC/IC standard's conducted emissions limits, with the margin reading of:

Connection: AC/DC adapter connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-16.03	16.227792	Neutral	0.15-30 MHz

5.9 Conducted Emissions Test Plots and Data

Worst Case, C1C2 Mode, Low Channel

120V/60 Hz, Line



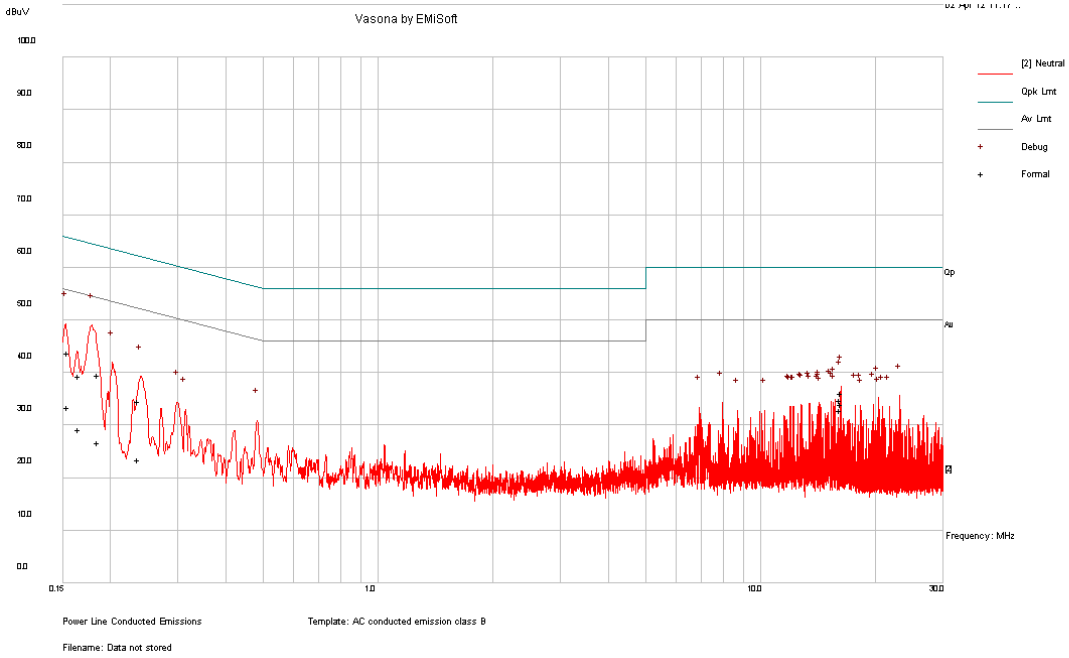
Quasi-Peak Measurement

Frequency (MHz)	Corrected Amplitude (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.150534	45.67	Line	65.97	-20.3
16.22852	35.93	Line	60	-24.07
0.241944	36.84	Line	62.03	-25.19
0.164919	39.03	Line	65.21	-26.19
16.16477	33.31	Line	60	-26.69
0.293136	27.77	Line	60.44	-32.66

Average Measurement

Frequency (MHz)	Corrected Amplitude (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.150534	39.86	Line	55.97	-16.11
16.22852	33.72	Line	50	-16.28
16.16477	31.22	Line	50	-18.78
0.241944	25.41	Line	52.03	-26.62
0.293136	23.16	Line	50.44	-27.27
0.164919	27.32	Line	55.21	-27.9

120V/60 Hz, Neutral



Quasi-Peak Measurement

Frequency (MHz)	Corrected Amplitude (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.155211	43.84	Neutral	65.72	-21.87
16.22779	36.03	Neutral	60	-23.97
0.185526	39.59	Neutral	64.23	-24.64
16.16744	34.81	Neutral	60	-25.19
0.165837	39.47	Neutral	65.17	-25.7
0.237012	34.67	Neutral	62.2	-27.53

Average Measurement

Frequency (MHz)	Corrected Amplitude (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
16.22779	33.97	Neutral	50	-16.03
16.16744	32.83	Neutral	50	-17.17
0.155211	33.44	Neutral	55.72	-22.27
0.165837	29.23	Neutral	55.17	-25.94
0.185526	26.72	Neutral	54.23	-27.52
0.237012	23.43	Neutral	52.2	-28.77

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 Note 1	3
88 - 216	150 Note 1	3
216 - 960	200 Note 1	3
Above 960	500	3

Note 1: 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 used was the FCC 15C and IC RSS-210 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.

6.3 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 is calculated by adding the Cable Loss, and Attenuator Factor adding to the Indicated Reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Cable Loss + Attenuator Factor

For example, a Corrected Amplitude of 34.08 dBuV/m = Indicated Reading (23.85 dBuV) + Cable Factor (0.22 dB) + Attenuator Factor (10dB)

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
A.H Systems	Antenna, Horn	SAS-200/571	261	2012-01-18
Hewlett Packard	Pre-amplifier	8447D	2944A06639	2011-06-09
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2011-04-14
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10
HP	Pre-amplifier	8449B	3147A00400	2012-02-03

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

6.6 Test Environmental Conditions

Temperature:	22 °C
Relative Humidity:	33 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-04-02 in 5 meters chamber 3.

6.7 Summary of Test Results

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

30-1000 MHz:

Worst Case: C1C2 Mode, Middle Channel using 16 feet RF Cable

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
-9.84	879.98225	Horizontal	High, 30 MHz– 1 GHz

Above 1 GHz:

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

Note: *All emissions are 20 dB below the limit or are on the noise floor level*
Please refer to the following table and plots for specific test result details

6.8 Radiated Emissions Test Result Data

1) 30 MHz – 1 GHz, Radiated Spurious Emissions Measured at 3 meters

Pre-scan for Worst Mode: C1C2 with 26 feet RF Cable

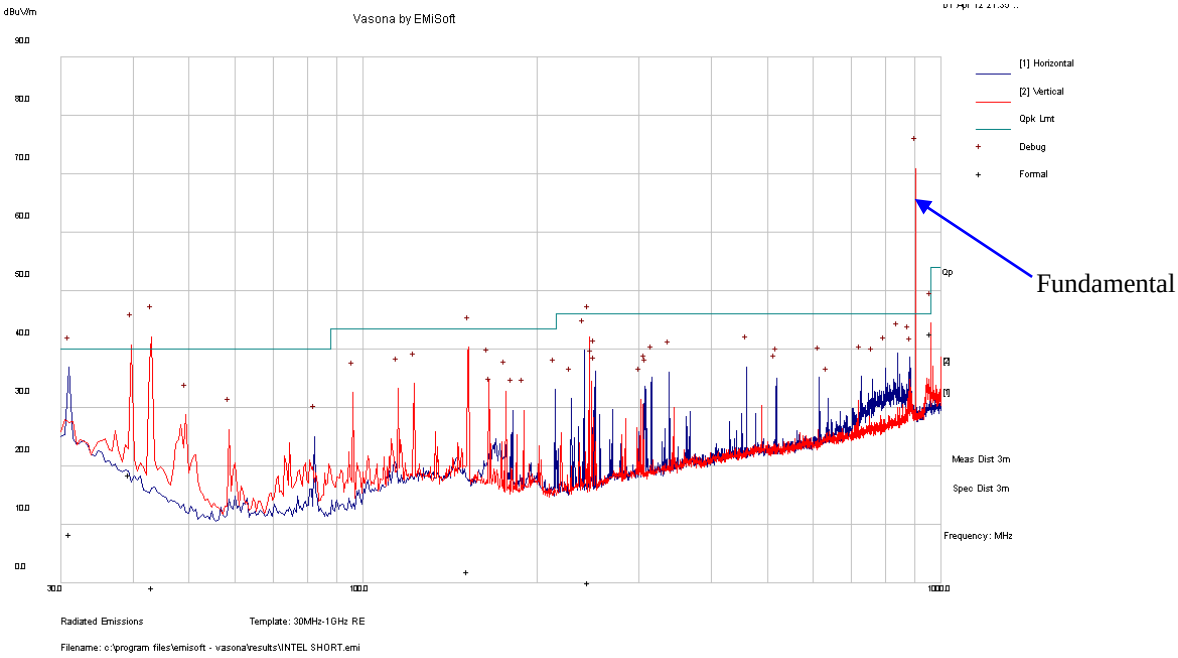
Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
435.46	40.17	100	H	0	46	-5.83	Peak
445.645	39.64	100	H	0	46	-6.36	Peak
467.47	39.07	100	H	0	46	-6.93	Peak
167.255	34.64	100	H	0	43.5	-8.86	Peak
840.435	36.4	100	H	0	46	-9.6	Peak
31.94	30.38	100	V	0	40	-9.62	Peak

Pre-scan for Worst Mode: C1C2 with 16 feet RF Cable

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
305.965	44.85	100	H	0	46	-1.15	Peak
880.205	37.93	200	H	0	46	-8.07	Peak
840.435	37.4	100	H	0	46	-8.6	Peak
318.575	36.92	200	H	0	46	-9.08	Peak
800.18	35.74	100	H	0	46	-10.26	Peak
346.22	35.71	100	H	0	46	-10.29	Peak

Final Scan, Worst Case: C1C2 mode with 16 feet RF Cable

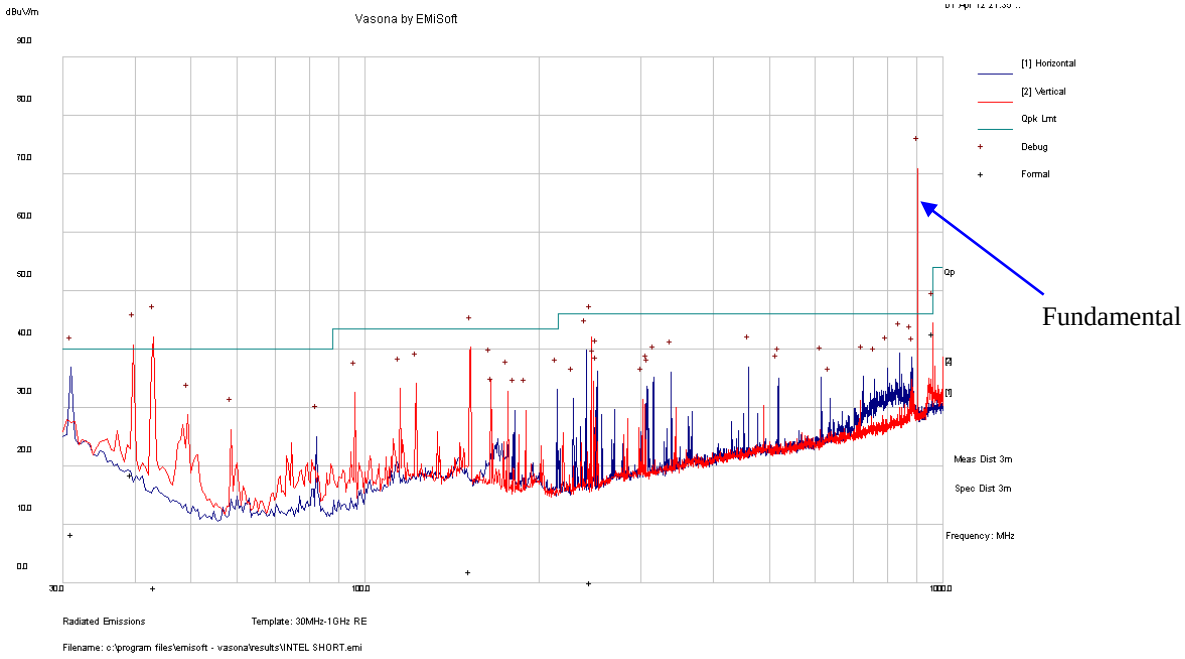
Low Channel



Quasi-Peak Measurement:

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
960.0068	42.72	98	V	341	54	-11.28
39.5105	18.6	132	V	122	40	-21.4
31.18275	8.41	184	H	263	40	-31.59
43.26425	-0.84	287	V	206	40	-40.84
152.0233	2.01	276	V	55	43.5	-41.49
245.6928	0.17	201	V	306	46	-45.83

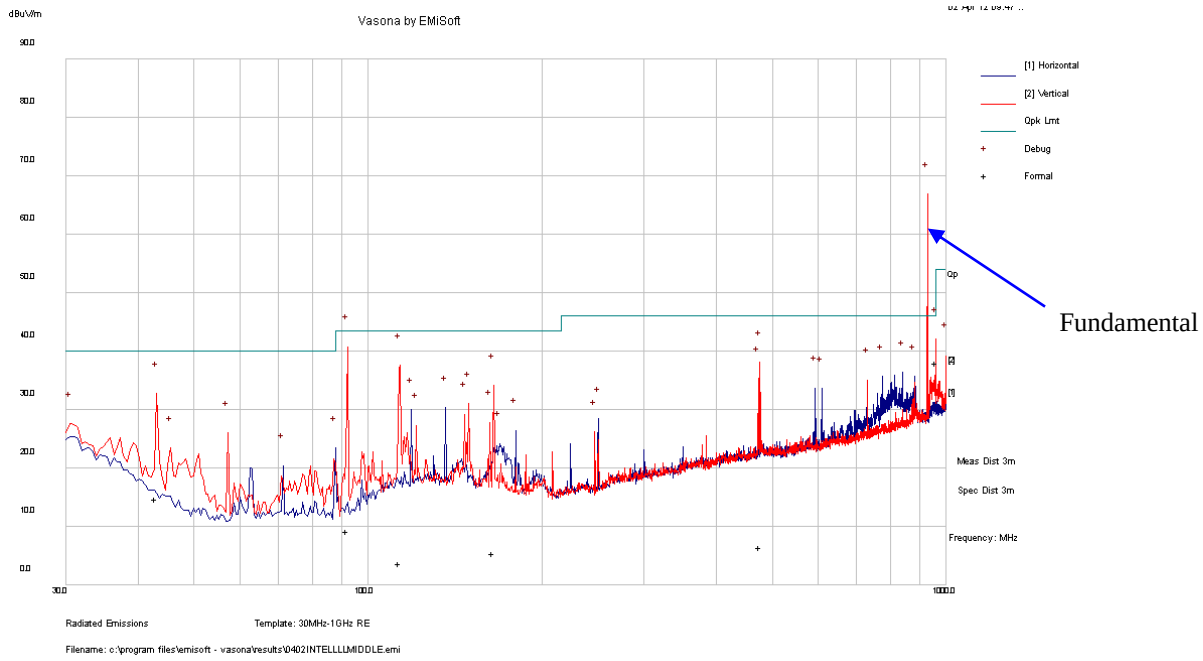
Middle Channel



Quasi-Peak Measurement

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
879.9823	36.16	129	H	351	46	-9.84
960.0038	41.05	99	V	344	54	-12.95
799.9943	32.88	257	H	338	46	-13.12
751.5108	32.21	107	H	319	46	-13.79
840.3368	25.5	98	H	7	46	-20.5
30.5925	16.93	267	V	97	40	-23.07

