Lab Code: 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

ZTE Corporation

ZTE Plaza, Hi-Tech, Industrial Park, Nanshan District,

Shenzhen, Guangdong, P. R. of China

FCC ID: Q78-ZXV10W300V50

Report Type:	**Product Type:**
Original Report	Home Gateway

Test Engineer:	Bruce Zhang
Report Number:	RSZ10090805-247
Report Date:	2010-11-01
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 *ZTE Corporation's* product, model number: *ZXV10 W300 (FCC ID: Q78-ZXV10W300V50)* or the "EUT" as referred to in this report is a *Home Gateway*, which measures approximately: 16.4 cm (L) x 12.7 cm (W) x 3.2 cm (H), rated input voltage: DC 3.7 V battery.

Adapter information:
Model: RD1200700-C55-2MG;
Input: AC 100-240 V 50/60 Hz 0.6 A;
Output: DC 12.0 V 700 mA.

All measurement and test data in this report was gathered from production sample serial number: 1009033 (Assigned by BACL, Shenzhen). The EUT was received on 2010-09-08.

Objective

This Type approval report is prepared on behalf of *ZTE Corporation* 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 15 B submission with FCC ID: Q78-ZXV10W300V50.

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).

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.

EUT Exercise Software

802.11b: TX Power level: Low channel: 19 Middle channel: 17 High channel: 14.
802.11g: TX Power level: Low channel: 19 Middle channel: 17 High channel: 14.

Equipment Modifications

No modification was made to the unit tested.

Local Support Equipment List and Details

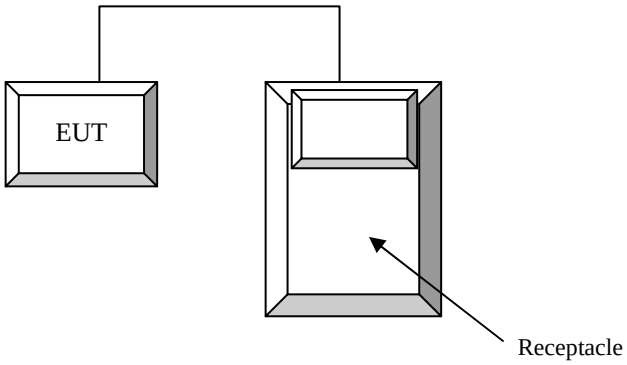
Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Laptop	D600	FXPW9-9B8W2-2MKV9-F2PMR-V23YD	ID

External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded detachable Power Line	1.5	Adapter	EUT

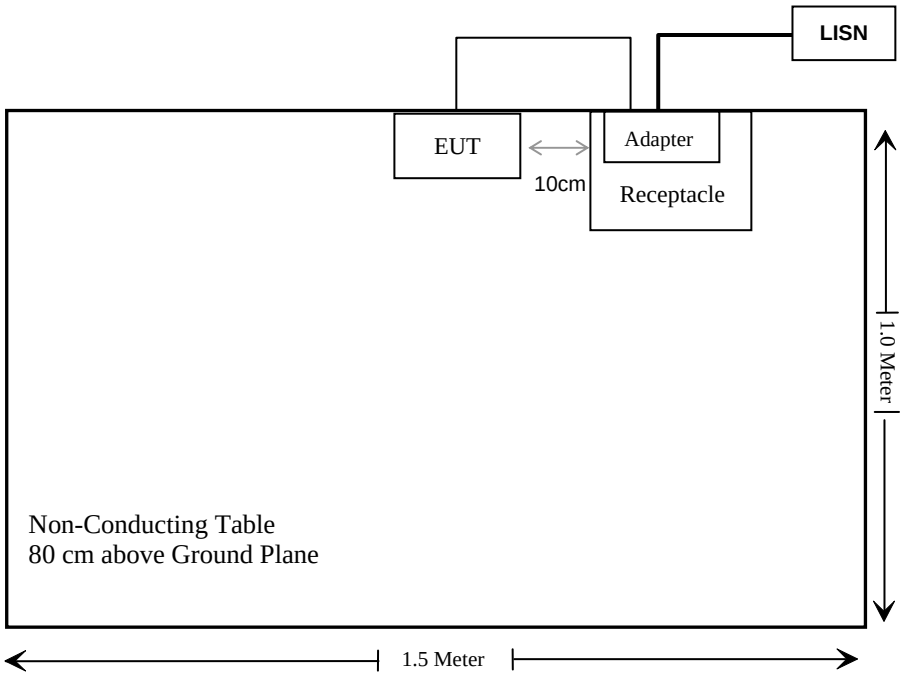
Configuration of Test Setup

For Adapter Charging & Transmitting:



Block Diagram of Test Setup

For Adapter Charging & Transmitting:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a),	Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §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)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §15.247(i) & §2.1091 - RF EXPOSURE

According to FCC subpart 15.247(i)and subpart §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 Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) 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)**
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;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where: S= power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

MPE Result

Radio Mode	Frequency (MHz)	Antenna Gain		Antenna Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2437	2.0	1.58	15.20	33.11	20	0.0104	1.0
802.11g	2437	2.0	1.58	12.93	19.63	20	0.0062	1.0

FCC §15.203 - ANTENNA REQUIREMENT

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 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 an intergral antenna, which complies with the Part 15.203. The maximum antenna gain is 2 dBi. Please see EUT photo for details.

Result: Compliant.

FCC §15.207 (a) - CONDUCTED EMISSIONS

Applicable Standard

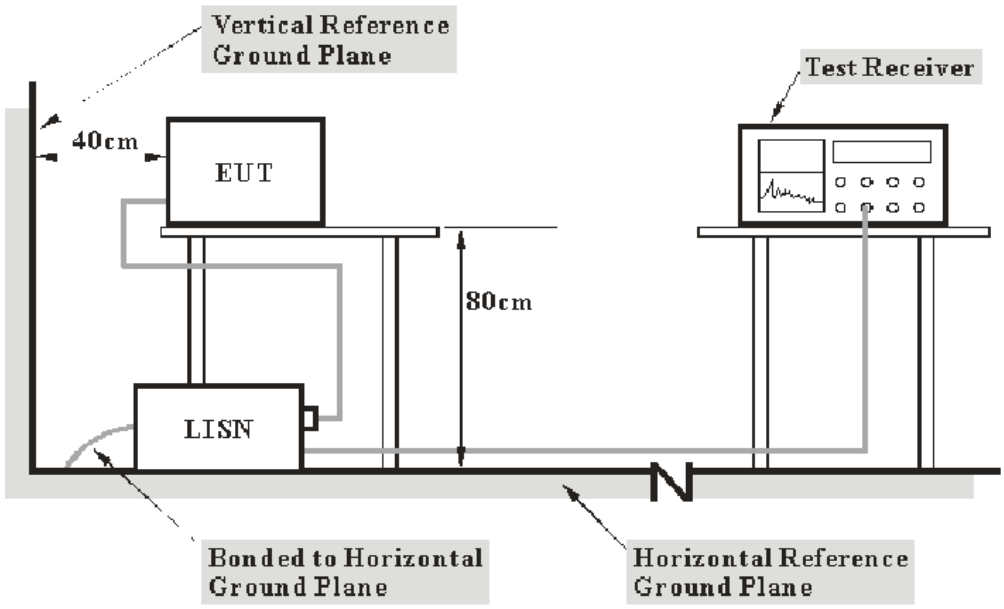
FCC §15.207

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 of laptop 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	2010-03-03	2011-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2010-03-09	2011-03-08

*** 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 of laptop 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:

For 802.11b:

8.16 dB at **1.335 MHz** in the **Line** conductor mode

For 802.11g:

9.42 dB at **0.980 MHz** in the **Line** conductor mode

Test Data

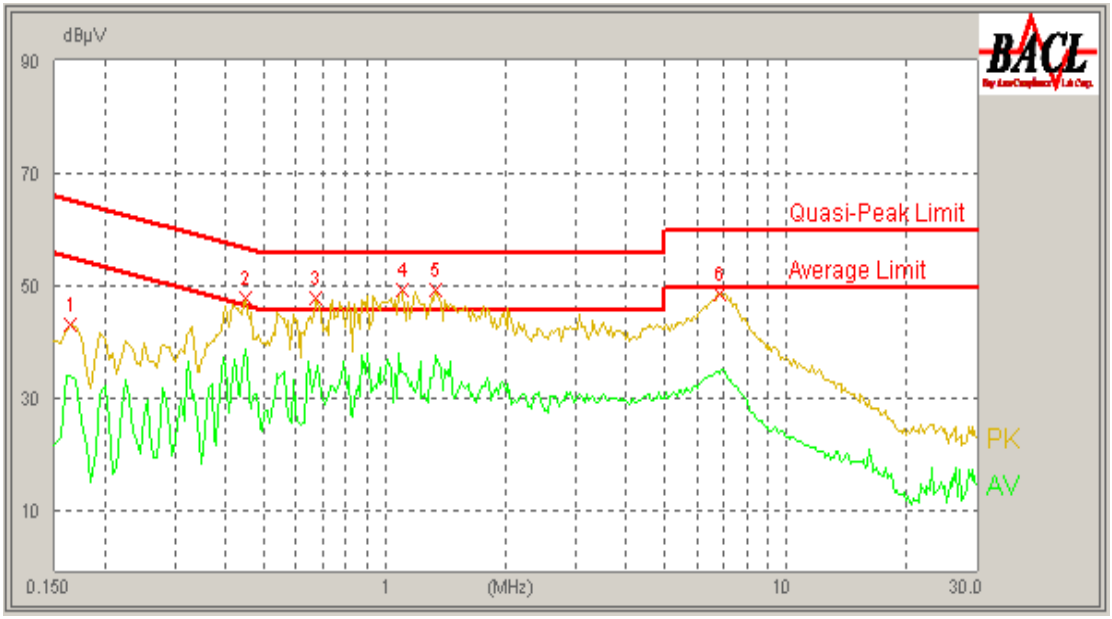
Environmental Conditions

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

The testing was performed by Bruce Zhang on 2010-10-26.

