NVLAP LAB CODE 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

Shenzhen Hongjiayuan Communication Technology Co., Ltd.

Room 2406, Block A of Electronic Science and Technology Building,
No.2070, Shennan Zhong Road, Futian District,
Shenzhen City, Guangdong Province, China

FCC ID: XUT-W007

Report Type:	**Product Type:**
Original Report	GSM/GPRS Mobile Phone

Test Engineer:	Alvin Huang
Report Number:	RSZ09111101-WiFi
Report Date:	2009-11-30
Reviewed By:	Merry Zhao EMC Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Hongjiayuan Communication Technology Co., Ltd.*'s product, model number: *W007 (FCC ID: XUT-W007)* or the "EUT" as referred to in this report is a *GSM/GPRS Mobile Phone with Bluetooth and Wi-Fi functionality*, which measures approximately: 11.5 cm L x 5.6 cm W x 1.3 cm H, rated input voltage: DC 3.7 V battery.

Frequency Range:
Cellular Band: 824-849 MHz (Tx), 869-894 MHz (Rx)
PCS Band: 1850-1910 MHz (Tx), 1930-1990 MHz (Rx)
Bluetooth: 2400-2483.5 MHz (Tx/ Rx)
Wi-Fi: 2412-2462 MHz (Tx/ Rx)

Modulation Mode: GMSK (GSM/PCS), GFSK (Bluetooth), CCK/OFDM (Wi-Fi)

Transmitter Output Power:
Cellular Band: 33±2 dBm
PCS Band: 30±2 dBm
Bluetooth: -6~4 dBm
Wi-Fi: 802.11b 15±1 dBm, 802.11g 13±1 dBm

** All measurement and test data in this report was gathered from production sample serial number: M_IMEI: 357908020000199, S_IMEI: 357908020000272 (Assigned by the applicant). The EUT was received on 2009-11-11.*

Objective

This Type approval report is prepared on behalf of *Shenzhen Hongjiayuan Communication Technology CO., LTD. in* accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 22H and 24E, FCC Part 15.247 (BT) submission with FCC ID: XUT-W007.

Test Methodology

All measurements contained in this report were conducted 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.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 21, 2007. 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 has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 802.11b and 802.11g mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

EUT was tested with Channel 1, 6 and 11.

The worst case data rate is determined with the data rate with highest output power. For 802.11b mode, 11 Mbps data rate was chosen for full testing. For 802.11g mode, 54 Mbps data rate was chosen for full testing.

Equipment Modifications

No modification was made to the unit tested.

Exercise Softwares

Meta 2

The max transmitting power is at 11 Mbps for 802.11b and 54 Mbps for 802.11g, the transmitting power level as follow:

802.11b:

Channel Frequency	Transmitting Power Level Setting
2412 MHz	31
2437 MHz	30
2462 MHz	30

802.11g:

Channel Frequency	Transmitting Power Level Setting
2412 MHz	34
2437 MHz	34
2462 MHz	34

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Foxconn	Motherboard	G33M02	11S19R1949ZJ1WCB46JK8	DOC
Bestec	POWER	ATX0300P5WB	70900730657	DOC
Western Digital	HardDisk	WD800JD	WD-WMAM9YJ07713	DOC
Hitachi-LG	DVD-ROM	LTN-489S	B4F511412	DOC
Intel	CPU	Core Processor E5200	N/A	N/A
Hynix	Memory	PC2-5300U-555-12	HYMP564U64CP8-Y5 AB	N/A
Intel	Ethernet	PRO 10/100 VE	82562V-2	DOC

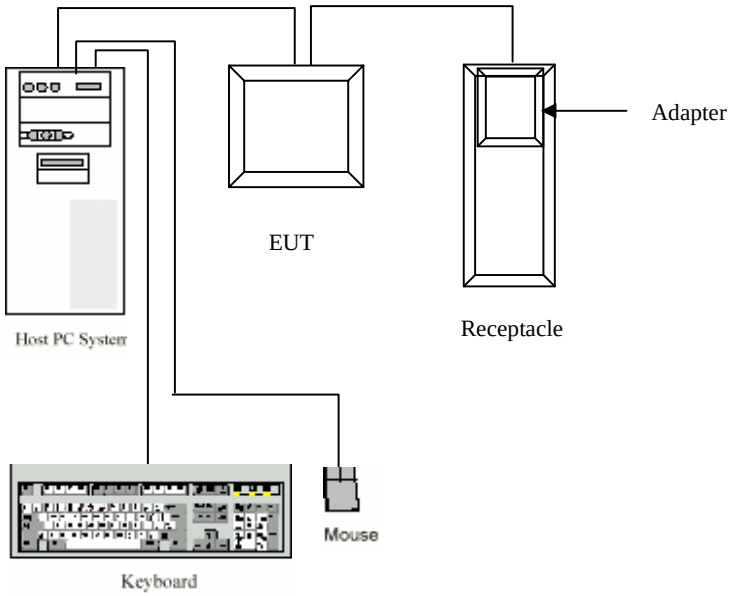
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	PC	VOSTRO 200	N/A	DoC
DELL	Keyboard 1#	L110	CNORh656658907BL04TY	DoC
DELL	Mouse 1#	MOC5UO	G1B0096D	DoC

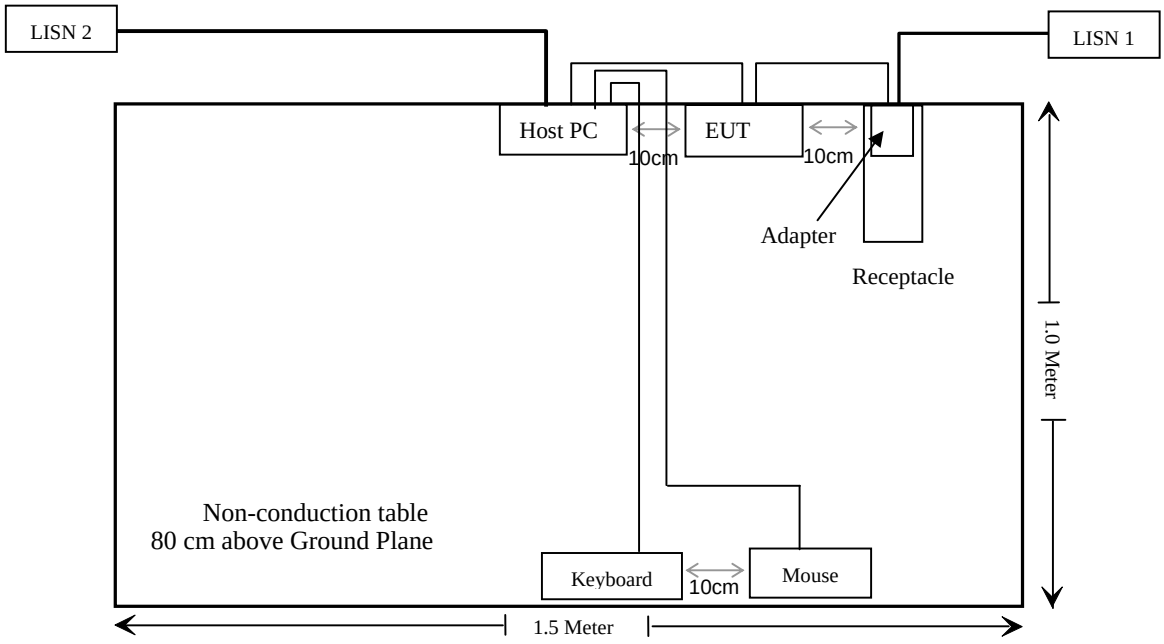
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detachable DC Cable	0.96	Adapter	EUT

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1), §2.1093	RF Exposure	Compliance*
§15.203	Antenna Requirement	Compliance
§15.207 (a)	Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.209, §15.205, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Bandwidth	Compliance
§15.247(b)(3)	Maximum Peak Output Power	Compliance
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

Compliant*: Please refer to the SAR report number: R0911163-FCC-SAR

CFR47 §15.247 (i), §1.1307 (b)(1) & §2.1093 – RF EXPOSURE

Standard Applicable

According to §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

Three antennas are available for the EUT, one is PCS antenna, the other is Wi-Fi antenna and the third is Bluetooth antenna, the distance between GSM/PCS and Bluetooth is less than 2.5 cm, the distance between Wi-Fi and Bluetooth is more than 5 cm. The test procedure is base on FCC KDB 648474 D01 SAR Handsets Multi Xmiter and ant, V01r05 released on September 2008,

Result: Compliant

* Please refer to the SAR report, report No. R0911163-FCC-SAR.

CFR47 §15.203 - ANTENNA REQUIREMENT

Standard Applicable

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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has 3 antennas, one is for Bluetooth, the gain is -1.0 dBi; one is for WiF-i, the gain is -0.7 dBi; other is for GSM850/PCS1900, the gain of PCS is 1.1 dBi, the gain of GSM850 is 0.7 dBi. All antennas are internal and permanently attached.

Result: Compliant.

CFR47 §15.207(a) - CONDUCTED EMISSIONS

Applicable Standard

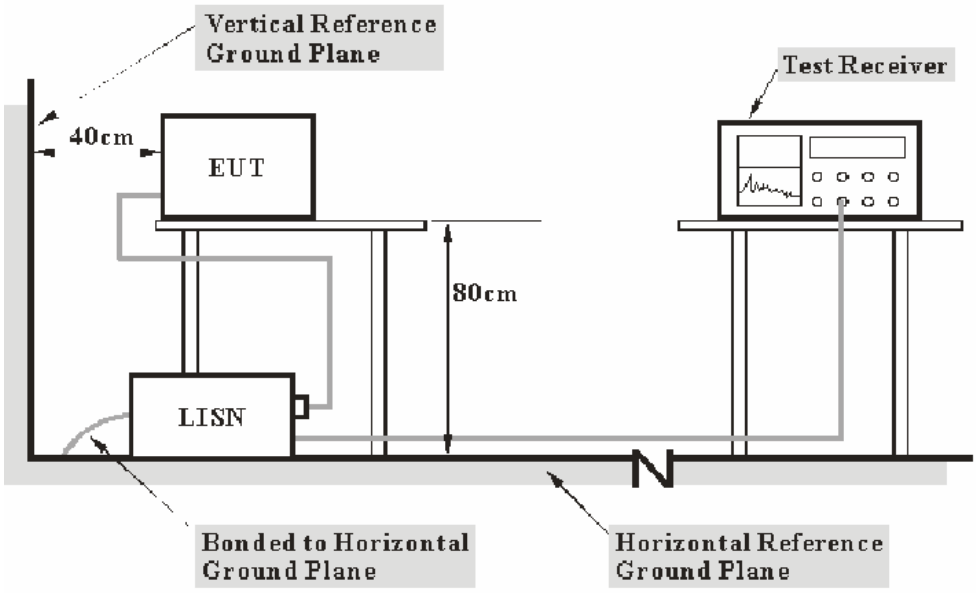
CFR47 §15.207

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is ±2.4 dB.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	***IF B/W***
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2009-04-28	2010-04-27
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2009-04-28	2010-04-27

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

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

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

10.40 dB at **1.615 MHz** in the **Neutral** conductor mode

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Alvin Huang on 2009-11-25.

Test Mode: charging & communication

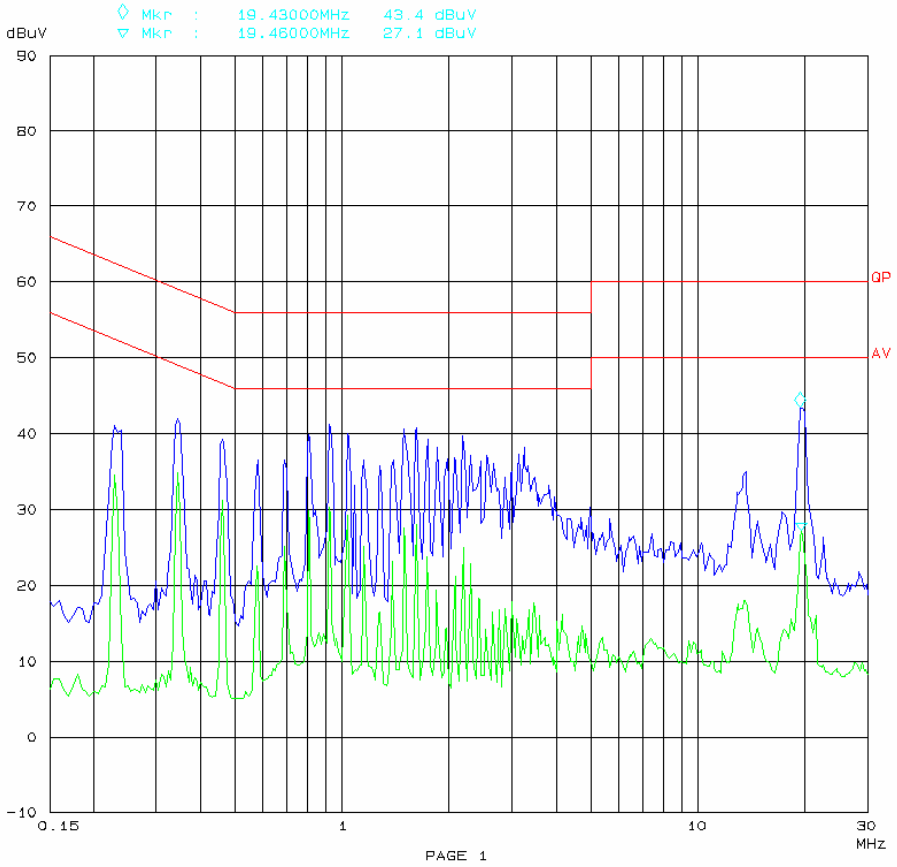
Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Conductor (Line/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
1.615	45.60	QP	Neutral	56.00	10.40
0.806	44.40	QP	Neutral	56.00	11.60
0.806	33.80	AV	Neutral	46.00	12.20
0.345	46.60	QP	Neutral	59.10	12.50
0.345	36.40	AV	Neutral	49.10	12.70
0.460	43.90	QP	Neutral	56.70	12.80
0.460	33.90	AV	Neutral	46.70	12.80
1.615	32.00	AV	Neutral	46.00	14.00
0.345	34.80	AV	Line	49.10	14.30
0.920	41.20	QP	Line	56.00	14.80
0.460	31.20	AV	Line	46.70	15.50
19.940	44.20	QP	Neutral	60.00	15.80
0.920	30.20	AV	Line	46.00	15.80
2.180	39.80	QP	Line	56.00	16.20
19.430	43.40	QP	Line	60.00	16.60
0.345	41.90	QP	Line	59.10	17.20
0.460	39.30	QP	Line	56.70	17.40
2.185	24.90	AV	Line	46.00	21.10
19.915	28.70	AV	Neutral	50.00	21.30
19.460	27.10	AV	Line	50.00	22.90
13.635	35.00	QP	Line	60.00	25.00
13.910	30.20	QP	Neutral	60.00	29.80
13.850	19.60	AV	Neutral	50.00	30.40
13.565	18.00	AV	Line	50.00	32.00