High Channel



Quasi-Peak Measurement

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
960.0033	38.07	157	V	356	54	-15.93
42.95475	14.66	117	V	137	40	-25.34
92.1105	9.21	171	V	111	43.5	-34.29
164.6308	5.49	179	V	271	43.5	-38.01
476.2798	6.54	262	V	204	46	-39.46
113.4033	3.75	279	V	143	43.5	-39.75

2) 1 – 10 GHz, Radiated Spurious Emissions Measured at 3 meters

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)	
Worst Mode: C1C2, Low Channel (902.75 MHz) with 16 feet cable											
-	-	-	-	-	-	-	-	-	-	-	-[1]
Worst Mode: C1C2, Middle Channel (915.75 MHz) with 16 feet cable											
-	-	-	-	-	-	-	-	-	-	-	-[1]
Worst Mode: C1C2, High Channel (927.25 MHz) with 16 feet cable											
-	-	-	-	-	-	-	-	-	-	-	-[1]

Note [1]: *All spurious emissions are 20 dB below the limit or are on the noise floor level*

7 FCC §15.247(a) & IC RSS-210 §A8.1 – Hopping Channel Bandwidth

7.1 Applicable Standard

According to FCC§15.247(a) (l)(i) & RSS-210 §A8.1 (c), the maximum 20 dB bandwidth of the hopping channel is 500 kHz.

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 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 20 dB from the reference level. Record the frequency difference as the emissions bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

7.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-03-28 at RF test site.

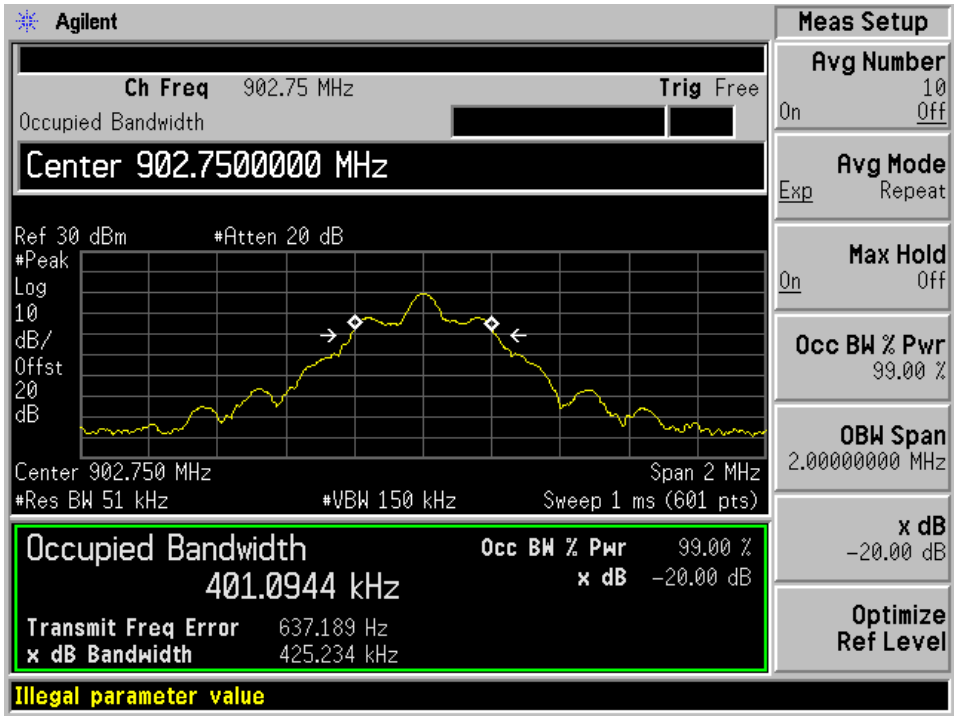
7.5 Test Results

Worst Case: 16 feet RF Cable

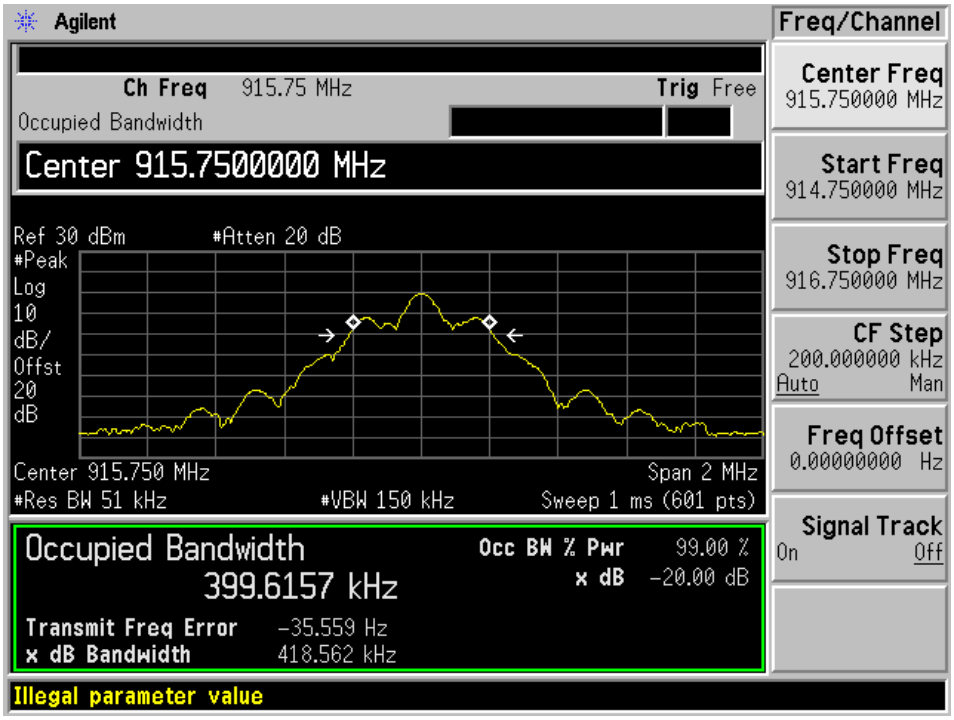
Radio Mode	Channel	Frequency (MHz)	20 dB Channel Bandwidth (kHz)	Lmit (kHz)
C1C2 Mode	Low	902.75	425.234	500
	Mid	915.75	418.562	500
	High	927.25	424.151	500
C3 Mode	Low	902.75	363.024	500
	Mid	915.75	356.728	500
	High	927.25	364.361	500

Please refer to the following plots.

