Lab Code: 200167-0

FCC PART 15.249

TEST AND MEASUREMENT REPORT

For

CentraLite Systems, Inc.

6420 Wall Street,

Mobile, AL 36695, USA

FCC ID:T3L-DS001
Model: Bluefish

Report Type:	**Product Type:**
Original Report	802.15.4/Zigbee Door Sensor

Test Engineer:	Jerry Huang
Report Number:	R1006076-249
Report Date:	2010-06-30
Reviewed By:	Victor Zhang Test Engineer, RF Lead
Prepared By: (84)	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Avenue, Sunnyvale, CA 94089, USA Tel: (408) 732-9162 Fax: (408) 732-9164

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, NIST, or any agency of the Federal Government.
* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "*"

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1006077-249	Original Report	2010-06-30

1 General Information

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *CentraLite Systems Inc.*, product: *FCC ID: T3L-DS001,* model*: Bluefish,* which will be henceforth in this report referred to as the EUT (Equipment under Test). The EUT is a 802.15.4/Zigbee Door Sensor operates at 2.4 GHz.

1.2 Mechanical Description of EUT

The EUT measures approximately *60mm* **(L)** *x 50mm* **(W)** *x 23mm* **(H)** and weighs approximately *32.5* g.

The data gathered are from a typical production sample provided by the manufacturer with S/N: BLUEFISH-Rev.A provided by the manufacture.

1.3 Objective

This type approval report is prepared on behalf of *CentraLite Systems 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, 15.209 and 15.249.

1.4 Related Submittal(s)/Grant(s)

No Related Submittals

1.5 Test Methodology

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

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in 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.

1.7 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 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.

2.2 EUT Exercise Software

N/A

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 EUT Internal Configuration

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*
§15.249(a)	Field Strength of Fundamental & Harmonics	Compliant
§15.249, §15.209	Out of Band Emissions	Compliant
§15.249	99% Occupied Bandwidth	Compliant

Note: N/A* EUT is battery powered.

4 FCC §15.203 – Antenna Requirement

4.1 Applicable Standard

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

4.2 Antenna Connector Construction

The EUT antenna is integrated into the PCB construction, which in accordance to FCC §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

As per FCC §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 (dBuV)	
	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.*

Test Result

N/A: EUT is powered by battery

6 FCC §15.249 (a) – Field Strength of Fundamental & Harmonics

6.1 Applicable Standard

As Per FCC §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 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.

6.3 Test Procedure

For the radiated emissions test, the EUT was performed using a new battery.

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

6.4 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 -7 dB means the emission is 7 dB below the maximum limit.
The equation for margin calculation is as follows:

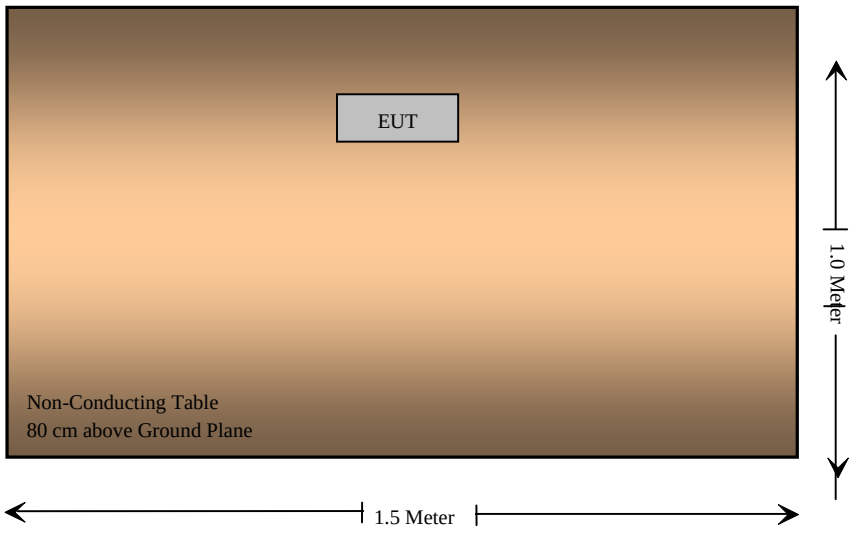
Margin = Corrected Amplitude - Limit

6.5 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US44303352	2010-05-09
Sunol Sciences	Antenna	JB1	A020106-1	2010-05-28
A.R.A.	Horn Antenna	DRG-118/A	1132	2009-07-28
HP	Pre-Amplifier	8449B	3147A00400	2010-02-01
Agilent	Pre-Amplifier	8447D	2944A10187	2010-03-26

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

6.6 Test Setup Block Diagram



6.7 Test Environmental Conditions

Temperature:	24°C
Relative Humidity:	31 %
ATM Pressure:	101.1kPa

The testing was performed by Jerry Huang on 2010-06-15 in 5m chamber #3.