Test Mode: Transmitting (802.11b)

AC 120 V/60 Hz, Line



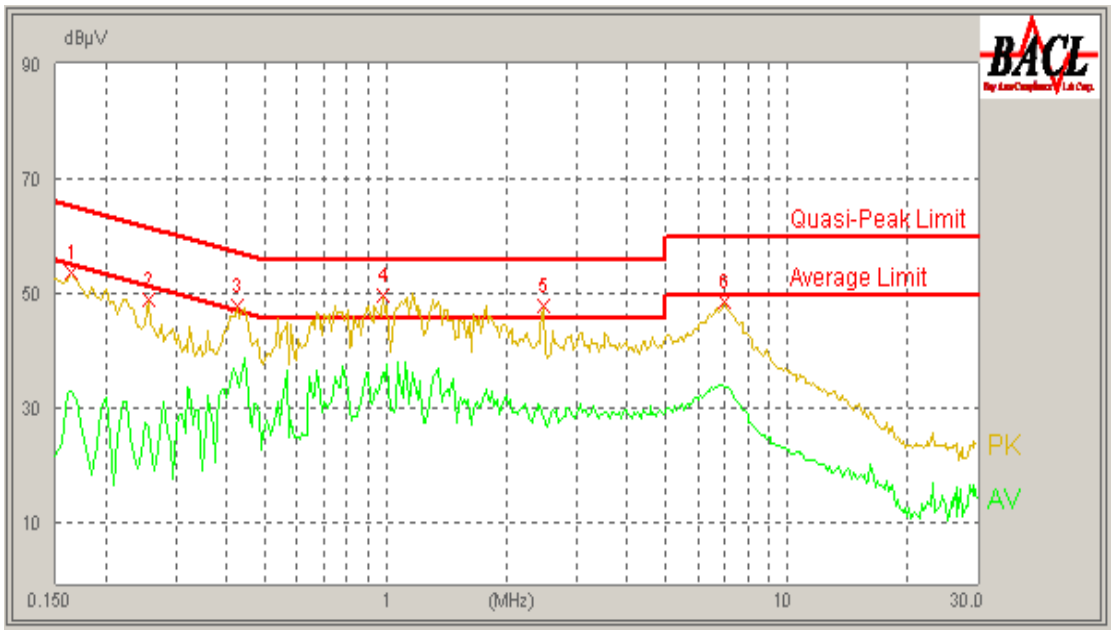
Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Correction Factor (dB)**	**Cord. Result (dBµV)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/QP/Ave)**
1.335	10.10	37.84	46.00	8.16	Ave
0.450	10.00	39.02	47.43	8.41	Ave
1.100	10.10	45.56	56.00	10.44	QP
1.095	10.10	34.96	46.00	11.04	Ave
0.675	10.20	34.25	46.00	11.75	Ave
0.675	10.20	42.70	56.00	13.30	QP
0.450	10.00	44.01	57.43	13.42	QP
1.335	10.10	42.41	56.00	13.59	QP
6.865	10.10	34.92	50.00	15.08	Ave
6.825	10.10	42.99	60.00	17.01	QP
0.165	10.10	34.48	55.57	21.09	Ave
0.165	10.10	40.11	65.57	25.46	QP

AC 120 V/ 60 Hz, Neutral

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Correction Factor (dB)**	**Cord. Result (dBµV)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/Q /Ave)**
7.075	10.10	37.12	50.00	12.88	Ave
6.990	10.10	45.29	60.00	14.71	QP
1.300	10.10	29.67	46.00	16.33	Ave
1.135	10.10	29.31	46.00	16.69	Ave
1.315	10.10	37.06	56.00	18.94	QP
0.400	10.00	39.87	58.86	18.99	QP
0.655	10.20	27.01	46.00	18.99	Ave
1.130	10.10	35.94	56.00	20.06	QP
0.655	10.20	35.84	56.00	20.16	QP
0.400	10.00	28.16	48.86	20.70	Ave
0.165	10.10	41.85	65.57	23.72	QP
0.165	10.10	31.74	55.57	23.83	Ave

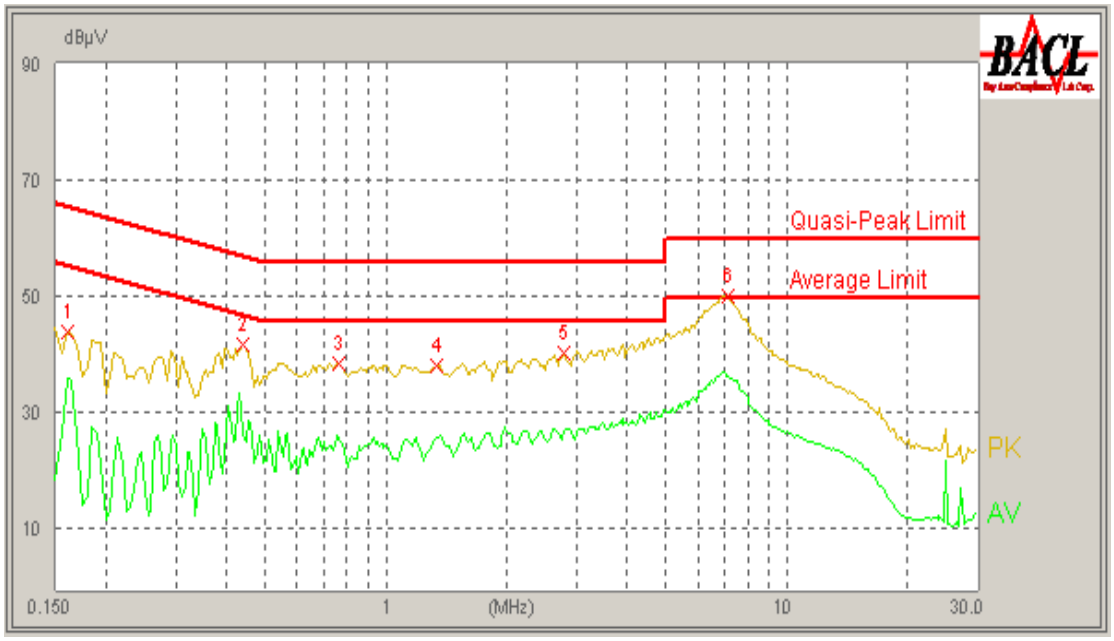
Test Mode: Transmitting (802.11g)

AC 120 V/60 Hz, Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Correction Factor (dB)**	**Cord. Result (dBµV)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/QP/Ave)**
0.980	10.20	36.58	46.00	9.42	Ave
0.425	10.00	35.38	48.14	12.76	Ave
0.425	10.00	44.75	58.14	13.39	QP
0.980	10.20	42.00	56.00	14.00	QP
6.995	10.10	33.89	50.00	16.11	Ave
2.455	10.20	29.62	46.00	16.38	Ave
7.015	10.10	41.68	60.00	18.32	QP
0.165	10.10	33.45	55.57	22.12	Ave
2.480	10.20	33.10	56.00	22.90	QP
0.255	10.10	27.12	53.00	25.88	Ave
0.165	10.10	39.25	65.57	26.32	QP
0.255	10.10	30.93	63.00	32.07	QP

AC 120 V/ 60 Hz, Neutral



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Correction Factor (dB)**	**Cord. Result (dBµV)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/QP/Ave)**
7.095	10.10	36.60	50.00	13.40	Ave
7.110	10.10	44.53	60.00	15.47	QP
2.790	10.20	27.19	46.00	18.81	Ave
0.160	10.10	36.30	55.71	19.41	Ave
0.440	10.00	38.22	57.71	19.49	QP
1.350	10.10	26.00	46.00	20.00	Ave
0.765	10.20	35.88	56.00	20.12	QP
0.775	10.20	25.43	46.00	20.57	Ave
0.440	10.00	26.99	47.71	20.72	Ave
2.780	10.20	35.19	56.00	20.81	QP
1.335	10.10	34.83	56.00	21.17	QP
0.160	10.10	41.94	65.71	23.77	QP

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

Applicable Standard

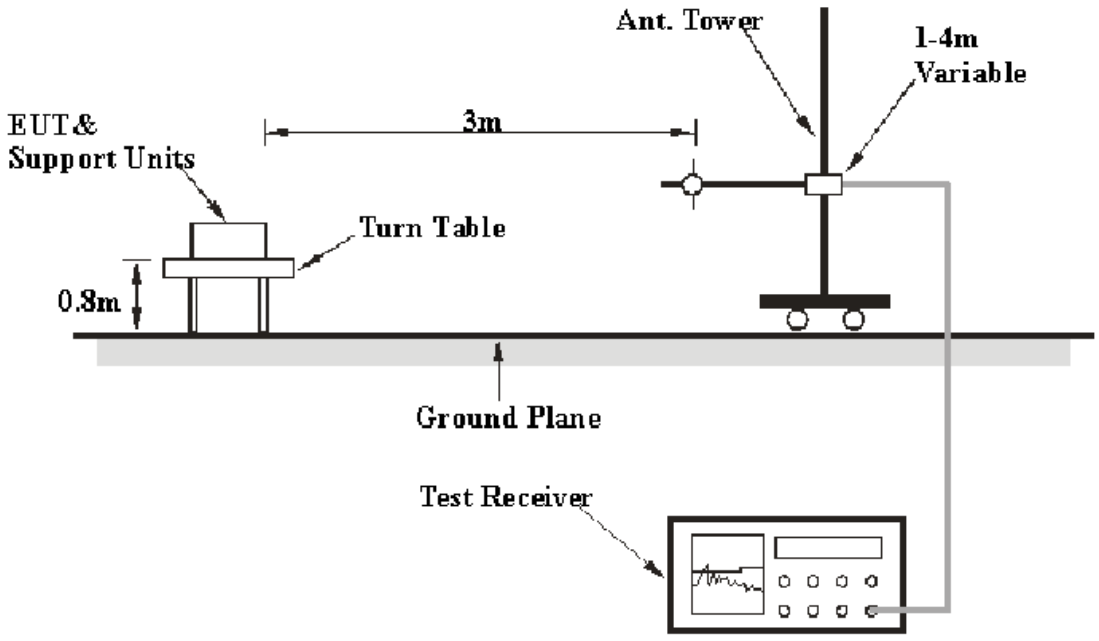
FCC §15.247 (d); §15.209; §15.205;

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 15.209, and FCC 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***	***Detector***
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Pre-Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-24
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-03-11	2011-03-11
HP	Amplifier	2VA-213+	T-E27H	2010-03-08	2011-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2010-05-05	2011-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-08

*** 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-1 GHz and peak and Average detection modes for frequencies above 1 GHz.