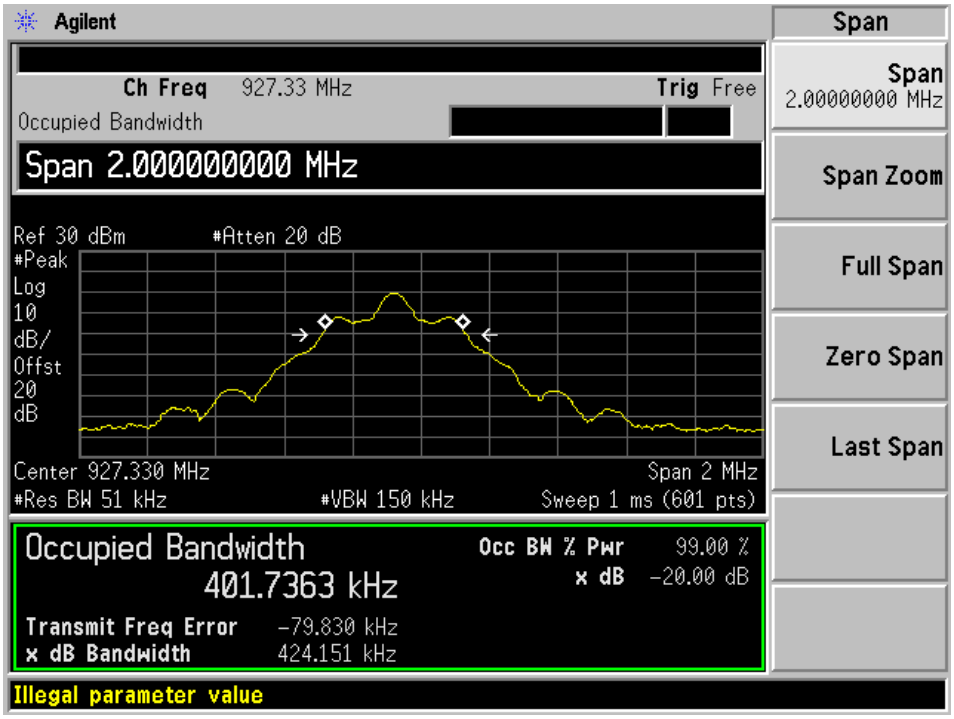
16 feet RF Cable C1C2, Low Channel



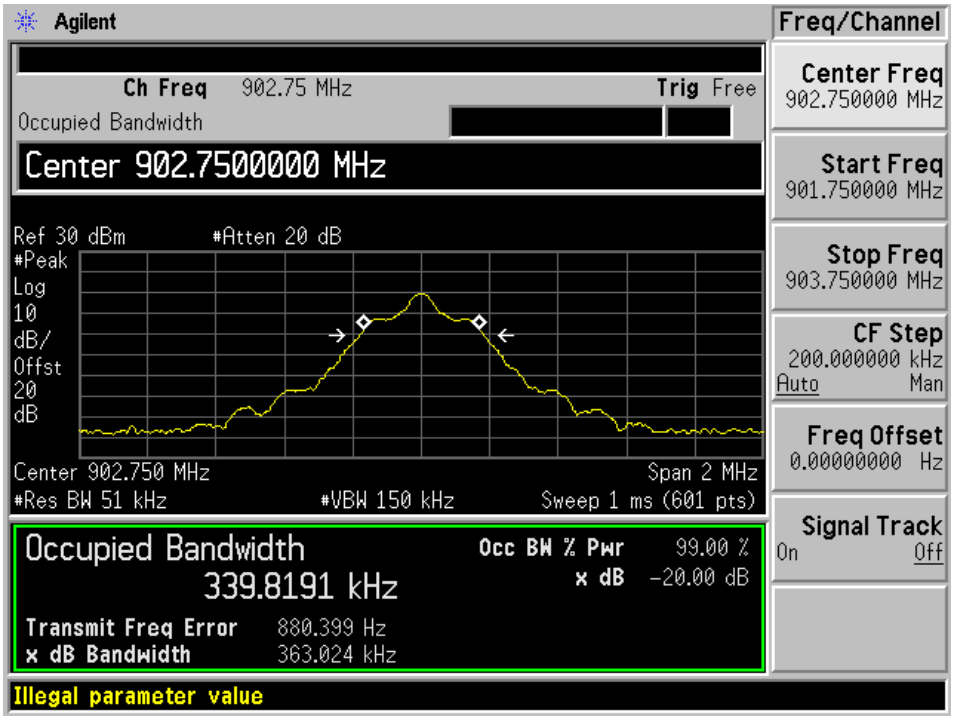
16 feet RF Cable C1C2, Middle Channel



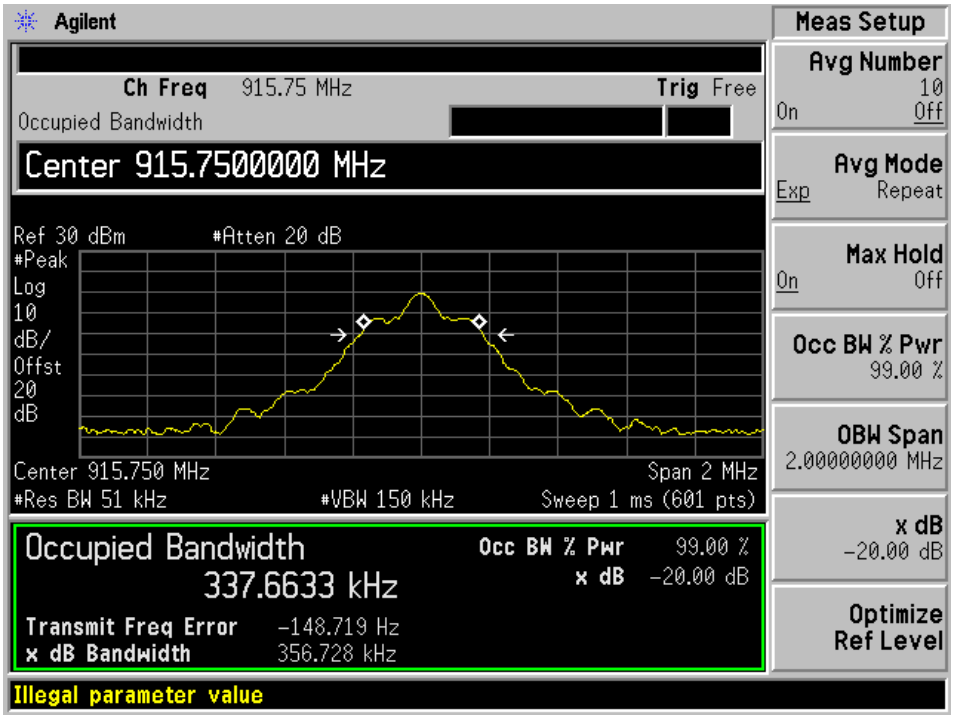
16 feet RF Cable C1C2, High Channel



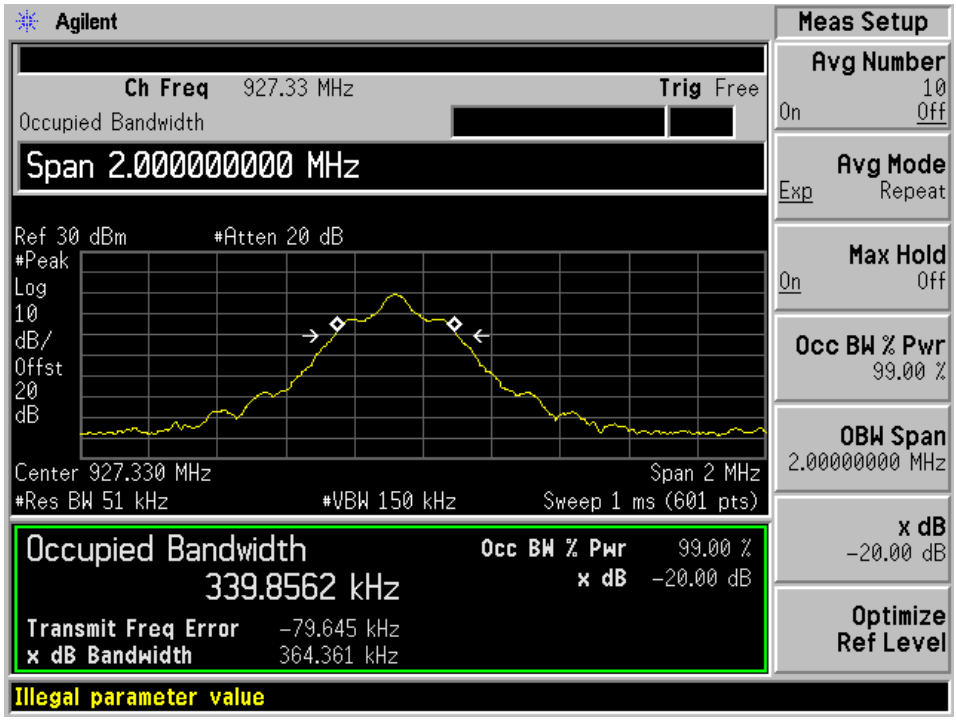
16 feet RF Cable C3, Low Channel



16 feet RF Cable C3, Middle Channel



16 feet RF Cable C3, High Channel



8 FCC §15.247(a) & IC RSS-210 §A8.1 – Hopping Channel Separation

8.1 Applicable Standard

According to FCC §15.247(a)(1) and IC RSS-210 §A8.1(b): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on a bench without connection to measurement instrument Turn on the EUT and set it to any one convenient frequency within its operating range.
3. By using the Max-Hold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function, and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

8.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

8.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-03-28 at RF test site.

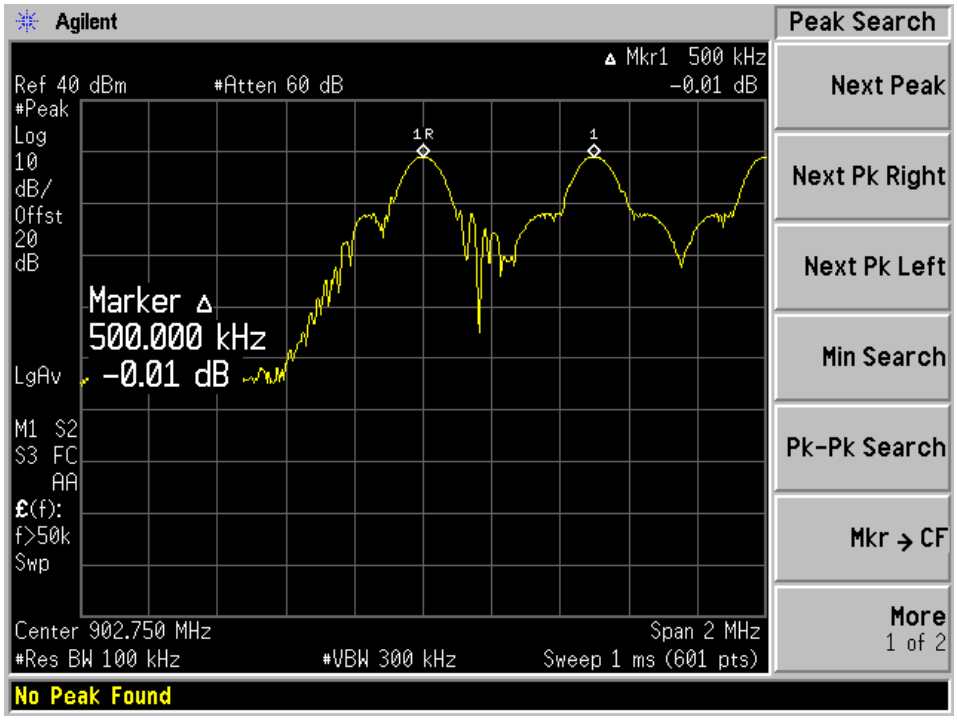
8.5 Test Results

Worst Case: 16 feet RF Cable

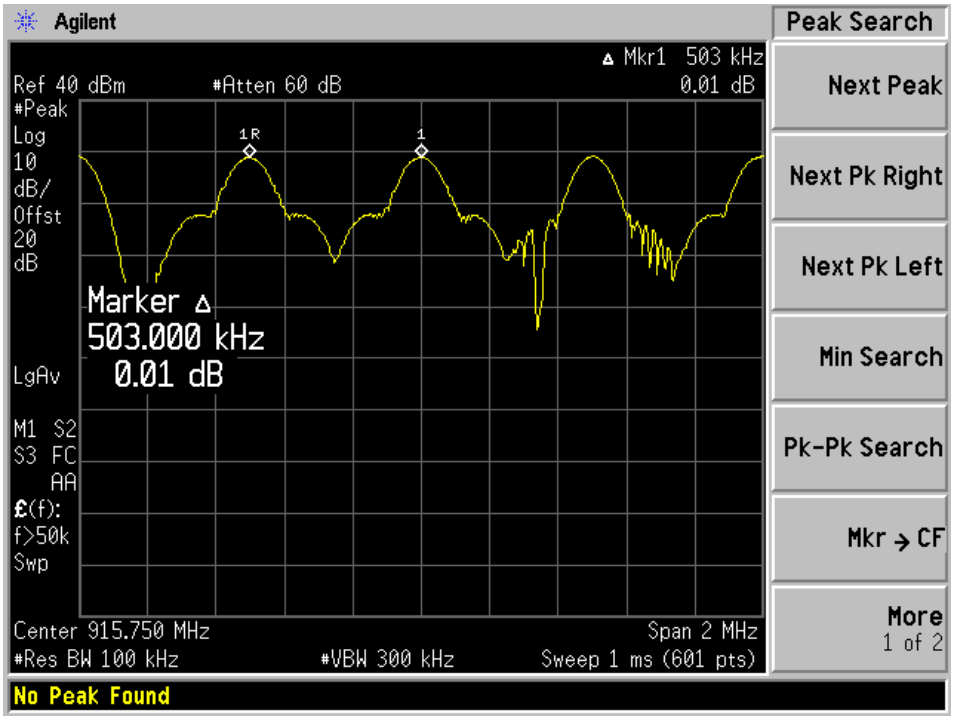
Radio Mode	Channel	Frequency (MHz)	Channel Separation (kHz)	Limit > 20 dB Bandwidth (kHz)
C1C2 Mode	Low	902.75	500	401.09
	Mid	915.75	503	399.62
	High	927.25	500	401.74
C3 Mode	Low	902.75	500	339.82
	Mid	915.75	507	337.66
	High	927.25	503	339.86

Please refer to the following plots.

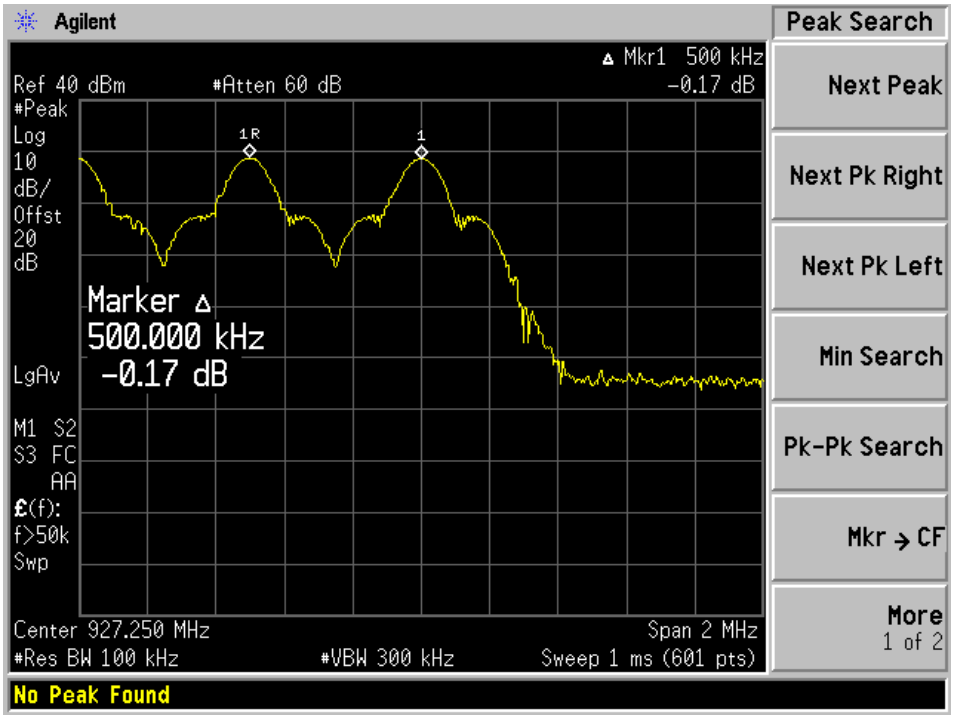
16 feet RF Cable, C1C2 Mode, Low Channel



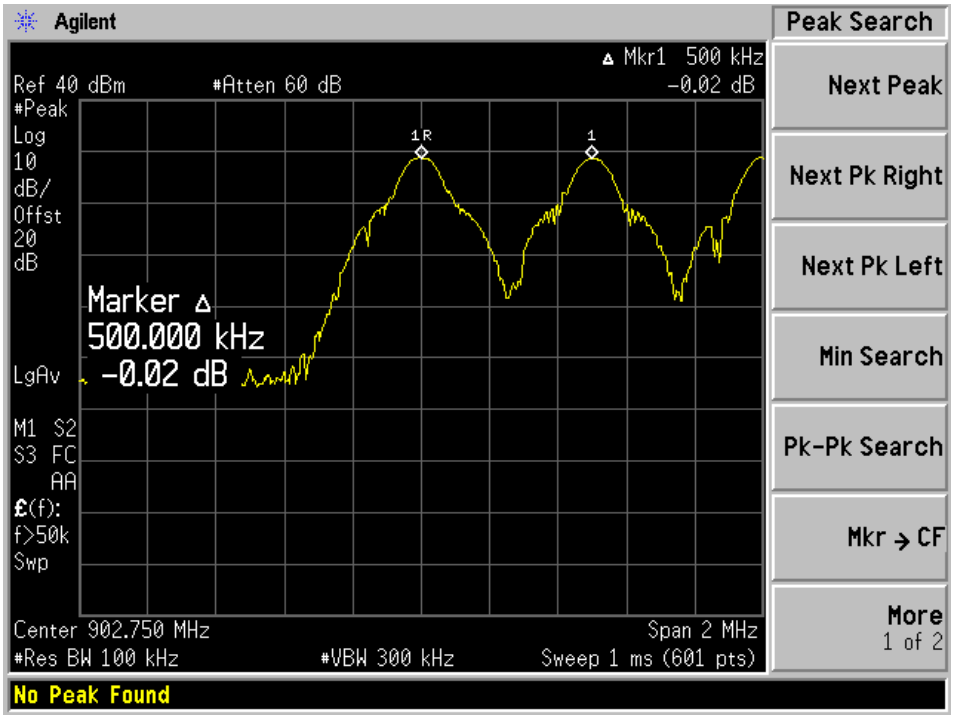
16 feet RF Cable, C1C2 Mode, Middle Channel