6.8 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:

Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Comments
-0.03	4960	Vertical	Harmonics (High Channel)

Please refer to the following tables for more detailed results

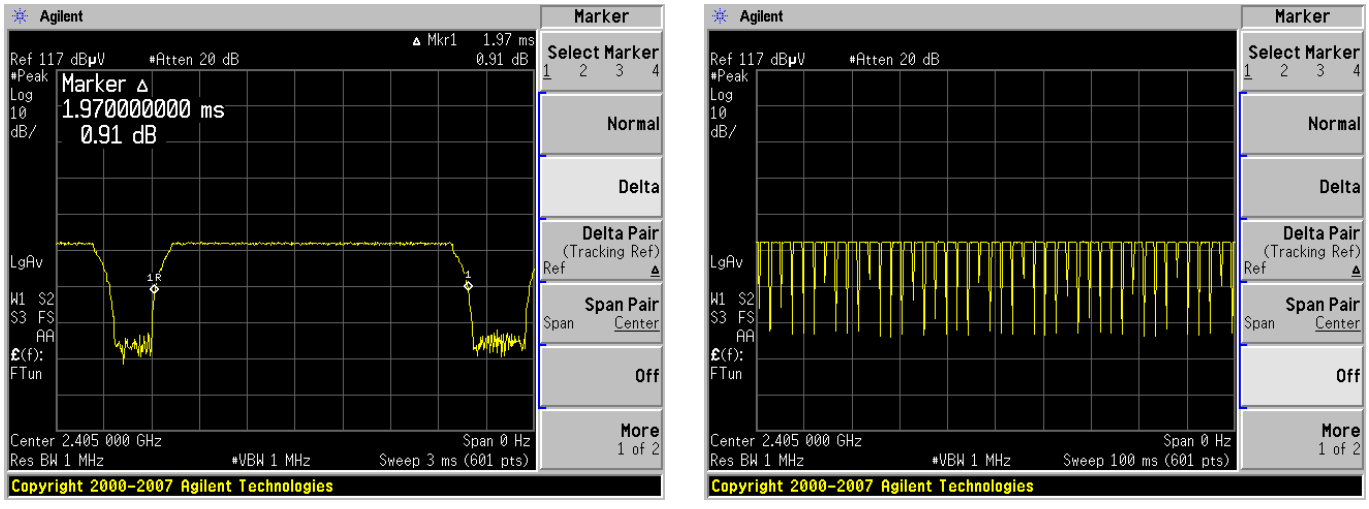
6.9 Test Plot & Data

Low Channel: 2405 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/AV	Turntable 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
2405	92.99	Peak	32	100	V	28.2	3.68	36.75	0	88.12	114	-25.88	Fund.
2405	91.14	Peak	325	100	H	28.2	3.68	36.75	0	86.27	114	-27.73	Fund.
2405	92.99	Ave	32	100	V	28.2	3.68	36.75	-1.44	86.68	94	-7.32	Fund.
2405	91.14	Ave	325	100	H	28.2	3.68	36.75	-1.44	84.83	94	-9.17	Fund.
4810	60.79	Peak	12	100	V	33.3	5.52	36.1	0	63.51	74	-10.49	Harmonic
4810	57.27	Peak	339	100	H	33.3	5.52	36.1	0	59.99	74	-14.01	Harmonic
4810	51.75	Ave	12	100	V	33.3	5.52	36.1	-1.44	53.03	54	-0.97	Harmonic
4810	50.23	Ave	339	100	H	33.3	5.52	36.1	-1.44	51.51	54	-2.49	Harmonic

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(43*1.970ms/100 ms) = -1.44 dB*