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 7 dB means the emission is 7 dB below the limit. 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 15.205, 15.109, 15.209 and 15.247, with the worst margin reading of:

30 -1000 MHz:

802.11b (wost case): **10.4 dB** at **777.037250 MHz** in the **Horizontal** polarization
802.11g (wost case): **7.9 dB** at **759.455750 MHz** in the **Horizontal** polarization

Above 1 GHz:

802.11b (High Channel): **1.05 dB** at **4924 MHz** in the **Vertical** polarization
802.11g (Low Channel): **1.67 dB** at **6498.5 MHz** in the **Vertical** polarization

Test Data

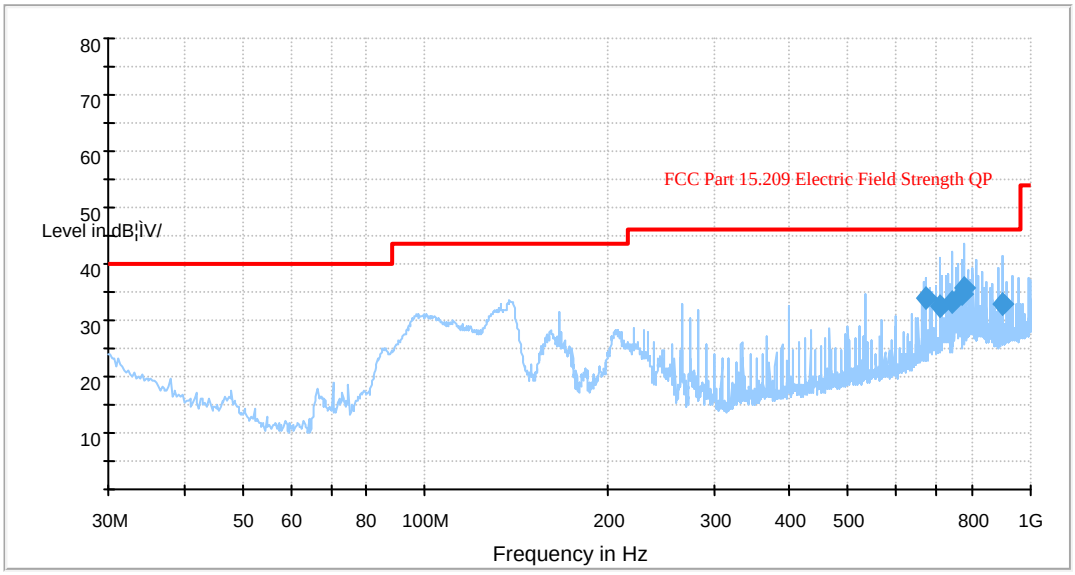
Environmental Conditions

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

The testing was performed by Bruce Zhang on 2010-10-28.

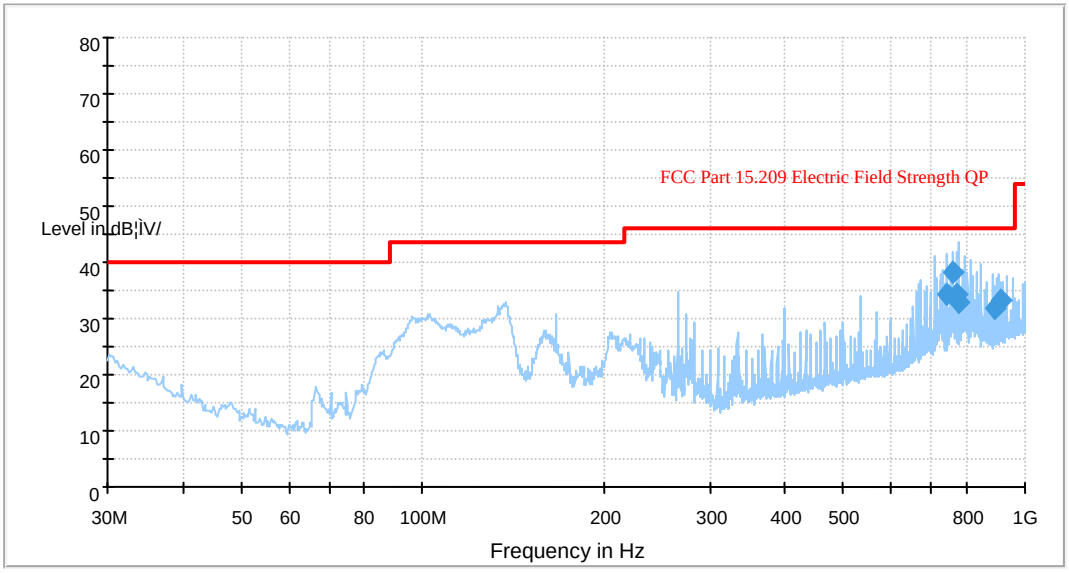
30-1000 MHz:

Test Mode: Transmitting (802.11b wost case)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
777.037250	35.6	203.0	H	61.0	-2.1	46.0	10.4
768.369250	34.7	104.0	H	60.0	-2.2	46.0	11.3
671.143500	33.8	140.0	H	109.0	-4.1	46.0	12.2
742.081500	33.3	203.0	H	7.0	-2.5	46.0	12.7
895.185750	32.9	104.0	H	108.0	-1.0	46.0	13.1
706.401500	32.4	103.0	H	43.0	-3.0	46.0	13.6

Test Mode: Transmitting (802.11g wost case)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
759.455750	38.1	105.0	H	58.0	-2.3	46.0	7.9
768.220750	34.3	102.0	H	59.0	-2.2	46.0	11.7
741.872500	34.2	103.0	H	43.0	-2.5	46.0	11.8
914.800000	33.4	103.0	H	106.0	-0.3	46.0	12.6
777.103250	32.8	104.0	H	38.0	-2.1	46.0	13.2
891.954500	31.7	104.0	H	359.0	-1.2	46.0	14.3

Above 1 GHz:

802.11b Mode:

Indicated		Detector (PK/Ave)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209		
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)											
6432.0	36.43	Ave	245	2.0	V	37.2	4.97	26.68	52.92	54	1.08
4824	38.66	Ave	50	1.8	H	36.6	4.3	26.75	52.81	54	1.19
4824	39.73	Ave	145	1.7	V	35.4	4.3	26.75	52.68	54	1.32
2609.4	45.18	Ave	210	1.0	V	30.6	3.1	26.88	52.0	54	2.0
6432.0	33.57	Ave	250	1.8	H	38.4	4.97	26.68	50.26	54	3.74
2329.7	41.96	Ave	216	1.0	V	30.6	2.98	26.83	48.71	54	5.29
2329.7	57.80	PK	216	1.0	V	30.6	2.98	26.83	64.55	74	9.45
2609.4	54.58	PK	210	1.0	V	30.6	3.1	26.88	61.4	74	12.6
2613.9	32.93	Ave	295	1.5	H	30.6	3.1	26.88	39.75	54	14.25
4824	43.90	PK	50	1.8	H	36.6	4.3	26.75	58.05	74	15.95
4824	44.64	PK	145	1.7	V	35.4	4.3	26.75	57.59	74	16.41
2329.7	30.62	Ave	300	1.0	H	30.6	2.98	26.83	37.37	54	16.63
6432.0	40.78	PK	245	2.0	V	37.2	4.97	26.68	56.27	74	17.73
6432.0	38.48	PK	250	1.8	H	38.4	4.97	26.68	55.17	74	18.83
2329.7	48.22	PK	300	1.0	H	30.6	2.98	26.83	54.97	74	19.03
2613.9	46.41	PK	295	1.5	H	30.6	3.1	26.88	53.23	74	20.77
Middle Channel (2437 MHz)											
4874	38.52	Ave	250	1.8	H	36.6	4.36	26.75	52.73	54	1.27
6498.7	36.77	Ave	250	1.8	V	37.2	4.98	26.68	52.27	54	1.73
4874	39.17	Ave	200	1.5	V	35.4	4.36	26.75	52.18	54	1.82
2512.9	44.36	Ave	60	1.5	V	30.6	3.29	26.88	51.37	54	2.63
6498.7	33.45	Ave	220	1.8	H	38.4	4.98	26.68	50.15	54	3.85
2512.9	42.85	Ave	240	1.0	H	30.6	3.29	26.88	49.86	54	4.14
2512.9	54.06	PK	60	1.5	V	30.6	3.29	26.88	61.07	74	12.93
2512.9	51.89	PK	240	1.0	H	30.6	3.29	26.88	58.9	74	15.1
4874	44.56	PK	200	1.5	V	35.4	4.36	26.75	57.57	74	16.43
4874	43.35	PK	250	1.8	H	36.6	4.36	26.75	57.56	74	16.44
6498.7	40.68	PK	250	1.8	V	37.2	4.98	26.68	56.18	74	17.82
6498.7	37.84	PK	220	1.8	H	38.4	4.98	26.68	54.54	74	19.46
High Channel (2462 MHz)											
4924	38.70	Ave	275	1.8	H	36.6	4.40	26.75	52.95	54	1.05
4924	39.33	Ave	196	1.5	V	35.4	4.40	26.75	52.38	54	1.62
6565.6	36.71	Ave	245	1.8	V	37.2	4.92	26.68	52.15	54	1.85
2498.4	44.13	Ave	288	1.0	V	30.6	3.11	26.88	50.96	54	3.04
6565.6	33.75	Ave	250	1.8	H	38.4	4.92	26.68	50.39	54	3.61
2498.4	39.11	Ave	240	1.3	H	30.6	3.11	26.88	45.94	54	8.06
2498.4	54.11	PK	288	1.0	V	30.6	3.11	26.88	60.94	74	13.06
4924	44.01	PK	275	1.8	H	36.6	4.40	26.75	58.26	74	15.74
4924	44.83	PK	196	1.5	V	35.4	4.40	26.75	57.88	74	16.12
2498.4	49.96	PK	240	1.3	H	30.6	3.11	26.88	56.79	74	17.21
6565.6	40.14	PK	245	1.8	V	37.2	4.92	26.68	55.58	74	18.42
6565.6	38.15	PK	250	1.8	H	38.4	4.92	26.68	54.79	74	19.21