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

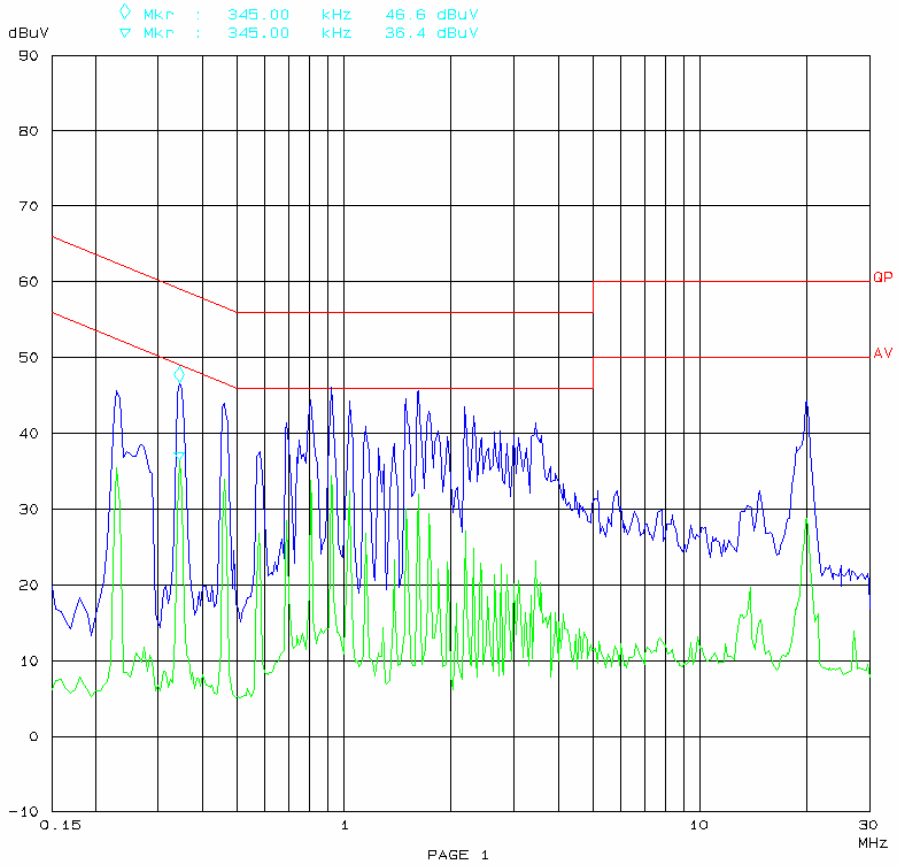
Conducted Emission
FCC PART 15.207

EUT:	GSM/GPRS Mobile phone M/N: W007
Manuf:	Hongjiayuan communication
Op Cond:	Charging&communication
Operator:	Alvin
Test Spec:	AC 120V/60Hz L
Comment:	Tem: 25 Hum: 56%
	BACL



Conducted Emission
FCC PART 15.207

EUT:	GSM/GPRS Mobile phone M/N: W007
Manuf:	Hongjiayuan communication
Op Cond:	Charging&communication
Operator:	Alvin
Test Spec:	AC 230V/50Hz Neutral
Comment:	Tem: 25 Hum: 56%
	BACL



CFR47 §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

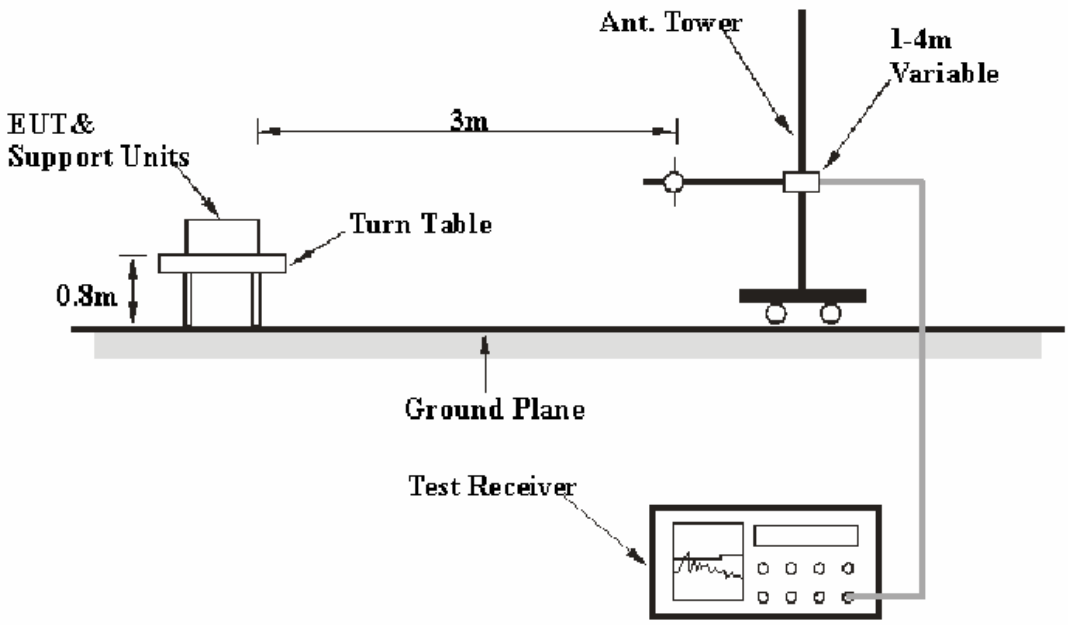
FCC §15.247 (d); §15.209; §15.205;

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 best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB.

EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15.209 15.205 and 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	***RBW***	***Video B/W***
30MHz – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25 GHz	1 MHz	3 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2009-08-02	2010-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06
Sunol Sciences	Bilog Antenna	JB1	A040904-1	2009-03-11	2010-03-11
HP	Amplifier	8449B	3008A00277	2009-09-12	2010-09-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2009-05-05	2010-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-07-08	2010-07-07

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the adapter 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.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz and peak and Average detection modes for frequencies above 1GHz.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - 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 limit for Class B. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.209, 15.205, and 15.247, with the worst margin reading of:

Below 1 GHz:

802.11b: 13.2 dB at **33.218700 MHz** in the **Vertical** polarization
802.11g: 13.5 dB at **33.383325 MHz** in the **Vertical** polarization

Above 1 GHz:

7.64 dB at **7236 MHz** in the **Horizontal** polarization**, 802.11b Low Channel**
7.79 dB at **7311 MHz** in the **Horizontal** polarization**, 802.11b Middle Channel**
7.81 dB at **7386 MHz** in the **Horizontal** polarization**, 802.11b High Channel**

8.26 dB at **7236 MHz** in the **Horizontal** polarization**, 802.11g Low Channel**
7.96 dB at **7311 MHz** in the **Horizontal** polarization**, 802.11g Middle Channel**
7.98 dB at **7386 MHz** in the **Horizontal** polarization**, 802.11g High Channel**

Test Data

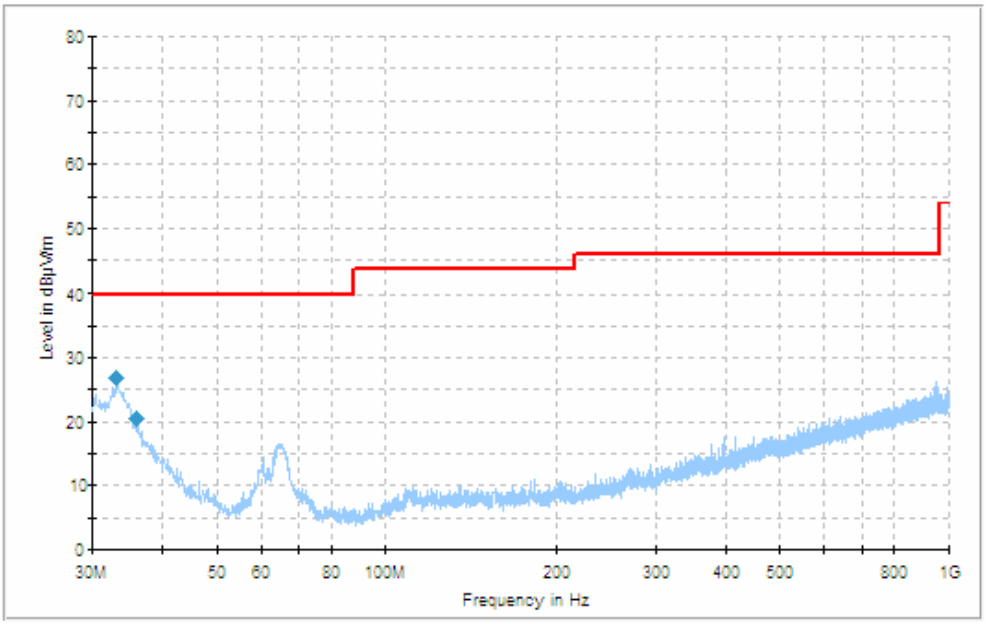
Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Alvin Huang on 2009-11-25.

Below 1 GHz:

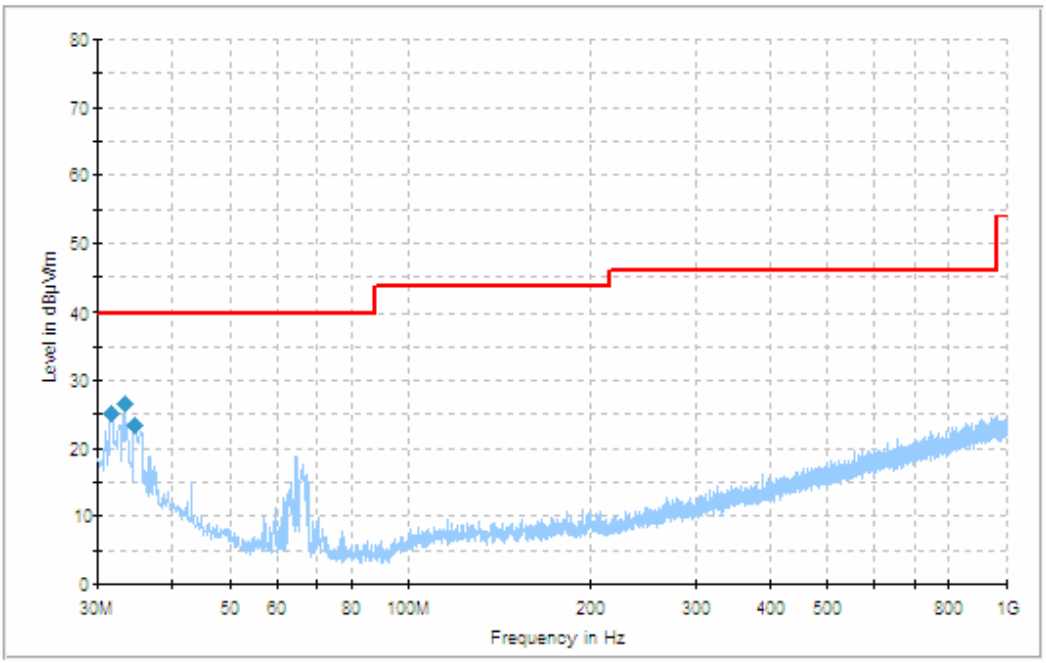
Test Mode: Transmitting (802.11b)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
33.218700	26.8	332.0	V	186.0	-10.8	40.0	13.2
36.097200	20.6	109.0	V	360.0	-12.7	40.0	19.4

Note: The data which below the limit 20 dB was not recorded.