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



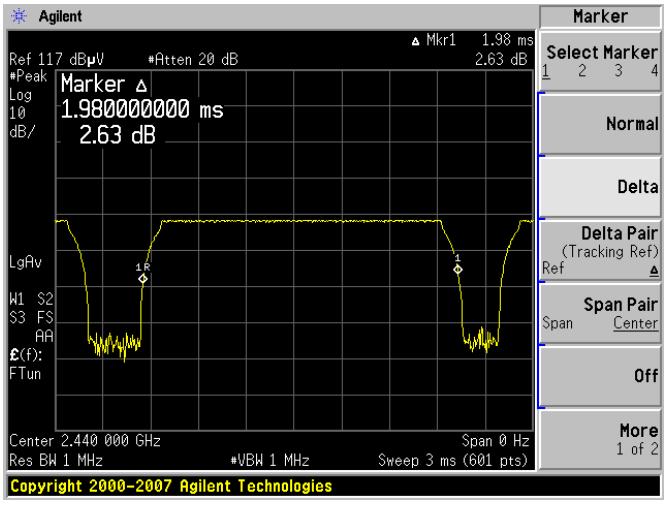
Duty Cycle Plots

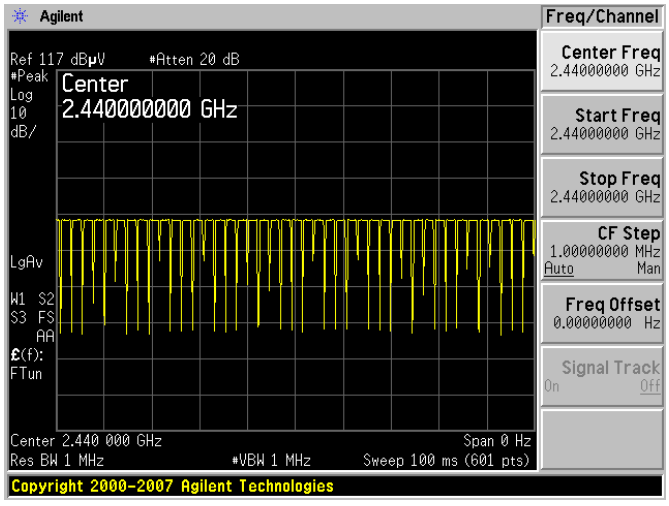
Middle Channel: 2440 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/AV	Turntable 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
2440	93.6	Peak	33	100	V	28.2	3.68	36.75	0	88.73	114	-25.27	Fund.
2440	90.68	Peak	326	100	H	28.2	3.68	36.75	0	85.81	114	-28.19	Fund.
2440	93.6	Ave	33	100	V	28.2	3.68	36.75	-1.40	87.33	94	-6.67	Fund.
2440	90.68	Ave	326	100	H	28.2	3.68	36.75	-1.40	84.41	94	-9.59	Fund.
4880	59.31	Peak	212	100	V	33.3	5.52	36.1	0	62.03	74	-11.97	Harmonic
4880	55.28	Peak	345	100	H	33.3	5.52	36.1	0	58	74	-16	Harmonic
4880	51.25	Ave	212	100	V	33.3	5.52	36.1	-1.4	52.57	54	-1.43	Harmonic
4880	47.22	Ave	345	100	H	33.3	5.52	36.1	-1.4	48.54	54	-5.46	Harmonic

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(43*1.98ms/100ms) = -1.40 dB*

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





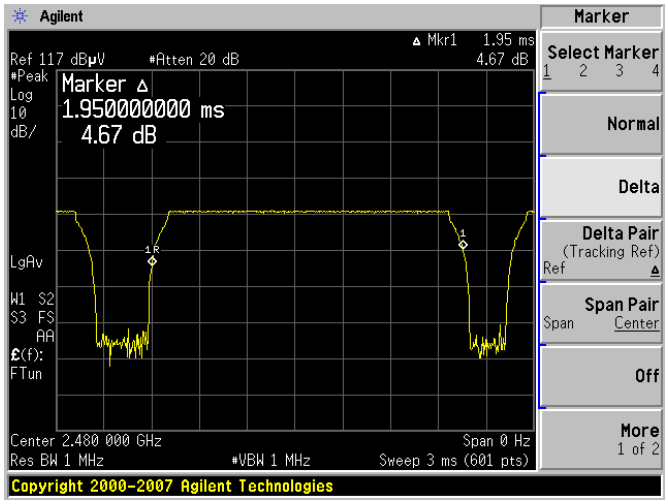
Duty Cycle Plots

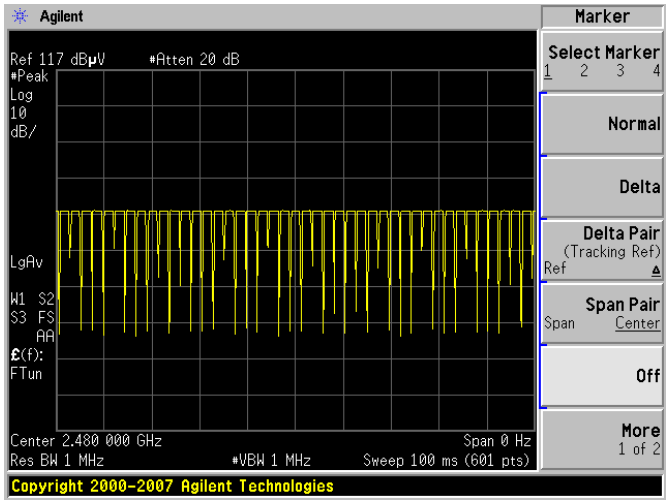
High Channel: 2480 MHz

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/AV	Turntable 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
2480	94.18	Peak	5	100	V	28.6	3.77	36.84	0	89.71	114	-24.29	Fund.
2480	91.94	Peak	321	100	H	28.6	3.77	36.84	0	87.47	114	-26.53	Fund.
2480	94.18	Ave	5	100	V	28.6	3.77	36.84	-1.53	88.18	94	-5.82	Fund.
2480	91.94	Ave	321	100	H	28.6	3.77	36.84	-1.53	85.94	94	-8.06	Fund.
4960	58.98	Peak	213	100	V	33.3	5.52	36.1	0	61.7	74	-12.3	Harmonic
4960	55.88	Peak	344	100	H	33.3	5.52	36.1	0	58.6	74	-15.4	Harmonic
4960	52.78	Ave	213	100	V	33.3	5.52	36.1	-1.53	53.97	54	-0.03	Harmonic
4960	49.68	Ave	344	100	H	33.3	5.52	36.1	-1.53	50.87	54	-3.13	Harmonic

Note: • Average Value (*) is calculated based on Peak Reading + Duty Cycle Factor
*• Duty Cycle Factor (DCF) = 20 $\log_{10}$(Ton/Tp) = 20 $\log_{10}$(43*1.950ms/100 ms) = -1.53 dB*

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





Duty Cycle Plots

7 FCC §15.205, §15.209 & §15.249(d) – Out of Band Emissions

7.1 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		

7.2 Test Procedure

For the radiated emissions test, the EUT was performed using a new battery.