802.11g Mode:

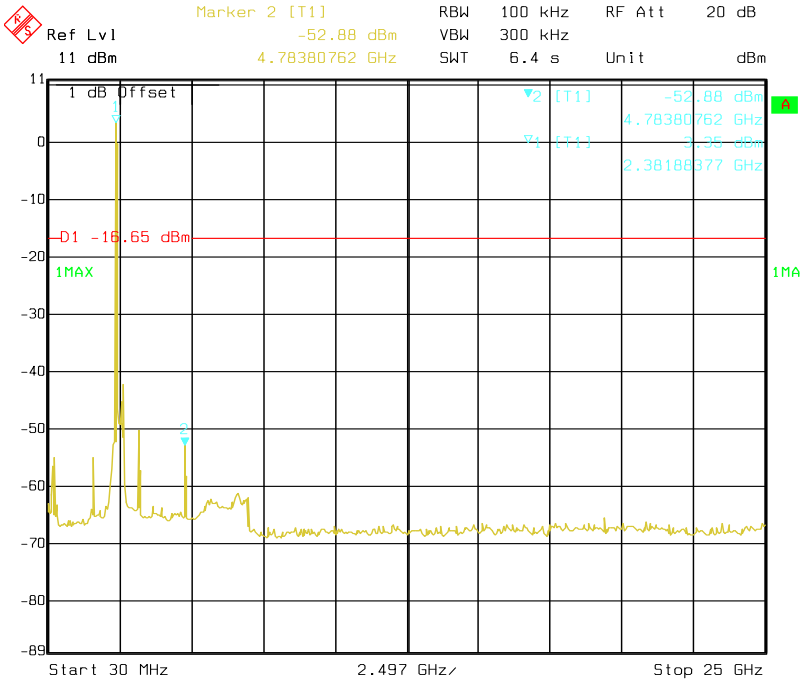
Indicated		Detector (PK/Ave)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209		
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)											
6432	36.52	Ave	265	1.5	V	37.2	4.97	26.68	52.01	54	1.99
6432	33.71	Ave	260	1.5	H	38.4	4.97	26.68	50.4	54	3.6
2496.4	42.76	Ave	288	1.0	V	30.6	3.1	26.88	49.58	54	4.42
2498.2	37.74	Ave	240	1.0	H	30.6	3.1	26.88	44.56	54	9.44
2390	37.59	Ave	220	1.0	V	30.6	2.98	26.83	44.34	54	9.66
2390	56.84	PK	220	1.0	V	30.6	2.98	26.83	63.59	74	10.41
2496.4	54.95	PK	288	1.0	V	30.6	3.1	26.88	61.77	74	12.23
4824	24.47	Ave	270	1.8	H	36.6	4.3	26.75	38.62	54	15.38
2390	31.36	Ave	240	1.0	H	30.6	2.98	26.83	38.11	54	15.89
4824	24.47	Ave	340	1.8	V	35.4	4.3	26.75	37.42	54	16.58
2498.2	50.07	PK	240	1.0	H	30.6	3.1	26.88	56.89	74	17.11
6432	39.06	PK	260	1.5	H	38.4	4.97	26.68	55.75	74	18.25
6432	40.18	PK	265	1.5	V	37.2	4.97	26.68	55.67	74	18.33
2390	47.93	PK	240	1.0	H	30.6	2.98	26.83	54.68	74	19.32
4824	39.56	PK	270	1.8	H	36.6	4.3	26.75	53.71	74	20.29
4824	39.56	PK	340	1.8	V	35.4	4.3	26.75	52.51	74	21.49
Middle Channel (2437 MHz)											
6498.5	36.83	Ave	270	1.8	V	37.2	4.98	26.68	52.33	54	1.67
6498.5	33.14	Ave	210	1.5	H	38.4	4.98	26.68	49.84	54	4.16
2512.3	37.86	Ave	250	1.0	H	30.6	3.29	26.88	44.87	54	9.13
2512.3	37.75	Ave	220	1.0	V	30.6	3.29	26.88	44.76	54	9.24
2512.3	56.04	PK	220	1.0	V	30.6	3.29	26.88	63.05	74	10.95
4874	24.58	Ave	310	1.8	H	36.6	4.36	26.75	38.79	54	15.21
4874	24.68	Ave	330	1.8	V	35.4	4.36	26.75	37.69	54	16.31
2512.3	50.21	PK	250	1.0	H	30.6	3.29	26.88	57.22	74	16.78
6498.5	39.26	PK	210	1.5	H	38.4	4.98	26.68	55.96	74	18.04
6498.5	40.36	PK	270	1.8	V	37.2	4.98	26.68	55.86	74	18.14
4874	39.72	PK	310	1.8	H	36.6	4.36	26.75	53.93	74	20.07
4874	39.86	PK	330	1.8	V	35.4	4.36	26.75	52.87	74	21.13
High Channel (2462 MHz)											
6565.6	36.79	Ave	270	1.8	V	37.2	4.92	26.68	52.23	54	1.77
6565.6	33.08	Ave	220	1.5	H	38.4	4.92	26.68	49.72	54	4.28
2483.6	37.33	Ave	320	1.0	V	30.6	3.11	26.88	44.16	54	9.84
2483.6	56.84	PK	320	1.0	V	30.6	3.11	26.88	63.67	74	10.33
2483.6	33.84	Ave	265	1.0	H	30.6	3.11	26.88	40.67	54	13.33
2483.6	53.28	PK	265	1.0	H	30.6	3.11	26.88	60.11	74	13.89
4924	24.52	Ave	270	1.8	H	36.6	4.40	26.75	38.77	54	15.23
4924	24.57	Ave	260	1.8	V	35.4	4.40	26.75	37.62	54	16.38
6565.6	40.34	PK	270	1.8	V	37.2	4.92	26.68	55.78	74	18.22
6565.6	39.12	PK	220	1.5	H	38.4	4.92	26.68	55.76	74	18.24
4924	39.68	PK	270	1.8	H	36.6	4.40	26.75	53.93	74	20.07
4924	39.77	PK	260	1.8	V	35.4	4.40	26.75	52.82	74	21.18

Antenna Port Conducted Spurious Emissions

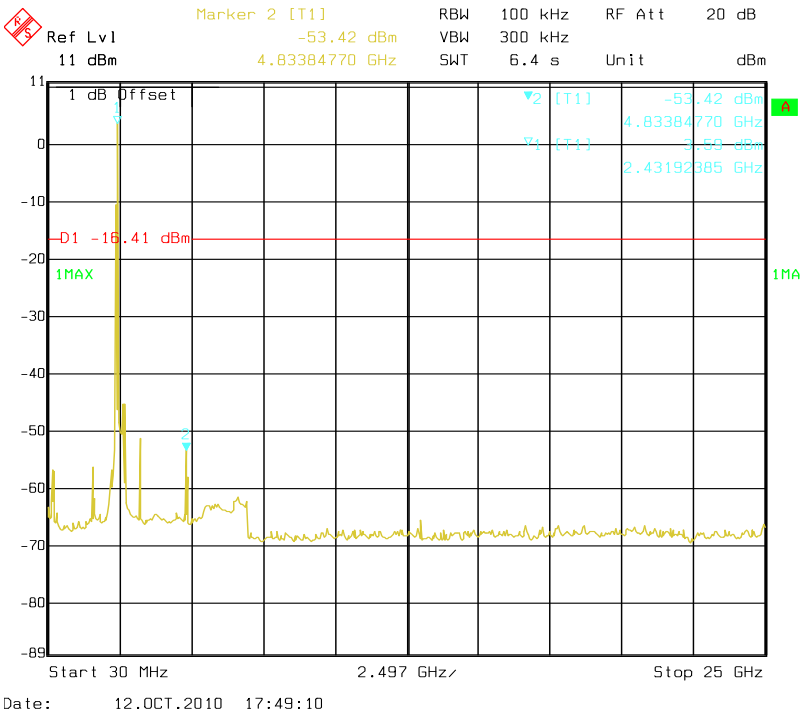
Channel Frequency (MHz)	Data Rate (Mbps)	Limit (dBc)	Ref plot	Result
802.11b mode				
2412	1	20	Low Channel	Pass
2437	1	20	Middle Channel	Pass
2462	1	20	High Channel	Pass
802.11g mode				
2412	6	20	Low Channel	Pass
2437	6	20	Middle Channel	Pass
2462	6	20	High Channel	Pass

Please refer to the following plots.