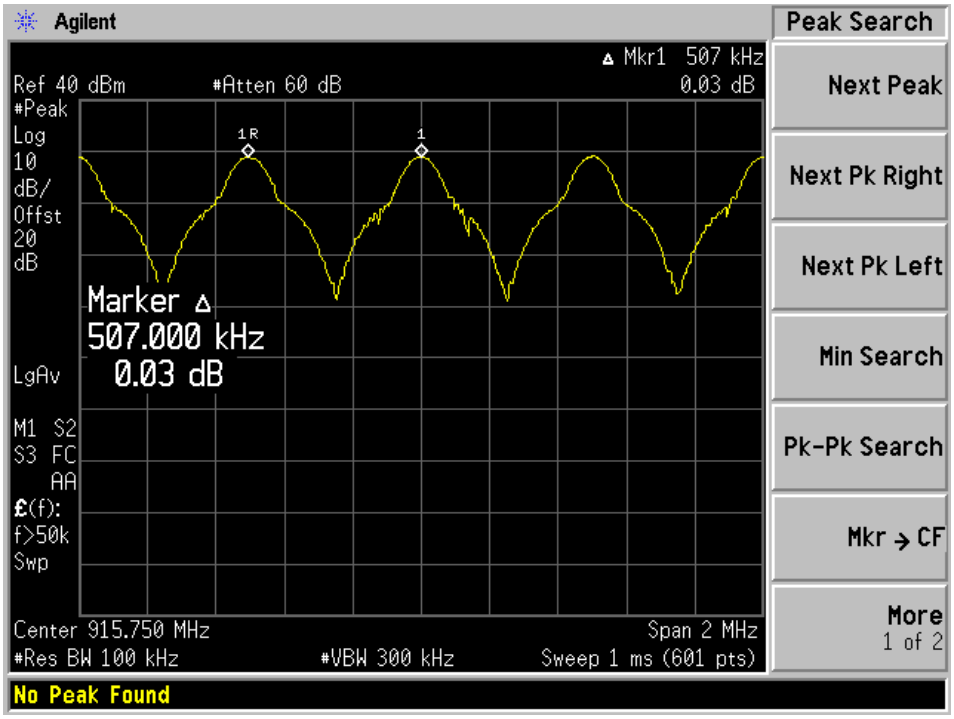
16 feet RF Cable, C1C2 Mode, High Channel



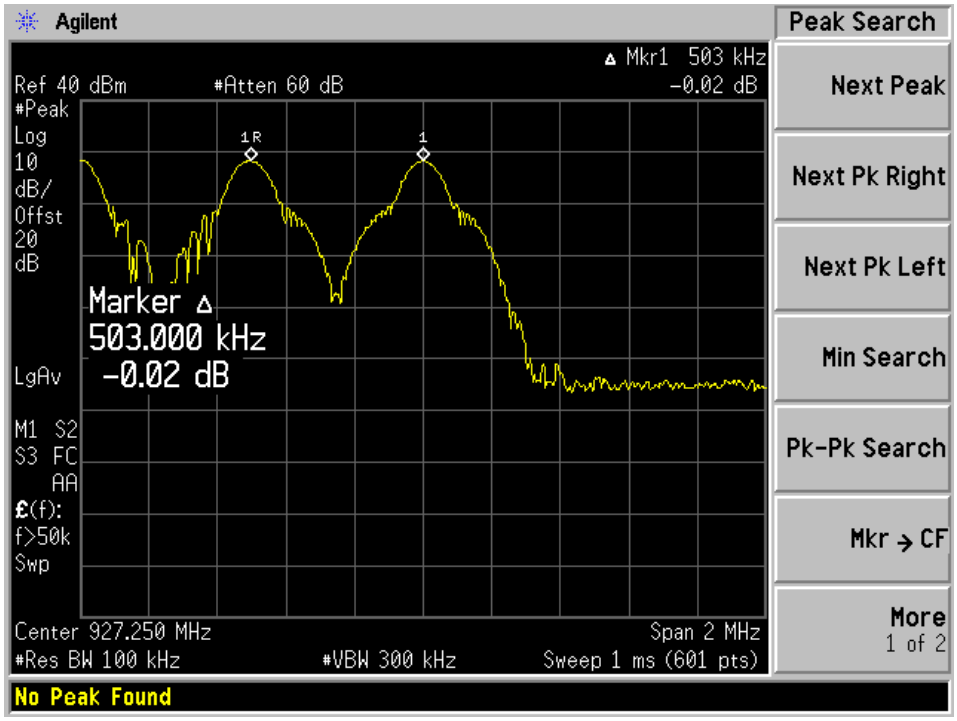
16 feet RF Cable, C3 Mode, Low Channel



16 feet RF Cable, C3 Mode, Middle Channel



16 feet RF Cable, C3 Mode, High Channel



9 FCC §15.247(a) & IC RSS-210 §A8.1 - Number of Hopping Channels

9.1 Applicable Standard

According to FCC §15.247(a)(1)(i) and IC RSS-210 §A8.1(c), for frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on the bench without connection to measurement instrument. Turn on the EUT and set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the SA on Max-Hold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

9.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

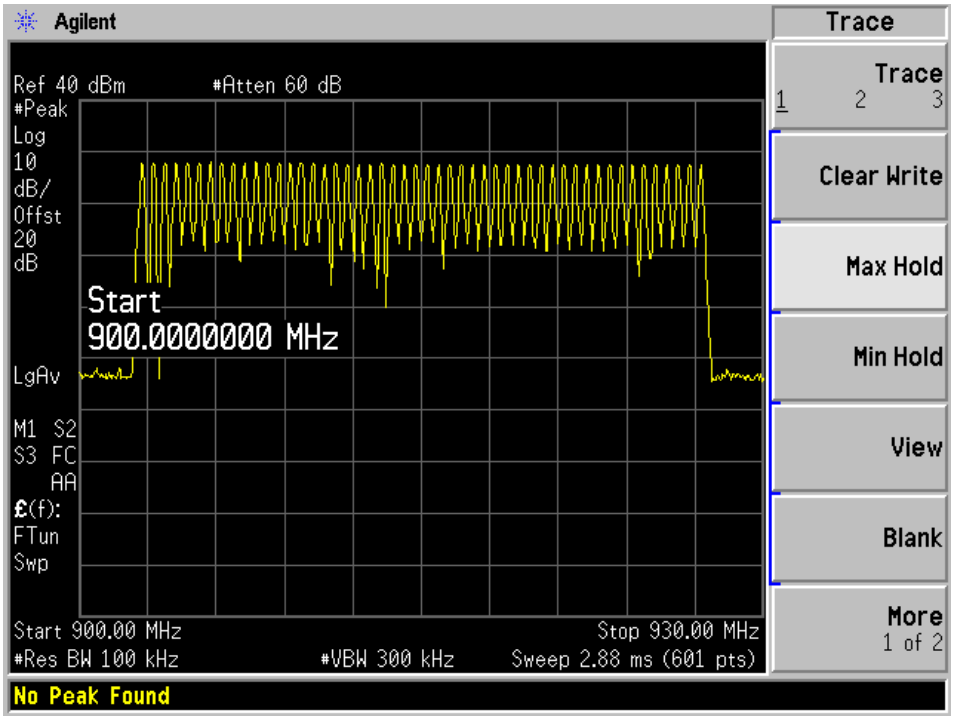
Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-03-28 at RF test site.

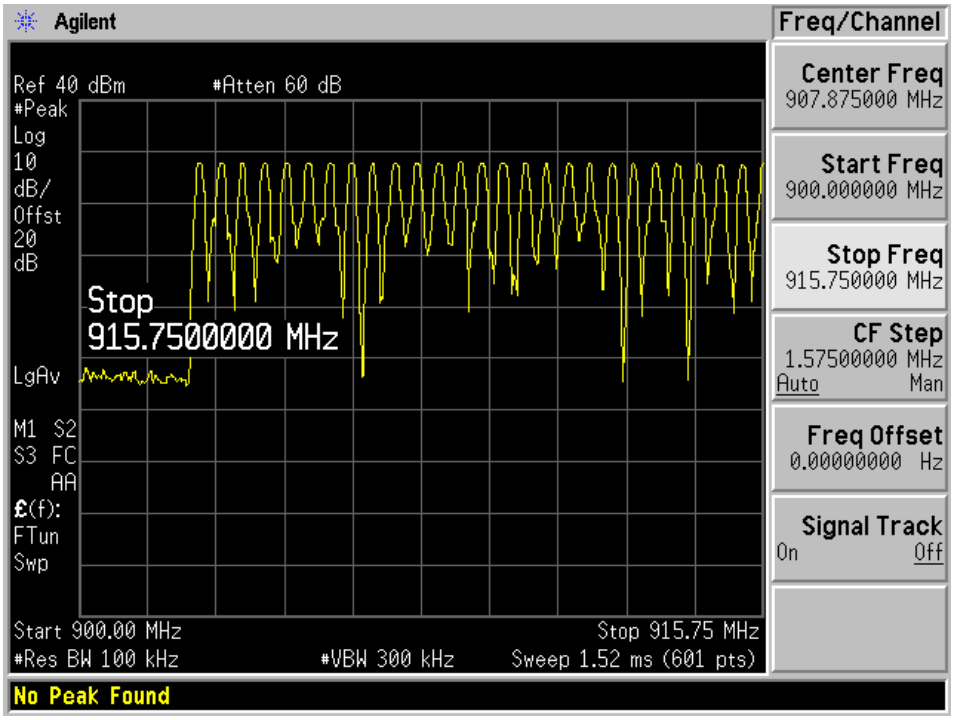
9.5 Test Results

50 channels. please refer to the following plots.

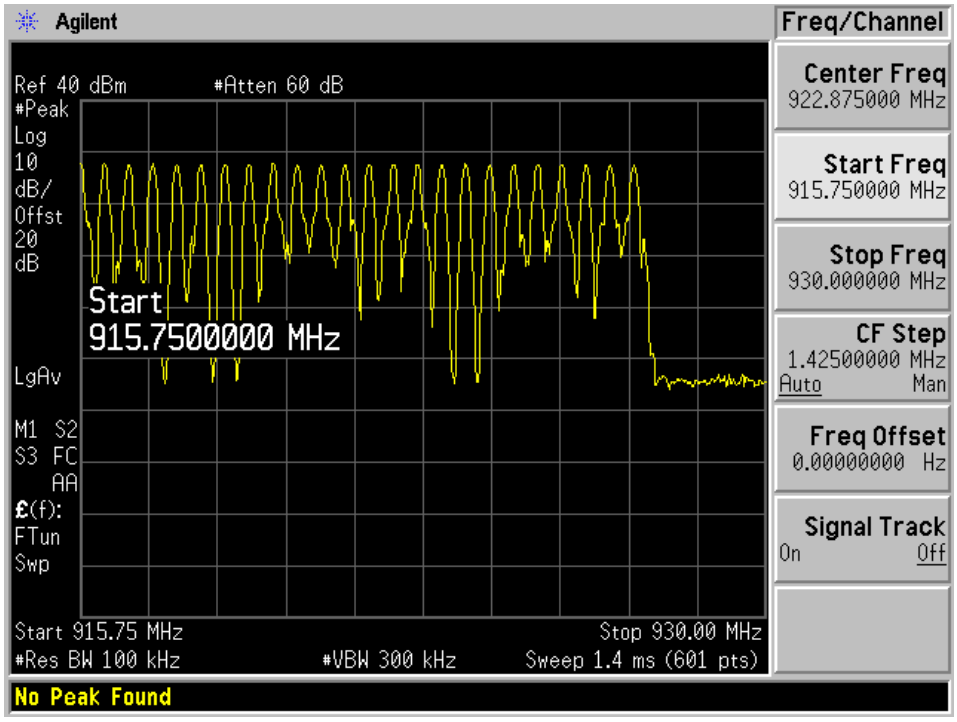
Hopping Channel Number 902 MHz to 928 MHz: Total 50 Channels



Hopping Channel Number 902 MHz to 915.75 MHz: Total 27 Channels



Hopping Channel Number 915.75 MHz to 928 MHz: Total 23 Channels



10 FCC §15.247(a) & IC RSS-210 §A8.1 - Dwell Time

10.1 Applicable Standard

According to FCC §15.247(a)(1)(i) and IC RSS-210 §A8.1 (c), for frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period

10.2 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 was set 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. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.

10.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

10.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Wei Sun on 2012-03-28 at RF test site.