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

7.3 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 -7 dB means the emission is 7 dB below the maximum limit.
The equation for margin calculation is as follows:

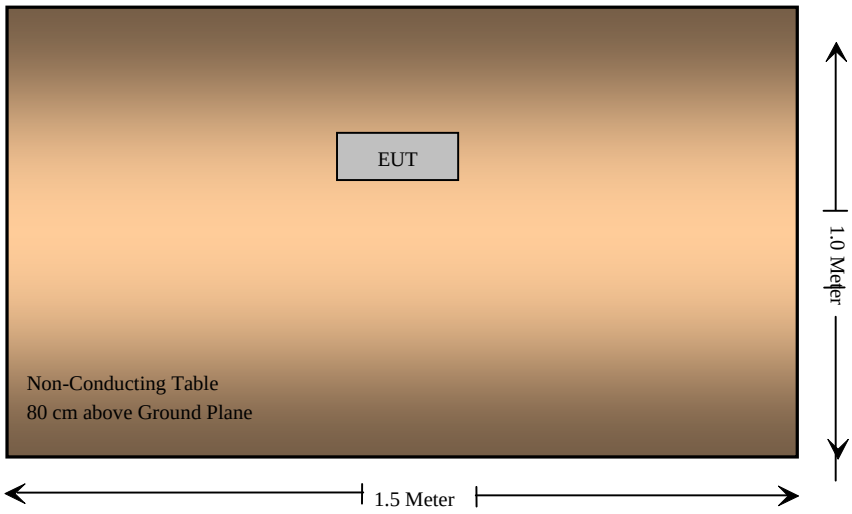
Margin = Corrected Amplitude - Limit

7.4 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US44303352	2010-05-09
Sunol Sciences	Antenna	JB1	A020106-1	2010-05-28
A.R.A.	Horn Antenna	DRG-118/A	1132	2009-07-28
HP	Pre-Amplifier	8449B	3147A00400	2010-02-01
Agilent	Pre-Amplifier	8447D	2944A10187	2010-03-26

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

7.5 Test Setup Block Diagram



7.6 Test Environmental Conditions

Temperature:	24°C
Relative Humidity:	31 %
ATM Pressure:	101.1kPa

**The testing was performed by Jerry Huang on 2010-06-15 in 5m chamber #3.*

7.7 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:

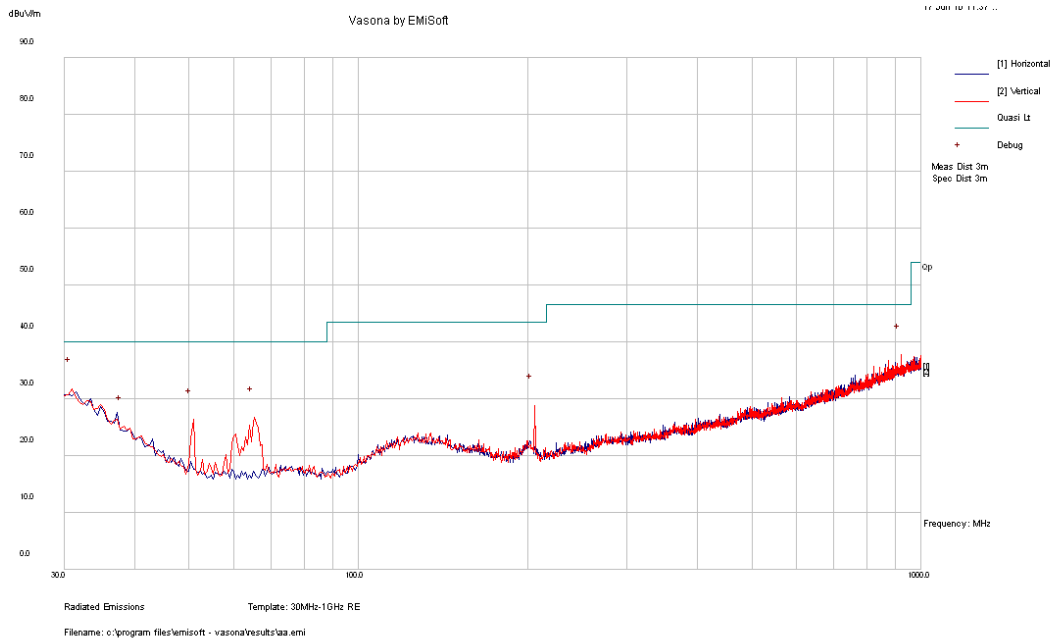
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range
-15.56	921.2176	Vertical	30 to 25000 MHz

Please refer to the following tables for more detailed results

7.8 Radiated Emissions Test Plot & Data

30 MHz – 1 GHz, Measured at 3 meters

The EUT was tested in the highest power channel to represent *worst*-case results during the final qualification test.