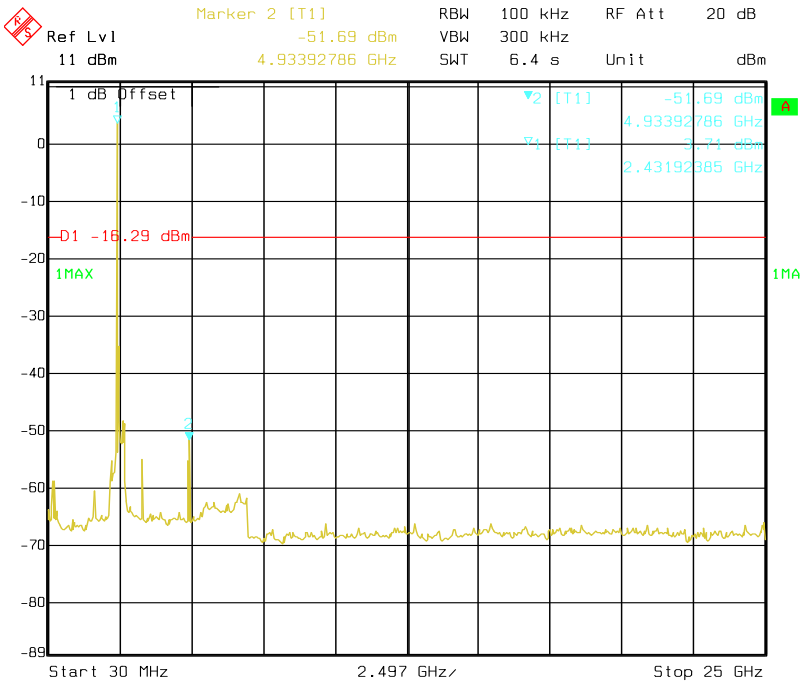
802.11b Low Channel



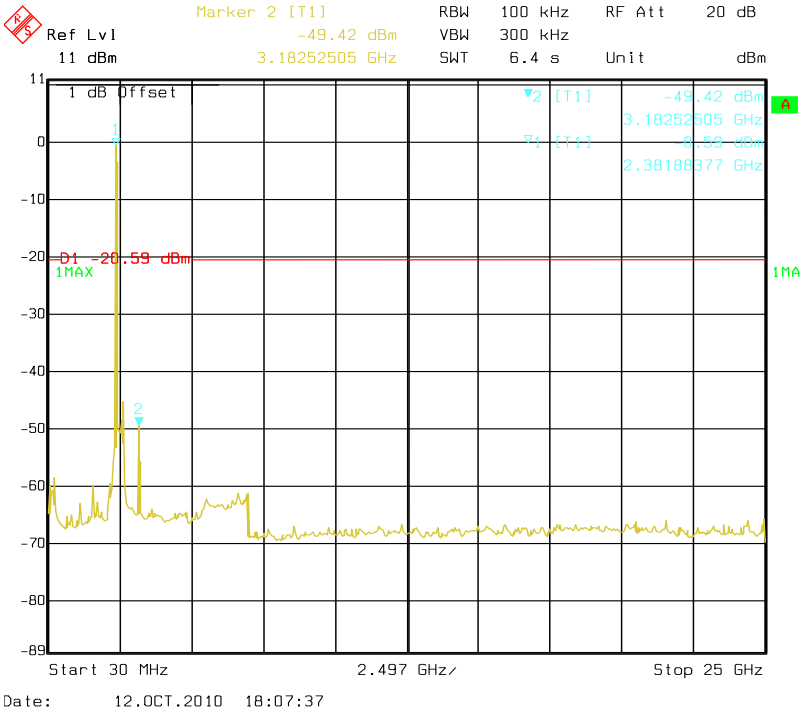
802.11b Middle Channel



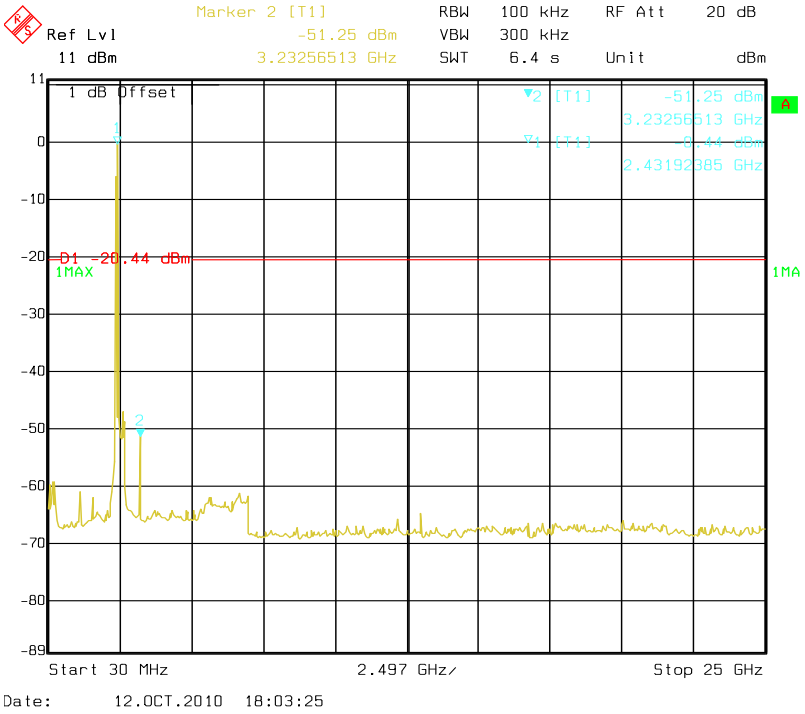
802.11b High Channel



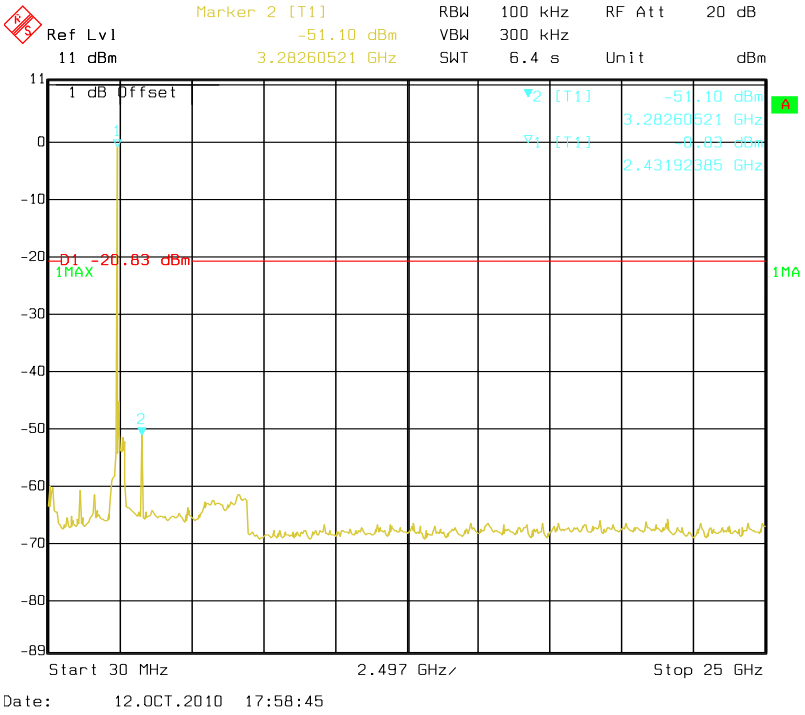
802.11g Low Channel



802.11g Middle Channel



802.11g High Channel



FCC §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.

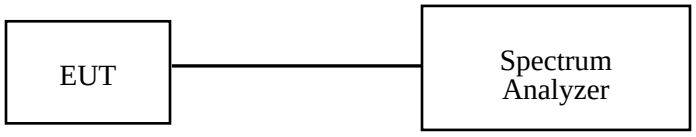
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-23

*** 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:	100.0 kPa

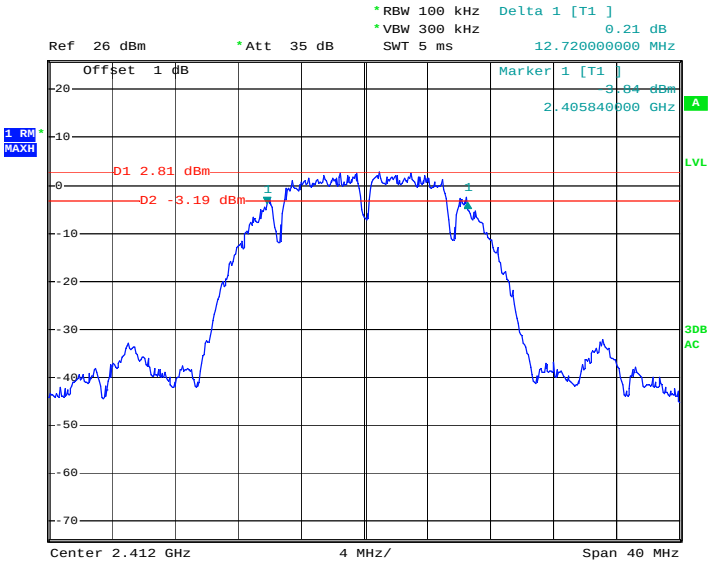
The testing was performed by Bruce Zhang on 2010-10-10.

Test Result: Pass.

Please refer to the following tables and plots.

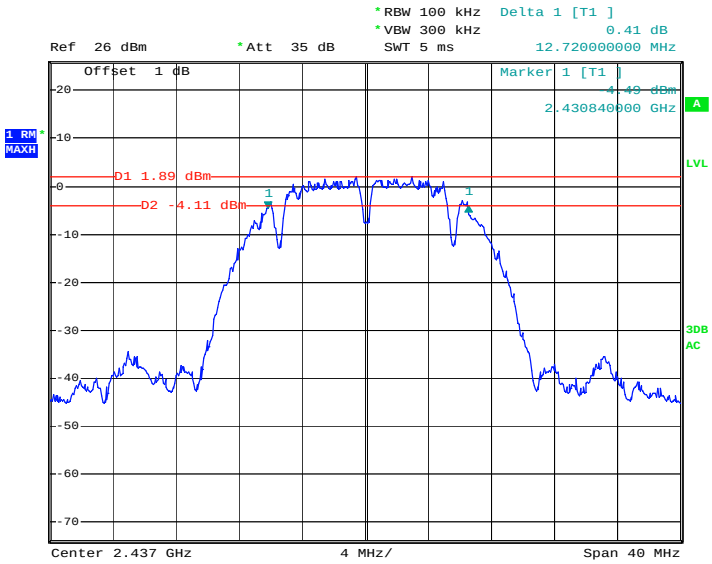
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	12.72	>500
Middle	2437	12.72	>500
High	2462	12.72	>500
802.11g mode			
Low	2412	16.48	>500
Middle	2437	16.48	>500
High	2462	16.48	>500