Test Mode: Transmitting (802.11g)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
33.383325	26.5	264.0	V	0.0	-5.49	40.0	13.5
31.576250	25.1	332.0	V	186.0	-4.2	40.0	14.9
34.728750	23.4	230.0	V	220.0	-5.8	40.0	16.6

Note: The data which below the limit 20 dB was not recorded.

Above 1GHz:

Test mode: Transmitting (802.11b):

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
7236	31.66	AV	90	1.8	H	39.2	9.1	33.6	46.36	54	7.64	harmonic
7236	31.72	AV	190	1.3	V	38.0	9.1	33.6	45.22	54	8.78	harmonic
4824	33.48	AV	180	1.7	H	36.3	7.5	33.7	43.58	54	10.42	harmonic
4824	33.27	AV	190	1.2	V	35.0	7.5	33.7	42.07	54	11.93	harmonic
7236	44.80	PK	190	1.3	V	38.0	9.1	33.6	58.30	74	15.70	harmonic
7236	43.27	PK	90	1.8	H	39.2	9.1	33.6	57.97	74	16.03	harmonic
4824	46.81	PK	180	1.7	H	36.3	7.5	33.7	56.91	74	17.09	harmonic
4824	47.42	PK	190	1.2	V	35.0	7.5	33.7	56.22	74	17.78	harmonic
1245.3	32.02	AV	145	1.5	H	25.9	2.7	34.8	25.82	54	28.18	spurious
1245.3	31.28	AV	145	1.2	V	25.9	2.7	34.8	25.08	54	28.92	spurious
1245.3	46.75	PK	145	1.5	H	25.9	2.7	34.8	40.55	74	33.45	spurious
1245.3	45.78	PK	145	1.2	V	25.9	2.7	34.8	39.58	74	34.42	spurious
Middle Channel (2437 MHz)												
7311	31.31	AV	157	1.1	H	39.2	9.3	33.6	46.21	54	7.79	harmonic
7311	31.82	AV	360	1.4	V	38.0	9.3	33.6	45.52	54	8.48	harmonic
4874	33.42	AV	56	1.0	H	36.3	7.5	33.7	43.52	54	10.48	harmonic
4874	33.63	AV	180	1.2	V	35.0	7.5	33.7	42.43	54	11.57	harmonic
7311	44.63	PK	157	1.0	H	39.2	9.3	33.6	59.53	74	14.47	harmonic
7311	44.70	PK	360	1.4	V	38.0	9.3	33.6	58.40	74	15.60	harmonic
4874	46.72	PK	56	1.2	H	36.3	7.5	33.7	56.82	74	17.18	harmonic
4874	47.12	PK	180	1.2	V	35.0	7.5	33.7	55.92	74	18.08	harmonic
1256.5	32.15	AV	150	1.0	H	25.9	2.7	34.8	25.95	54	28.05	spurious
1256.5	31.54	AV	145	1.2	V	25.9	2.7	34.8	25.34	54	28.66	spurious
1256.5	47.35	PK	150	1.2	H	25.9	2.7	34.8	41.15	74	32.85	spurious
1256.5	46.76	PK	145	1.2	V	25.9	2.7	34.8	40.56	74	33.44	spurious

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
High Channel (2462 MHz)												
7386	31.29	AV	120	1.8	H	39.2	9.3	33.6	46.19	54	7.81	harmonic
7386	31.18	AV	10	1.2	V	38.0	9.3	33.6	44.88	54	9.12	harmonic
4924	33.89	AV	160	1.7	H	36.3	7.6	33.7	44.09	54	9.91	harmonic
4924	33.73	AV	76	1.2	V	35.0	7.6	33.7	42.63	54	11.37	harmonic
7386	43.84	PK	120	1.8	H	39.2	9.3	33.6	58.74	74	15.26	harmonic
7386	44.91	PK	10	1.2	V	38.0	9.3	33.6	58.61	74	15.39	harmonic
4924	46.29	PK	160	1.7	H	36.3	7.6	33.7	56.49	74	17.51	harmonic
4924	47.07	PK	76	1.2	V	35.0	7.6	33.7	55.97	74	18.03	harmonic
1252.5	31.23	AV	130	1.5	H	25.9	2.7	34.8	25.03	54	28.97	spurious
1252.5	31.02	AV	200	1.2	V	25.9	2.7	34.8	24.82	54	29.18	spurious
1252.5	46.35	PK	130	1.5	H	25.9	2.7	34.8	40.15	74	33.85	spurious
1252.5	46.15	PK	200	1.2	V	25.9	2.7	34.8	39.95	74	34.05	spurious

Spurious emission in restricted band

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
2387.550	33.16	AV	150	1.6	H	30.9	3.8	33.9	33.96	54	20.04	spurious
2486.200	31.82	AV	120	1.8	H	30.9	3.9	33.9	32.72	54	21.28	spurious
2387.460	31.78	AV	0	1.2	V	30.3	3.8	33.9	31.98	54	22.02	spurious
2486.200	31.64	AV	130	1.2	V	30.3	3.9	33.9	31.94	54	22.06	spurious
2387.550	47.64	PK	150	1.6	H	30.9	3.8	33.9	48.44	74	25.56	spurious
2387.460	47.56	PK	0	1.2	V	30.3	3.8	33.9	47.76	74	26.24	spurious
2486.200	46.49	PK	120	1.8	H	30.9	3.9	33.9	47.39	74	26.61	spurious
2486.200	46.21	PK	130	1.2	V	30.3	3.9	33.9	46.51	74	27.49	spurious

Test mode: Transmitting (802.11g):

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
7236	31.04	AV	167	1.8	H	39.2	9.1	33.6	45.74	54	8.26	harmonic
7236	31.11	AV	185	1.3	V	38.0	9.1	33.6	44.61	54	9.39	harmonic
4824	33.13	AV	230	1.6	H	36.3	7.5	33.7	43.23	54	10.77	harmonic
4824	33.57	AV	120	1.2	V	35.0	7.5	33.7	42.37	54	11.63	harmonic
7236	44.02	PK	167	1.8	H	39.2	9.1	33.6	58.72	74	15.28	harmonic
7236	43.65	PK	185	1.3	V	38.0	9.1	33.6	57.15	74	16.85	harmonic
4824	45.64	PK	230	1.6	H	36.3	7.5	33.7	55.74	74	18.26	harmonic
4824	45.49	PK	120	1.2	V	35.0	7.5	33.7	54.29	74	19.71	harmonic
1240.5	32.45	AV	56	1.5	H	25.9	2.7	34.8	26.25	54	27.75	spurious
1240.5	32.03	AV	360	1.2	V	25.9	2.7	34.8	25.83	54	28.17	spurious
1240.5	46.59	PK	56	1.5	H	25.9	2.7	34.8	40.39	74	33.61	spurious
1240.5	46.26	PK	360	1.2	V	25.9	2.7	34.8	40.06	74	33.94	spurious
Middle Channel (2437 MHz)												
7311	31.14	AV	345	1.5	H	39.2	9.3	33.6	46.04	54	7.96	harmonic
7311	31.10	AV	180	1.1	V	38.0	9.3	33.6	44.80	54	9.20	harmonic
4874	31.82	AV	12	1.6	H	36.3	7.5	33.7	41.92	54	12.08	harmonic
4874	32.10	AV	156	1.2	V	35.0	7.5	33.7	40.90	54	13.10	harmonic
7311	44.21	PK	345	1.5	H	39.2	9.3	33.6	59.11	74	14.89	harmonic
7311	43.36	PK	180	1.1	V	38.0	9.3	33.6	57.06	74	16.94	harmonic
4874	44.74	PK	12	1.6	H	36.3	7.5	33.7	54.84	74	19.16	harmonic
4874	45.29	PK	156	1.2	V	35.0	7.5	33.7	54.09	74	19.91	harmonic
1275.6	32.05	AV	136	1.8	H	25.9	2.7	34.8	25.85	54	28.15	spurious
1275.6	31.64	AV	0	1.3	V	25.9	2.7	34.8	25.44	54	28.56	spurious
1275.6	47.15	PK	136	1.8	H	25.9	2.7	34.8	40.95	74	33.05	spurious
1275.6	46.28	PK	0	1.3	V	25.9	2.7	34.8	40.08	74	33.92	spurious

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
High Channel (2462 MHz)												
7386	31.12	AV	110	2.0	H	39.2	9.3	33.6	46.02	54	7.98	harmonic
7386	31.18	AV	105	1.2	V	38.0	9.3	33.6	44.88	54	9.12	harmonic
4924	31.42	AV	120	1.7	H	36.3	7.6	33.7	41.62	54	12.38	harmonic
4924	32.00	AV	360	1.2	V	35.0	7.6	33.7	40.90	54	13.10	harmonic
7386	44.65	PK	110	2.0	H	39.2	9.3	33.6	59.55	74	14.45	harmonic
7386	44.30	PK	105	1.2	V	38.0	9.3	33.6	58.00	74	16.00	harmonic
4924	46.11	PK	120	1.7	H	36.3	7.6	33.7	56.31	74	17.69	harmonic
4924	46.27	PK	360	1.2	V	35.0	7.6	33.7	55.17	74	18.83	harmonic
12852	32.46	AV	145	1.2	V	25.9	2.7	34.8	26.26	54	27.74	spurious
12852	32.05	AV	80	1.9	H	25.9	2.7	34.8	25.85	54	28.15	spurious
12852	47.32	PK	145	1.2	V	25.9	2.7	34.8	41.12	74	32.88	spurious
12852	46.15	PK	80	1.9	H	25.9	2.7	34.8	39.95	74	34.05	spurious

Spurious emission in restricted band

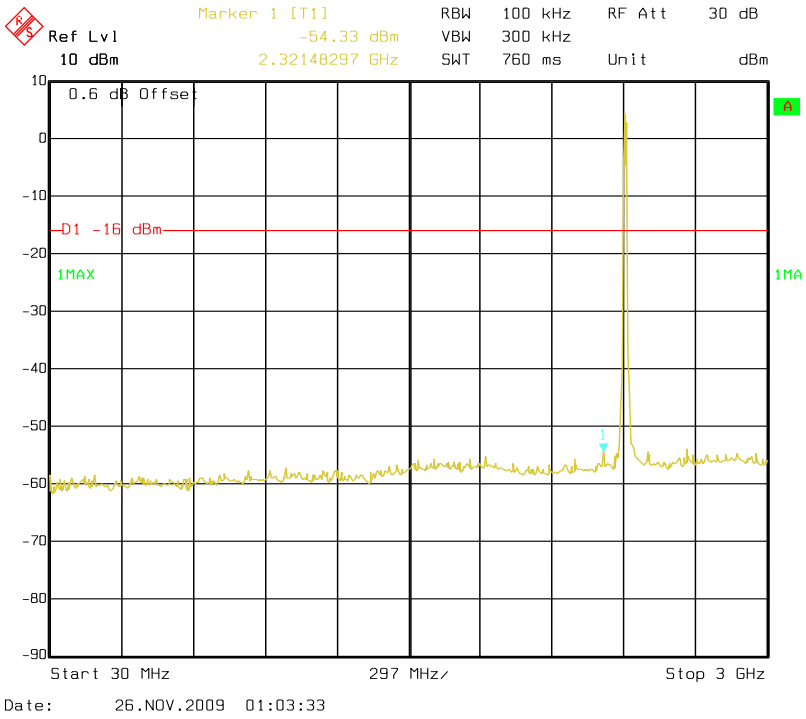
Freq. (MHz)	S.A. Reading (dBμV/m)	Detector (PK/QP/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
2389.130	33.32	AV	245	1.8	H	30.9	3.8	33.9	34.12	54	19.88	spurious
2484.600	32.22	AV	76	1.6	H	30.9	3.9	33.9	33.12	54	20.88	spurious
2484.600	32.35	AV	168	1.2	V	30.3	3.9	33.9	32.65	54	21.35	spurious
2389.130	32.28	AV	15	1.3	V	30.3	3.8	33.9	32.48	54	21.52	spurious
2389.130	47.86	PK	245	1.8	H	30.9	3.8	33.9	48.66	74	25.34	spurious
2389.130	47.78	PK	15	1.3	V	30.3	3.8	33.9	47.98	74	26.02	spurious
2484.600	46.75	PK	76	1.6	H	30.9	3.9	33.9	47.65	74	26.35	spurious
2484.600	47.15	PK	168	1.2	V	30.3	3.9	33.9	47.45	74	26.55	spurious