Frequency (MHz)	Corrected Quasi-Peak (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
31.19416	21.5	108	V	354	40	-18.5
921.2176	30.94	109	V	175	46.5	-15.56
65.21084	8.77	306	V	153	40	-31.23
50.62772	9.09	148	V	200	40	-30.91
205.7733	12.38	154	V	14	43.5	-31.12
38.04196	16.23	136	V	33	40	-23.77

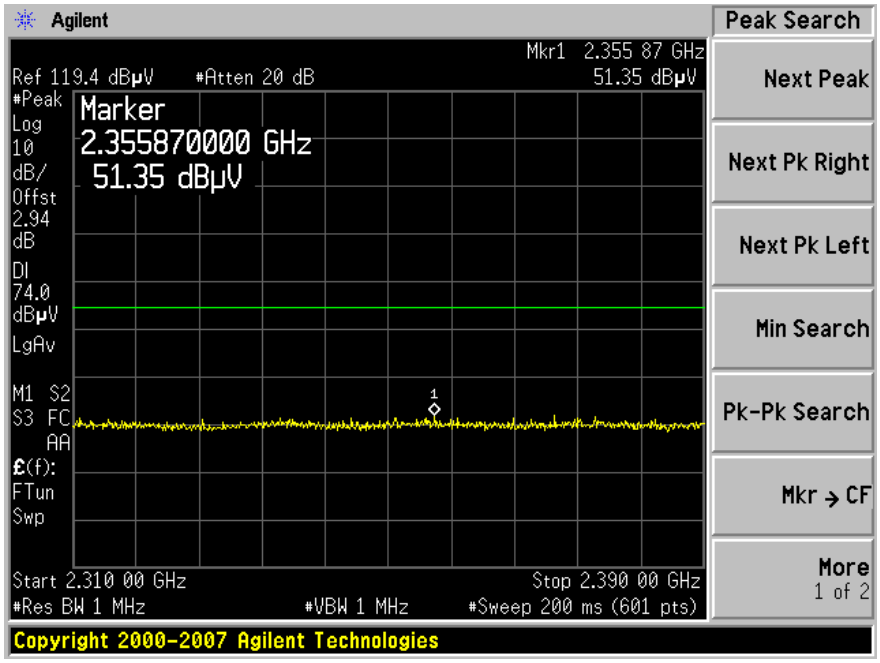
Above 1 GHz, Measured at 3 meters

Freq. (MHz)	S.A. Reading (dBuV)	Detector PK/AV	Turntable 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
Low Channel: 2405 MHz													
-	-	-	-	-	-	-	-	-	-	-	-	-	Spurious
Middle Channel: 2440 MHz													
-	-	-	-	-	-	-	-	-	-	-	-	-	Spurious
High Channel: 2480 MHz													
-	-	-	-	-	-	-	-	-	-	-	-	-	Spurious

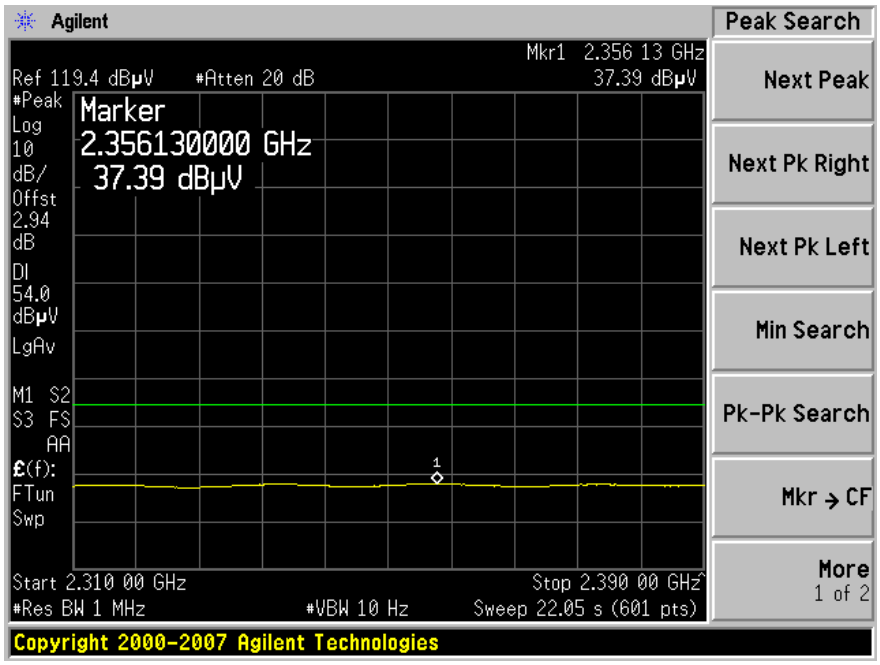
Note: All emissions except harmonics are 20 dB lower then the limit and/or under the noise floor level.

Restricted Bands:

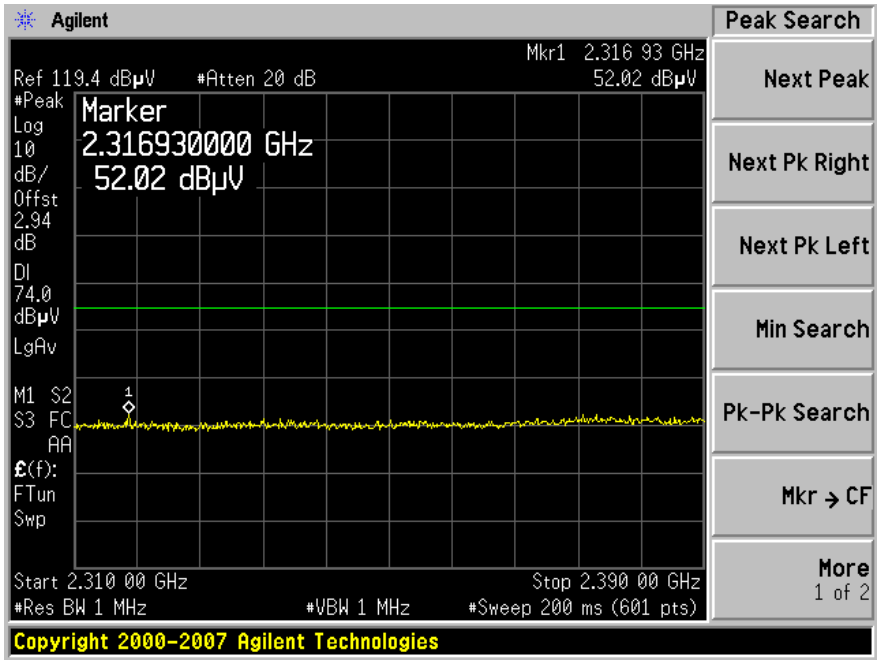
Low Channel – 2405 MHz Horizontal, Peak



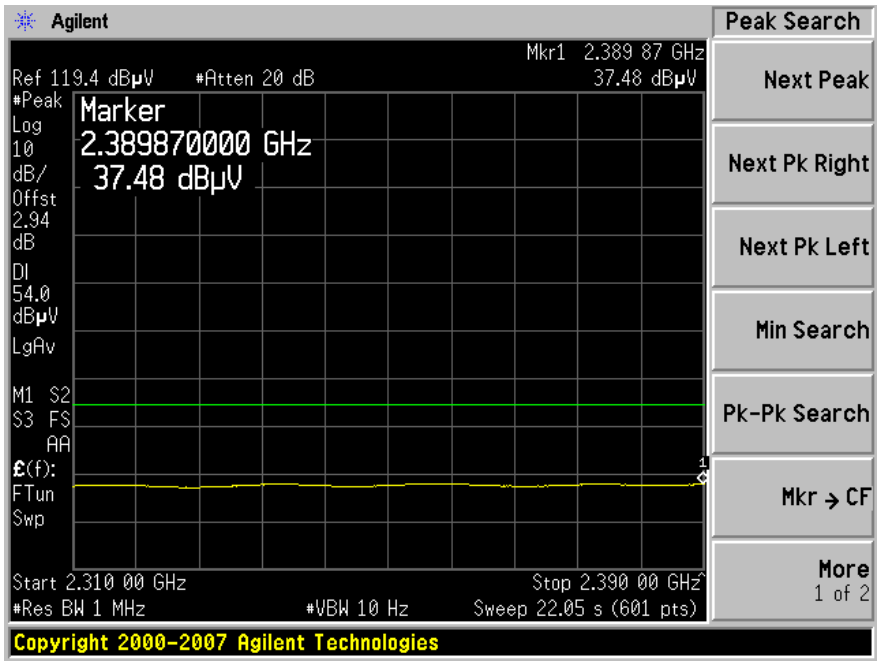
Low Channel – 2405 MHz Horizontal, Average