802.11b Low Channel



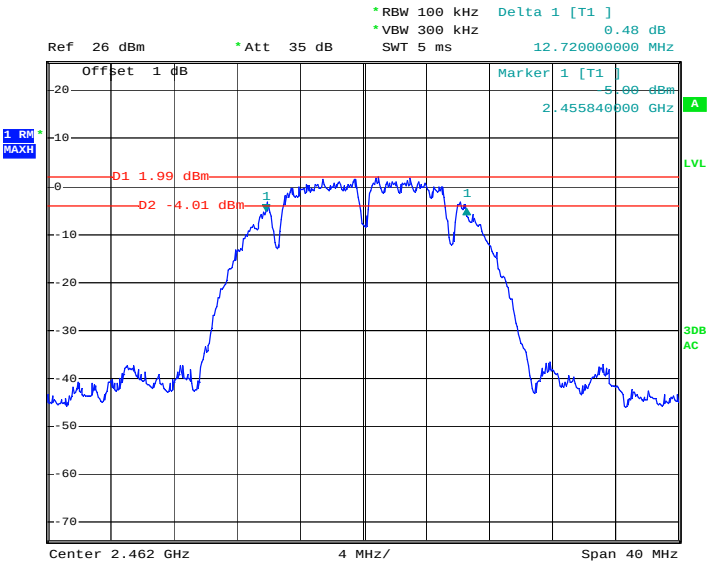
Date: 10.OCT.2010 20:50:01

802.11b Middle Channel



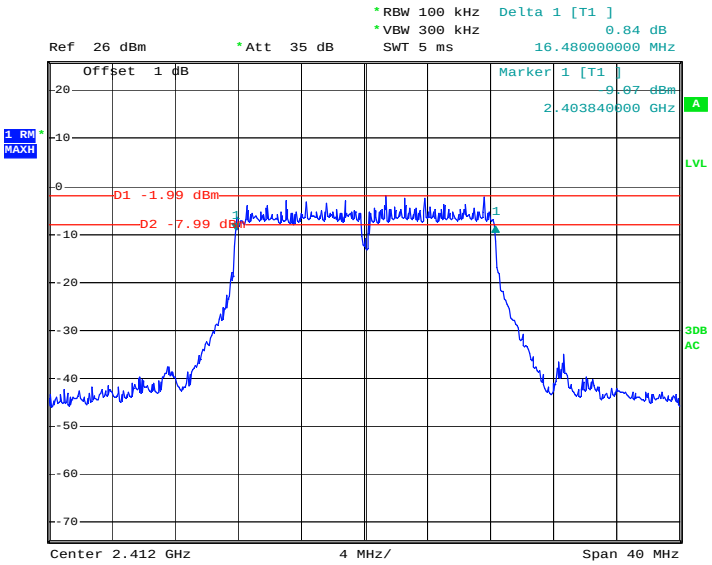
Date: 10.OCT.2010 20:53:02

802.11b High Channel



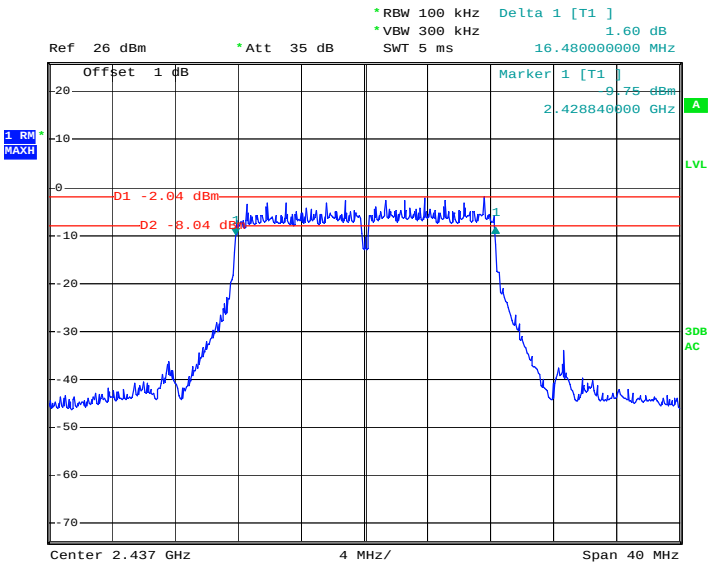
Date: 10.OCT.2010 20:54:40

802.11g Low Channel



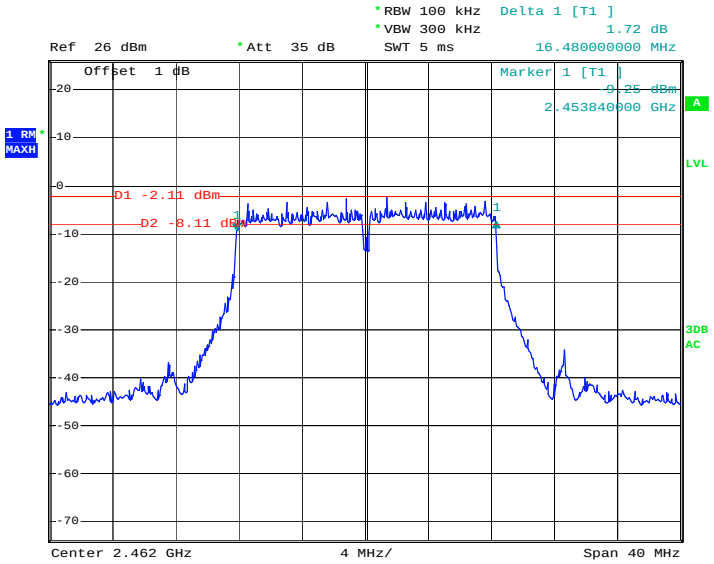
Date: 10.OCT.2010 20:59:24

802.11g Middle Channel



Date: 10.OCT.2010 20:57:55

802.11g High Channel



Date: 10.OCT.2010 20:56:31

FCC §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.

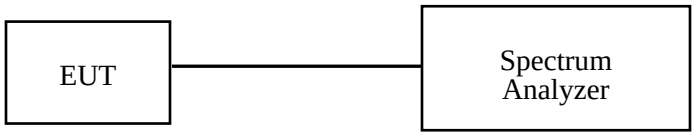
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-24

*** 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:	100.0 kPa

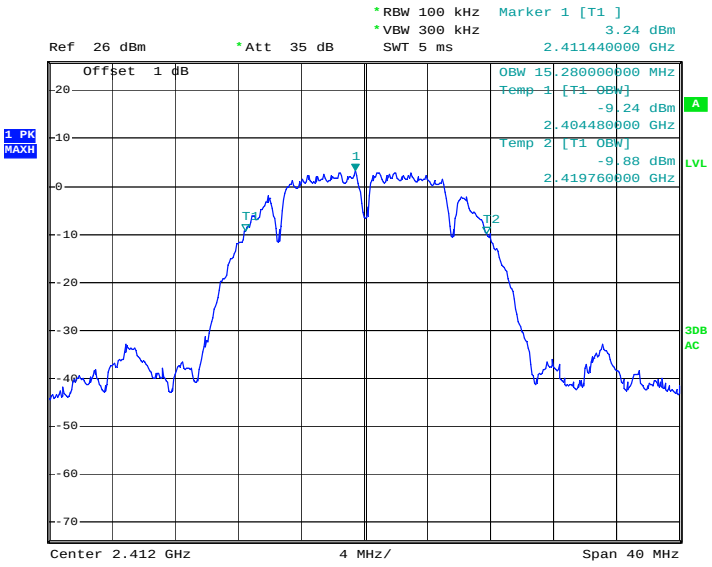
The testing was performed by Bruce Zhang on 2010-10-10

Test Mode: Transmitting

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
802.11b			
Low	2412	15.07	30
Middle	2437	15.20	30
High	2462	14.81	30
802.11g			
Low	2412	12.59	30
Middle	2437	12.93	30
High	2462	12.38	30

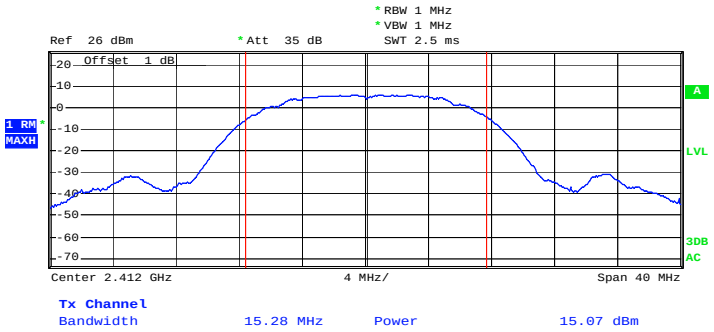
802.11b Mode:

99% Occupied Bandwith, Low Channel



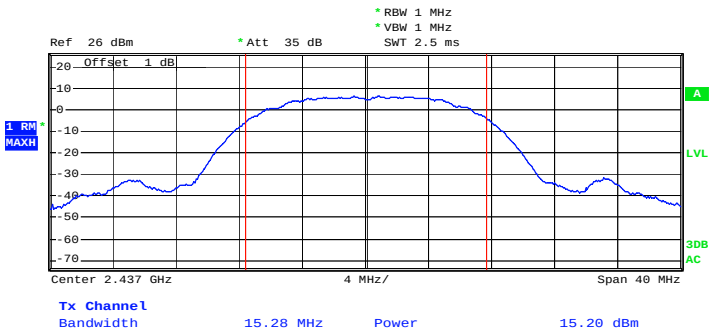
Date: 10.OCT.2010 21:02:24

RF Output Power, Low Channel



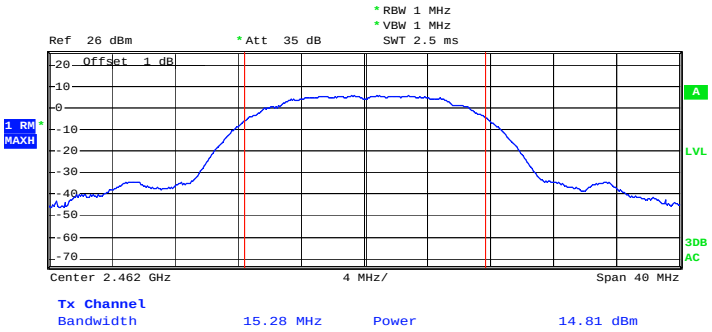
Date: 10.OCT.2010 21:22:23

RF Output Power, Middle Channel



Date: 10.OCT.2010 21:21:45

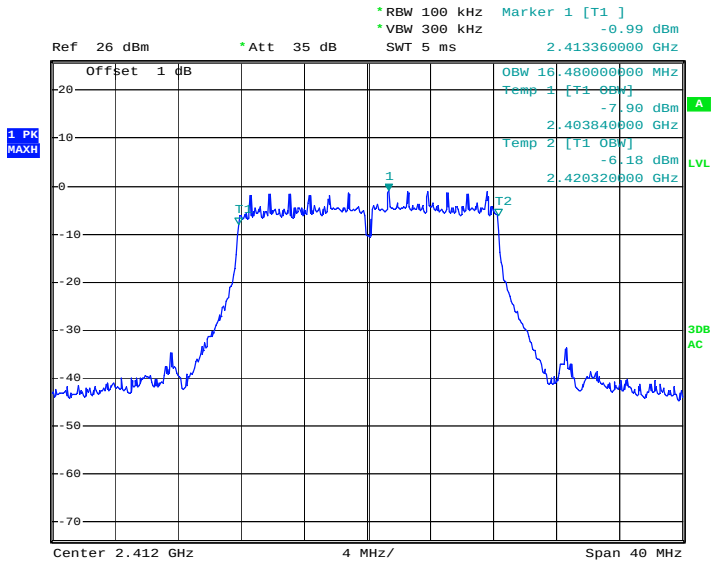
RF Output Power, High Channel



Date: 10.OCT.2010 21:21:05

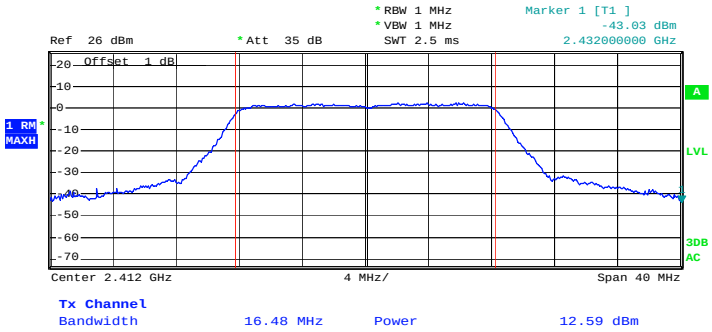
802.11g Mode:

99% Occupied Bandwith, Low Channel



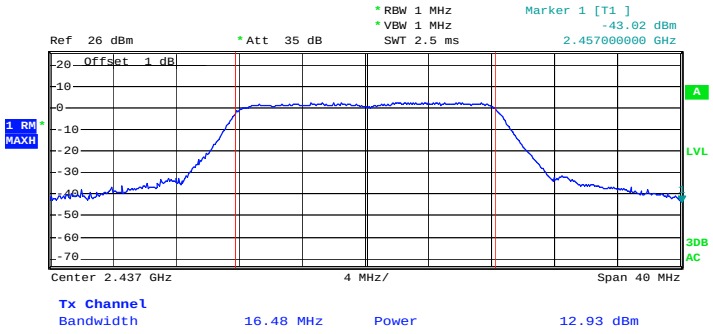
Date: 10.OCT.2010 21:03:01

RF Output Power, Low Channel



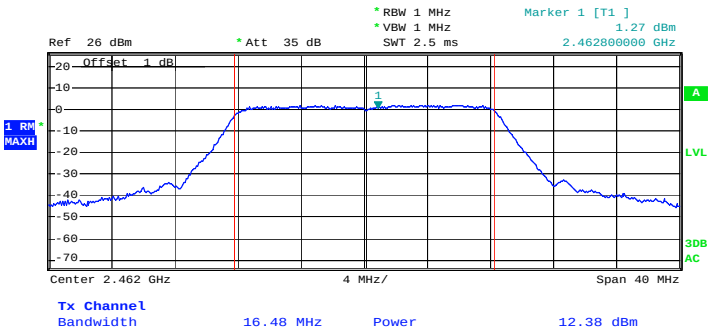
Date: 10.OCT.2010 21:27:04

RF Output Power, Middle Channel



Date: 10.OCT.2010 21:26:10

RF Output Power, High Channel



Date: 10.OCT.2010 21:24:10

FCC §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	2009-11-24	2010-11-24

*** 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:	100.0 kPa

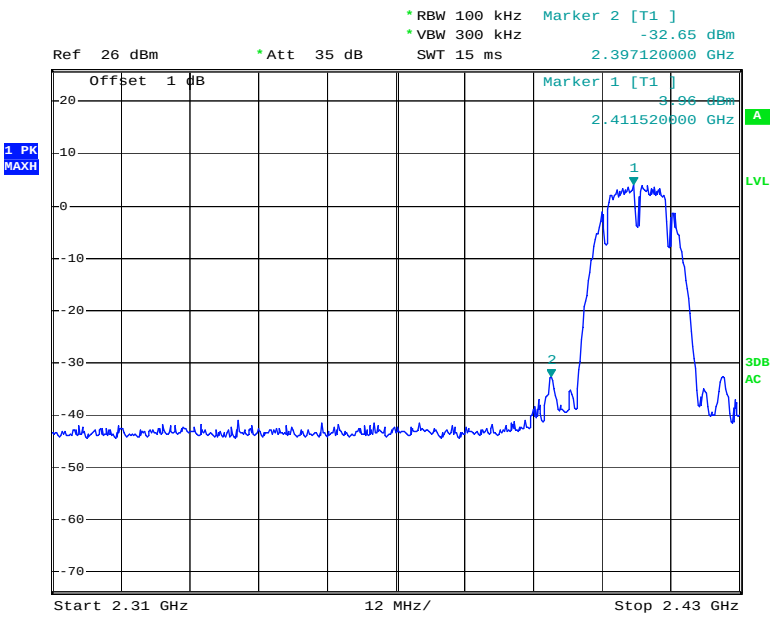
The testing was performed by Bruce Zhang on 2010-10-10

Test Result: *Compliant.*

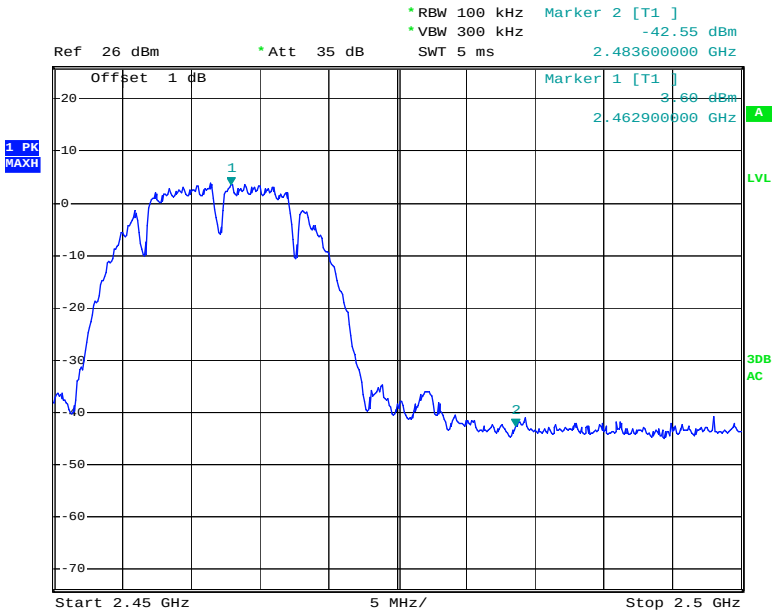
Frequency (MHz)	Delta Peak to band emission (dBc)	Limit (dBc)
802.11b mode		
2397.12	36.55	20
2483.60	46.15	20
802.11g mode		
2399.76	33.28	20
2483.60	43.79	20

Please refer to following plots.

802.11b: Band Edge, Left Side



802.11b: Band Edge, Right Side



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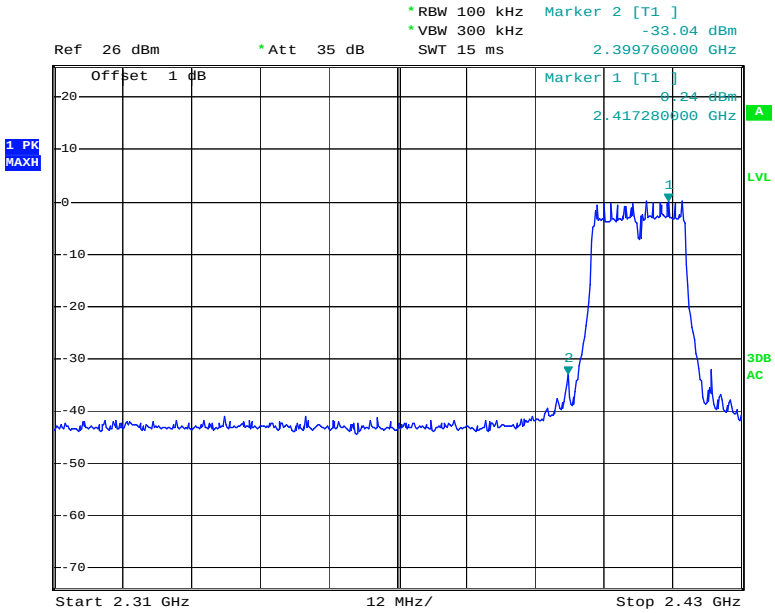
802.11g: Band Edge, Left Side



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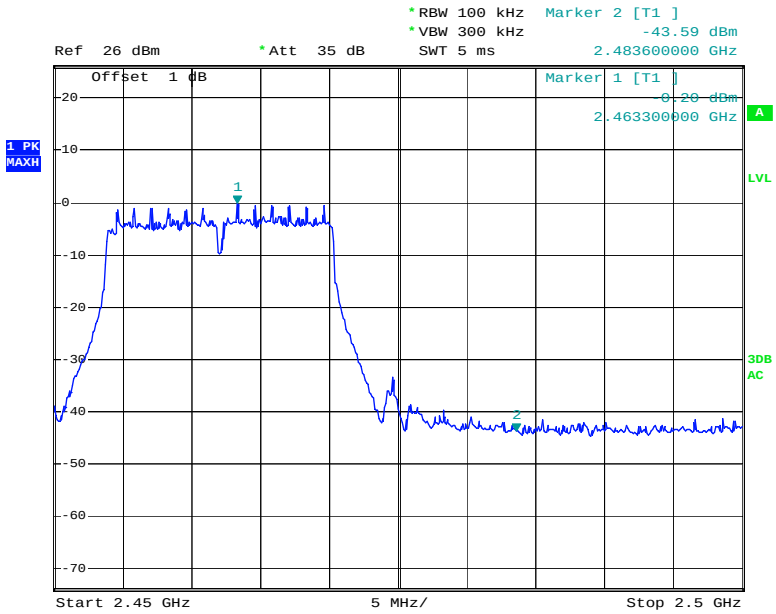
802.11g: Band Edge, Right Side