10.5 Test Results

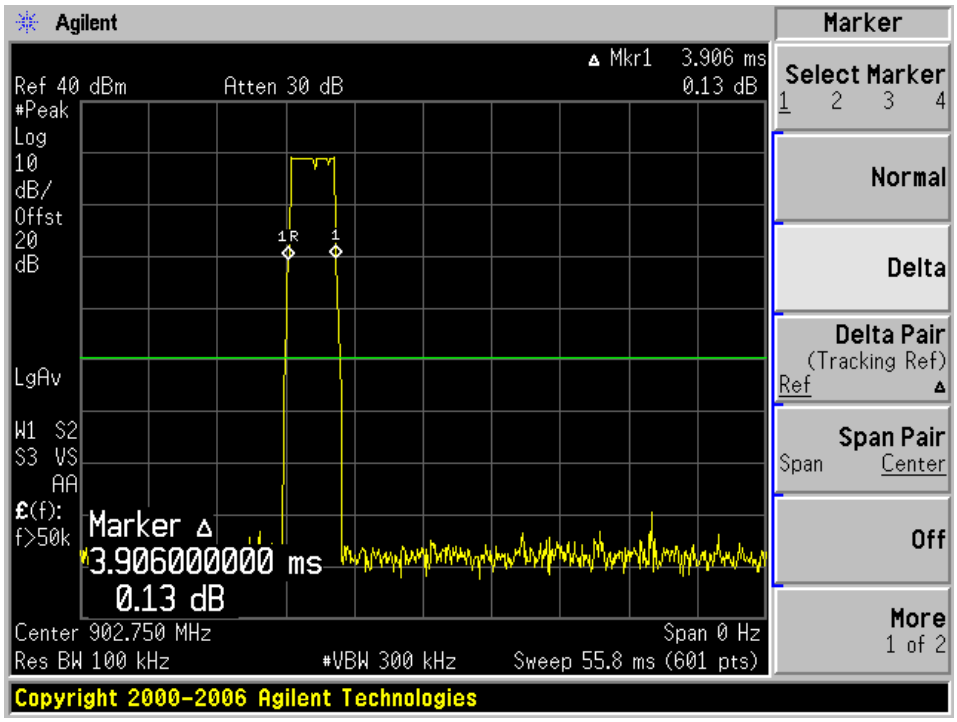
Worst Case: 16 feet RF Cable

C1C2 Mode

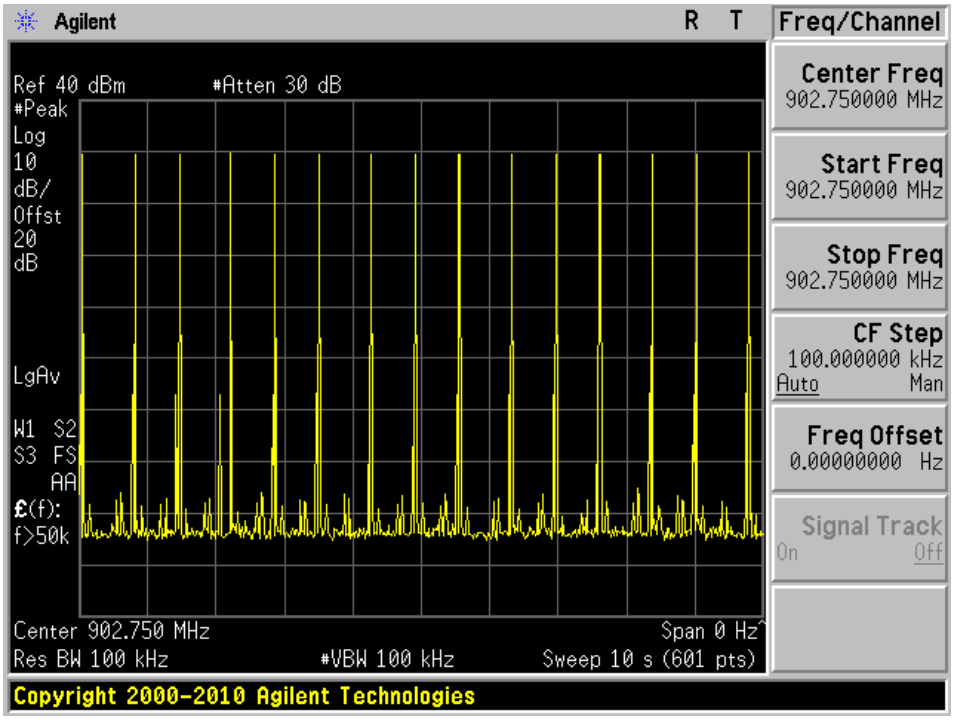
Radio Mode	Channel	Pulse width in 10 s (sec)	Limit Pulse (sec)/10 s	Results
C1C2 Mode	Low	0.05859	0.4	Pass
	Mid	0.05715	0.4	Pass
	High	0.057195	0.4	Pass
C3 mode	Low	0.11672	0.4	Pass
	Mid	0.11824	0.4	Pass
	High	0.12864	0.4	Pass

Please refer to following plots:

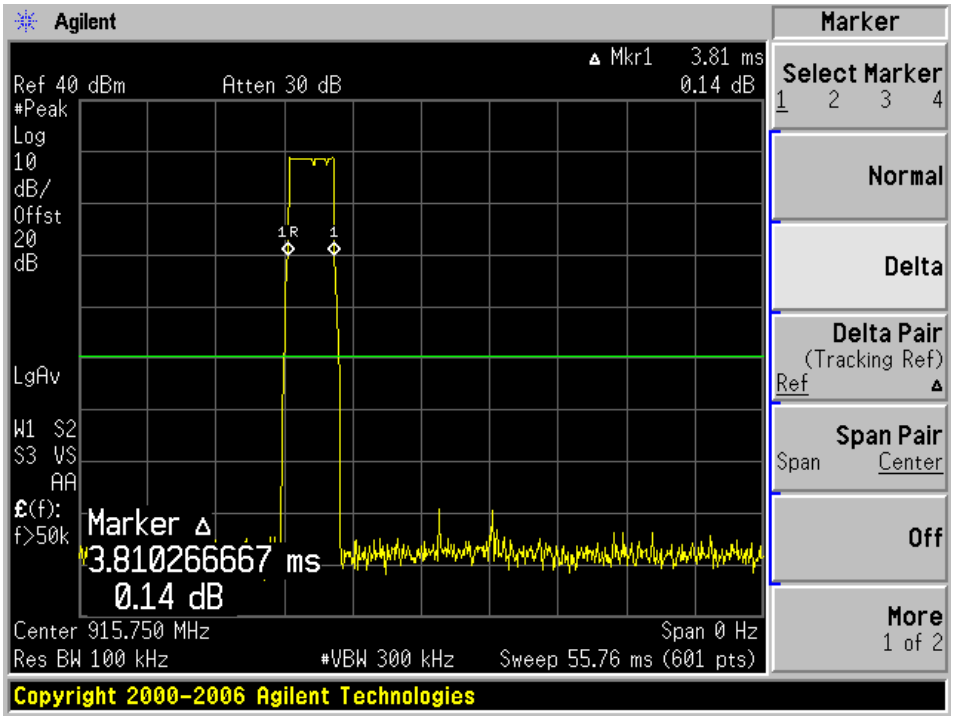
16 feet RF Cable, C1C2 Mode, Pulse time, Low Channel



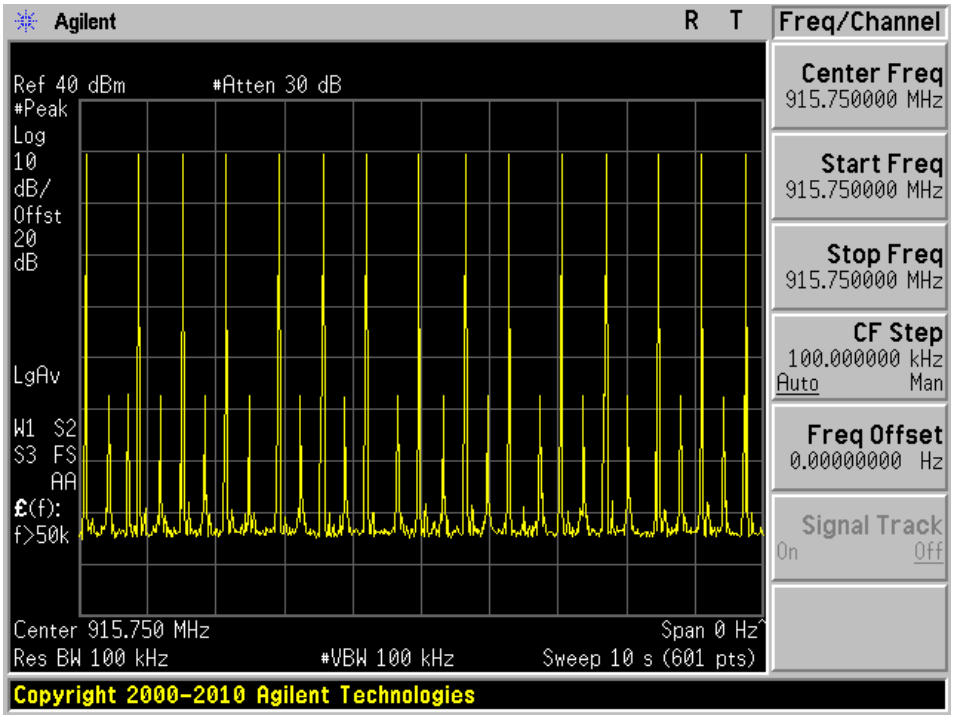
16 feet RF Cable, C1C2 Mode, number of Pulse in 10s, Low Channel



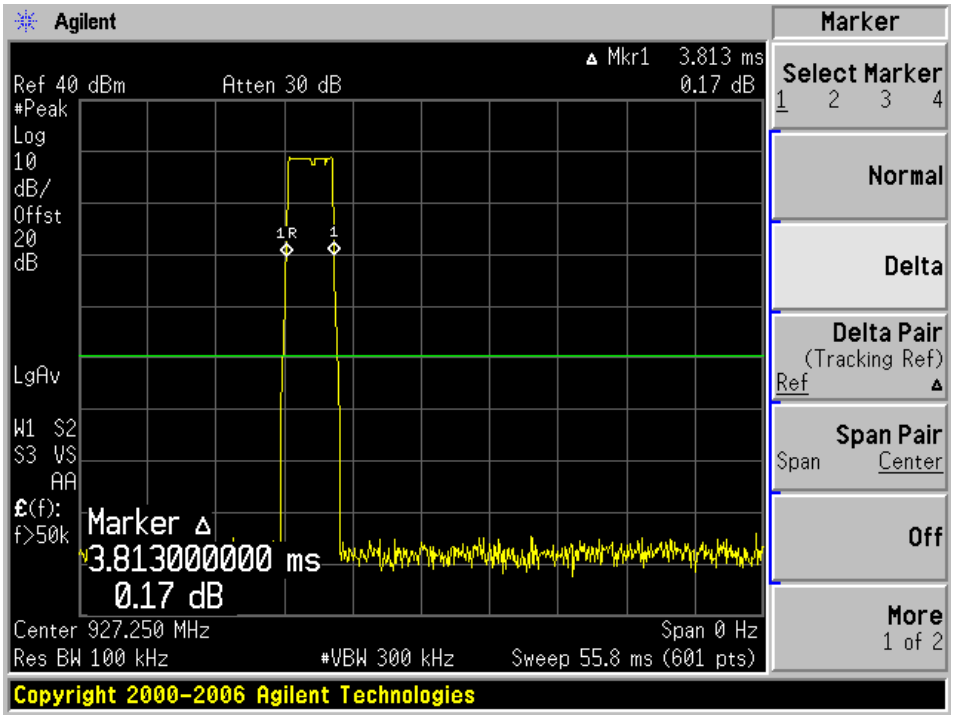
16 feet RF Cable, C1C2 Mode, Pulse Time, Middle Channel



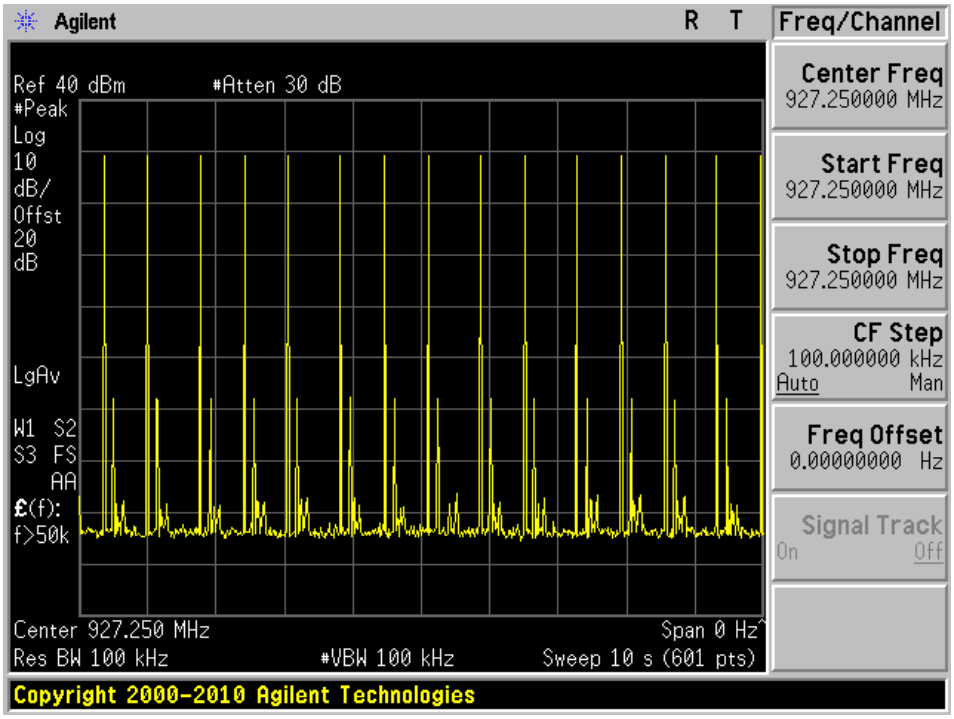
16 feet RF Cable, C1C2 Mode, number of Pulse in 10s, Middle Channel



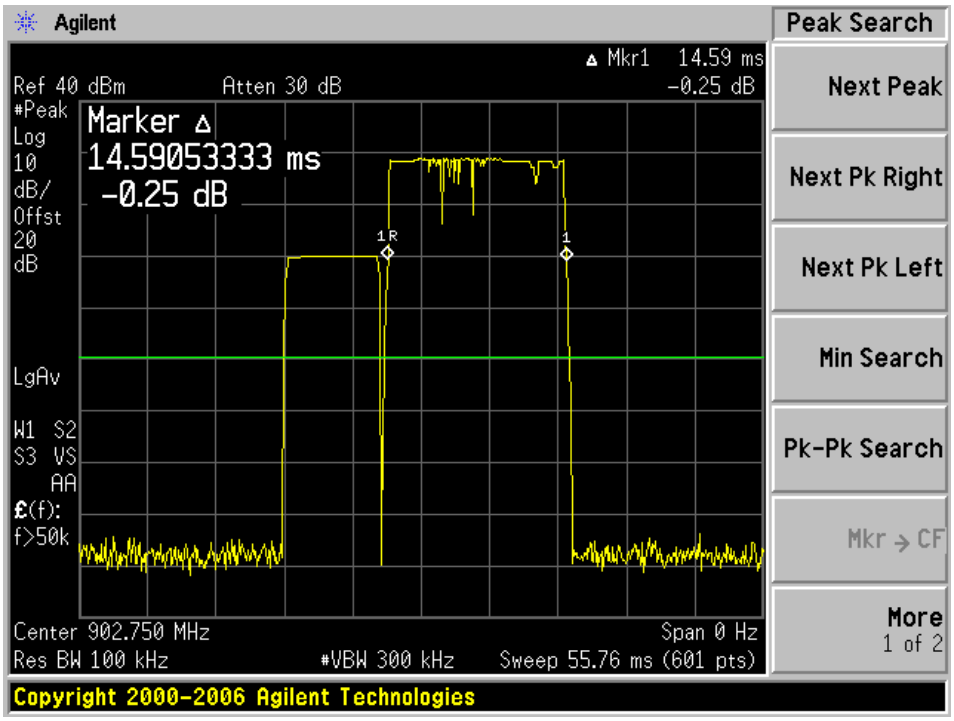
16 feet RF Cable, C1C2 Mode, Pulse Time, High Channel