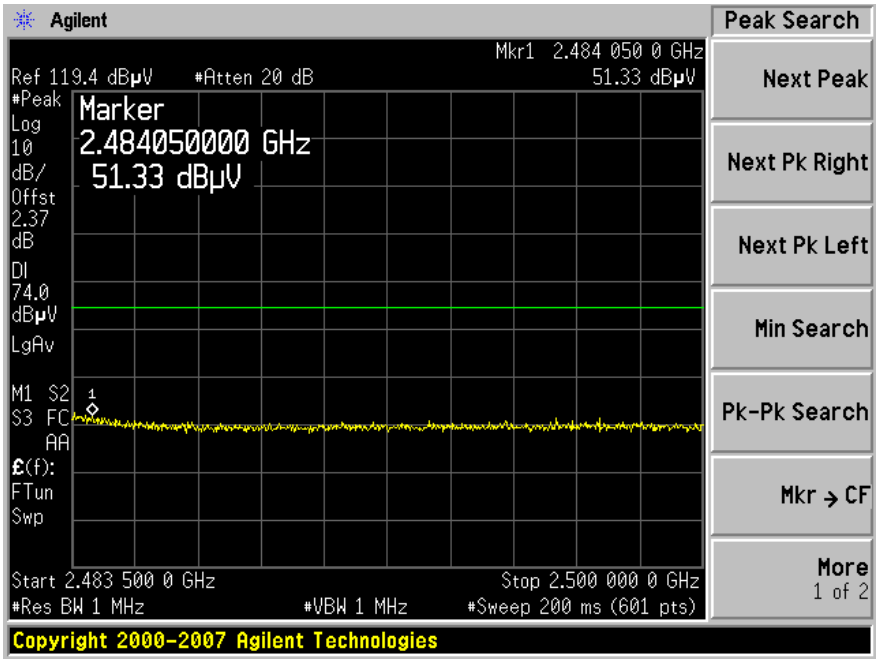
Low Channel – 2405 MHz Vertical, Peak



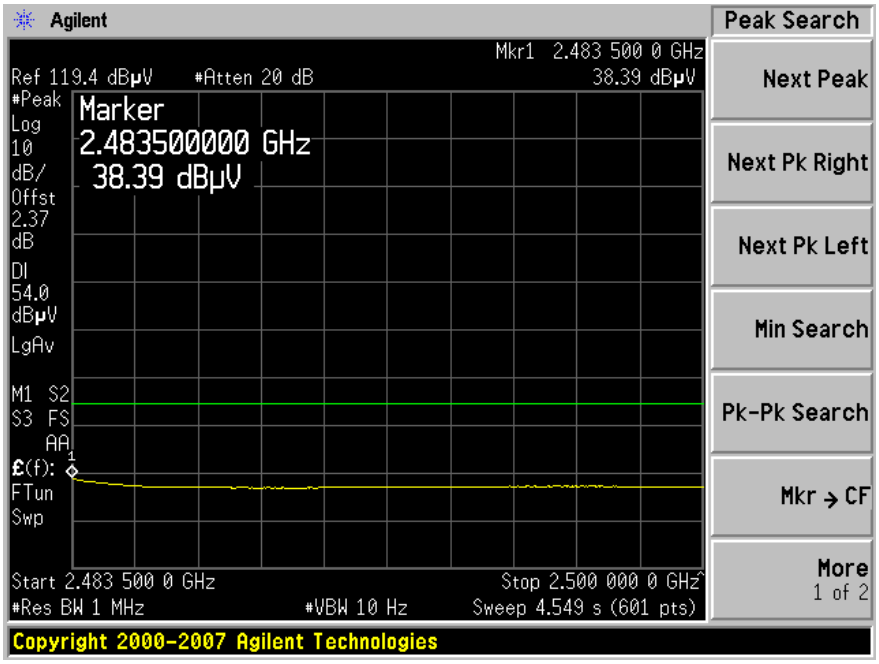
Low Channel – 2405 MHz Vertical, Average



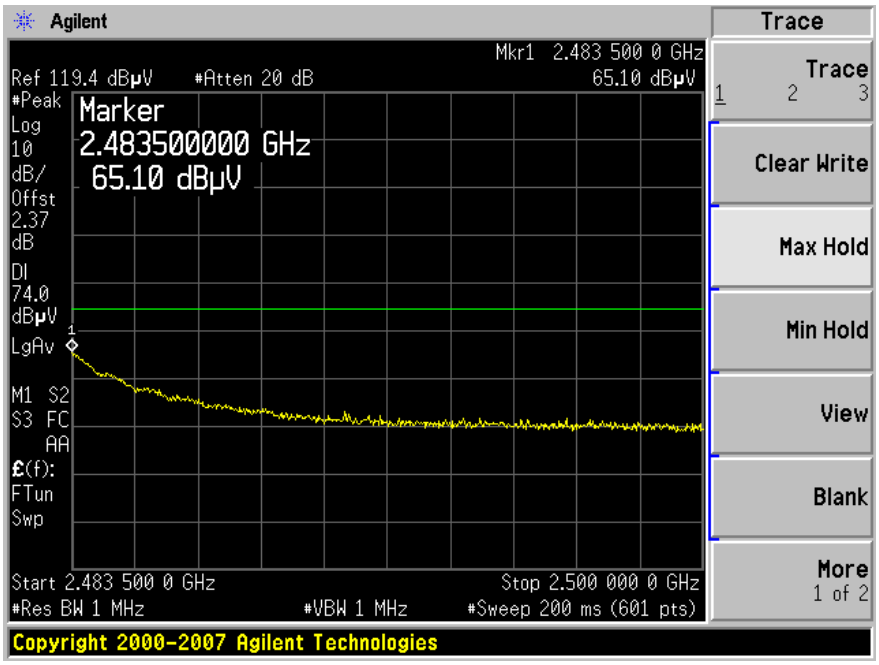
High Channel – 2480 MHz Horizontal, Peak



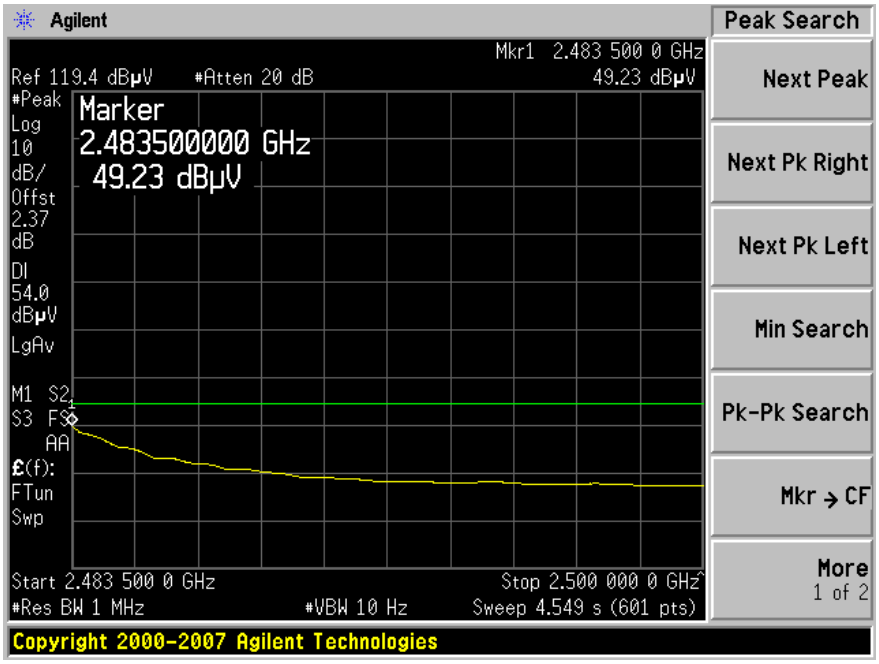
High Channel – 2480 MHz Horizontal, Average



High Channel – 2480 MHz Vertical, Peak



High Channel – 2480 MHz Vertical, Average



8 20 dB Occupied Bandwidth

8.1 Applicable Standard

FCC §15.215.