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FCC §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	2009-11-24	2010-11-24

*** 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:	100.0 kPa

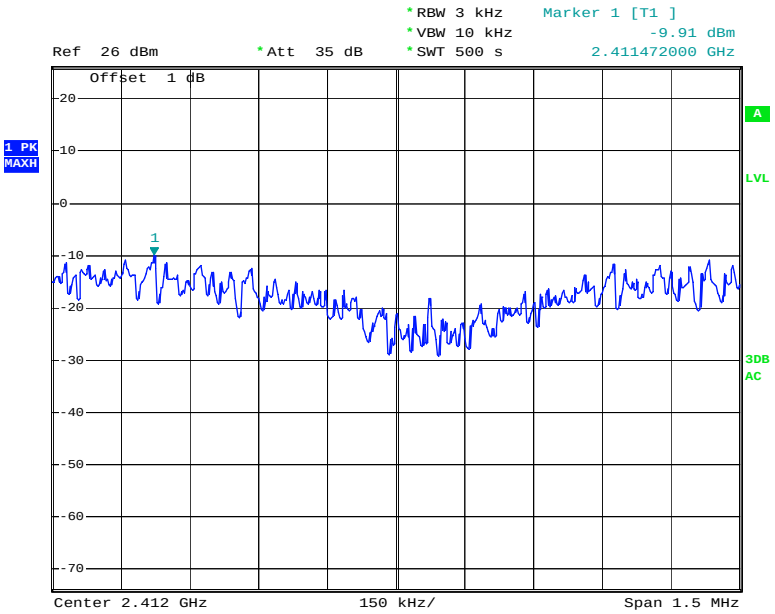
The testing was performed by Bruce Zhang on 2010-10-11

Test Mode: Transmitting

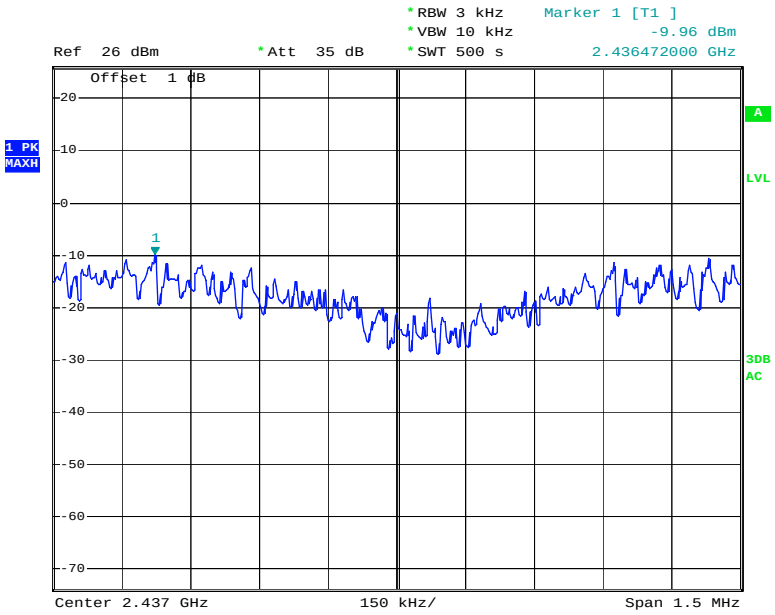
Test Result: Pass

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm/)	Result
802.11b mode				
Low	2412	-9.91	8	Pass
Middle	2437	-9.96	8	Pass
High	2462	-10.39	8	Pass
802.11g mode				
Low	2412	-15.12	8	Pass
Middle	2437	-14.89	8	Pass
High	2462	-15.32	8	Pass

Power Spectral Density, 802.11b Low Channel



Power Spectral Density, 802.11b Middle Channel



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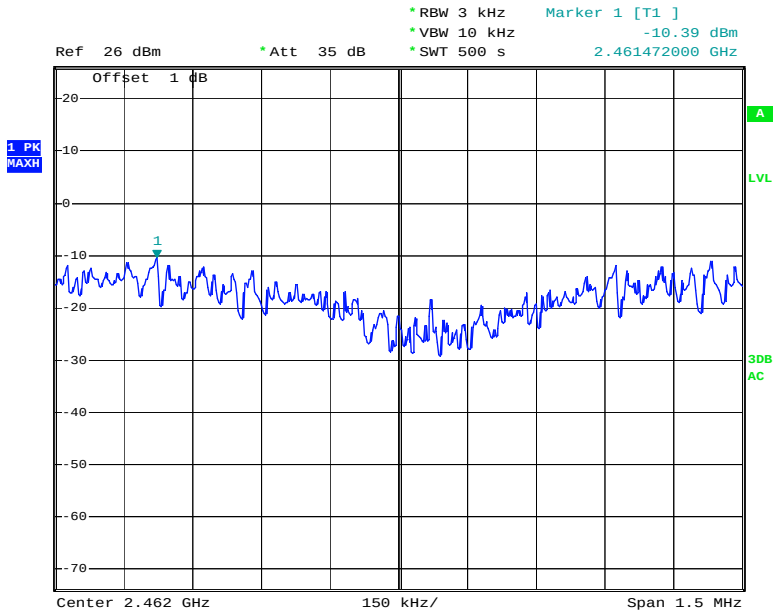
Power Spectral Density, 802.11b High Channel



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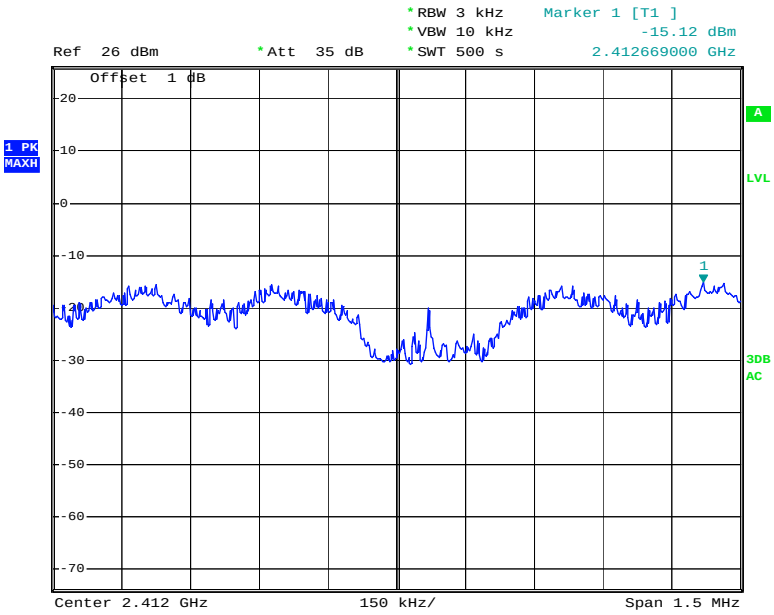
Power Spectral Density, 802.11g Low Channel



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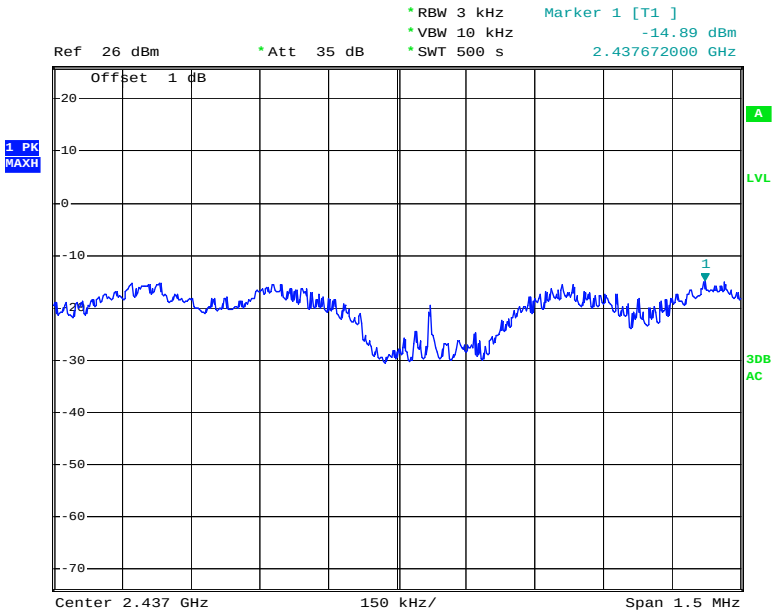
Power Spectral Density, 802.11g Middle Channel



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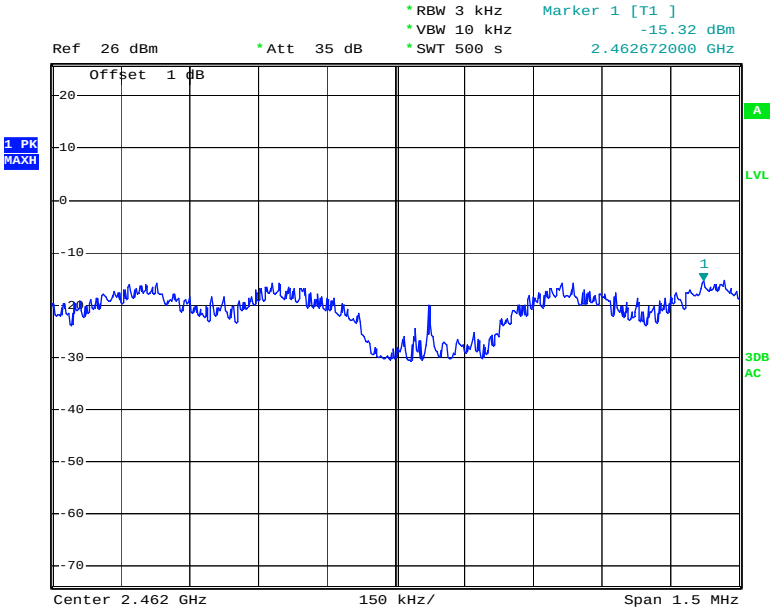
Power Spectral Density, 802.11g High Channel



******* END OF REPORT *******