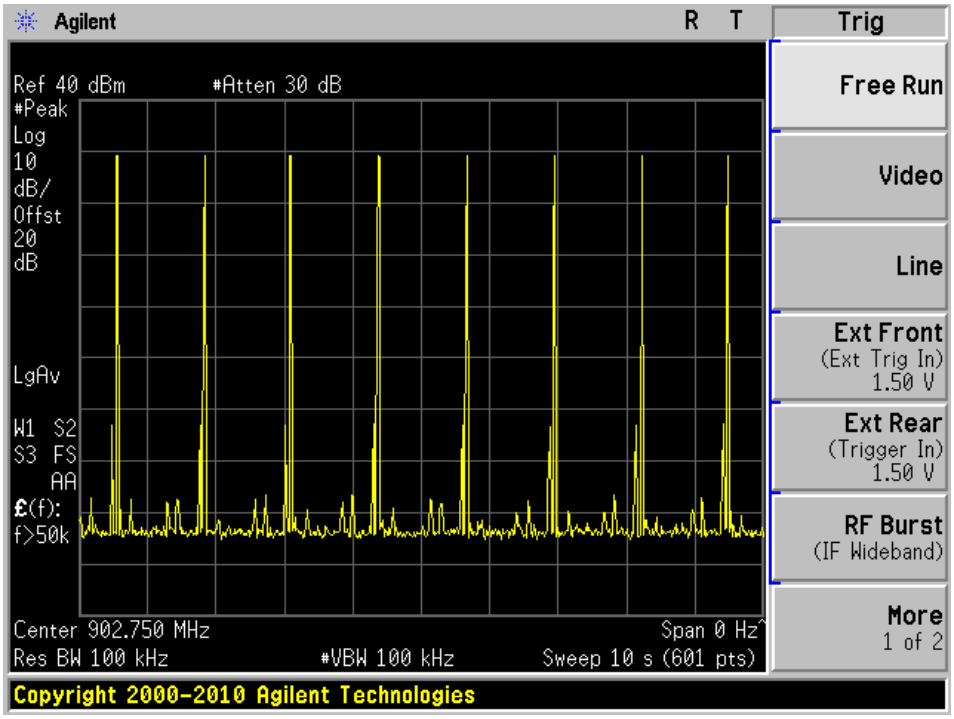
16 feet RF Cable, C1C2 Mode, number of Pulse in 10s, High Channel



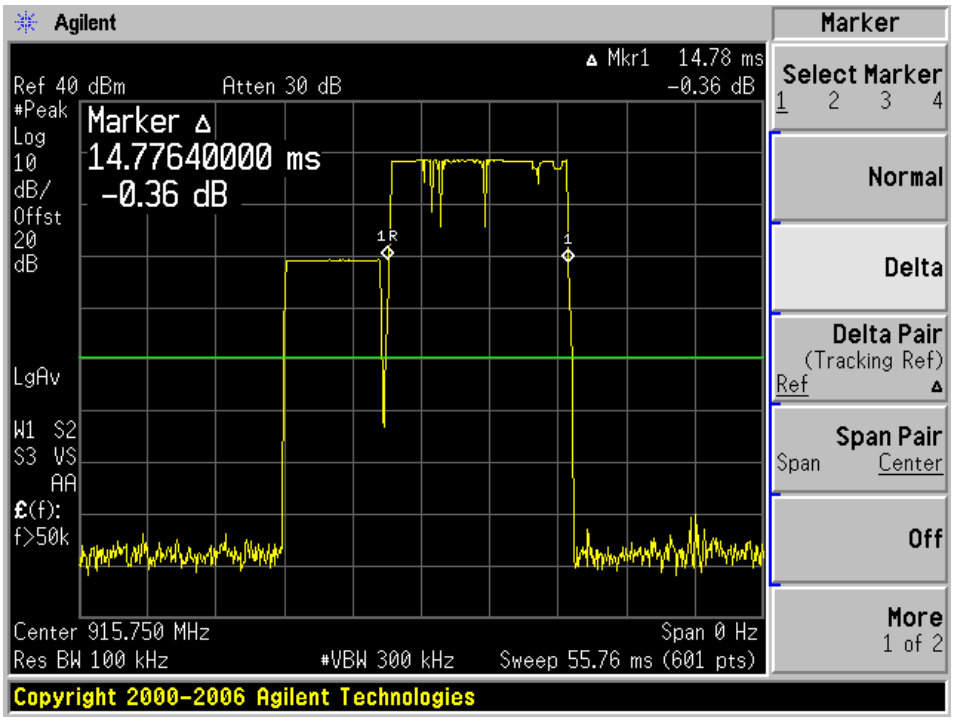
16 feet RF Cable, C3 Mode, Pulse Time, Low Channel



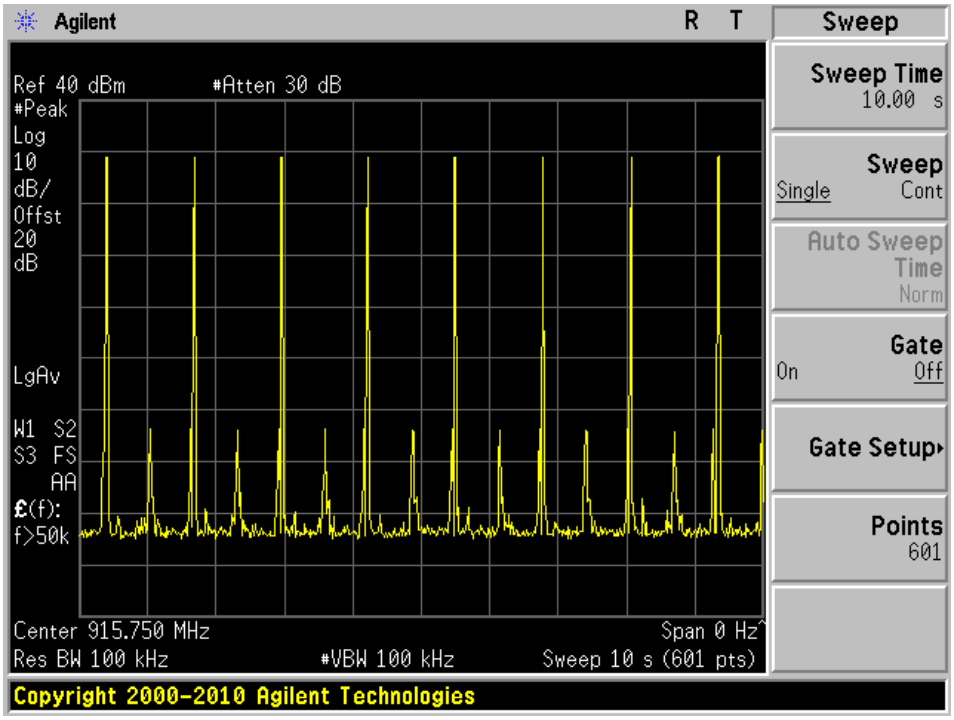
16 feet RF Cable, C3 Mode, number of Pulse in 10s, Low Channel



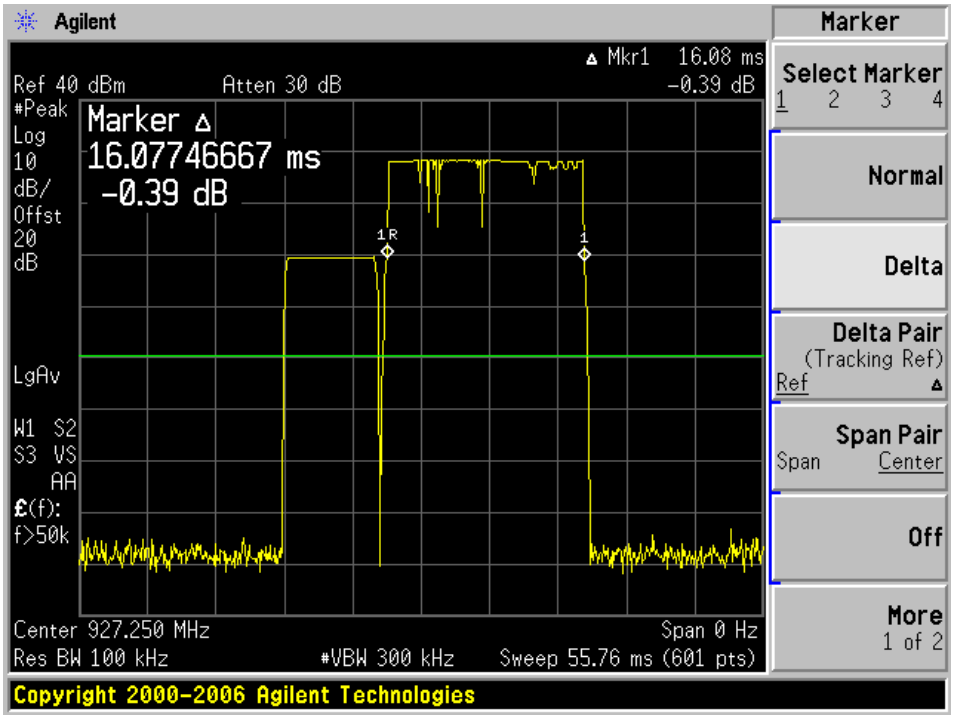
16 feet RF Cable, C3 Mode, Middle Channel



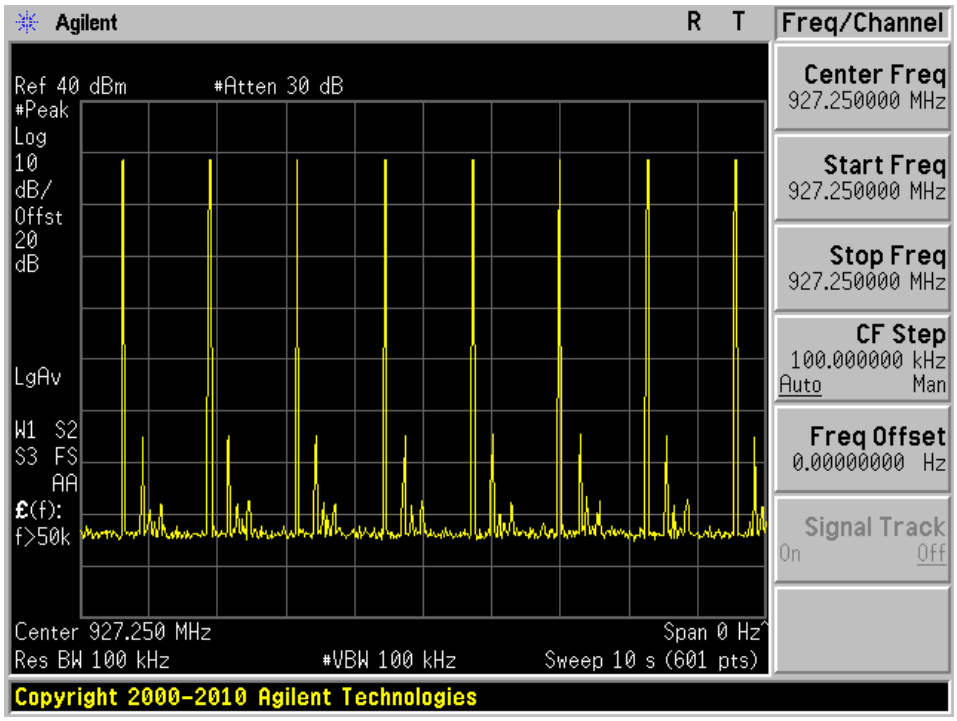
16 feet RF Cable, C3 Mode, number of Pulse in 10s, Middle Channel



16 feet RF Cable, C3 Mode, High Channel



16 feet RF Cable, C3 Mode, number of Pulse in 10s, High Channel



11 FCC §15.247(b) & IC RSS-210 §A8.4 – Maximum Peak Output Power

11.1 Applicable Standard

According to FCC §15.247(b) (2), for frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels

According to IC RSS-210 §8.4(1), For frequency hopping systems operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels;

11.2 Measurement Procedure

1. Place the EUT on the turntable and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

11.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

11.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Quinn Jiang on 2012-02-27 at RF test site.

11.5 Test Results

Radio Mode	Channel	Frequency (MHz)	Max Peak Output Power		Limit (dBm)	Result
			With 16 ft Cable (dBm)	With 26 ft Cable (dBm)		
C1C2 Mode	Low	902.75	29.64	28.29	30	Pass
	Mid	915.75	29.47	28.14	30	Pass
	High	927.25	29.08	27.98	30	Pass
C3 Mode	Low	902.75	29.47	27.95	30	Pass
	Mid	915.75	29.13	27.76	30	Pass
	High	927.25	28.70	27.63	30	Pass

Note: The Maximum EIRP is 35.64 dBm (cable loss included), which complies with the EIRP limit of 36 dBm.