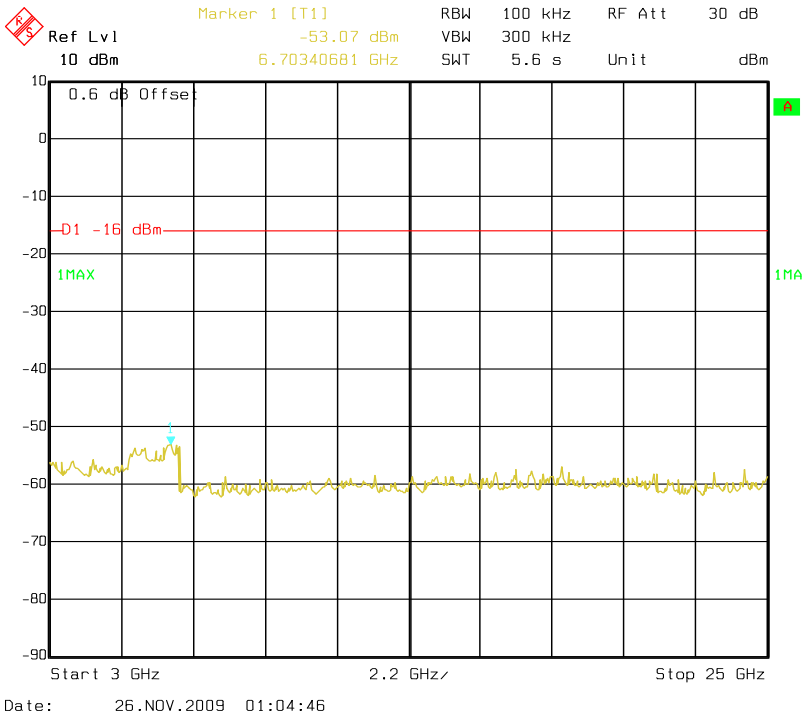
Antenna Port Conducted Spurious Emissions

Channel Frequency (MHz)	Data Rate (Mbps)	Delta Value (dBc)	Limit (dBc)	Ref. Plot	Result
802.11b Mode					
2412	11	*	20	PLOT1	PASS
2437	11	*	20	PLOT2	PASS
2462	11	*	20	PLOT3	PASS
802.11g Mode					
2412	54	*	20	PLOT4	PASS
2437	54	*	20	PLOT5	PASS
2462	54	*	20	PLOT6	PASS

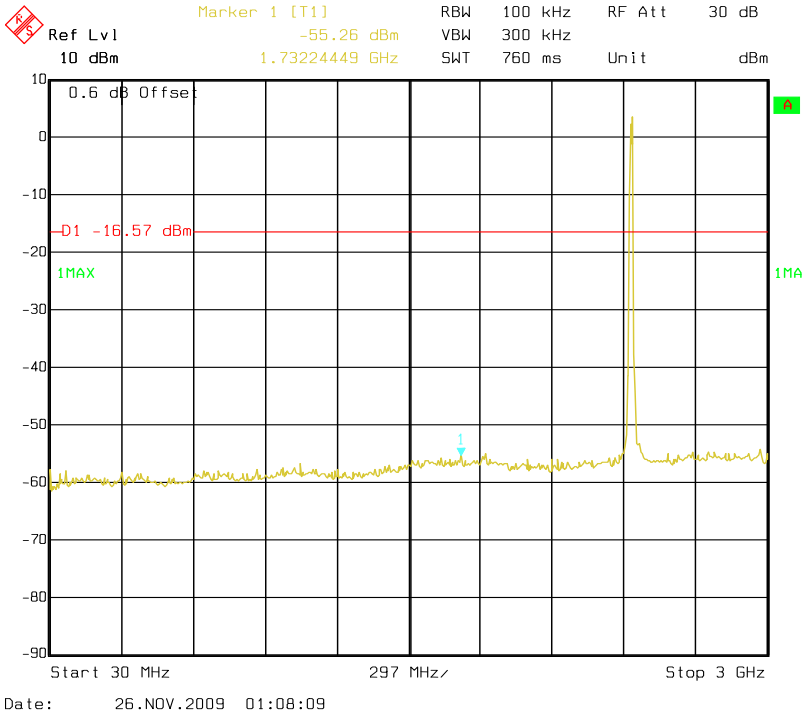
Please refer to the following plots.