8.2 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 via radiated horn antenna. 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 20 dB from the reference level. Record the frequency difference as the emissions bandwidth. (20 dB bandwidth for DTS)
4. Repeat above procedures until all frequencies measured were complete.

8.3 Test Equipment List and Details

Manufacturers	Description	Model No.	Serial No.	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	US44303352	2010-05-09
A.R.A.	Horn Antenna	DRG-118/A	1132	2009-07-28
HP	Pre-Amplifier	8449B	3147A00400	2010-02-01

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:	24°C
Relative Humidity:	33 %
ATM Pressure:	101.1kPa

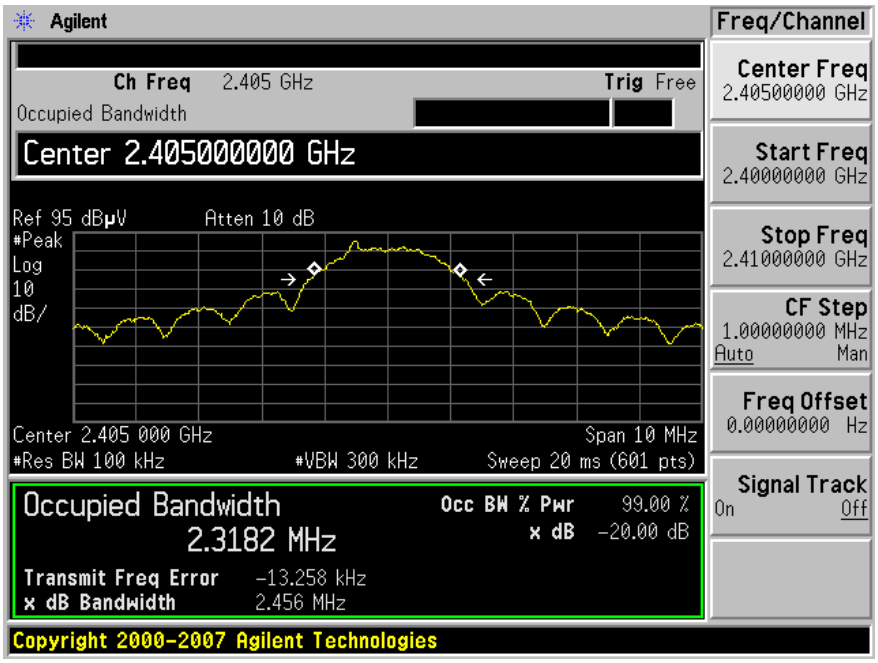
The testing was performed by Jerry Huang on 2010-06-15 in 5m chamber #3

8.5 Test Results

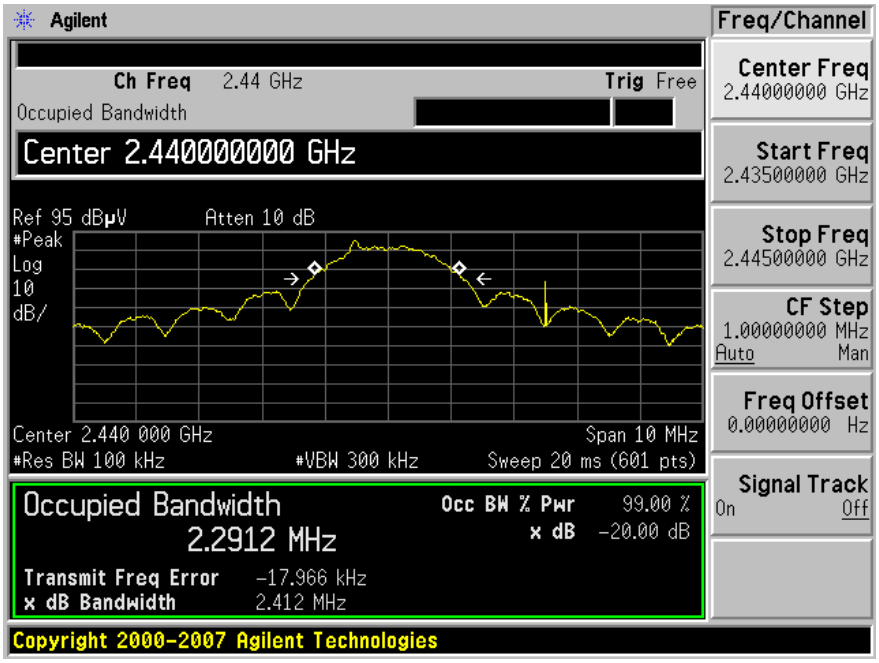
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
Low	2405	2456	2318.2
Middle	2440	2412	2291.2
High	2480	2416	2284.2

Please refer to the following plots for detailed test results

Low Channel – 2405 MHz



Middle Channel – 2440 MHz



High Channel – 2480 MHz