12 FCC §15.247(d) & IC RSS-210 §A 8.5 - Band Edges Emissions

12.1 Applicable Standard

According to FCC §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in §15.209(a) is not required.

According to 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.

12.2 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 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.

12.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

12.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

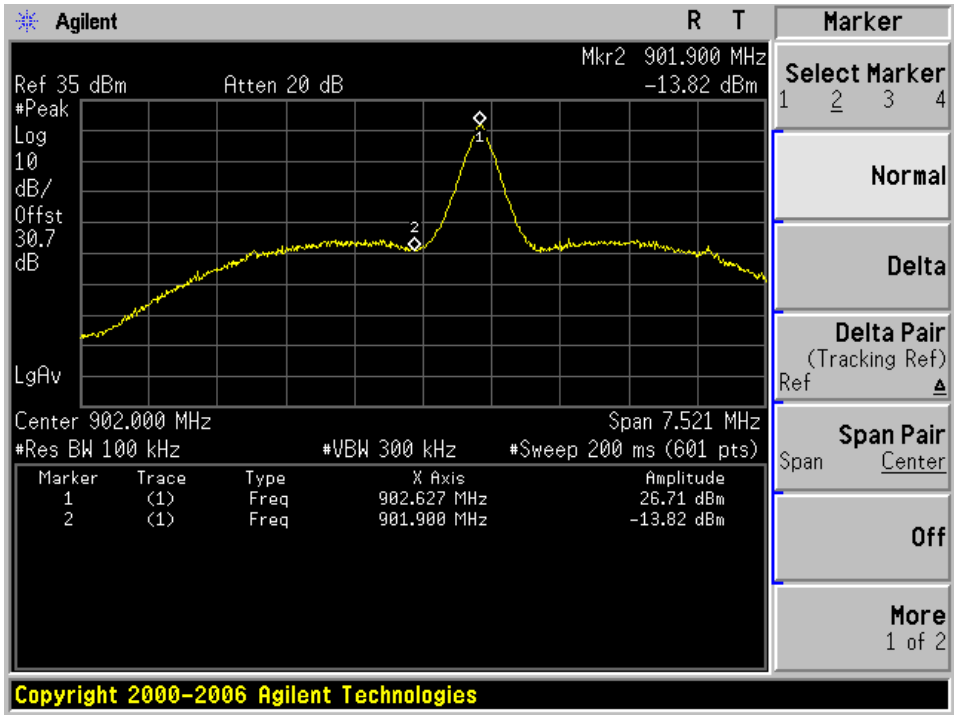
The testing was performed by Quinn Jiang on 2012-02-27 at RF test site.

12.5 Test Results

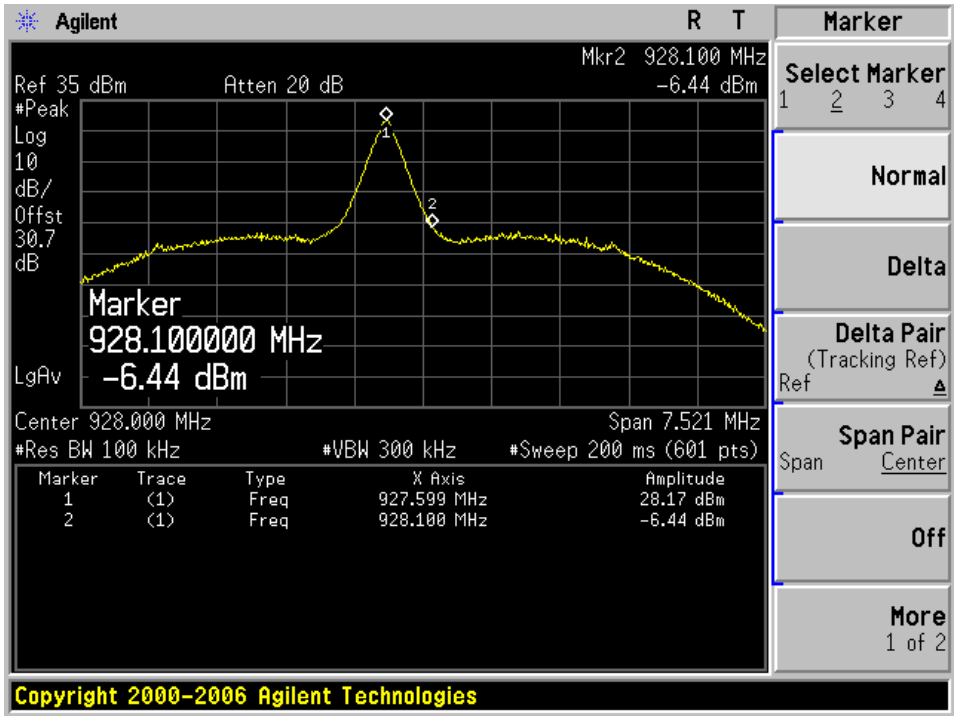
Please refer to the following plots.

Worst Mode C1C2:

Band Edge: Lowest Channel



Band Edge: Highest Channel



13 FCC §15.247(d) & IC RSS-210 §A8.5 - Spurious Emissions at Antenna Terminals

13.1 Applicable Standard

As per FCC §15.247(d) and IC RSS-210 § A8.5, 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.

13.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.

2. Position the EUT on a bench 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 the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.

4. Set the SA on View mode and then plot the result on SA screen.

5. Repeat above procedures until all frequencies measured were complete.

13.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	PSA Spectrum Analyzer	4440A	MY44303352	2011-05-10

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

13.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	101.7kPa

The testing was performed by Quinn Jiang on 2012-02-27 at RF test site.

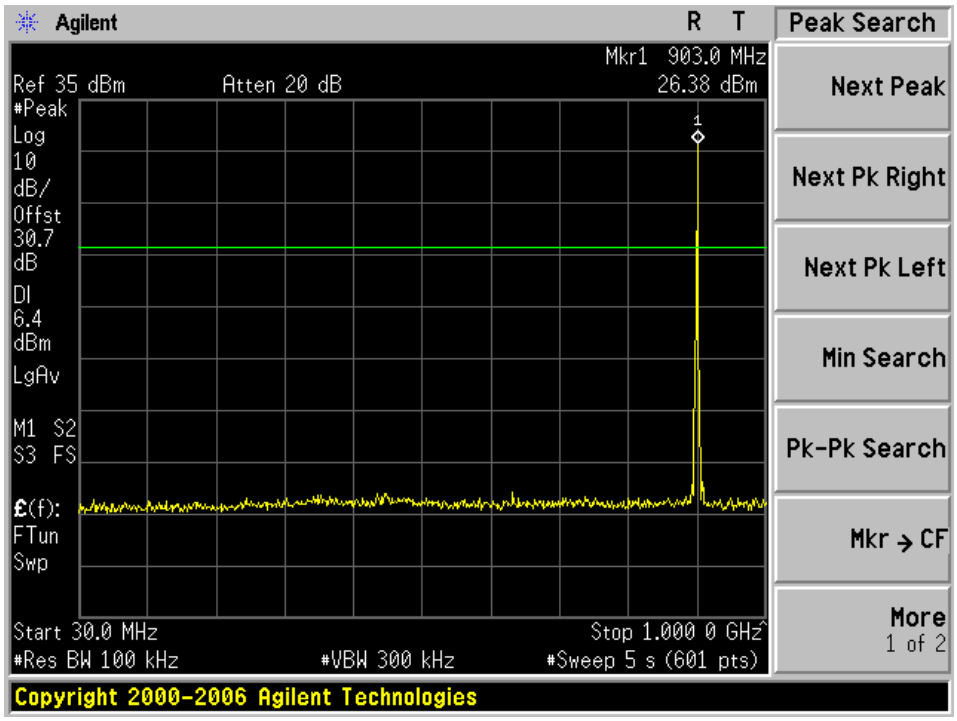
13.5 Test Results

Please refer to the following plots.