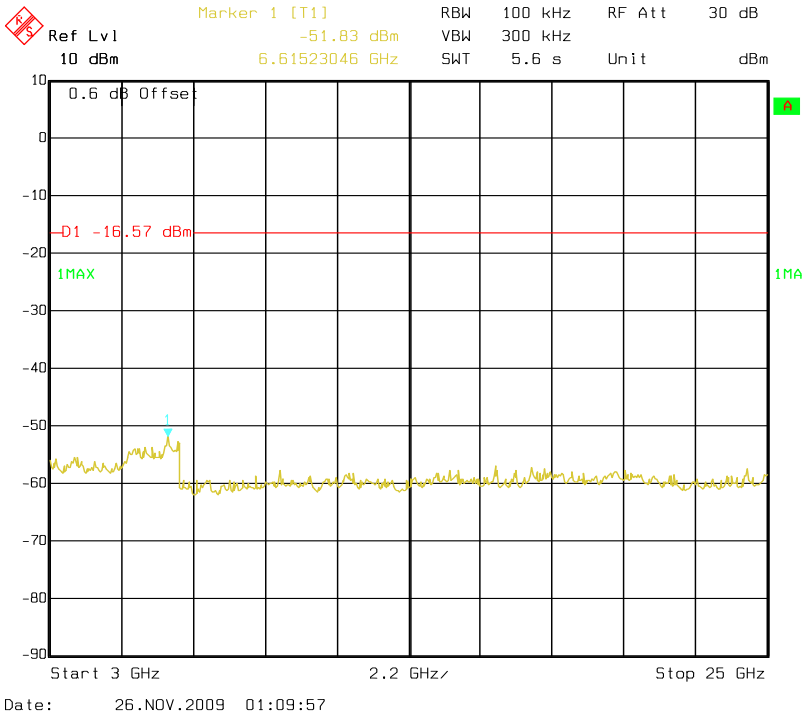
Plot 1: 802.11b Low Channel



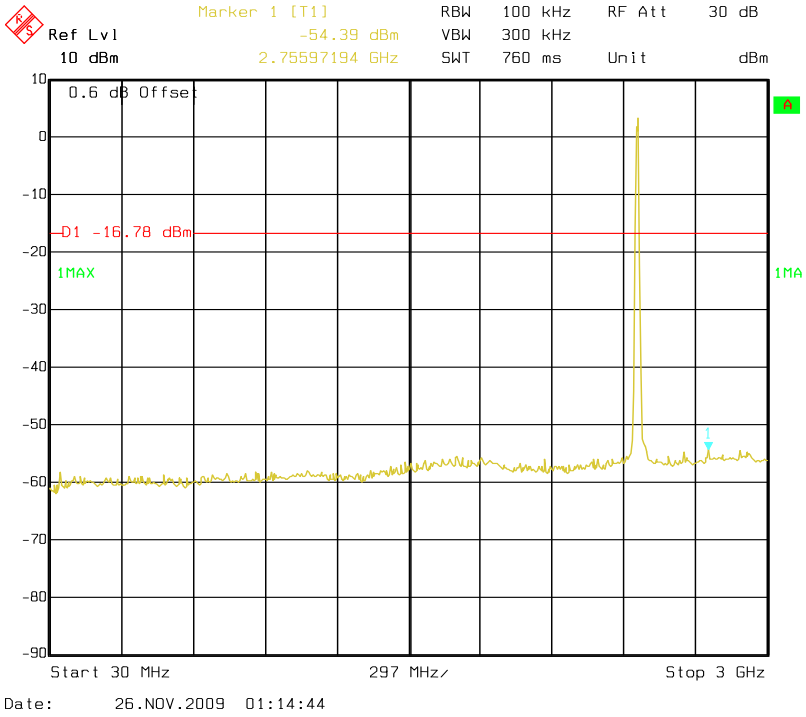


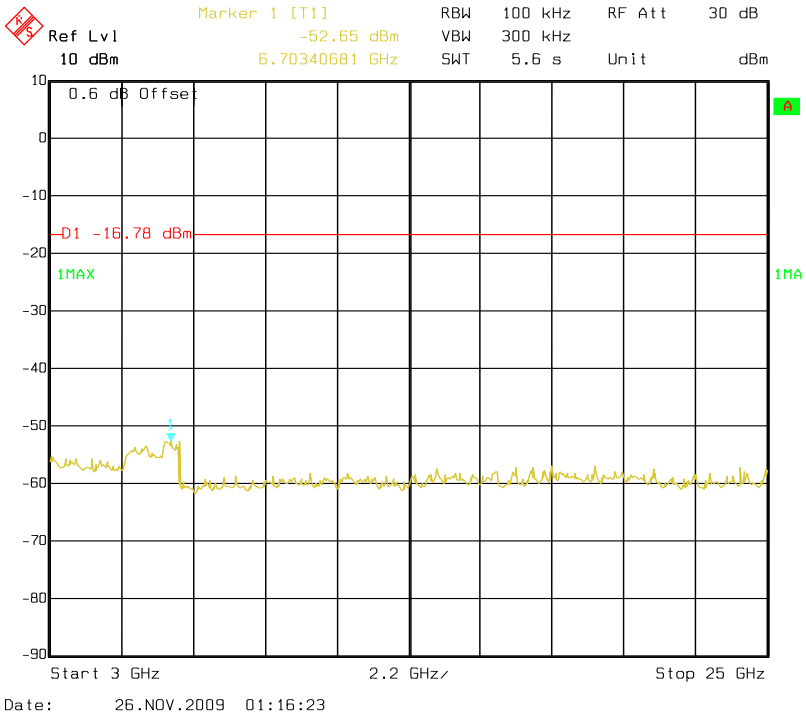
Plot 2: 802.11b Middle Channel



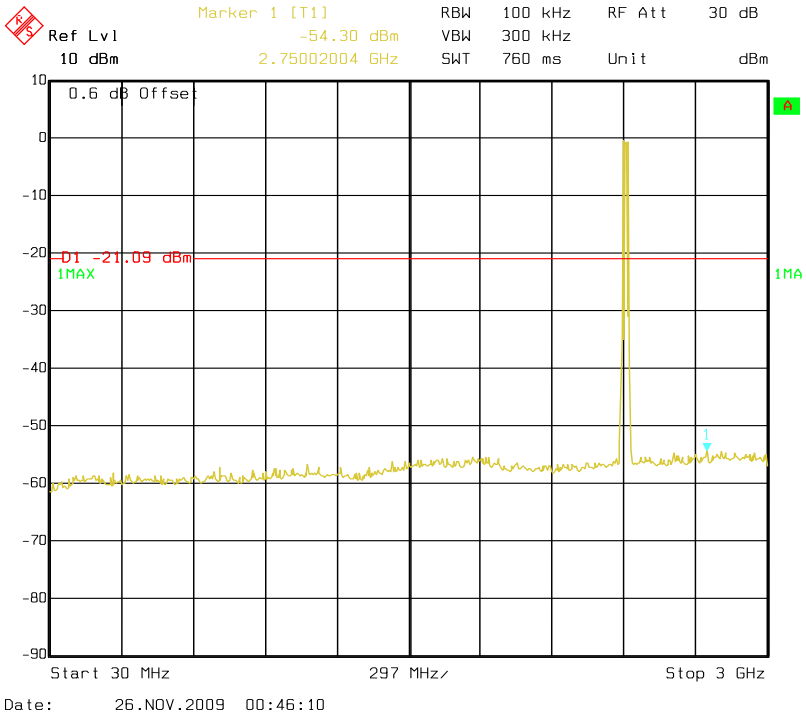


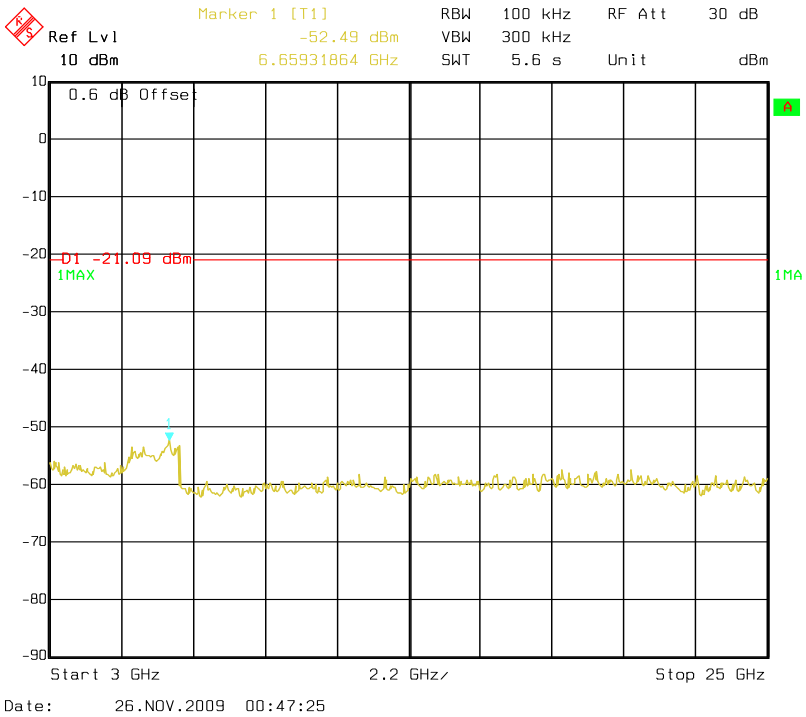
Plot 3: 802.11b High Channel



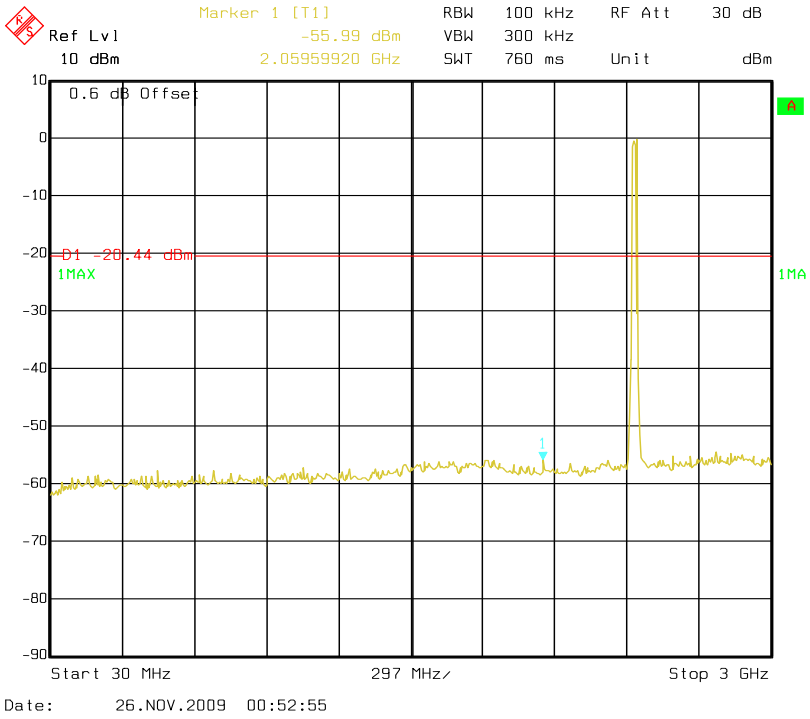


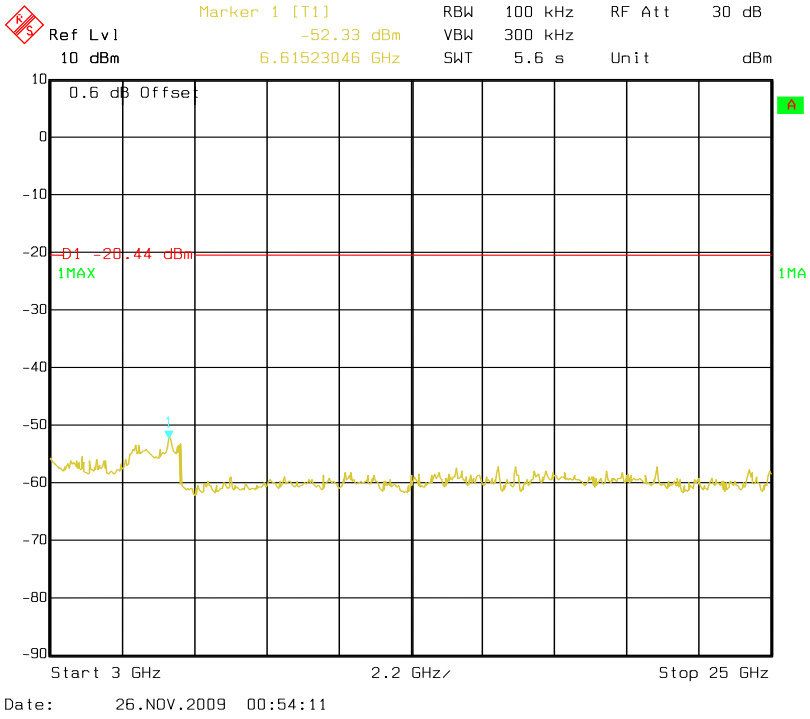
Plot 4: 802.11g Low Channel



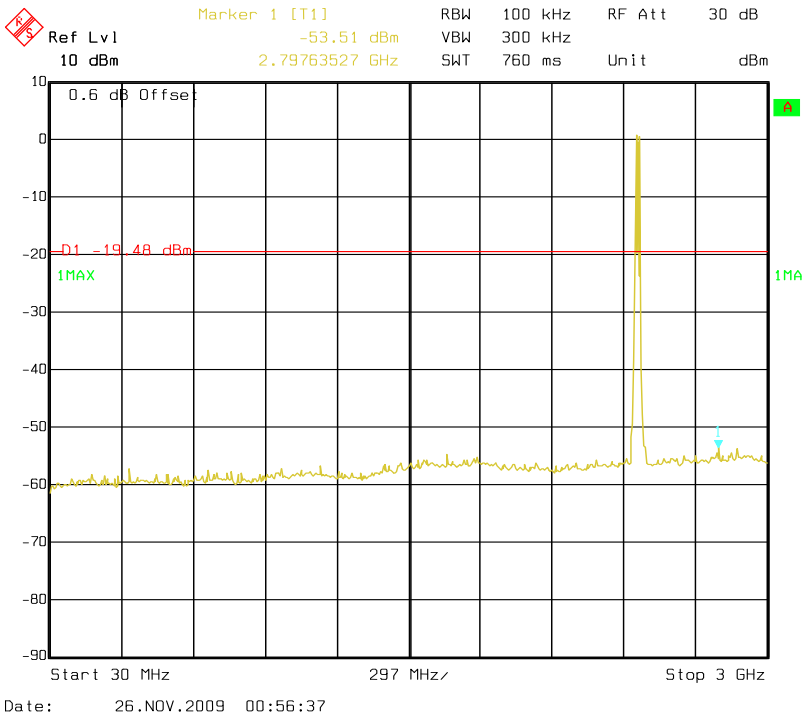


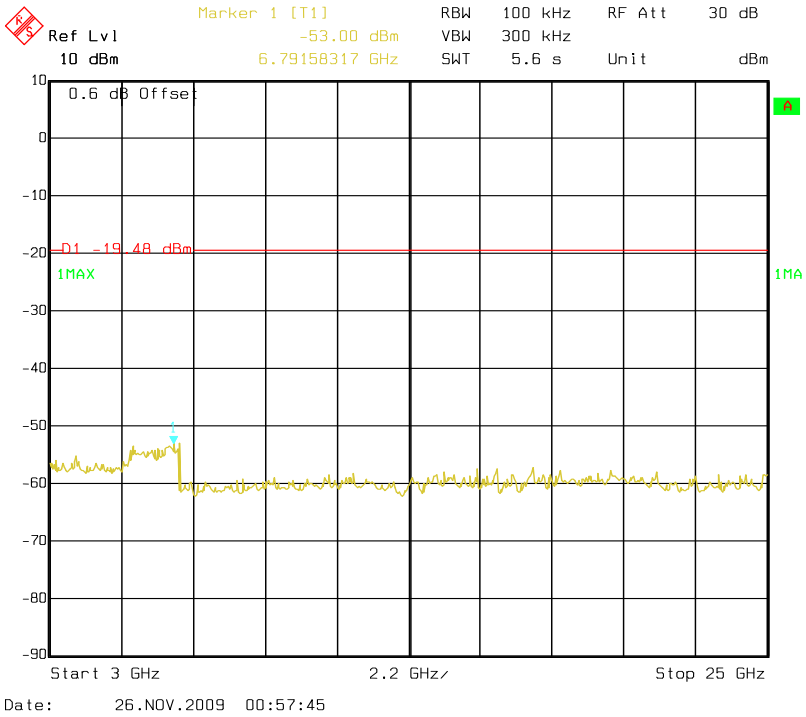
Plot 5: 802.11g Middle Channel





Plot 6: 802.11g High Channel





CFR47 §15.247(a)(2) – 6 dB BANDWIDTH TESTING

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

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

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

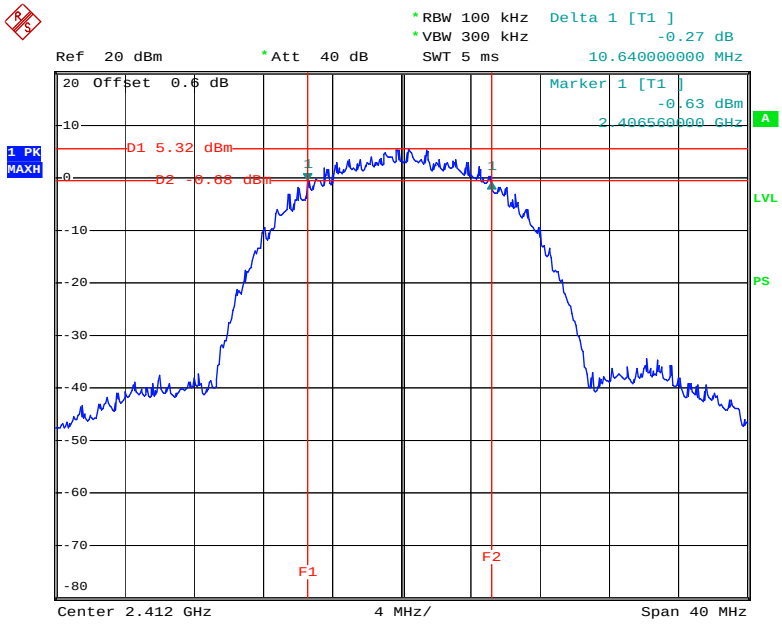
The testing was performed by Alvin Huang on 2009-11-25.

Test Result: Pass.

Please refer to the following tables and plots.

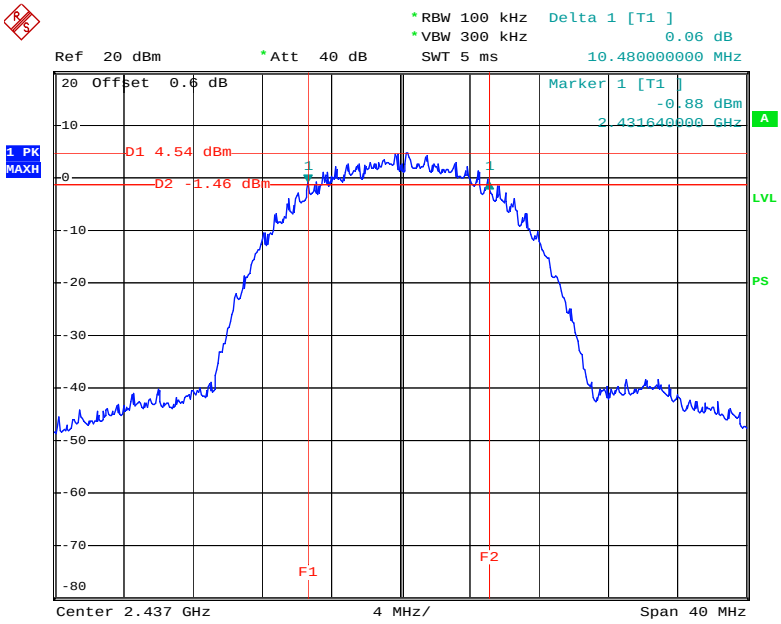
Channel	Frequency (MHz)	Data Rate (Mbps)	6 dB Bandwidth (MHz)	Limit (kHz)
802.11b mode				
Low Channel	2412	11	10.64	>500
Middle Channel	2437	11	10.48	>500
High Channel	2462	11	10.08	>500
802.11g mode				
Low Channel	2412	54	16.40	>500
Middle Channel	2437	54	16.32	>500
High Channel	2462	54	16.44	>500