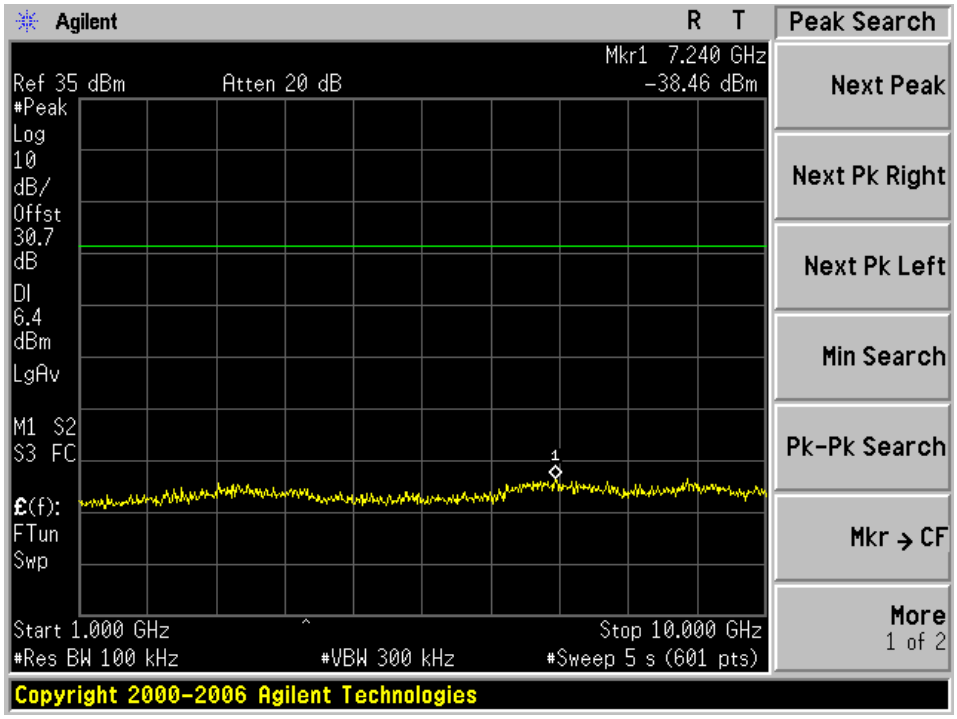
Worst Mode: C1C2

Low Channel

30 MHz – 1 GHz

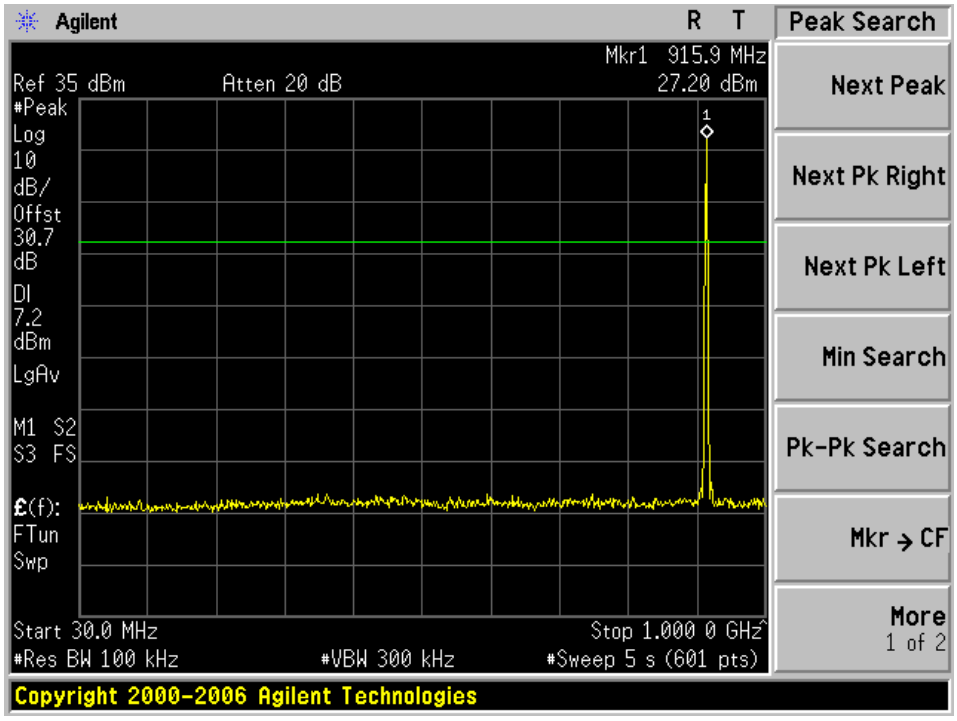


1 GHz – 10 GHz

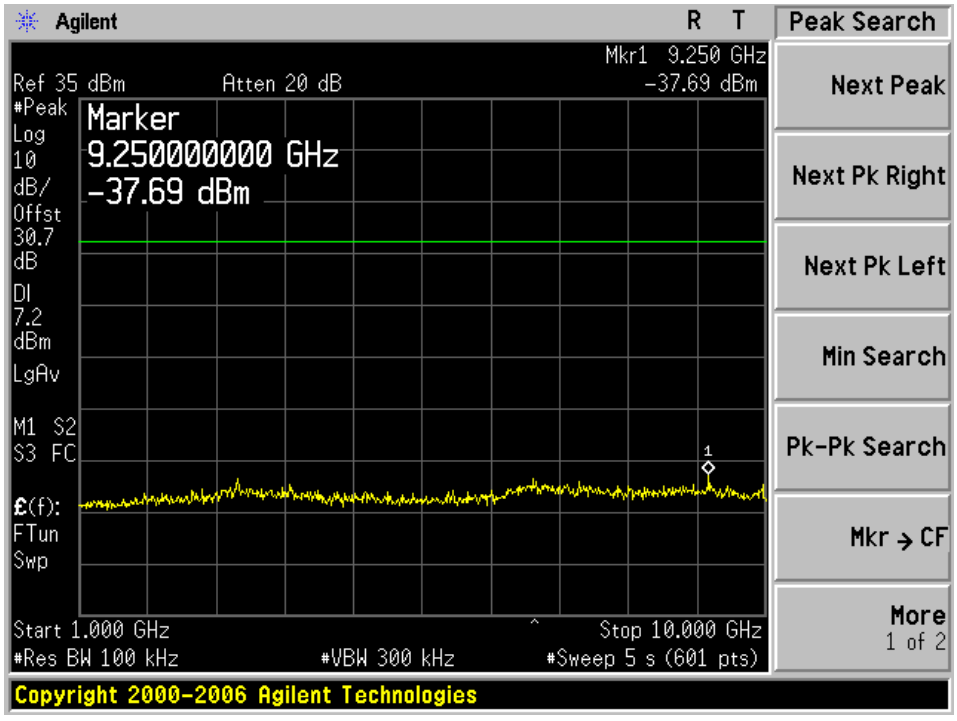


Middle Channel

30 MHz – 1 GHz

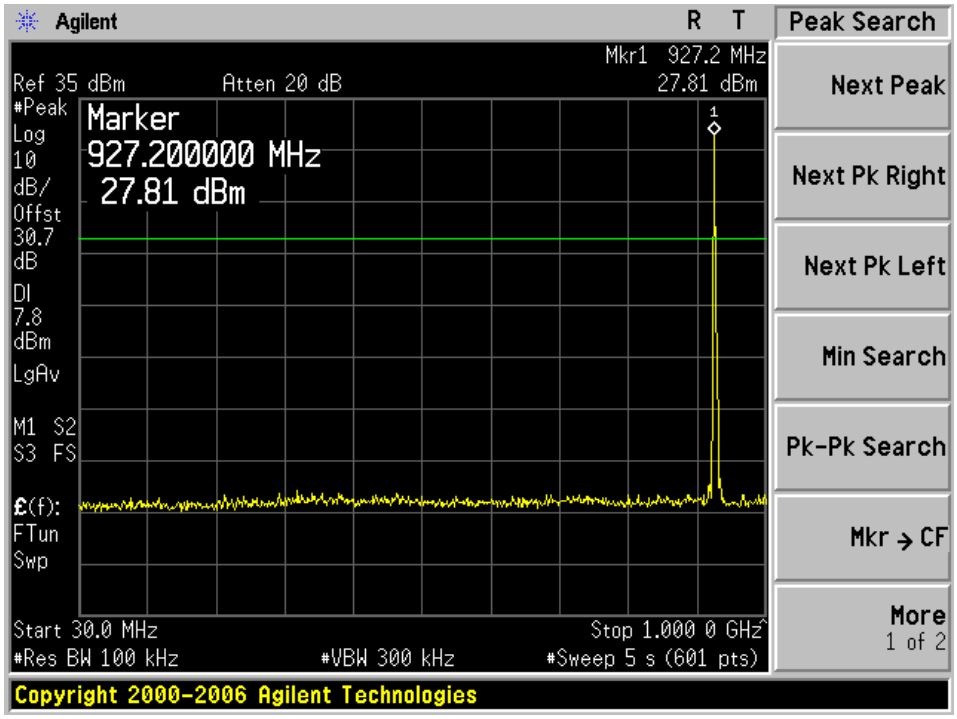


1 GHz – 10 GHz

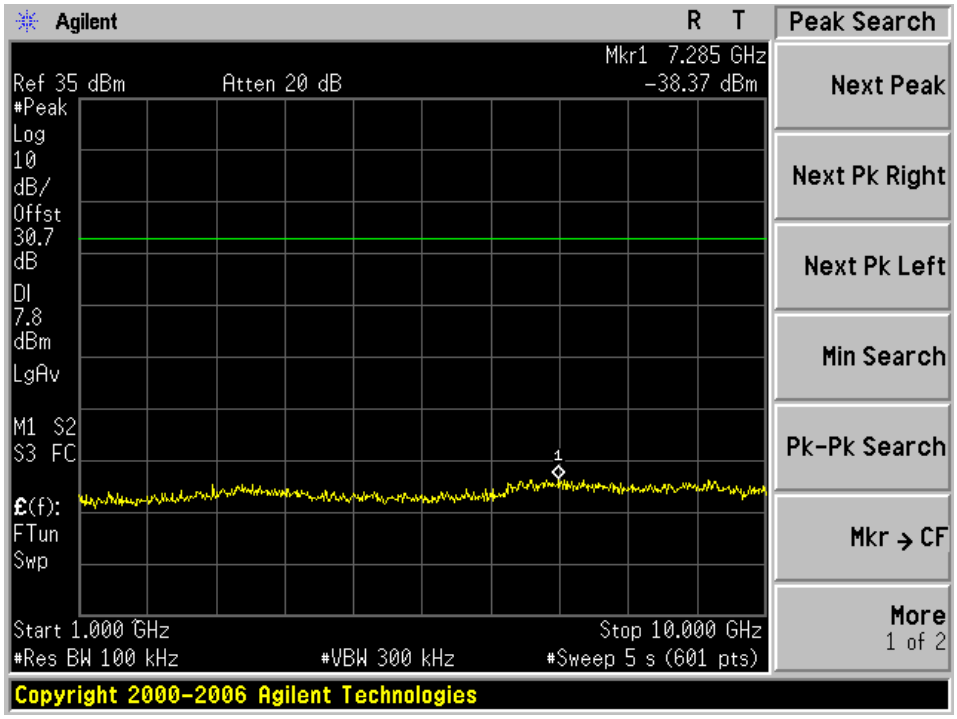


High Channel

30 MHz – 1 GHz



1 GHz – 10 GHz



14 FCC §15.109 & IC RSS-Gen §6 - Receiver Radiated Spurious Emissions

14.1 Applicable Standards

According to IC RSS-Gen §6, receiver spurious emission shall not exceed the radiated limits shown in the table below:

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

14.2 EUT Setup

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

14.3 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.

14.4 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 the indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, the Corrected Amplitude (CA) of 40.3 dBuV/m = indicated Amplitude reading (Ai) 32.5 dBuV + Antenna Factor (AF) 23.5dB + Cable Loss (CL) 3.7 dB + Attenuator (Atten) 10 dB - Amplifier Gain (Ga) 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 (dB) = Corrected Amplitude (dBuV/m) - Limit (dBuV/m)

14.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
A.H Systems	Antenna, Horn	SAS-200/571	261	2012-01-18
Hewlett Packard	Pre amplifier	8447D	2944A06639	2011-06-09
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2011-08-10
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2011-03-21
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Agilent	PSA Spectrum Analyzer	E4440A	MY44303352	2011-05-10
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.

14.6 Test Environmental Conditions

Temperature:	22 °C
Relative Humidity:	33 %
ATM Pressure:	101.7kPa

The testing was performed by Quinn Jiang on 2012-02-27 in 5 meter chamber #3.

14.7 Summary of Test Results

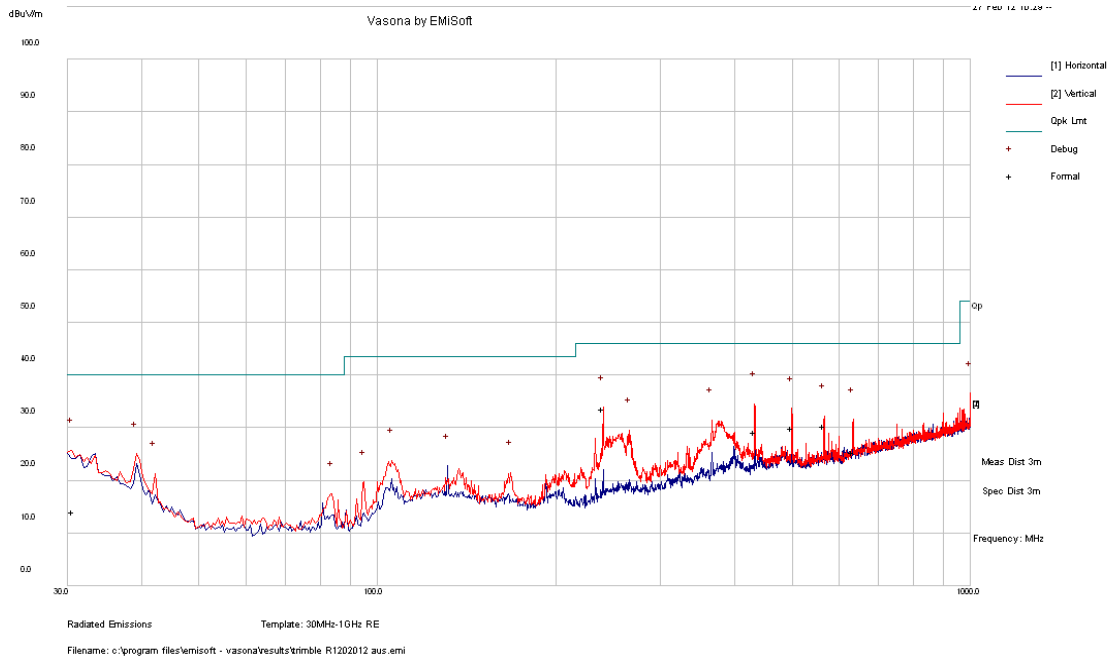
According to the test data,, the EUT complied with the FCC Part 15.109 and IC RSS-Gen, with the closest margins from the limit listed below:

Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-12.44	240.002	Vertical	30 to 1000 MHz
-21.44	1331.228	Vertical	1 – 5 GHz

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

14.8 Test Results

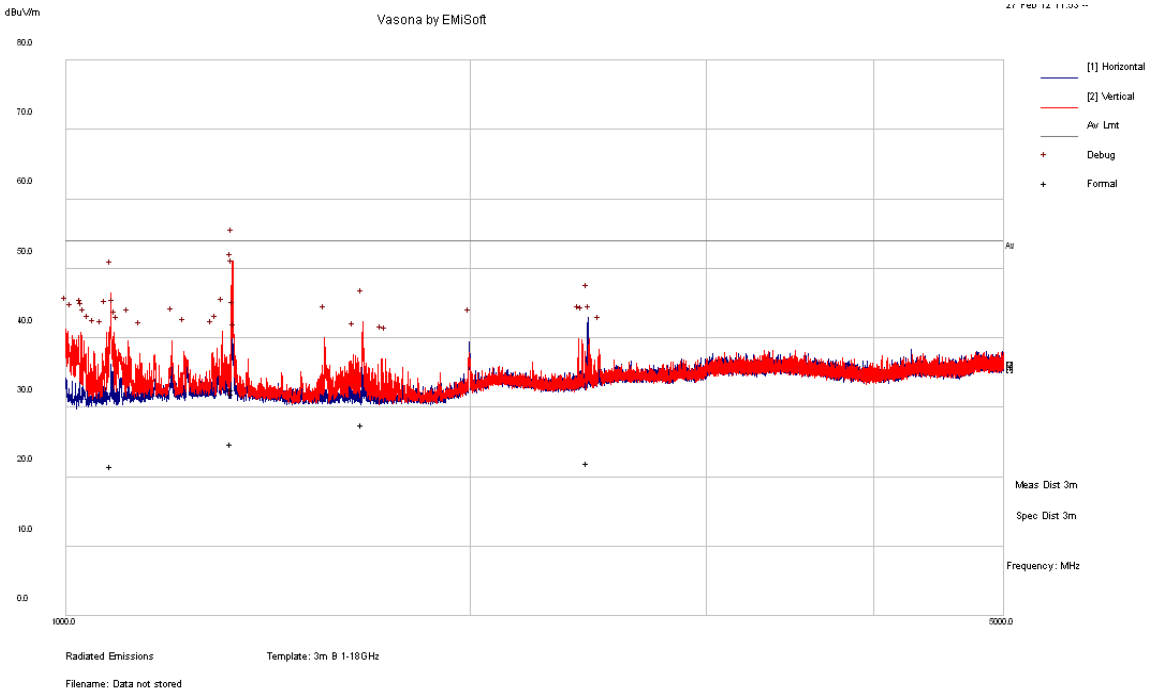
1) 30 MHz -1 GHz, measured at 3 meters



QP Measurement

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
240.002	33.56	105	V	174	46	-12.44
566.4823	30.31	106	V	176	46	-15.69
498.8615	30.01	158	V	192	46	-15.99
432.108	29.22	128	V	210	46	-16.78
633.4528	25.45	121	V	208	46	-20.55
30.63625	13.99	199	V	119	40	-26.01

2) 1 – 5 GHz, measured at 3 meters



Average Measurement

Frequency (MHz)	Corrected Amplitude (dB)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
1331.228	32.56	112	V	152	54	-21.44
1330.859	32.04	99	V	158	54	-21.96
1663.556	27.53	105	V	172	54	-26.47
1328.585	24.69	107	V	152	54	-29.31
2447.198	22.06	156	H	155	54	-31.94
1080.435	21.48	150	V	230	54	-32.52

15 FCC § 2.1091 & IC RSS-102 - RF Exposure Information

15.1 Applicable Standards

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

15.2 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

15.3 MPE Results

Maximum peak output power at antenna input terminal (dBm):	29.64
Maximum peak output power at antenna input terminal (mW):	920.45
Prediction distance (cm):	32
Prediction frequency (MHz):	902.75
Maximum Antenna Gain, typical (dBi):	6.0
Maximum Antenna Gain (numeric):	3.98
Power density of prediction frequency at 32 cm (mW/cm^2):	0.285
Power density of prediction frequency at 32 cm (W/m^2):	2.85
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	0.602
MPE limit for uncontrolled exposure at prediction frequency (W/m^2):	6.02

This device complies with the FCC/IC MPE limit at 32 cm for uncontrolled exposure environment.