802.11b Low Channel



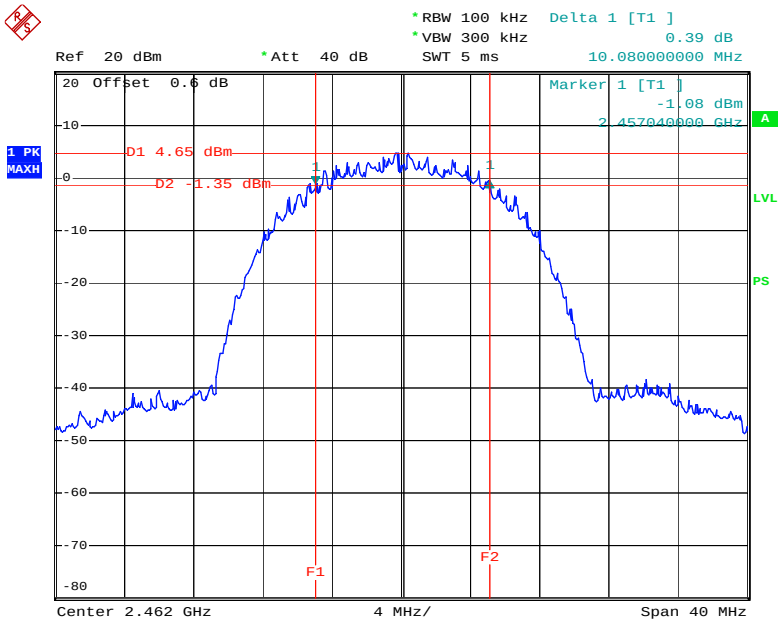
Date: 25.NOV.2009 21:30:00

802.11b Middle Channel



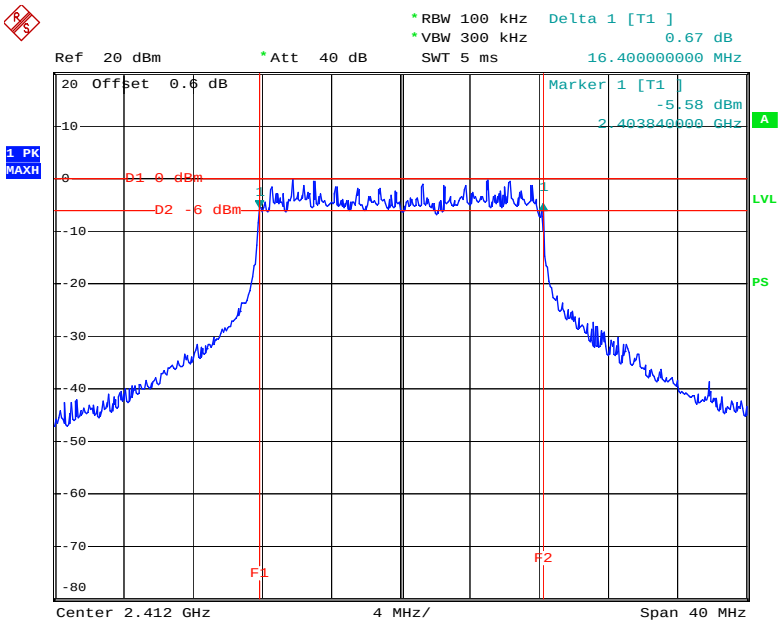
Date: 25.NOV.2009 22:11:53

802.11b High Channel



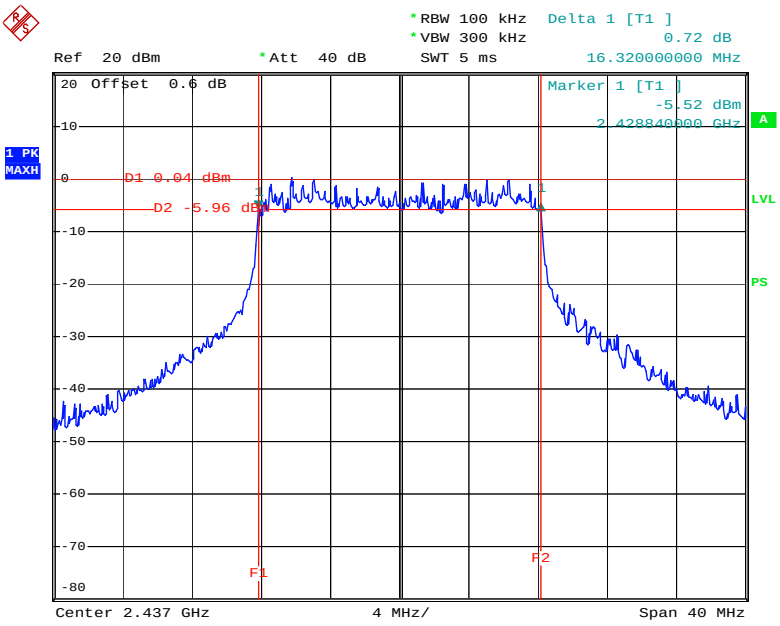
Date: 25.NOV.2009 22:14:13

802.11g Low Channel



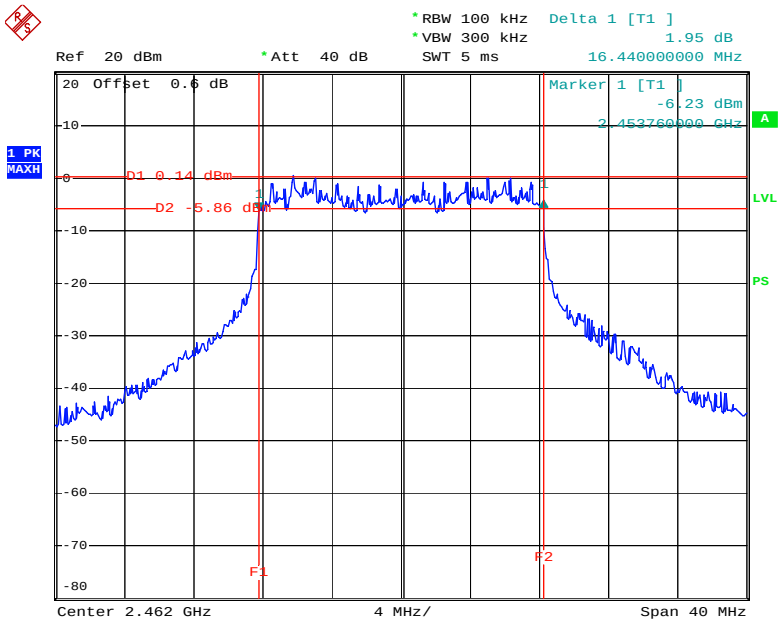
Date: 25.NOV.2009 23:05:31

802.11g Middle Channel



Date: 25.NOV.2009 23:10:06

802.11g High Channel



Date: 25.NOV.2009 23:11:52

CFR47 §15.247(b)(3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Place the EUT on a bench 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 an EMI Test Receiver.
3. Add a correction factor to the display.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

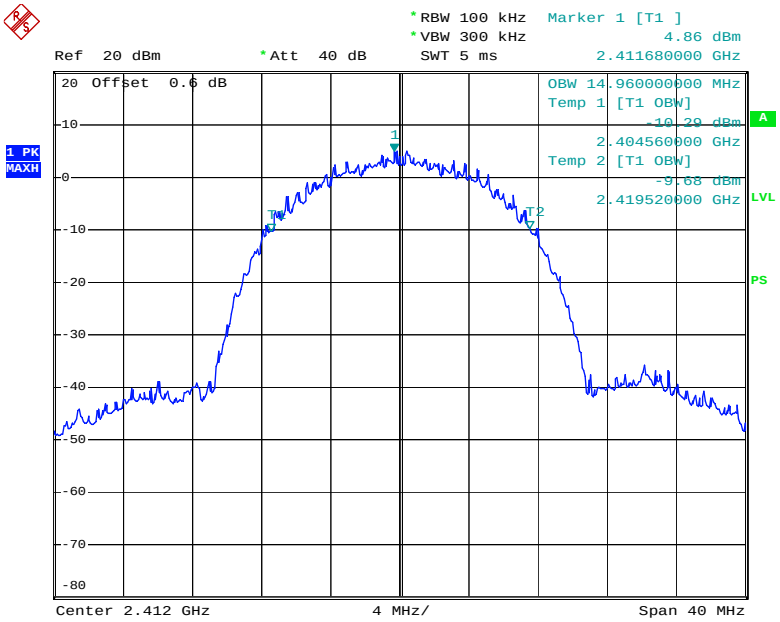
The testing was performed by Alvin Huang on 2009-11-23.

Test Mode: Transmitting

Channel	Frequency (MHz)	Data Rate (Mbps)	Output Power (dBm)	Limit (dBm)
802.11b mode				
Low	2412	11	15.36	30
Middle	2437	11	15.55	30
High	2462	11	15.89	30
802.11g mode				
Low	2412	54	13.11	30
Middle	2437	54	13.50	30
High	2462	54	13.95	30

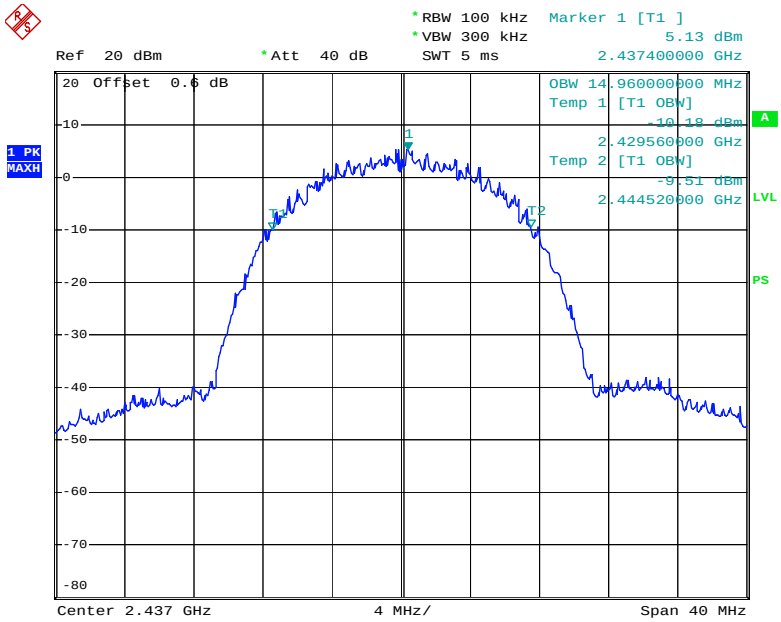
Please refer to the following plots:

802.11b: 99% Occupied Bandwith, Low Channel



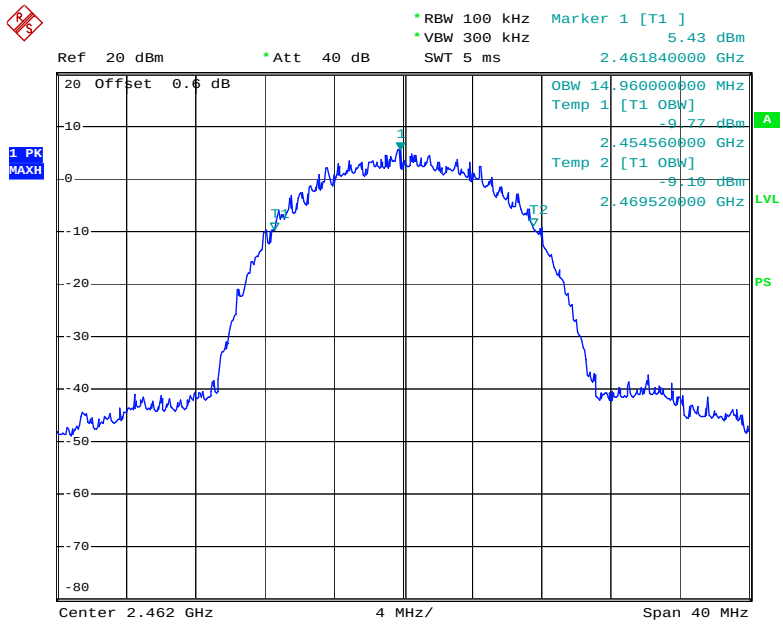
Date: 23.NOV.2009 16:10:35

802.11b: 99% Occupied Bandwith, Middle Channel



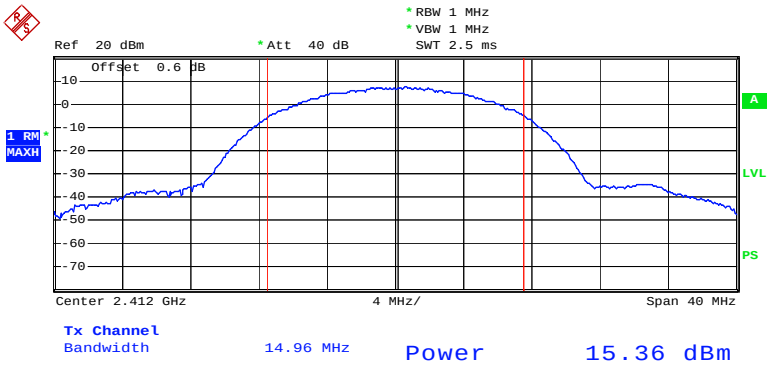
Date: 23.NOV.2009 16:07:59

802.11b: 99% Occupied Bandwith, High Channel



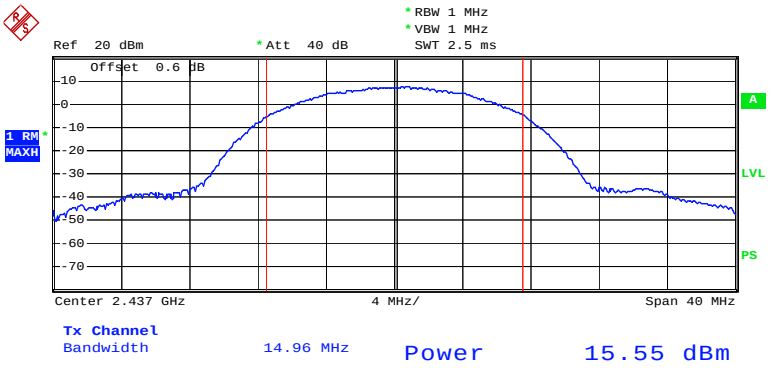
Date: 23.NOV.2009 16:11:47

802.11b: Low Channel



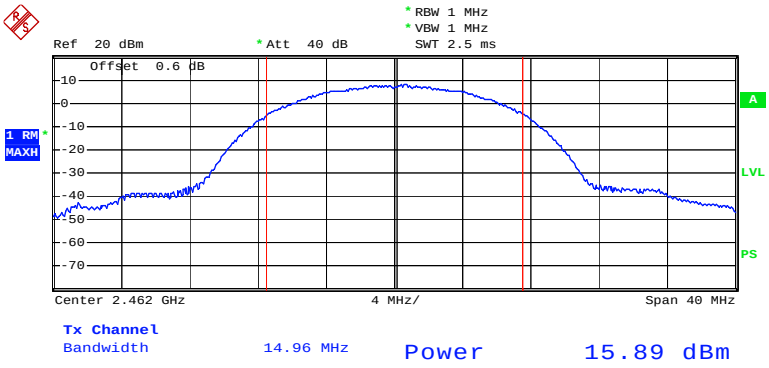
Date: 23.NOV.2009 16:16:28

802.11b: Middle Channel



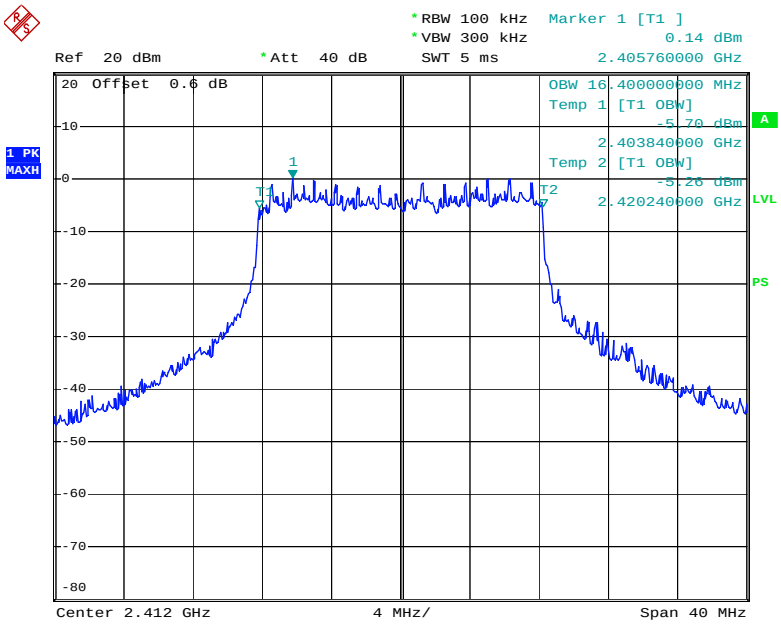
Date: 23.NOV.2009 16:14:52

802.11b: High Channel



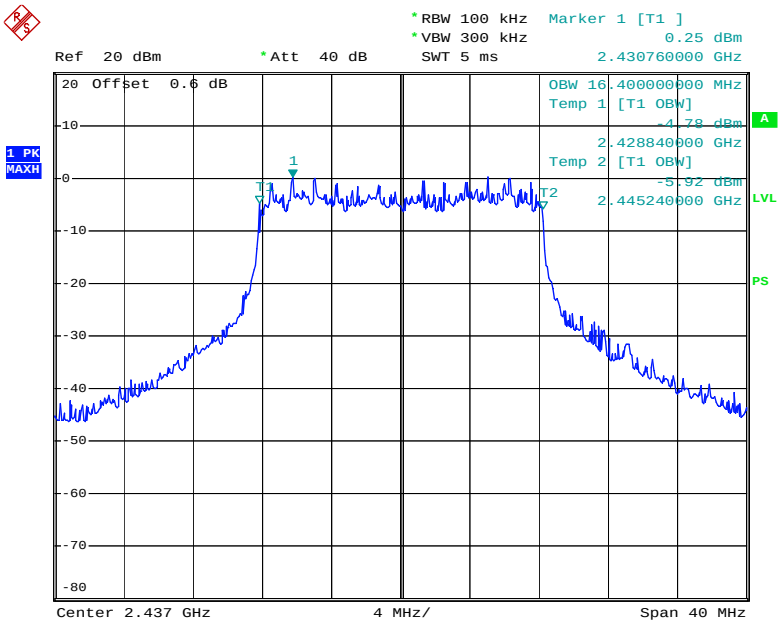
Date: 23.NOV.2009 16:17:08

802.11g: 99% Occupied Bandwith, Low Channel



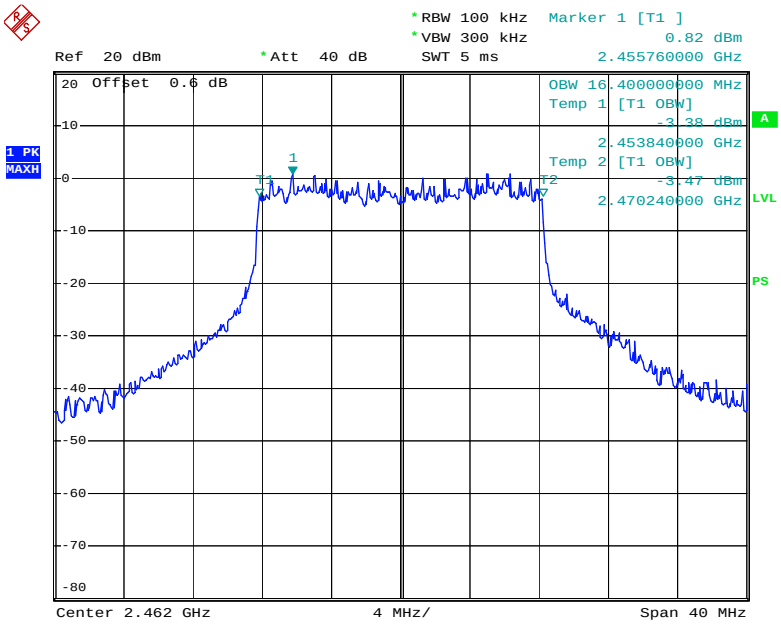
Date: 23.NOV.2009 13:24:16

802.11g: 99% Occupied Bandwith, Middle Channel



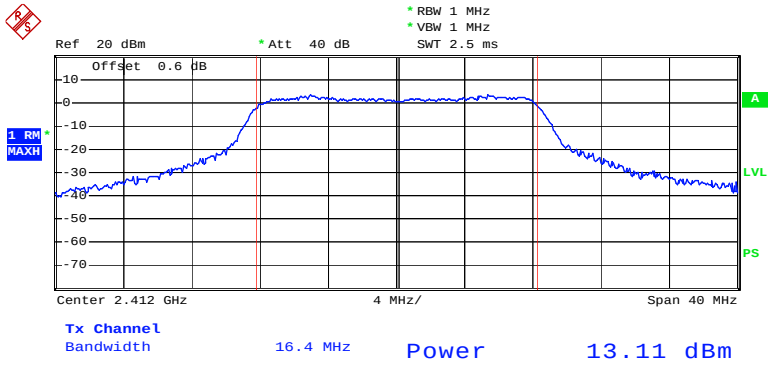
Date: 23.NOV.2009 13:19:10

802.11g: 99% Occupied Bandwith, High Channel



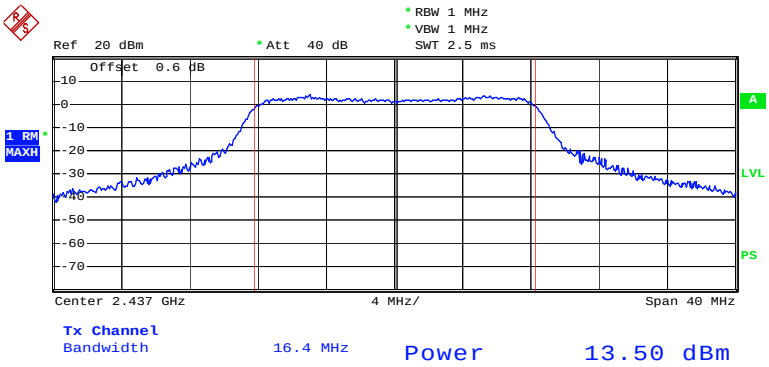
Date: 23.NOV.2009 13:17:59

802.11g: Low Channel



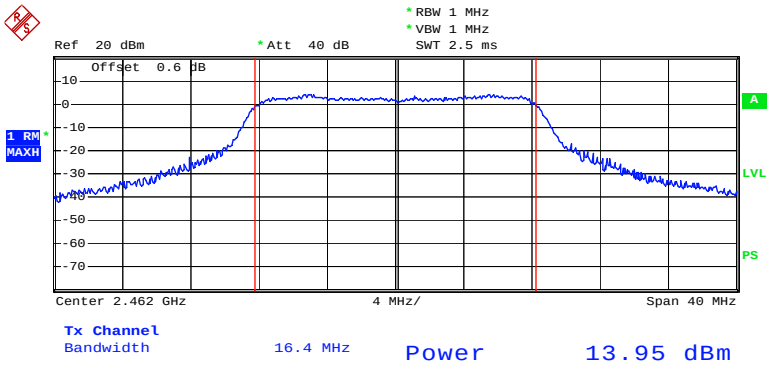
Date: 23.NOV.2009 13:30:08

802.11g: Middle Channel



Date: 23.NOV.2009 13:32:09

802.11g: High Channel



Date: 23.NOV.2009 13:34:04

CFR47 §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

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)).

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 1 MHz and VBW of spectrum analyzer to 1 MHz 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.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

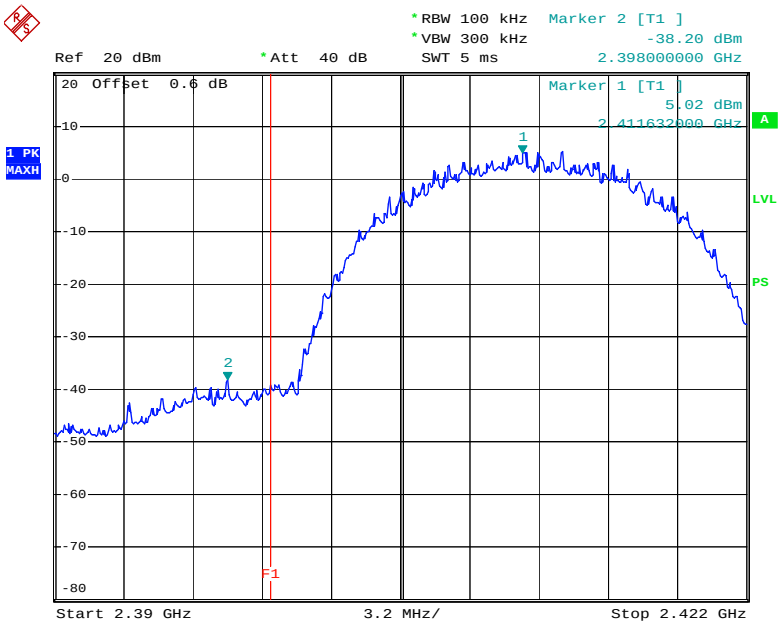
The testing was performed by Alvin Huang on 2009-11-25.

Test Result: *Compliant.*

Frequency (MHz)	Delta Peak to band emission (dBc)	Limit (dBc)
802.11b mode		
2398.000	43.22	20
2486.200	51.93	20
802.11g mode		
2399.472	33.98	20
2484.600	46.00	20

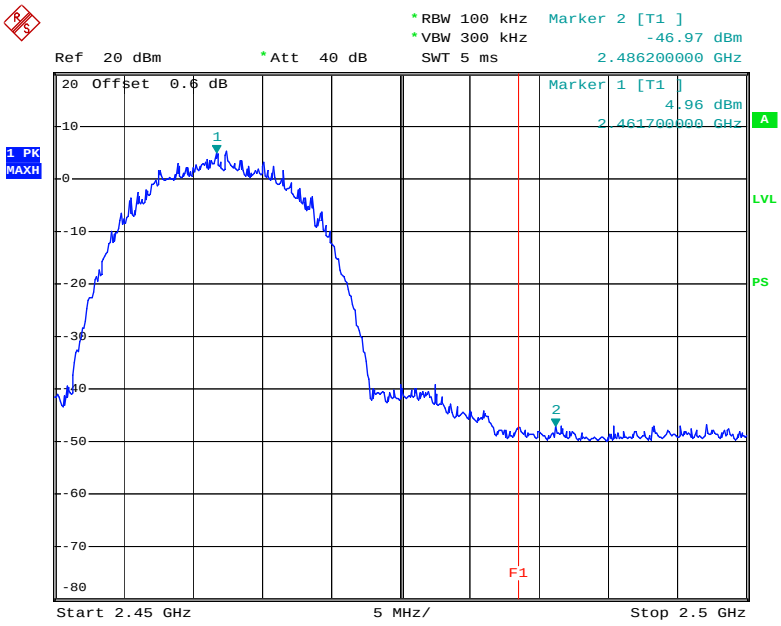
Please refer to following plots.

802.11b: Band Edge, Lowest Channel



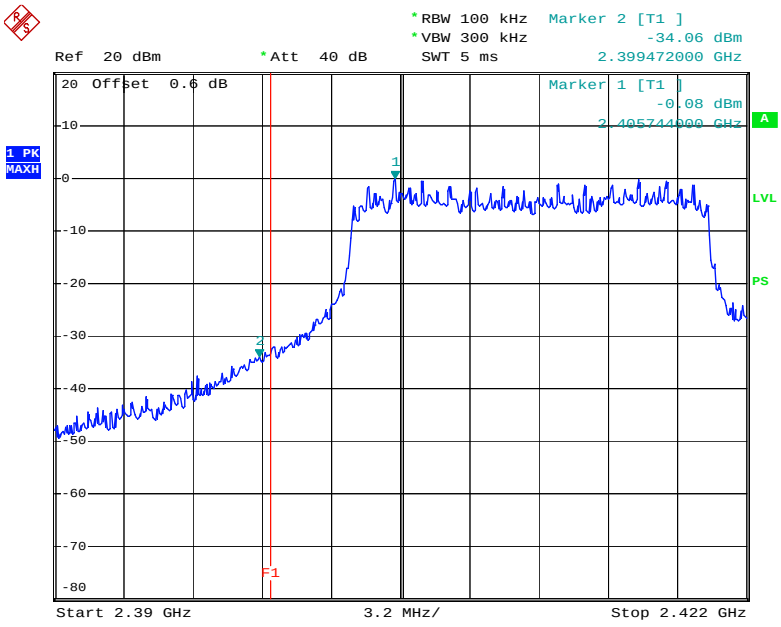
Date: 25.NOV.2009 21:33:47

802.11b: Band Edge, Highest Channel



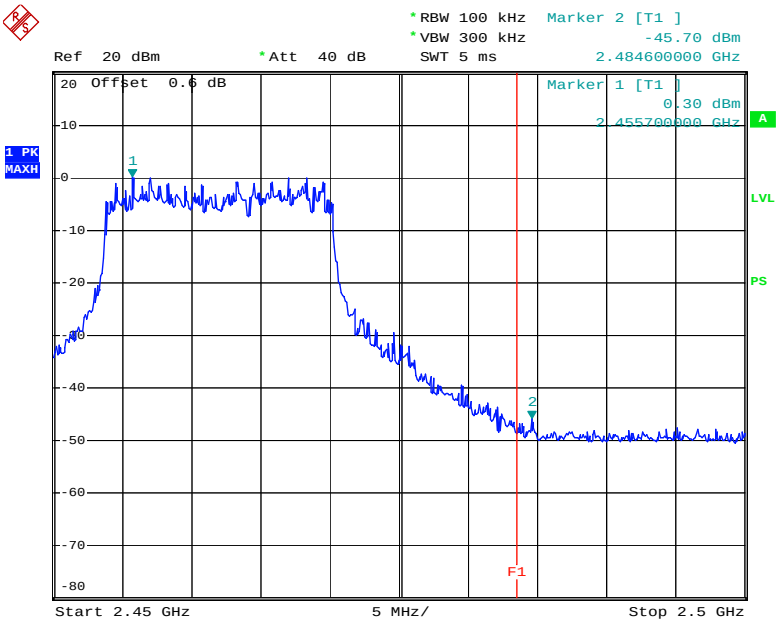
Date: 25.NOV.2009 22:15:52

802.11g: Band Edge, Lowest Channel



Date: 25.NOV.2009 23:06:55

802.11g: Band Edge, Highest Channel



Date: 25.NOV.2009 23:13:09

CFR47 §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

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.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test 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 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

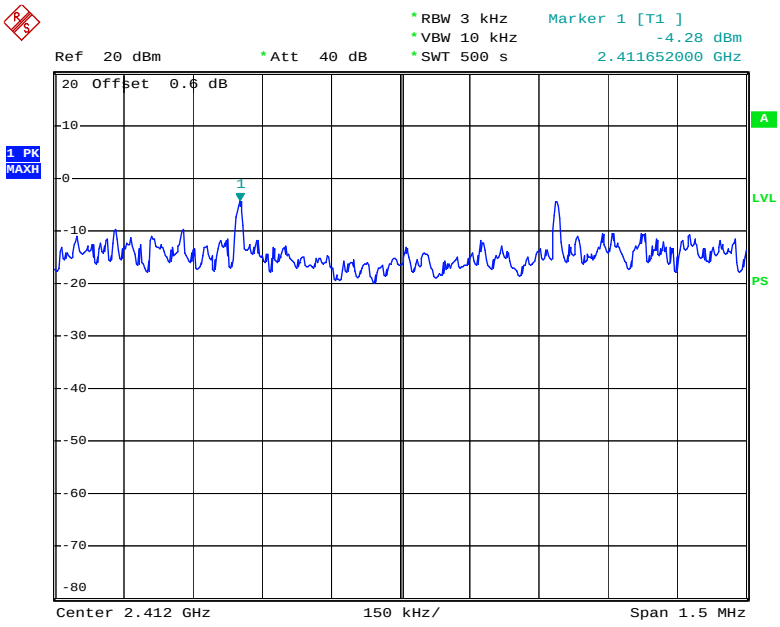
The testing was performed by Alvin Huang on 2009-11-25 to 2009-11-26.

Test Mode: Transmitting

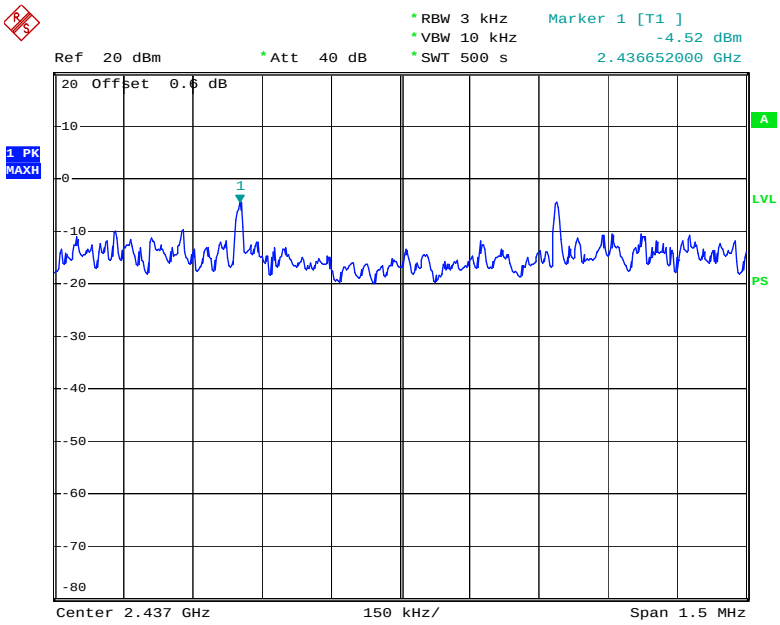
Test Result: Pass

Channel	Frequency (MHz)	Data Rate (Mbps)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b mode					
Low	2412	11	-4.28	8	Pass
Middle	2437	11	-4.52	8	Pass
High	2462	11	-4.39	8	Pass
802.11g mode					
Low	2412	54	-22.18	8	Pass
Middle	2437	54	-22.28	8	Pass
High	2462	54	-22.16	8	Pass

802.11b Low Channel

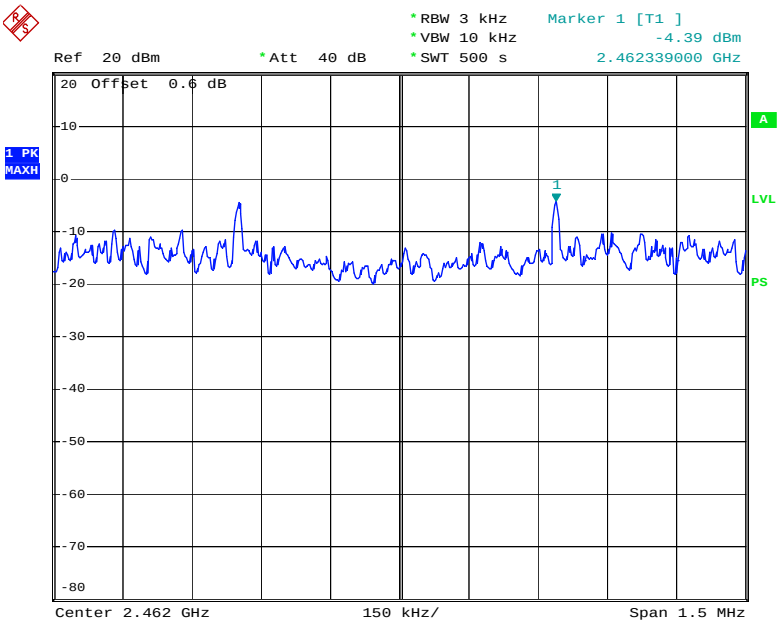


802.11b Middle Channel



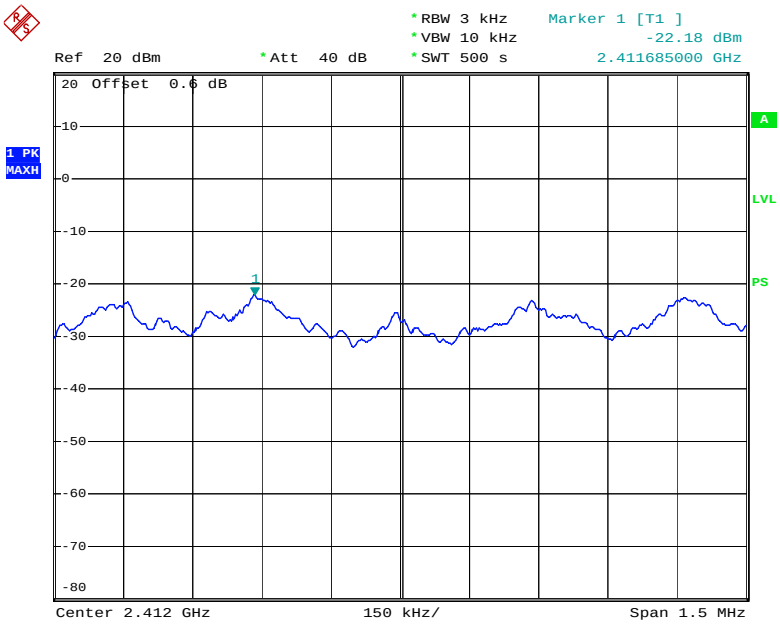
Date: 25.NOV.2009 22:59:31

802.11b High Channel



Date: 25.NOV.2009 22:40:24

802.11g Low Channel



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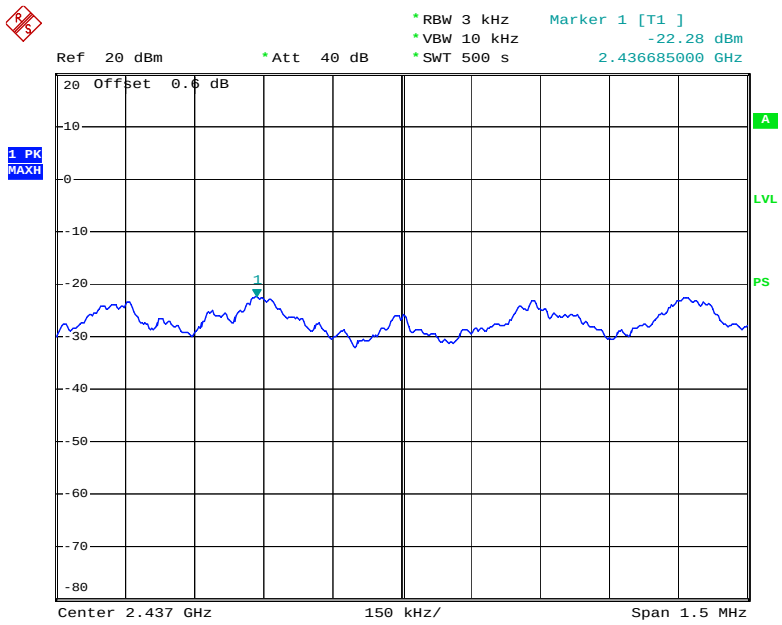
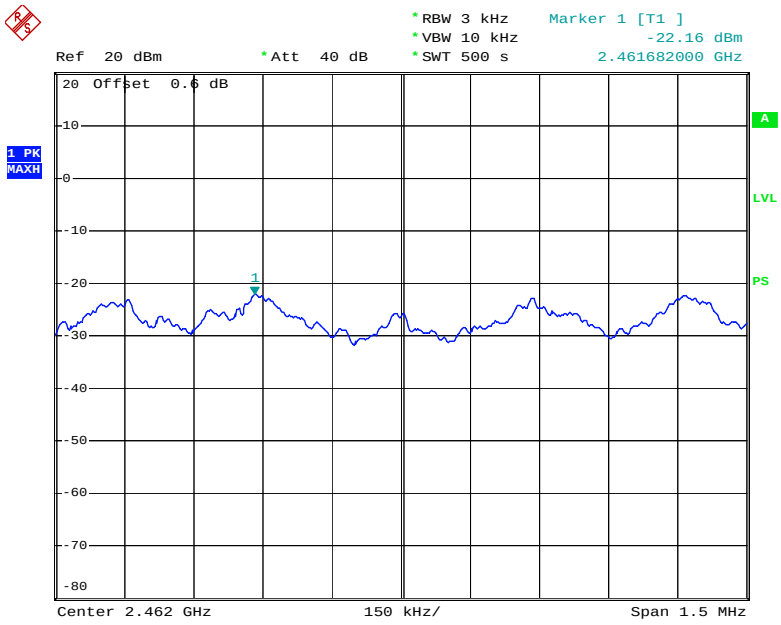
802.11g Middle Channel



Date: 25.NOV.2009 23:58:08

802.11g High Channel



Date: 25.NOV.2009 23:32:58

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